

Department of Library Services

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Office 2007

Access

Intermediate

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INTRODUCTION

This training guide is aimed at those who already have experience of using Access 2007 and want to expand their knowledge of the application and databases just a little bit further.

Knowledge assumed

you will have either attended the Access 2007 Getting Started training course or have experience of using databases in Access 2007 experience of creating tables experience of creating and modifying select queries acquainted with labels and text boxes on forms or reports

Areas covered

using wizards to create Access objects building and modifying reports using action queries building and modifying forms using calculated controls on forms and reports using property sheets introduction to macros Document signposts

Instructions for you to type

Bold text

Shortcuts



Reminders



Notes



Exercises

DATABASE CONCEPTS

WHAT IS A DATABASE?

A database is defined as an organised collection of related data. It can be regarded as an electronic filing system that can hold thousands, even millions, of items of data.

For example, a database might be used to store data relating to the stock in a mail order firm and the orders received, or data about the students at a college, the courses they have enrolled on, and the examination marks received.

Once the data has been entered, you can retrieve specific information from it very quickly.

DATABASE OBJECTS

Every tangible aspect of a database is referred to as an object.

All data is stored in objects called **tables**. Each row of a table is called a **record**, and each record is made up of individual items of data called **fields**.

For example, each record in a 'course delegates' table will contain data about an individual delegate, such as ID number, last name, first name, department etc. In this case the fields are ID number, last name etc. When designing a database it is important to carefully consider the fields and tables that will be needed to store the data.

A **query** is used to interrogate the database and filter the data to pick out specific information from it.

A **report** is a way of presenting information from the database in a format suitable for printing.

A **form** is an on-screen interface that enables you to view, enter and edit the data in a manner that is more convenient and user-friendly than using the tables directly.

A macro is a sequence of commands to accomplish a particular task. When the macro is run, the commands are executed automatically and the task accomplished.

A **relationship** is a link between data in one table and data in another table. It acts like a cross-reference between the two tables.

WHAT IS A PRIMARY KEY?

A primary key is a field that uniquely identifies each record in the table.

In order to set up a relationship between two tables and show how data in one relates to data stored in the other, you need to identify a field in one of the tables where the data will be unique for every record.

In many cases it is convenient to set up an Auto Number field in the table and designate this field to be the primary key.

WHAT IS A FOREIGN KEY?

When a relationship is formed between two tables, a link is created between the primary key in one table and a field in the second table that contains values used to cross reference against the primary key values. This field in the second table is referred to as a foreign key.

WHAT IS AN INDEX?

An index is a data structure created within the database using the field(s) that you specify. This structure improves the speed of retrieving information from the table.

The primary key of a table is automatically indexed.

Access updates all of the indexes every time you add or update a record. Because of this, you should ensure that you only use indexes where you really need to, otherwise you may find that entering and editing becomes noticeably slower.

PLANNING AND DESIGNING A DATABASE

Before you create a database you must give it a lot of thought and plan how you will construct it. Here are some questions that may be useful in assisting your planning:

- What will the data be used for?
- What information will be needed from the database?
- What data needs to be stored?
- How will the data be divided into fields? What will be the data types? What field properties need to be set?
- How will the fields be organised into tables?
- If there are to be two or more tables, how will the tables be related?

When considering the fields that you need, remember that each field should only contain a single element of data. This implies, for example, that one field should not be used to store a delegate's full name, but the title should be stored in its own field, first name in its own field etc.

Amongst the many good reasons for this is the fact that it is easy to combine the contents from different fields, but very difficult to do the opposite operation and split the contents of a field into separate parts.

RELATIONAL DATABASES

A relational database is a database that consists of two or more tables linked together by the creation of relationships.

A very important decision to be made when planning a database is if and how the fields will be split into different tables. When making this decision, remember that, in order to achieve an efficient and well designed database, each table should contain data about one, and only one, entity.

For example, in a 'course delegates' table every field should be about the delegate and nothing else. This makes the database more flexible, enabling you to add other tables at a later time without altering the existing table(s), and it makes the database more efficient because each item of data is entered only once. Consider for example the following list of fields that the admin staff at a college wish to include in a database to store evening class enrolments:

student first name, student last name, student address, student postcode, student telephone, student date of birth, course title, room number, course leader first name, course leader last name, course leader telephone, course leader email, exam date, and exam mark.

Some of the fields will store data about the students: *student first name*, *student last name*, *student address*, *student postcode*, *student telephone*, and *student date of birth*. These fields would be put in a student details table.

Course title, and *room number* would be put in a course details table.

Course leader first name, course leader last name, course leader telephone, and course leader email are all about the course leader and therefore will be put in a separate tutor details table.

Last of all, an exam details table would be used to store the fields for the *exam date*, and *exam mark*.

Planning for relationships

Once it has been decided what tables are needed, it is time to consider the relationships that need to be created, and include appropriate fields to accommodate these relationships.

Most database designers include a primary key in every table even though some may not be needed for the relationships. This is considered to be good practice and some designers go as far as stating that each table should have a primary key.

To accommodate any relationships that may be needed, an auto number ID field will be added to each of the tables and designated to be the primary key: student ID, course ID, tutor ID, and exam ID respectively.

The next decision to be made is which of the primary keys must be added as foreign keys in other tables.

Consider the relationship between the student details and course details; it is desired that more than one student should be able to enrol on any one course. This type of relationship is called a one-to-many relationship.

To create a one-to-many relationship you link the primary key of the table on the one side of the relationship to the foreign key in the table on the many side of the relationship. The relationship must allow one course to many students, so you need to use the primary key in the course details table. Course ID must therefore be added to the student details table as a foreign key.

	Course details table			Student details table	
(primary key)	Course ID Course title Room number	rse	many students	Student ID First name Last name Address 1 Address 2 Postcode Telephone Date of birth Course ID	(foreign key)

Similarly, it may be necessary for each tutor to be the course leader for any number of courses.

The relationship created between the course details table and the tutor details table must therefore be a one-to-many relationship, where the one end of the relationship is at the tutor details table (ie using the primary key field, tutor ID) and the many end is at the course details table. The tutor ID field must therefore be added to the course details table as a foreign key.



Many-to-many relationships

If the relationship between students and courses must allow each course to have more than one student <u>and</u> each student to do more than one course, this would be a many-to-many relationship.

It is not possible to create a many-to-many relationship directly between two tables. However, you can get around this by using an intermediate table and creating two one-to-many relationships.

So for a many-to-many relationship between the students and courses, an additional table needs to be created with the sole purpose of linking the student details table and the course details table. Although this link table can have additional fields, it will usually just have the two foreign keys that are necessary to create the relationships.



This is equivalent to a many-to-many relationship between the course details and student details tables.

RELATIONSHIPS PRACTICE

- Launch Access
- > Open the Enrolment database from C:\AccessIntermediate

You will use this database to create two of the relationships described above. First you will create the one-to-many relationship between the tutors and courses tables allowing each tutor to lead more than one course.

> Open the **tutors** table in **Design View**

	tutors				- 8	x
	Field Nar	ne	Data Type		Description	-
81	TutorID		AutoNumber			
	FirstName		Text			
	LastName		Text			
	Telephone		Text			
	Email		Text			
				Field Properties		
				Field Properties		
G	eneral Lookup					
F	ield Size	Long Intege	r			
N	ew Values	Increment				
F	ormat					
⊆ C	aption	Tutor ID				
Ir	dexed	Yes (No Dup	licates)			
S	mart Tags				A field name can be up to 64 characters long	
T	ext Align	General			including spaces. Press F1 for help on field	
L						

Observe that:

- 1. The TutorID field is the primary key
- 2. The Data Type is AutoNumber
- 3. The Field Size is Long Integer
- > Close the **tutors** table
- > Open the courses table in Design View

To add the TutorID field as a foreign key:

- Create a new field with Field Name TutorIDfk (using a slightly different name will distinguish it from the primary key in the tutors table)
- > Set the Data Type to Number and the Field Size to Long Integer

Although the primary key in the tutors table has an AutoNumber data type, automatically producing a unique number for each new record, the values in the foreign key will only be assigned when the user indicates who the course leader is for a particular course and will not be unique since each tutor can lead many courses.

The data type for the foreign key, therefore, cannot be AutoNumber and must instead be Number. You must however ensure that the Field Size for the foreign key matches exactly with that of the primary key to which it will be linked, so it must be set to Long Integer.

courses				_ =	x
🛛 🛛 🔤	ld Name	Data Type		Description	
CourseID		AutoNumber			
CourseTitle		Text			
RoomNumbe	•r	Text			
TutorIDfk		Number			
Tutonbik		reamber			
					۰.
			Field Properties		
			The arroperties		5
General Lookup					
Field Size	Long Integ	er			
Format					
Decimal Places	Auto				
Input Mask					
Caption	Tutor ID				
Default Value				A field name can be up to 64 characters long,	
Validation Rule				including spaces. Press F1 for help on field	
Validation Text				names.	
Required	No				
Required	Ves (Dunlic)	ates OK)			
Indexed	res (bapile				
Indexed Smart Tags	Canaral				

> Save and close the **courses** table

9

To create the relationship:

> Select Relationships from the Show/Hide group on the Database Tools tab

The Relationships window is displayed. No tables have been added to it as yet.

- > Click Show Table from the Relationships group on the Design tab
- > Select **tutors** in the Show Table dialog box

Show Table	? 🗙
Tables Queries Both	
courses students	
tutors	
Add	Close

- Click Add
- Select courses
- Click Add
- Close the Show Table dialog box

The two tables are now displayed in the Relationships window.

a Relationships		-	= x
tutors	Courses ✓ CourseID CourseTitle RoomNumber TutorIDfk		
▲			•

Hold down the mouse button over the TutorID field in the tutors table, drag the mouse pointer to the TutorIDfk field in the courses table, then release the mouse button

The Edit Relationships dialog box is displayed showing the tables and fields that have been selected.

Edit Relationship	5		? 🛛
Table/Query: tutors	Related Table/Query: courses TutorIDfk	× < • •	Create Cancel Join Type.,
Cascade Update	itial Integrity Related Fields Related Records		Create New
Relationship Type:	One-To-Many		

> Ensure that the Enforce Referential Integrity box is ticked

By selecting this option you ensure that every record on the "many" side of the relationship has a corresponding record on the "one" side. In other words, a course cannot be assigned a course leader that does not exist in the tutors table.

In addition, enforcing referential integrity prevents you from deleting records on the "one" side if related records exist on the "many" side. So for the relationship that you are creating, it will prevent you from deleting a tutor's record if there are records in the courses table referring to that tutor.

> Click Create

Relationships		_ = ×
tutors FirstName LastName Telephone Email	Courses CourseTitle RoomNumber TutorIDfk	
		Ŧ
▲		•

To save the changes to the Relationships window:

- > Click the Save icon on the Quick Access Toolbar
- > Close the Relationships window

You will now create a many-to-many relationship between students and courses by first creating a link table that contains the primary keys from the students and courses tables as foreign keys.

- > Click Table Design from the Tables group on the Create tab
- > Add the following fields:

Field Name	Data Type	Field Size
CourselDfk	Number	Long Integer
StudentIDfk	Number	Long Integer

- > Save the table as **studentCoursesLink** without setting a primary key
- > Close the **studentCoursesLink** table
- > Display the Relationships window
- Add the studentCoursesLink table and the students table to the Relationships window



- Create a one-to-many relationship between the courses table and the link table using the CourseID and CourseIDfk fields, and ensuring that Referential Integrity is enforced
- Create a one-to-many relationship between the students table and the link table using the StudentID and StudentIDfk fields, and ensuring that Referential Integrity is enforced

Relationships	 x
Iutors IutorID FirstName CourseID LastName RoomNumber TutorIDrk CourseIDrk BristName Address1 Address2 Postcode Telephone StudentIDfk Email IutorIDrk CourseIDrk StudentIDfk TutorIDrk IutorIDrk TutorIDrk IutorIDrk IutorIDrk IutorIDrk IutorIDrk	

- > Save and close the Relationships window
- > Close the **Enrolment** database

NAMING CONVENTION

It is always a good idea to use descriptive names when naming database objects. Very long names should be avoided however, because they may result in typing errors when you need to refer to them later.

When choosing descriptive names it is sometimes useful to have more than one word in the name. Access allows the use of spaces in the names of some database objects, but because Access is the only database application that allows this, most database developers do not use spaces in object names.

The most popular methods employed when object names contain two or more words, is to use either the underscore character between words, or capitalise the initial character of the second and subsequent words in order to make it readable.

Apart from the sections that deal with Microsoft's templates, this training document uses the second of the two methods described above, so for example the 'first name' field in the students table is given the field name 'firstName'.

It is also useful for the name of a database object to give an indication of the type of object that it is associated with. Many database designers therefore add a prefix to the name to specify the type of object that it is.

In this document the following prefixes will be used when naming objects:

Object	Prefix
Table	no prefix
Query	qry
Form	frm
Sub form	sfrm
Report	rpt
Text box	txt
Combo box	cbo
Command button	cmd

USING DATABASE TEMPLATES

Database templates enable you to quickly create a database complete with working forms and reports.

Some templates are stored on your computer, but if your computer is connected to the internet then the online templates are also available for you to use.

DOWNLOADING A TEMPLATE

You are going to create a database using the Contact Management online template and make a few minor alterations to the design.

The Access Getting Started Window should be on your screen. If it isn't, you will need to close any open database, or launch Access if it is not open.

A list of Template Categories is displayed on the left.

Select Business

Template Categories		1
Featuring	Pusinoss	
Local Templates	Dustriess	
From Microsoft Office Online	Business A Onen Recent Database	
Business		
Education	More	
Personal		
Sample		
Non-profit		
	Bug database	
	Asset tracking Assets Business account database ledger	
	Call tracker Call tracker Call tracker	
	Demo Event management database Events Events Events Expense reports Expense r	

> Select the **Contact management database** template

The pane on the right of the window shows the location and file name of the database being created.



You will create the database in the **AccessIntermediate** folder on drive C, accepting the file name suggested.

Click the Browse icon next to the File Name box

2

The File New Database dialog box is displayed.

File New Datab	oase					? 🔀
Save in:	📋 My Docun	nents		~	() - ()	X 📸 🎫 •
My Recent Documents Documents Documents My Computer My Network Places Training Documents My Network Places	CarolineCol CIA DATA I COURSE Lab6788ae ManyToMa My Data Sc My Pictures My Pictures My Web Sit Personal postcodes Account lec Asset track Assets.acc Callege.acc College.acc ECDL.accdl	les FILES NY Captivate Projects purces s es dger.accdb ing database.accdb db tab b agement database.accdt	 Expense reports.accdb Holidays.accdb Home inventory.accdb How to synchronize combo boxes.accdb Inventory.accdb Personal account ledger.accdb Practice.accdb Sales.accdb Student database.accdb StudentsRelational.accdb StudentsRelational.accdb Training.accdb 			
	File <u>n</u> ame:	Contact management d	atabase.accdb		*	
	Save as <u>t</u> ype:	Microsoft Office Access	: 2007 Databases (*.accdb)		~	
Tools •				C	ОК	Cancel

From the buttons on the left select:

> My Computer

File New Datab	ase						? 🗙
Save in:	🧕 My Compu	er ·	~	٩	- 刘	×	* 🎫 🕈
My Recent Documents Documents Documents My Computer My Network Places Training Documents Ahypc on '.host(Sh	Sty Floppy Local Disk (CVD-RAM D Alvpc on '. Shared Doc Alvin's Docu	A:) :) ive (D:) ost\Shared Folders' (V:) iments nents					
	File <u>n</u> ame:	Contact management database.accdb			~		
	Save as <u>t</u> ype:	Microsoft Office Access 2007 Databases (*.accdb)			*		
Tools -				O	<		ancel

- Select Local Disk (C:)
- > Click **Open** to show the folders on drive C
- Select AccessIntermediate
- > Click **Open** to open the AccessIntermediate folder
- > Click OK to accept that folder as the location for the database

The following file name and location should now be seen in the right pane of the Getting Started window:

Business Contact management database							
Applies to: Access databases, sales contact management software, customer contacts Create a contacts database to manage information about people that your team works with, such as customers and partners.							
Size: 447 KB (1 min @ 56 Kbps)							
Rating: 🚖 🚖 🏠 🏠							
File <u>N</u> ame:							
Contact management database.accdb							
C:\AccessIntermediate\							
Create and link your database to a <u>Wi</u> ndows SharePoint Services site							
Download							

Click Download

The database is downloaded and a Getting Started form and an Access Help window are displayed.

Close Help

	. LS <u>Video Training</u> <u>Browse Experts</u> <u>UtterAccess</u> <u>Other</u>
Welcome to the Contacts Management	Database!
We recommend that you watch these two short vio	leos to help you understand this database and Microsoft Access.
Watch this Contraction of the second	
Video: Using the Contact Management Database	Video: Modifying the Contacts Management Database
Do you use Microsoft Outlook? Import contacts from Microsoft Outlook	Find a Contact Management Database expert and track your contacts like a pro. <u>Browse Experts now</u>
Once you've had a chance to use the Contact Manage Provide Feedback Show Getting Started when this database is opened	gement database, please let us know how we're doing.



Some of the templates do not have a Getting Started form.

However, if you are using a template to create a database and it displays a Getting Started form, then it is advisable that you watch the training video(s) to help you to get started with the particular database.

By default the Getting Started form will be displayed every time the database is opened.

To configure the database so the form is not displayed automatically:

- Remove the tick from the check box labelled Show Getting Started when this database is opened
- Close the Getting Started form

The database is shown with a blank Contact List displayed.

All Access Objects 💿 <	× ==	Contact	List							×
Tables 🌣			Contact	List				Getting St	arted Videos Provide Feedback	Help
Contacts		<u> </u>	Contact	LISU						
Settings		New Cor	ntact Add Fro	m <u>O</u> utlook	Create	Mailing <u>L</u> abels	Show/Hide Field	ds		
Queries					-					
Contacts Extended		Quick Sea	arch: Search Co	ntacts		• <u>G</u> o 🔟 Show	<u>A</u> ll Records			
Forms *		Open 🚽	First Name 🕞	Last Nam	e 👻	Company 👻	Job Title 🕞	Category -	E-mail Address 👻	Busin
Contact Details	*	(New)						Personal		
🗐 Contact List										
😑 Getting Started										
Reports										
Directory										
Phone Book										
Macros 🌣										
📿 AutoExec										
Modules										
and Mapping			III							

At this point the database is ready to be used, but you will usually find that a few alterations are necessary in order to meet your specific needs.

Changing the database to fit your requirements

A word of warning; although you are able to change the database in any way that you wish, do remember that changing one aspect of the database may impact on other areas. Therefore give careful thought to any changes that you plan to make.

Generally speaking, you can add extra fields to the tables and create further objects and controls without undermining the existing structure. However, it is best not to delete any fields from tables, but rather remove unwanted fields from the forms and reports.

You should rename existing fields and objects with caution, ensuring that the new names are replicated to all objects as appropriate. If you are not entirely confident then choose to rename the labels on forms and reports and leave the field names unchanged.

> Click the **New Contact** link in the form header

A blank Contact Details form is displayed.

🖽 Contact Details							x
JUntit	led						
<u>G</u> o to	~	S <u>a</u> ve and New	Save and Close	<u>E</u> -mail	Save As <u>O</u> utlook Co	ontact	
General							
					-		
First Name					Category	Personal	*
Last Name					E-mail		
Company			~		Web Page		
Job Title			*				
				+ / - Images			
Phone Numbers	5			Notes			
Business Phone							
Home Phone	[
Mobile Phone							
Fax Number							
Address	E	🔏 Click to Map					
Street	[
City							
State/Province							
Zip/Postal Code							
Country/Region							
		_	_		_		

You observe that you need to store date-of-birth but the form does not have this field. Because the data is stored in a table, you need to first insert a date-of-birth field in the Contacts table before it can be added to the form.

- > Close the **Contact Details** form
- Close the Contact List form
- > Open the Contacts table in Design View

All Access Objects	▼ «	Contacts		×	Property Sheet		×	
Tables	*	Field Name	Data Type	Description	-	Selection type: Table Properties		
Contacts		8► ID	AutoNumber			General		
Settings		Company	Text			Display Views on Sh	Follow Database Setting	~
Settings		Last Name	Text			Subdatasheet Expan	i No	
Queries	*	First Name	Text			Subdatasheet Heigl	Ocm	
Contacts Extended		E-mail Address	Text			Description	Left-to-Right	
Forms	*	Job Title	Text			Default View	Datasheet	
Contact Details		Business Phone	Text			Validation Rule		
Contract line		Home Phone	Text			Validation Text		
-a Contact List		Mohilo Bhono	Text			Filter		
🔠 Getting Started		Mobile Phone	Text			Order By	14.4.3	
Reports	\$	Fax Number	lext			Subdatasheet Name	(Autoj	
	^	Address	Text			Link Master Fields		
Directiony		City	Text			Filter On Load	No	
Phone Book		State/Province	Text			Order By On Load Yes		
Macros	*	ZIP/Postal Code	Text		•			
AutoExec			Field Properties					
Modules	\$	General Lookup						
his in the second secon	~	Field Size Long Intege	er l					
sec modiviapping		New Values Increment						
		Format						
		Caption						
		Indexed Yes (No Dup	li					
		Smart Tags	A field name can be up	to 64 characters long,				
		Text Align General	including spaces. Pre	ss F1 for help on field				
			nar	mes.				



Don't worry if a Property Sheet is not displayed.

Scroll down to the bottom of the list of fields and add the following new field:

1	Field Name [ata Type	Format			
	Date of Birth	D	ate/Time	Short Date	-		
-	Contacts			×			
	Z Field Na	me	Data Type	Description 🔺	1		
	Fax Number		Text				
	Address		Text				
	City		Text				
	State/Province		Text				
-	ZIR/Rostal Code		Toxt				
-	ZiP/Postal Code		Text				
_	Country/Region		Text				
_	Web Page		Hyperlink				
	Notes		Memo				
	Attachments		Attachment				
	Category		Text				
	Date of Birth		Date/Time				
				•			
			Field Properties				
					1		
	General Lookup		_				
<	Format	Short Date					
	Input Mask						
	Caption				L		
	Default Value				L		
	Validation Rule				L		
	Validation Text		The data type determ	ines the kind of values	L		
	Required	No	that users can store in	n the field. Press F1 for	L		
	Indexed	No	help on	data types.	L		
	IME Mode	No Control					
	IME Sentence Mode	None					
	Smart Tags						
	Text Align	General					
	Show Date Picker	For dates					

Save and close the table

You now need to add this field to the appropriate form(s). We will assume that the only form that you want to add this field to is the Contact Details form.

> Open the **Contact Details** form in **Layout View**

If the Field List is not displayed

> Select Add Existing Fields from the Controls group on the Format tab

You will position the Date of Birth field immediately under the Job Title field.

Hold down the mouse button over the Date of Birth field in the field list, drag it to the bottom of the Job Title combo box, then release the mouse button

Contact Details				×	Field List	×
🔊 Untitled					Fields available for this view: Last Name First Name	-
<u>G</u> o to ♥	S <u>a</u> ve and New	<u>S</u> ave and Close	<u>E</u> -mail	Save /	E-mail Address Job Title Business Phone	
General					Home Phone	
First Name				Cate E-ma	Mobile Phone Fax Number Address City	
Company [Job Title	•	~		Web	State/Province ZIP/Postal Code Country/Region Web Page	=
Phone Numbers	1		+ / - Images Notes		Notes Attachments Attachments FileData	
Business Phone Home Phone					Attachments.FileName Attachments.FileType	
Mobile Phone Fax Number		Drag the new field into			Date of Birth File As Contact Name	-
		position			Fields available in other tables:	
Address	🔏 Click to Map					t Table
Street						
City						
State/Province						
Zip/Postal Code					Show only fields in the current record source	

Close the Field List

Contact Details					:	×
🎒 Untitled						
<u>G</u> o to 💙	S <u>a</u> ve and New	Save and Close	<u>E</u> -mail	Save As <u>O</u> utlook Contac	t	
General						
÷						
First Name				Category	Personal 🗸	
Last Name				E-mail		
Company		*		Web Page		
Job Title		*				
Date of Birth:			+ / - Images			
			Notes			
Phone Numbers						1
Business Phone						
Home Phone						
Mobile Phone						
Fax Number						
	🔏 Click to Map	,				
Address						

> Minimise the Office Ribbon so that you can see all the fields on the form

You want the address on the form to show the labels: Street, City, County and Postcode. You therefore need to edit two of the labels and delete the Country/Region field.

> Click in the **Country/Region** text box to select it

Address	
Street	
City	
State/Province	
Zip/Postal Code	
Country/Region	

- Press the Delete key
- > Double click on the **State/Province** label

Address	
Street	
City	
State/Province	
Zip/Postal Code	

The insertion point is in the label ready for you to edit it.

- > Replace the existing text with County and press Enter
- > Change the Zip/Postal Code label to Postcode

Address	
Street	
City	
County	
Postcode	



Editing labels on this form will have no effect on other forms or reports. If you were planning to use this database you would have to check each form and report and edit them individually.

- > Save and close the form
- Restore the Office Ribbon

TABLES

To help you to create your tables quickly and easily, Microsoft has included a few templates for creating some of the most common tables.

USING TABLE TEMPLATES

Many of your contacts are members of various sports clubs. You will therefore add a Sports Clubs table to the database.

You will create this table by looking for a suitable table template.

> Click Table Templates from the Tables group on the Create tab

A list of templates is displayed.

Table Template	•5 •
81	<u>C</u> ontacts
	<u>T</u> asks
20	Issues
	<u>E</u> vents
	<u>A</u> ssets

At first glance, none of these appear suitable.

However, you know that for your Sports Clubs you need to have fields such as name, phone, address, etc. This table will therefore have many fields in common with a contacts table.

> Select **Contacts** from the list of templates

A table is inserted into the database.

> Save the table using the name **SportsClubs**

Save As	? 🛛
Table Name:	
SportsClubs	
	OK Cancel

To edit the fields:

- > Switch to **Design View**
- > Click the **Company** field name and change it to **Club**
- > Change Last Name to ContactName
- > Change Business Phone to Phone

To delete the First Name field:

- > Click into the **First Name** field
- > Click **Delete Rows** from the **Tools** group on the **Design** tab
- > Also delete the fields:

Job Title, Home Phone, Mobile Phone, and Country/Region

	SportsClubs ×				
	Field Name	Data Type		Description	
₽	D	AutoNumber			
	Club	Text			
	ContactName	Text			
	E-mail Address	Text			
	Phone	Text			
	Fax Number	Text			
	Address	Memo			
	City	Text			
	State/Province	Text			
	ZIP/Postal Code	Text			
	Web Page	Hyperlink			
	Notes	Memo			
	Attachments	Attachment			
					-
			Field Properties		_
G	eneral Lookup				1
F	ield Size Long Integ	er]		
N	lew Values Increment				
F	ormat				
9	Caption				
I	Indexed Yes (No Duplicates)				
S	Smart Tags		A field name can be up to 64 characters long,		
I	Text Align General			including spaces. Press F1 for help on field	
				ndmes.	

Save the table

THE LOOKUP WIZARD

A Lookup field provides a list of values that you can choose from when you are entering data. This makes data entry easier and ensures the consistency of the data in that field. The Lookup field can get its list from a table or query.

You will use a wizard to create a lookup field for the Club names. First you need to create a table with the sole purpose of storing the Club names.

- > Click Table Design from the Tables group on the Create tab
- > Add the following fields:

Table1				
	Field Name	Data Type		
	ID	AutoNumber		
	ClubName	Text		

- Set the ID field as the Primary Key
- > Save the table as ClubNames
- Switch to Datasheet View
- Enter the following names in the table (the ID field will be populated automatically):

	ClubNames		
4	ID ·	-	ClubName -
		1	John Stanford Sports Centre
		2	Cannon Sports Club
		3	Fitness First
		4	Oadby Town Football Club

- Close the ClubNames table
- > Ensure that the **SportsClubs** table is open in **Design View**
- > Click in the Data Type box for the Club field
- > Click the **Data Type** drop list
- > Choose Lookup Wizard from the list

	Field Name	Data Type
P	ID	AutoNumber
	Club	Text 💌
	Contact Name	Text
	E-mail Address	Memo
	Phone	Number
	Fax Number	Date/Time
	Address	Currency
	City	AutoNumber
	State/Province	Yes/No
	ZIP/Postal Code	OLE Object
	Web Page	Hyperlink
	Notes	Attachment
	Attachments	Lookup Wizard

The Wizard begins.

Lookup Wizard	
	This wizard creates a lookup column, which displays a list of values you can choose from. How do you want your lookup column to get its values? I want the lookup column to look up the values in a table or query. I will type in the values that I want.
	Cancel < Back Next > Finish

- > Accept I want the lookup column to look up the values in a table or query
- Click Next

Lookup Wizard	
	Which table or query should provide the values for your lookup column? Table: ClubNames Table: Contacts Table: Settings
	View ⊙ Iables O Queries O Both
	Cancel < Back Next > Finish

- > Choose ClubNames as the table to provide the values to look up
- Click Next

Lookup Wizard	
	Which fields contain the values you want included in your lookup column? The fields you select become columns in your lookup column.
Available Fields:	Selected Fields:
ID ClubName	
	Cancel < <u>B</u> ack <u>N</u> ext > Einish

Select ClubName as the field that contains the values to use in the lookup column

Lookup Wizard		
Which fields contain the values you want included in your lookup column? The fields you select become columns in your lookup column.		
Available Fields:	Selected Fields:	
	ClubName	
	Cancel < <u>B</u> ack <u>N</u> ext > Einish	

Click Next

Lool	kup Wizard		
Wha	What sort order do you want for the items in your list box?		
You	You can sort records by up to four fields, in either ascending or descending order.		
	Ascending		
1			
2	Ascending		
3	Ascending		
4	Ascending		
	Cancel < <u>B</u> ack <u>N</u> ext > Einish		

> Click the down arrow and select **ClubName** as the field to sort

Loo	okup Wizard			
What sort order do you want for the items in your list box?				
You	You can sort records by up to four fields, in either ascending or descending order.			
1	ClubName	Ascending		
-	(None)			
2	ID ClubName	Ascending		
3	~	Ascending		
4	✓	Ascending		
—				
	Cance	el < <u>B</u> ack <u>N</u> ext > Einish		

Click Next

The data from the lookup table is shown as a list, but the column is not wide enough to display the full text in each row.

Follow the instruction given in the dialog box to change the width of the column, ensuring that the text in each row is fully displayed

Lookup Wizard				
How wide would you like the columns in your lookup column? To adjust the width of a column, drag its right edge to the width you want, or double-click the right edge of the column heading to get the best fit.				
Cannon Sports Club Fitness First John Stanford Sports Centre Oadby Town Football Club				
Cancel < <u>B</u> ack <u>N</u> ext > <u>F</u> inish				

The Lookup Wizard creates a relationship between the two tables, linking the Primary Key of the lookup table with the lookup field in the other table. So although you selected the Club Name field as the field from which to get the values, Access needs the ID field also because this is used to create the relationship.

You will therefore notice a check box labelled **Hide key column**. This is ticked by default since displaying it is usually no help to the user.

> Click the **Hide key column** check box to remove the tick

The ID field is displayed.

Hide key column (recommended)				
ID	ClubName			
2	Cannon Sports Club			
3	Fitness First			
1	John Stanford Sports Centre			
4	Oadby Town Football Club			

- > Click the check box again to hide the ID field
- Click Next
- > Type **ClubName** as the label to use for the column



Click Finish

A message appears informing you that the table must be saved before continuing. The message also verifies that the process creates a relationship between the two tables.



- Click Yes
- Switch to Datasheet View
- > Test the Lookup in the **ClubName** field

SportsClubs				
	ID	Ŧ	ClubName 👻	ContactN
*		(New)	¥	
			Cannon Sports Club	Ŕ
			Fitness First	
			John Stanford Sports Centre	
			Oadby Town Football Club	
				-

You may need to change the width of the ClubName column in order to fully display all the text.

Save and close the table

To view the relationship that was created by the lookup wizard:

- > Display the Relationships window
- > If necessary, add the ClubNames and SportsClubs tables to the window

Relationships		×
ClubNames ID	SportsClubs	
ClubName	ClubName ContactName E-mail Address Phone Fax Number Address City	
	State/Province ZIP/Postal Code Web Page Notes I Attachments Attachments.File[Attachments.File] Attachments.File]	

The relationship between the two tables is displayed.

> Save and close the Relationships window

The above exercise illustrates that creating a lookup field can be both a useful feature to have in a table and a convenient way to create a relationship between two tables.

SETTING FIELD PROPERTIES

Each field has an associated set of field properties, depending on the data type chosen.

Many of the properties can be set by choosing from a list of available options but others require you to type an expression or code in order to set the property.

This section discusses the Input Mask and Append Only properties. For brief explanations of all the field properties please refer to Appendix A (page 175).

Input mask

An input mask sets up placeholders in a field and limits the amount and type of data that can be entered in the field. It can also provide clues for the user regarding the structure of the input required.

You use an input mask to provide some control over what values can be entered into a field. For example, you might use an input mask in a product code field where a specific number of letters followed by a specific number of digits are required.

An input mask can consist of literal characters including spaces, dots, dashes and parentheses. The property is therefore sometimes used as an extra formatting tool.

You will create input masks for the Phone and Postal Code fields in the Sports Clubs table.

- > Open the **SportsClubs** table in **Design View**
- Select the Phone field
- Position the insertion point in the Input Mask box in the Field Properties section

You can create an Input Mask by typing directly into the property box. A wizard is also provided to help you with some of the most commonly used masks.

You will use the wizard to create a mask and then edit it by looking at the codes given in Appendix A.

A button is displayed to the right of the Input Mask box.
🔲 Sp	ortsClubs			,
	Field Nan	ne	Data Type	Description
🖁 ID			AutoNumber	
Clu	bName		Number	
Con	ntactName		Text	
E-m	ail Address		Text	
Pho	one		Text	
Fax	Number		Text	
Add	iress		Memo	
City	/		Tevt	
Stat	to /Brovinco		Toxt	
710	(Destal Cade		Text	
	Postal Code		Text Use and also	
we	b Page		нурегилк	
Not	tes		Memo	
Atta	achments		Attachment	
				Field Properties
Gener	al Lookup			
Field 9	Size	255		
Forma	at			
Input	Mask	1		
Captio	on			
Defau	ilt Value			
Valida	ition Rule			
Valida	ition lext			A pattern for all data to be entered in this field
Requi	red	No		
Allow	Zero Length	No		
Indexe	ed	NO		
Unico	de Compression	res		
IME M	iode	Dharas Davida		
IVIE Se	Tana	Phrase Predic	α	
Smart	Tags			

This button launches the Input Mask Wizard.

Click the button

The Input Mask Wizard is displayed, providing options from which to choose.

Input Mask Wizard						
Which input mask matches how you want data to look?						
To see how a selected mask works, use the Try It box.						
To change the Input Mask li	ist, click the Edit List button.					
Input Mask:	Data Look:					
Phone Number Postal Code Password	(5555) 123432 LN25 4DC *******					
Long Time Short Date Short Time	13:12:00 27/09/1969 13:12	~				
Try It:						
Edit List Cancel	< Back Next >	Einish				

- > Use the scroll bar to view all the options available
- > Ensure that **Phone Number** is selected
- Click Next

A suggested Input Mask and the character that will be displayed in the field are shown.

Input Mask Wizard								
Do you want to change the input mask?								
Input Mask Name:	Input Mask Name: Phone Number							
Input Mask:	(9999) 00090009							
What placeholder chara	acter do you want the field to display?							
Placeholders are replac	Placeholders are replaced as you enter data into the field.							
Placeholder character:								
Try It:	Try It:							
Can	cel < <u>B</u> ack <u>N</u> ext > <u>F</u> inish							

This page allows you to make changes to both the Input Mask and the placeholder character.

- Click the down arrow for the Placeholder character to see the options available
- Select the underscore symbol
- > Click in the **Try It** box

This display is what you can expect to see in an empty Phone field when you click into it.



Click Next

Input Mask Wizard					
How do you want to store the data?					
○ With the symbols in the mask, like this:					
(1426) 51865417					
• Without the symbols in the mask, like this:					
475702113105					
Cancel < <u>B</u> ack <u>N</u> ext > <u>F</u> inish					

The Input Mask that you have selected, includes extra characters (parentheses and space) that will not be keyed in by the user.

On this page you can instruct Access to store the extra characters with the input, or to just store the input without the extra characters.

You will store the data without the symbols in the mask. This means that the parentheses and space will not take up any extra storage space in the table.



Click Next

Click Finish

The code for the Input Mask is inserted into the Field Properties.

General Lookup		
Field Size	255	~
Format		
Input Mask	\(9999") "00090009;;	
Caption		
Default Value		
Validation Rule		
Validation Text		
Required	No	
Allow Zero Length	No	
Indexed	No	
Unicode Compression	Yes	
IME Mode	Off	
IME Sentence Mode	Phrase Predict	
Smart Tags		~

To see the effect of the mask:

- > Save the table and switch to Datasheet View
- > Press the Tab key repeatedly until the insertion point is in the Phone field
- Key in the value 01161234

As soon as you begin to type in the digits, the characters and placeholders in the mask are displayed.

E-mail Address	-	Phone	*	Fax Number
		(01_)		

> Press Tab

A message is displayed informing you that the value is not appropriate for the mask.



This is because you did not key in the correct number of digits.

The characters '9' and '0' in the mask represent digit placeholders. The '9' placeholder can be left blank, but the '0' placeholder <u>must</u> contain a digit. The mask therefore allows for four digits in an area code section followed by either seven or eight further digits.

- > Click **OK** to close the message
- > Key in the remaining digits for the number **01161234567**
- > Press Tab

This entry satisfies the Input Mask, since the '9' at the end of the mask is a placeholder that can be left blank.

E-mail Address	Phone 👻	Fax Number 👻
	(0116) 1234567	

The '9' placeholder in the middle of the mask 199997 000009;; enables the user to insert a space before the last four digits of the phone number.

- > Click into the **Phone** field
- > Change the entry to 0116123 4567
- Press Tab

The value is displayed as follows:

E-mail Address	-	Phone 👻	Fax Number 👻
		(0116) 123 4567	

This Input Mask is not quite suitable if you wish to allow users to omit the area code when typing in the phone number.

> Click into the **Phone** field for the second record

The placeholders are displayed and the insertion point shows which placeholder is currently selected.

> Select the first placeholder outside the area code section

E-mail Address	-	Phone 👻	Fax Number 👻
		(0116) 123 4567	
		()	

- Key in 251 2345
- Press Tab

The value is accepted since all the '0' placeholders were filled with digits, but the final display is not what is desired.

E-mail Address	-	Phone 👻	Fax Number 👻
		(0116) 123 4567	
		(251) 2345	

To change this, you need to refer to the table on page 176 showing Input Mask codes and their meaning.

The character '!' is used to cause the value entered to fill the mask from right to left. In other words, it causes the value to be right aligned within the mask.

- Switch to Design View
- Select the Phone field

The exclamation mark is usually inserted as the first character of the Input Mask code or just before the first semicolon.

Insert an exclamation mark at the start of the Input Mask



> Save the change and switch to Datasheet View

The phone number is right aligned in the mask, leaving the area code blank.

E-mail Address 🔷 👻	Phone 👻	Fax Number 👻
	(0116) 123 4567	
	() 251 2345	

Switch to Design View and ensure that the properties for the Phone field are displayed

Observe that there are two semicolons in the code.

The Input Mask code is made up of three sections separated by semicolons.

The first section contains the appropriate number and type of placeholders, together with any characters that affect the formatting and any literal characters that must be displayed in the field.

The second section has no effect on what is seen in the table or how it is displayed. This section determines whether or not any extra characters contained in the first part of the mask are stored with the data entered in the

field. Entering a '1' or leaving the section blank tells Access to store only the data entered in the field. '0' tells Access to store both the data entered by the user and the characters inserted by the mask.

The character in the third section is displayed in the field as the placeholder for the characters to be typed.

The second and third sections of the input mask are optional and can be omitted completely.

> Delete everything after the last '9' in the Input Mask

!\(9999") "00090009

> Save the change and switch to Datasheet View

The phone numbers are displayed exactly as before.

E-mail Address	-	Phone	*	Fax Number 👻
		(0116) 123 456	57	
		() 251 2345		

> Click into the Phone field of a blank record

E-mail Address	-	Phone 👻	Fax Number 👻
		(0116) 123 4567	
		() 251 2345	
		()	

The underscore is the default character for the placeholders and is therefore still used to display the Input Mask.

- Switch to Design View
- > Add ;;# to the end on the Input Mask



- > Save the change and switch to Datasheet View
- > Click into the Phone field of a blank record

E-mail Address 🔷 👻	Phone 👻	Fax Number 👻
	(0116) 123 4567	
	() 251 2345	
	(####) # # ######	

The hash symbol is now used for each placeholder.

Another field in the Sports Clubs table that can benefit from the use of an Input Mask is the Postal Code field.

Postcodes are usually displayed using uppercase letters. An Input Mask can be set to always display the letters in uppercase.

To begin with you will assume that all the postcodes that will be entered in your table will be of the form LE1 9BH. In other words, two letters followed by a single digit, then a space, then a single digit followed by two letters.

You will now set an Input Mask for this ensuring that the letters are always displayed in uppercase.

- > Switch to Design View and select the **Zip/Postal Code** field
- > Type >LL0\ OLL in the Input Mask property

Refer to the table on page 176 for an explanation of what each of the characters in the mask represents.

- > Save the changes and switch to Datasheet View
- > Press Tab repeatedly until the insertion point is in the Zip/Postal Code field

It is also possible to click directly into the field, but you must ensure that the insertion point is at the first placeholder of the Input Mask.

- > Type le21ab
- Press Tab

The postcode is displayed correctly formatted.

ſ				
	🗾 E-mail Address 👻 P	Phone 🔹 Fax Number 🚽	Address 👻 City	✓ State/Provit ✓ ZIP/Postal C ✓
	(011)	6) 123 4567		LE2 1AB
	():	251 2345		
	*			

- > Delete the postcode
- > Try typing only letters for the Postcode
- Try typing only digits

The Input Mask restricts you to entering six characters: two letters, two digits and two letters in that order.

Assume that you will allow users to enter only the first part of the postcode.



- Edit the Input Mask to allow both LE1 9BH and SW5 (Hint: Only the first part of the postcode must be compulsory. Refer to the table on page 176)
- > Check that the mask works as expected

One possible solution for the mask is >LL0 $\ 9??$ '9' means that you can enter a digit or leave the placeholder empty; '?' means that you can enter a letter or leave the placeholder empty.

You will alter the Input Mask once more, but this time you want to accommodate all UK postcodes and you want users to enter them fully.

You therefore need to accommodate these four different types: LE1 9BH, LE18 5XY, M2 6BD and M15 3LN.

- Edit the Input Mask to accommodate the above postcodes (Hint: first construct the mask without the space character in the code and verify that the different lengths and combinations of letters and digits are accepted in the field. Finally set the mask to fill from right to left and insert a space before the last three characters.)
- > Check that the mask works by entering each of the four different postcodes

One possible solution for the mask is !>LAAA\ A?? Refer to the table on page 176 for an explanation.

Append only

This property is available for Memo and Hyperlink data types only. It is not a difficult property to set; you have two choices: Yes or No.

When the property is set to Yes, Access keeps track of the changes to the field values.

- > Select the Address field in Design View
- Change the Append Only property to Yes by clicking the down arrow and choosing Yes
- > Save the change and switch to Datasheet View
- > Click into the Address field of the first record and type **56 Parliament Street**
- > Save the table to ensure that the value is saved
- > Ensure that the Address column is wide enough to display the full text

- > Change the Address to **42 Garden Lane** and save the table
- > Change the Address once more to 35 Union Way and save the table

To view the history of the values in the field:

- Position the mouse pointer in the Address field of the first record and click the right mouse button
- > Select **Show column history** from the shortcut menu options



A dialog box is displayed showing the history of the values.

History for Address	? 🔀
History of changes for: Column name: Address Table name: SportsClubs	
[Version: 24/02/2010 11:27:43] 56 Parliament Street [Version: 24/02/2010 11:28:15] 42 Garden Lane [Version: 24/02/2010 11:28:28] 35 Union Way	
	ок

Click OK

The history information can also be displayed when viewing the data in a form.

- Close the SportsClubs table
- > Close the **Contacts Management** Database

REPORTS

A report is used to present data in a printed format.

In the introductory course you saw how basic reports can be created automatically and you also used a wizard to create a simple report.

This section will demonstrate how reports can be designed and formatted to your precise individual requirements. The procedure is more labour intensive than using the wizard, but it gives you a lot more flexibility and enables you to design reports exactly as you wish.

COMPONENTS OF A REPORT

Before you get into the design of the report look at how the page is split into sections and understand how the sections are used.

Page Header

Information in this section will appear once on every page. This could include graphics, command buttons, and company address.

Detail

This section displays data from the database. One record can be printed on each page if you are producing a letter, or a list of data taken from several records can be printed on a page.

Page Footer

This section includes information that shows at the bottom of each page, for example a page number.

🗲 Pag	e Heade	er			
🗲 Deta	ail				
🗲 Pag	e Foote	r		 	

Other sections can be added to a report:

	Repo
	This title
	oniy Head
✓ Detail	
	Grou
	l he exan
✓ Page Footer	is nr
	and
	iden
	head

Report Header

This can include information, such as a title, for the report. It will be printed only on the first page after the Page Header.

Group Header

The group header shown in the example is 'CourseTitle Header'. This is printed at the start of each group and will usually include information to identify the group, and possibly column headings for the data that will be displayed in the Detail section.

Group Footer

The group footer is printed at the end of each group and could include a field to produce calculations based on data in individual groups, for example the total number of students on a course.

Report Footer

Anything in this section is printed at the end of the report on the last page. It could include fields that calculate overall totals for the report.

REPORT CONTROLS

All information included in a report is held in **controls**. Any database object inserted in the report is called a control. This section focuses on the controls that are used to display data from the database, and display instructions to the user. These controls are labels, text boxes, list boxes and combo boxes.

A control can be bound or unbound.

A *bound* control is attached to a field in the query or table that the report is based on. Bound controls display data held in a field. This is the simplest and most straightforward way to display data from the database.

An *unbound* control is not linked to a field. You therefore have to do more work with this type of control. However, unbound controls are more flexible and provide greater control over how data is displayed in the report.

An unbound control that contains an expression to combine data from two or more fields, or perform calculations using data from fields in the table or query is called a *calculated* control.

Text box

A text box is the main control used to display data. Usually it is bound to a field and therefore will display data from that single field. However, it can also be used as an unbound control, in which case you can type any text into it or use it to create a calculated control.

Label

Labels are not used to display data from the database. Rather, they are used to create titles, headings and any helpful text or instructions that you wish to provide for the users.

List box

A list box control is usually bound to a field, and used to input data into the field. When the box is clicked, a list of options is displayed. If the user selects one of the options, this value is stored in the field.

Combo box

A combo box is similar to a list box and is used in the same way. It can be identified by a down arrow at the extreme right of the box. The user needs to click the down arrow to see the options available.

AN ATTENDANCE LIST

> Open the **2010 Students** database from C:\AccessIntermediate

The report that you will create is an attendance list for the Advanced Pyrotechnics and the Sailing and Navigation courses.

Here's what the finished report should look like:

Advanced Pyrotechnics	<i>Course Leader:</i> Guido Fawkes	Room: \$5.8
	Samantha Martin	
	Katherine Smith	
	Bernie Charles	
	Harry Watson	
	Francis Tresham	
	James Loveless	
	Richard Skinner	
	William Brown	
Course title:	Course Leader: William Blish	Room: H2 Ea
Course title: Sailing and Navigation	<i>Course Leader:</i> William Bligh	Room: H2.5a
Course title: Sailing and Navigation	<i>Course Leader:</i> William Bligh Mary Lewis	Room: H2.5a
Course title: Sailing and Navigation	<i>Course Leader:</i> William Bligh Mary Lewis Timothy Williams	Room: H2.5a
Course title: Sailing and Navigation	Course Leader: William Bligh Mary Lewis Timothy Williams Thomas Stanfield	Room: H2.5a
Course title: Sailing and Navigation	Course Leader: William Bligh Mary Lewis Timothy Williams Thomas Stanfield Charles Norman	Room: H2.5a
Course title: Sailing and Navigation	Course Leader: William Bligh Mary Lewis Timothy Williams Thomas Stanfield Charles Norman Charles Churchill	Room: H2.5a

Create the Query for the report

You need to create a query to include just the fields that you are interested in and to select the appropriate records.

Create a query containing the following fields from the students, courses, and tutors tables:

students	courses	tutors
FirstName	CourseTitle	Forename
LastName	RoomNumber	Surname
	StartDate	

Include the correct criteria to select only the students on the Advanced Pyrotechnics or Sailing and Navigation courses.

When you use the word 'and' as part of the query criteria, it has a special meaning. If you type the course name 'Sailing and Navigation', the word 'and' will be used as a command telling Access to look for courses named 'Sailing' and courses named 'Navigation'.

You have two choices in a case like this:

- 1. Use a different field to select the records, for example the course numbers.
- 2. Use double quotes around the full course name so that Access will know that it is to be used together.
- > Save the query with the name **qryGroup**
- Close the query

Begin the Report

The Report Wizard will not produce the layout that you want so you need to design the report yourself.

> Select Report Design from the Reports group on the Create tab

A blank report is displayed.



You may have to scroll down in order to see the Page Footer section.

Minimise the Navigation pane by clicking on the Shutter Bar Open/Close Button, to provide more space for working on the report



The Properties Sheet

You can affect the look, size and behaviour of the report by changing some of its properties.

> Click Property Sheet from the Tools group on the Design tab

The Property Sheet is displayed.

F	Repor	+1										^	Property Sheet			
	, trep et											_	S	Selection type: Report		
	a Dav	1 × I × 2 ve Heady	2 + 1 + 3 ar	3 • 1 • 4	E C E C E	5 * 1 * 1	3 * 1 * 3	7 • 1 • 3	B • I • \$	9 • • • 1	0 • • • 11 •	1.1	F	Report		
	- Fay	le rieau	-									- 1	F	Format Data Event Of	her All	
1.													F	Record Source		
1	<u> </u>											_	Ċ	Caption		
12													F	Pop Up	No	
÷													İ	Modal	No	
	🗲 Def	ail												Display on SharePoint Site	Follow Table Setting	
•														Default View	Report View	
17													1	Allow Report View	Yes	
1	<u> </u>											_	1	Allow Layout View	Yes	
112													F	Picture	(none)	
													F	Picture Tiling	No	
4													F	Picture Alignment	Center	
17													F	Picture Type	Embedded	
3													F	Picture Size Mode	Clip	
-													N	Width	12.335cm	
i.									ļ				4	Auto Center	No	
1													4	Auto Resize	Yes	
17													F	Fit to Page	Yes	
5												_	E	Border Style	Sizable	
11-													2	Scroll Bars	Both	
									ļ				9	Control Box	Yes	
2													9	Close Button	Yes	
17													P	Min Max Buttons	Both Enabled	
	E Dav	l In Enote				1		1	1	1			P	Moveable	Yes	
	V Fay							1	1			_	2	Show Page Margins	Yes	
1													9	Grid X	10	
													9	Grid Y	10	
1													L	Layout for Print	Yes	
17													9	Grp Keep Together	Per Column	
2		1						1					F	Picture Pages	All Pages	
					Ш								F	Page Header	All Pages	
	1												F	Page Footer	All Pages 🗸 🗸	
												7		A.1		

Properties exist for the whole report, for each section of the report, and for each individual control on the report. The Property Sheet pane is used to display the properties for any of these objects.

The whole report is selected, so the properties displayed are for the report, as indicated by the word **Report** at the top of the pane.

	Property Sheet Selection type: Report	×
\langle	Report	¥
	Format Data Event Of	ther All
	Record Source	
	Caption	
	Pop Up	No
	Modal	No

> Click the Page Footer selector



The Page Footer section is selected and the Property Sheet now displays the properties for this section of the report.

	Papart1				^	Property Sheet	×
	Kepont					Selection type: Section	
	···1·1··2···3··	• 4 • 1 • 5 • 1 • 6 •	1 • 7 • 1 • 8 • 1 • 9	· · · 10 · · · 11 ·	•	PageFooterSection	✓
	Page Header				_ 1	Format Data Event	Dthor All
12						Format Data Event C	
1 ÷						Name	PageFooterSection
1						Visible	Yes
1.						Height	2 cm
^						Back Color	#FFFFF
	◆ Detail				_	Special Effect	Flat
12						Auto Height	Yes
•						Display When	Always
1					_	On Click	
- 11						On Format	
2					_	On Dbl Click	
1						On Mouse Down	
1						On Mouse Up	
3						On Mouse Move	
-						On Paint	
4					_	On Print	
1						Tag	
•							
5					_		
-							
6					_		
11							
•							
	Page Footer						
-							
1					_		
11.							
2							
4				_	~		
<					>		

Click the Report Selector (the square button just above the Page Header selector)

Alternatively

- Click the down arrow at the top of the Property Sheet
- Select Report

The Property Sheet displays the properties of the Report.

To indicate where the report should look for the data you need to set the Record Source property.

The **All** tab on the Property Sheet shows all the properties for the selected object. Choosing one of the other tabs will display only the properties in that category. It is sometimes easier to find an individual property from the shorter lists on the category tabs. For this exercise, however, there is no advantage in selecting another tab because the Record Source property is at the top of the list.

> Click the down arrow in the **Record Source** property



Select qryGroup

The width of the report also needs to be changed. This can be done by dragging the edge of the report, but the value can be set accurately in the properties.

- Click into the Width property
- Change the value to 15cm

Property Sheet		×
Selection type: Report		
Report	~	
Format Data Event C	ther All	
Record Source	qryGroup	^
Caption		
Pop Up	No	_
Modal	No	
Display on SharePoint Site	Follow Table Setting	
Default View	Report View	
Allow Report View	Yes	
Allow Layout View	Yes	
Picture	(none)	
Picture Tiling	No	
Picture Alignment	Center	
Picture Type	Embedded	
Picture Size Mode	Clip	
Width	15cm	
Auto Center	No	
Auto Resize	Yes	
Fit to Page	Yes	
Border Style	Sizable	



Fifteen centimetres is the approximate width to fit an A4 page in portrait orientation, when the default margin size is taken into consideration. If you make the page wider than 15 cm the document is likely to print on two pages instead of one.

To save the report:

- Click the Save button
- > Change the suggested Report Name to rptAttendance

Save As	? 2	<
Report Name:		
rptAttendance		
	OK Cancel)

> Click OK

The Design View of the report will look like this when all the controls are in place:

		ort Hea	der														Printed at the
																←	of the report
	🗲 Pag	je Head	er														
		List	of	stud	dent	ts										←	Printed at the top of each page
				-													
	€ Cot	i urseTitle	Heade	r			1	1	1								
																	Repeated at the top
'CourseTitle'		Cours	e title:				Cours	e Leaa	er:							\leftarrow	of each group
Header and Footer		Cours	eTitle				=[Fore	ename	e] & " "	& [Su		Ro	om:	Room	Numł		
are the Group																	
Header and	🗲 Det	ail						-									Repeated for each
Footer. This is the							=[first	name]&""							\leftarrow	student
field you are going	🗲 Cou	urseTitle	Footer														
to group the																_	Penested at the end
students on.	1	="Exp	ected	numbe	er in th	nis gro	up = "	& Cou	unt(*)							`	Active and a second
									<u> </u>								of each group
	🗲 Pag	je Foote	er					-									
																\leftarrow	Repeated at the
		ort Foo	ter				1	1	1								bottom of each page
										="	Total E	xpect	ed = "	& Cou	nt(*)	/	
																	Repeated at the end
	<u> </u>																(last page) of the
																	report

Compare the above diagram with that on page 47 to see how the design relates to the printed report Your design does not have all the header and footer sections needed for the report, so these will have to be added.

First though, you will change the size of the Detail section.

The only control that will be added to this section is a text box to display a student's name. Also, the height of the Detail section will determine the space used to display each name in the list; the greater the height, the larger the space between consecutive names in the list.

> Position the mouse pointer to the top of the Page Footer bar

The pointer changes to a double arrow.



- > Hold the mouse button down and drag upwards
- > Reduce the Detail section to one row of squares

	e Head	er					
🗲 Det	ail			 	 	 	
🗲 Pag	e Foote	r					

To add the Report Header and Footer:

Click the Report Header/Footer button from the Show/Hide group on the Arrange tab



The Design page now looks like this:



You will be using the Report Footer but not the Report Header.

> Drag the Page Header bar up to meet the Report Header bar

The Page Footer section will also not be needed.

> Drag the Report Footer bar up to meet the Page Footer bar

											_
🗢 Rep	◆ Report Header										
🗲 Pag	🗲 Page Header										
<u> </u>											
🗲 Det											
🗲 Pag	e Foote	i Pr		1	1		1		1		
	ort Foo	ter									
<u> </u>											

To add the Group Header and Footer for the CourseTitle field:

Click the Group & Sort button from the Grouping & Totals group on the Design tab

The Group, Sort, and Total pane is displayed at the bottom of the Design page.

Group, Sort, and Total	X
ଣ୍ଟ Add a group 2ै↓ Add a sort	

> Click Add a group

A list of available fields is displayed.

FirstName
LastName
CourseTitle
RoomNumber
StartDate
Forename
Surname
expression

Click CourseTitle

A CourseTitle Header section is added to the design and a CourseTitle options bar is displayed in the Group, Sort, and Total pane.

Group, Sort, and Total		X
Group on CourseTitle 🔻 with A on top 🔻 , More ►	4 👳	\times
[{≣ Add a group 2 ↓ Add a sort		

Sorting is automatically defined for the group. The text 'with A on top', on the options bar, indicates that the CourseTitle values will be sorted in ascending order. The Group Footer, however, is not displayed by default.

To display the CourseTitle Footer:

> Click the **More** button on the CourseTitle options bar

The bar expands to display all the possible options:

Gro	Group, Sort, and Total									
	Π	Group on CourseTitle $\stackrel{\bullet}{}$ with A on top $\stackrel{\bullet}{}$, by entire value $\stackrel{\bullet}{}$, 4								
	, with no totals 🔻 , with title click to add ,									
	1	with a header section ${\color{black}{\overline{}}}$, without a footer section ${\color{black}{\overline{}}}$,								
		do not keep group together on one page 🔻 , Less \blacktriangleleft								
	l.	[{≣ Add a group 2↓ Add a sort								

> Click the down arrow to the right of 'without a footer section'

Select with a footer section

The CourseTitle Footer is added to the design.

🗲 Rep	ort Hea	der									
🗲 Pag	✓ Page Header										
🗲 Cou	irseTitle	Heade	r								
<u> </u>											
🗲 Det	ail	•							•		
€ Cou	ı ırseTitle	Footer							I		
🗲 Pag	e Foote	er 👘							1		
🗲 Rep	ort Foo	ter									
<u> </u>											

> Click the Group & Sort button to close the pane

You are now ready to put controls on the report.

You will start with the title. The title **List of students** needs to be put in a Label in the Page Header section.

> Click the Label button from the Controls group on the Design tab



- Click in the Page Header at the point where you want the Label control to begin
- > Type List of students in the label and press the Enter key

As you type, the Label expands to accommodate the text.

List of students						

Notice that pressing **Enter** does not take you to a new line in the label. To go to a new line you would press **Ctrl** + **Enter**. Pressing enter takes you out of editing the text in the label and selects the label, highlighting the border in orange.

Now that the label is selected you can change its format.

Using either the Font group of commands or the Property Sheet, change the Font Size to 20

The text is now too large to be displayed fully in the label.

Drag the resize handles to make the label long enough and wide enough to fully display the text

€ Rep	oort Hea	der						
🗲 Pag	je Head	er						
_	List	of	stu	len	ts	7		-
			1			K/		
♦ C00	ursentie	Heade	ſ				$\overline{}$	
							\geq	Resize hanc

For each group, you want to display the title of the course, the course leader, and the room number. This involves displaying data from these three different fields.

To display the Field List:

- > Click Add Existing Fields from the Tools group on the Design tab
- > Drag the **CourseTitle** field into the middle of the CourseTitle Header section



Two controls are added to the section: a text box in which individual course titles will be displayed, and a label to inform the user that the data in the text box is a 'Course title'.

The controls can be repositioned by dragging.

Move the mouse pointer over the border of the text box, but avoiding the resize handles

The mouse pointer changes to cross arrows.

> Click and drag in any direction



Both the text box and the label move together. To move each control individually you need to position the mouse pointer over the square in the top left corner of the control before dragging.

Drag each control by the handle at the top left corner to reposition them near the left side of the page, with the label above the text box as shown below

	🗲 Pag	e Header
:		
1	<u> </u>	List of students
-		
î	€ Cou	rseTitle Header
· -		
÷		Course title:
2		CourseTitle
:	<u> </u>	
	🗲 Det	il

> Change the view to **Report View**



The title is not fully displayed, meaning that the text box needs to be resized.

Switch to Layout View

You can resize the control in Design View, but Layout View is ideal for this job since you can see when the control is wide enough to display the text.

- > Click on the Course title name to display the text box
- > Drag the right border until the text box fully displays the Course title
- Select the label and format it as Italic



Detail section

The controls in this section repeat for each record taken from the database.

To create a list of names for each course, you need to insert data from the firstName and lastName fields from the students table into the Detail section.

- Switch to Design View
- > Drag the lastName field into the Detail section

For this report you do not need labels in the Detail section. To delete the label:

Select the label

Course	title:												
Course	Title												
		Last n	ame:		LastN	ame							
🗲 CourseTitle F	ooter												

- > Press the **Delete** key
- > Drag the **firstName** field on to the report to the left of lastName
- > Delete the firstName label

To align the two text boxes:

- Select the firstName text box
- > Hold down the **Shift** key and select the **lastName** text box

Both text boxes are selected.

🗲 Detai	il							
			FirstN	ame	LastN	ame	4	
€ Cour	seTitle Footer	-				_	-	

> Click Top from the Control Alignment group on the Arrange tab

🗲 Det	ail												
				FirstN	ame		LastN	ame					
						-			1				
🗲 Cou	irseTitle	Footer											

> Switch to **Report View**

rptAttendance			- =	x
				Â
List of stu	udents			
<i>Course title:</i> Advanced Pyrot	echnics			=
	Samantha	Martin		
	Katherine	Smith		
	Bernie	Charles		
	Harry	Watson		
	Francis	Tresham		
	James	Loveless		
	Richard	Skinner		
	William	Brown		
4		III		•

A list of names is displayed.

> Scroll down the page to view the list for the second course

Calculated control

A list of names is displayed on the report, but the presentation would be improved by removing the large spaces between the first names and last names.

This can be done by using a calculated control in place of the two text boxes.

A calculated control may be used to perform calculations on data stored in the database, combine data from two or more fields, display text, or a combination of these.

You use an unbound text box to create a calculated control.

- Switch to **Design View**
- > Delete the two text boxes in the Detail section
- > Click the **Text Box** button from the **Controls** group on the **Design** tab



> Click into the middle of the Detail section

A label and an Unbound text box are inserted.



- Delete the label
- Click into the text box and type the following:

=[FirstName] & " " & [LastName]

> Press Enter

This 'expression' will insert the value of the firstName field in the current record, add a space and then insert the value of the lastName field.



Rules for creating expressions:

- An expression in a calculated control always begins with =.
- Field names **must** be enclosed in square brackets.
- Text **must** be enclosed within speech marks. In the example above, speech marks are used to insert a space between the first name and last name.
- Different items within the expression: field names, text, etc. **must** be joined by an ampersand.
- > Save the report
- Switch to **Report View**

I rptAttendance	_	= x
		Â
List of students		
Course title:		
Advanced Pyrotechnics		
	Samantha Martin	
	Katharing Smith	
	Katherine Smith	
	Bernie Charles	
	Harry Watson	
	Francis Tresham	
	James Loveless	
	Richard Skinner	
	William Brown	
•	1111	

To reduce the space between the lines you need to reduce the size of the Detail section.

- > In Design View, ensure that the calculated control is selected
- Use the arrow keys on the keyboard to move the control as close as possible to the top of the Detail section
- > Drag the **CourseTitle Footer** bar up to the bottom of the control

🗲 Detail			
		=[firstname] & " "	
	Footer		

Counting records

To add a count for each group and for the whole report:

- > Click Totals from the Grouping & Totals group on the Design tab
- > Select Count Records from the list of options

Calculated controls are inserted into the CourseTitle Footer and Report Footer sections, with the expression =Count(*).



Count is one of the many functions available in Access. The asterisk instructs Access to count all records.

View the results by switching to Report View



> Scroll down to see the count for the second group and for the whole report

More space between the list of names and the count value would be useful, but of more importance, you need to include text to explain what these numbers are.

Switch to Design View

To add helpful text to the count, you could insert a label to the left of the calculated control, or you could extend the =**Count(*)** expression to include appropriate text. For this exercise, you will add text to the calculated control.

- > Click the calculated control in the CourseTitle Footer
- Use the resize handle to extend the left border of the control so it aligns with the controls in the CourseTitle Header

€ Cou	urseTitle	Heade	r									
	Cours	e title:										
	CourseTitle											
]						
🗲 Det												
						=[first	name]&""				
🗲 Cou	irseTitle	Footer	r -									-
	=Cour	nt(*)										
-												

- > Click in the selected control to put the insertion point in the control
- > Change the expression to the following:

```
="Expected number in this group = " & Count(*)
```

- Press Enter
- To create some space between the count value and the list of names above it, use the down arrow key to move the control down within the CourseTitle Footer (see the diagram below)
- Change the expression in the control in the Report Footer to:

="Total Expected = " & Count(*)

- > Resize the control so that the full expression is displayed
- > Move the control to the right of the report

Use the Underline tool in the Font group to underline the contents of the control



> View the results in Report View

Adding horizontal lines

To improve the design of the report and separate the course title from the list of students, you will draw two horizontal lines in the group header.

> Ensure that you are in Design View

To draw a line above the controls in the CourseTitle Header:

> Click the line button from the Controls group on the Design tab



- Move the mouse pointer to the point in the CourseTitle Header above the controls where you want the line to start
- Hold down the mouse button, drag the mouse to the right and release the button where you want the line to end



While dragging the mouse, the line will be invisible if it is perfectly horizontal and will only become visible when you release the mouse button.

If the line that you have drawn is not perfectly horizontal, to straighten it, change the **Height** property to **Ocm**.

Draw a second horizontal line, the same length as the first, below the controls in the CourseTitle Header

€ Cou														
_	Cours	e title:												
	Cours	eTitle												
						1								
🗲 Deta	✓ Detail													

To complete the report:

- > Drag the **RoomNumber** field to the **CourseTitle Header**
- > Edit the label control to display **Room**:
- Italicise the label
- > Resize and reposition the controls as shown below

	Cours	e title:]											
	CourseTitle										Ro	om:	Room	Numl
€ Det														

- Create a calculated control in the CourseTitle Header to display the Forename and Surname of the course tutor (ensure that there is a space between the two values)
- > Edit the label control to display **Course Leader**:
- Italicise the label
- > Reposition the controls as shown below

🗲 Cou	irseTitle	Heade	r										
	Cours	e title:]			Cours	e Lead	er:					
	CourseTitle					=[Fore	ename]&""	& [Su	Ro	om:	Room	Numl
🗲 Deta	ail												

- View the results in **Report View** (your report should be similar to the one shown on page 47)
- > Save and close the report

FILTERING

You can filter a report to display only the records that satisfy the particular filter criteria.

- > Open qryGroup in Design View
- > Delete the CourseTitle criteria
- Save and close the query
- > Double click the report **rptAttendance** in the Navigation pane

This opens it in Report View.

Now that you have deleted the criteria from the query on which the report is based, it displays lists for four courses.

Scroll down the report to check that all lists are displayed and that the total number of students expected is 31

To filter the report to display only the lists for Advanced Pyrotechnics and Sailing and Navigation:

- > Click on any Course title in the report
- > Click Filter from the Sort & Filter group on the Home tab
- > Click the (Select All) check box to remove all the ticks
- > Select the Advanced Pyrotechnics and Sailing and Navigation check boxes



- > Click OK
- > Check that only these two lists are displayed
To remove the filter:

> Click Toggle Filter from the Sort & Filter group

To filter the report to display only the lists for which the **Room number** includes the letter **S**:

- > Right-click on any Room number value
- > Point to Text Filters from the shortcut menu



- > Click Contains
- > Type **S** in the Custom Filter box

Custom Filter			? 🛛
Room: contains	s		
		ОК	Cancel

- > Click OK
- > Check that the report displays lists for rooms **S5.8** and **S0.55** only
- Close the report



Saving a filtered report does not save the filter.

To save a filtered report you must create a query with the appropriate criteria and base the report on the query.

QUERIES

- > Open the query **qryGroup** in Design View
- For the CourseTitle criteria, type "Advanced Pyrotechnics" or "Sailing and Navigation"

A query is a specific request for the retrieval, creation, modification, or deletion of data.

The lower pane in the Query Design window is called the QBE (Query by Example) grid. This is where you specify the fields and criteria upon which the query should act. This interface makes it easier for you to create queries, but all Access queries use SQL (Structured Query Language). Access converts what you specify in the Query Design window into SQL code.

To view the SQL code for the current query:

> Click the down arrow on the **View** button



> Select SQL View

The SQL code is displayed in the query window.



If you know SQL you can use this view to build, edit, or troubleshoot your queries.

ACTION QUERIES

There are two basic types of queries: Select Queries and Action Queries.

A Select query does not alter the data stored in the database, but simply retrieves data from one or more tables for the purpose of displaying it.

Action queries alter the data stored by performing additional operations on the data selected. They are used to insert, modify or delete data from the database.

To see the different types of queries:

> Display the query in Design View

The Query Type group is shown on the Design Query Tools tab.

Notice that the **Select** type is highlighted, indicating that this query is a Select query.

Query Type	Explanation
Make Table	Creates a new table and copies the results of the query into it
Append	Copies the results of the query into an existing table as new records
Update	Changes values of individual fields in one or more existing records in a table
Delete	Deletes the selected records from a table
Crosstab	Summarises data by separating it into groups based on one or more fields
Union	Combines the results of two or more similar Select queries
Pass-Through	Used to send commands directly to a database server
Data Definition	Used to create or edit database objects eg tables, indexes, etc.

In general, there are two steps involved in creating an Action query: you first create a Select query that identifies specific records and fields, and then convert the query to an Action query. However, the last three types listed above are SQL specific and must be written directly using SQL code.

Save and close qryGroup

You are going to look at two Action queries. First you will create a new table to use for the exercises.

- > Select the **tutors** table in the navigation pane (do not open it)
- Click Copy
- > Click Paste

The Paste Table As dialog box is displayed.

> Type **volunteers** in the Table Name box

Paste Table As	? 🛛
Table Name:	ОК
volunteers	
Paste Options	Cancel
O Structure Only	
 Structure and Data 	
O Append Data to Existing Table	

- > Ensure that Structure and Data is selected as the Paste Option
- Click OK
- > Open the volunteers table in Design View
- > Change the TutorID Field Name to ID and the Caption to Volunteer ID
- Save the changes
- > In Datasheet View, delete all the entries from the **Email** field

	Volunteers					
	🛛 Volunteer ID 👻	Forename 👻	Surname 👻	Telephone 👻	Email 👻	Add New Field
	1	Guido	Fawkes	2543875		
	2	William	Bligh	2546238		
	3	George	Loveless	2546489		
	4	Alison	Sparks	2542836		
	5	Mary	Hopkins	2547621		
÷	K (New)					

Close the table

Append queries

An Append query is used to copy records from one table to another. The fields that you intend to copy do not need to have the same names, but they must have the same, or compatible, data types.

All the students in the students table from Leicestershire (with postcode LE....) need to be added to the volunteers table.

You will create and run an Append query to complete this task.

The first step is to create a Select query to pick out the appropriate fields and records from the students table. The only data you are interested in are the names, telephone numbers, and postcodes.

Create a Select query in Design View with the fields FirstName, LastName, Telephone, and Postcode from the students table

To filter all the records with a postcode beginning with LE:

> Type LE* for the Postcode criteria

The asterisk character is used as a 'wildcard' to represent any one or more characters.

A question mark is used to represent any one character.

View the query in Datasheet View to check that it has filtered the correct records

-	🗗 Query1					
	First name 👻	Last name 🕞	Telephone 👻	Postcode 👻		
	William	Brown	2567657	LE7 3PS		
	Christopher	Wright	2652462	LE20 3MN		
	Harry	Watson	2105874	LE4 6JF		
	Bernie	Charles	2743928	LE12 3DS		
	William	Brown	2567657	LE7 3PS		
	Peter	Harrison	2716849	LE17 3BH		
*						

Switch to Design View

The next step converts the Select query to an Append query.

> Select Append from the Query Type group on the Design tab

The Append dialog box is displayed.

Append		? 🗙
Append To Table Name: O Current Database Another Database:	v	OK Cancel
File Name;	Browse	

> Current Database is selected by default

To choose the table that the records will be added to:

> Click the down arrow in the **Table Name** box

Append		? 🛛
Append To Table Name: O Current Da Another Da File Name:	courses students tutors volunteers	OK Cancel
	Browse	

Select volunteers

Click OK

An **Append To:** row is added to the QBE grid.

	Field:	FirstName	LastName	Telephone	Postcode
	Table:	students	students	students	students
	Sort:				
\frown	Append To:	\frown		Telephone	
	Criteria:				Like "LE*"
	or:				

Notice also that **Append** is highlighted in the Query Type group on the Ribbon, indicating that this is now an Append query.

Warning

The two commands in the Results group on the Design tab perform different functions for an Action query.

The **Run** command is used to perform the action specified by the query - in this case append the selected records to the specified table. So use this only when you are ready to add the records to the table.

The **View** command is used to switch between views and is useful to check which fields and records will be affected by the query.

> Use the **View** command button to switch to Datasheet View

Only the Telephone field is displayed.

Switch to Design View

Notice that Telephone is the only field identified in the Append To row.

This is because this field name exists in both the students table, where the data is being taken from, and the volunteers table, where the records will be added.

You need to indicate where the data from the other fields should be stored.

- > Click in the **Append To** box for the **FirstName** field
- Click the down arrow

	-			
Field:	FirstName	LastName	Telephone	Postcode
Table:	students	students	students	students
Sort:				
Append To:	×		Telephone	
Criteria:	volunteers.*	à		Like "LE*"
on	ID	-		
	Forename			
	Surname			
	Telephone			
	Email			

The list of fields in the volunteers table is displayed.

- > Select Forename
- > Select **Surname** as the field to append the **LastName** data to

Field:	FirstName	LastName	Telephone	Postcode
Table:	students	students	students	students
Sort:				
Append To:	Forename	Surname 🛛 🗸 🗸	Telephone	
Criteria:				Like "LE*"
or:				

> Save the query using the name qryAddLEStudents

Notice in the Navigation pane that the Append icon is used to indicate the type of query.



> Check in Datasheet View that data from three fields are now displayed

There are two ways that you can *Run* the query to perform the specified action.

- > Ensure that the query is displayed in Design View
- > Click Run

A message box is displayed, informing you that 6 rows are about to be added, and warning that you cannot use the Undo command to reverse the action.

Microsof	it Office Access 🛛 🔀
1	You are about to append 6 row(s). Once you click Yes, you can't use the Undo command to reverse the changes. Are you sure you want to append the selected rows? Yes No

- > Click **Yes** to append the records
- Close the query
- > Open the volunteers table

The six student records have been added to the table.

💷 vo	II volunteers					
Vo	olunteer ID 👻	Forename 👻	Surname 👻	Telephone 👻	Email 👻	Add New Field
	a	Guido	Fawkes	2543875		
	2	William	Bligh	2546238		
	3	George	Loveless	2546489		
	4	Alison	Sparks	2542836		
	5	Mary	Hopkins	2547621		
	6	William	Brown	2567657		
	7	Christopher	Wright	2652462		
	8	Harry	Watson	2105874		
	9	Bernie	Charles	2743928		
	10	William	Brown	2567657		
	11	Peter	Harrison	2716849		
*	(New)					

- > Close the table
- > Double click the query **qryAddLEStudents** in the Navigation pane

A message is displayed informing you that this will run the append query, and seeking confirmation that you wish to continue with the action.

Microsof	it Office Access
♪	You are about to run an append query that will modify data in your table. Are you sure you want to run this type of action query? For information on turning off confirmation messages for document deletions, click Help. Show Help >>
	Yes No Help

Click Yes

Microsoft Office Access						
<u>.</u>	You are about to append 6 row(s). Once you click Yes, you can't use the Undo command to reverse the changes. Are you sure you want to append the selected rows? Yes No					

- > Click Yes
- > Open the **volunteers** table

The records from the students table are added a second time.

1							
	🛄 volunteers						
	Volunteer ID 👻	Forename 👻	Surname 👻	Telephone 👻	Email 👻	Add New Field	
	1	Guido	Fawkes	2543875			
	2	William	Bligh	2546238			
	3	George	Loveless	2546489			
	4	Alison	Sparks	2542836			
	5	Mary	Hopkins	2547621			
	6	William	Brown	2567657			
	7	Christopher	Wright	2652462			
	8	Harry	Watson	2105874			
	9	Bernie	Charles	2743928			
	10	William	Brown	2567657			
	11	Peter	Harrison	2716849			
	12	William	Brown	2567657			
	13	Christopher	Wright	2652462			
	14	Harry	Watson	2105874			
	15	Bernie	Charles	2743928			
	16	William	Brown	2567657			
	17	Peter	Harrison	2716849			
*	(New)						

Close the table

Update queries

An Update query can be regarded as a powerful and flexible *Find and Replace* tool.

Using an Update query you can change the values of specific fields in all records or selected records in a table. The new values for the fields can be taken from other tables in the database or can be typed directly into the query.

You will use an Update query to add email addresses to the volunteers table.

- > Create a new query in Design View
- > Add the volunteers table to the Query Design

All the student volunteers will share the same email. The address is 'dsu@dmu.ac.uk'. The student volunteers start with record ID 6.

For an Update query, you need to add to the query grid only the fields that are to be updated and the fields that will be used to select the appropriate records.

- > Add the **Email** and **ID** fields to the query grid
- In the ID column, set the criteria >5
- > Click **Update** in the **Query Type** group on the **Design** tab

An Update To row is added to the QBE design grid.

> In the Update To row of the Email column, type "dsu@dmu.ac.uk"

Field:	Email	ID
Table:	volunteers	volunteers
Update To:	"dsu@dmu.ac.uk"	
Criteria:		>5
or:		

Click Run

A message is displayed informing you of the number of records that are about to be updated, and warning that you that the procedure cannot be reversed.

Microsof	t Office Access 🛛 🔀
	You are about to update 12 row(s).
	Once you click Yes, you can't use the Undo command to reverse the changes. Are you sure you want to update these records?
	Yes No

Click Yes

> Open the **volunteers** table

The email address has been added to all but the first five records.

	🛄 volunteers					
	Volunteer ID 👻	Forename 👻	Surname 👻	Telephone 👻	Email 🔹	Add New Field
	1	Guido	Fawkes	2543875		
	2	William	Bligh	2546238		
	3	George	Loveless	2546489		
	4	Alison	Sparks	2542836		
	5	Mary	Hopkins	2547621		
	6	William	Brown	2567657	dsu@dmu.ac.uk	
	7	Christopher	Wright	2652462	dsu@dmu.ac.uk	
	8	Harry	Watson	2105874	dsu@dmu.ac.uk	
	9	Bernie	Charles	2743928	dsu@dmu.ac.uk	
	10	William	Brown	2567657	dsu@dmu.ac.uk	
	11	Peter	Harrison	2716849	dsu@dmu.ac.uk	
	12	William	Brown	2567657	dsu@dmu.ac.uk	
	13	Christopher	Wright	2652462	dsu@dmu.ac.uk	
	14	Harry	Watson	2105874	dsu@dmu.ac.uk	
	15	Bernie	Charles	2743928	dsu@dmu.ac.uk	
	16	William	Brown	2567657	dsu@dmu.ac.uk	
	17	Peter	Harrison	2716849	dsu@dmu.ac.uk	
*	(New)					

Close the table

You will now use the Update query to copy the email addresses of the tutors from the tutors table to the volunteers table.

- > Delete the ID field from the QBE grid
- > Add the **tutors** table to the query design

Access needs to know what the relationship is between these two tables. You initially copied the tutors from the tutors table into the first records of the volunteers table, so the ID numbers of the tutors should be the same in both tables. The ID field will therefore be used to define a relationship between the tables for the purpose of this query.

- Position the mouse pointer on the ID field in the volunteers table and click and hold down the left mouse button
- > Drag to the **TutorID** field in the **tutors** table and release the mouse button

A relationship line is displayed connecting the tables via the ID fields.



You now want to instruct the query to update the email field to the email values from the tutors table.

> In the Update To row, replace the existing text with [tutors].[email]



This means the value of the **email** field in the **tutors** table

- > Save the query as **qryEmailUpdate**
- > Click Run
- > Click Yes to close the warning and complete the update
- > Open the volunteers table

The five tutors' email addresses are added to the table.

> Ensure that the email addresses are fully displayed

	III volunteers						
	Volunteer ID 👻	Forename 👻	Surname 👻	Telephone 👻	Email 👻	Add New Field	
	1	Guido	Fawkes	2543875	gfawkes@uni.ac.uk		
	2	William	Bligh	2546238	wbligh@uni.ac.uk		
	3	George	Loveless	2546489	gloveless@uni.ac.uk		
	4	Alison	Sparks	2542836	asparks@uni.ac.uk		
	5	Mary	Hopkins	2547621	mhopkins@uni.ac.uk		
	6	William	Brown	2567657	dsu@dmu.ac.uk		
	7	Christopher	Wright	2652462	dsu@dmu.ac.uk		
	8	Harry	Watson	2105874	dsu@dmu.ac.uk		
	9	Bernie	Charles	2743928	dsu@dmu.ac.uk		
	10	William	Brown	2567657	dsu@dmu.ac.uk		
	11	Peter	Harrison	2716849	dsu@dmu.ac.uk		
	12	William	Brown	2567657	dsu@dmu.ac.uk		
	13	Christopher	Wright	2652462	dsu@dmu.ac.uk		
	14	Harry	Watson	2105874	dsu@dmu.ac.uk		
	15	Bernie	Charles	2743928	dsu@dmu.ac.uk		
	16	William	Brown	2567657	dsu@dmu.ac.uk		
	17	Peter	Harrison	2716849	dsu@dmu.ac.uk		
*	(New)						

- Save and close the table
- Close the query

Before running any action query in a working database, it is advisable to first make a backup of the database because the action cannot be reversed.

SELECT QUERIES

Access includes wizards to enable you to find records that have been duplicated within a table, and to select records in one table that have no matching records in a related table.

Finding duplicate records

You will use the Find Duplicates Query Wizard to check for duplicate records in the students table. You will consider a record to be a duplicate if it has the same first name, last name, and date of birth as another record.

- > Click Query Wizard from the Other group on the Create tab
- > Select Find Duplicates Query Wizard



- > Click OK
- > Select the **students** table and click **Next**
- > Choose FirstName, LastName, and DOB as the Duplicate-value fields

This defines a duplicate record to be a record where the values in these three fields are the same as another record.

Find Duplicates Que	ery Wizard				
-	Which fields might contain duplicate information? For example, if you are looking for cities with more than one customer, you would choose City and Region fields here.				
	Available fields: StudentID Address1 Address2 Postcode Telephone Course	Duplicate-value fields: > FirstName LastName DOB <			
	Cancel	< <u>B</u> ack Next > Einish			

- Click Next
- > Select StudentID as an additional query field

Find Duplicates Qu	ery Wizard		
	Do you want the query to show fields in addition to those with duplicate of For example, if you chose to look for duplicate City values, you could cho CustomerName and Address here.		
	Available fields: Address1 Address2 Postcode Telephone Course	Additional query fields:	
	Cancel	< <u>B</u> ack Next > Einish	

- Click Next
- > Name the query **qryStudentDuplicates**
- Click Finish

ľ	gryStudentDuplicates						
	🗾 First name 👻 Last name		Last name 👻	Date of Birth 👻	Student ID 👻		
		William	Brown	08-Oct-82	29		
		William	Brown	08-Oct-82	1		
	*				(New)		

The results show that there are two records with the same first name, last name and date of birth.

This is a select query. It therefore does not alter the table. If you wish to investigate further or delete one of the records, then this will need to be done as a separate action.

- Close the query
- > Open the students table
- > Delete the record with Student ID equal to 29
- Close the table

Finding unmatched records

You will use the Find Unmatched Query Wizard to find out if there are any courses that currently have no student bookings.

- > Click Query Wizard from the Other group on the Create tab
- > Select Find Unmatched Query Wizard

New Query	? 🛛
This wizard creates a query that finds records (rows) in one table that have no related records in another table.	Simple Query Wizard Crosstab Query Wizard Find Duplicates Query Wizard Find Unmatched Query Wizard
·	OK Cancel

> Click OK

Select the courses table as the table containing the records that you want to be displayed in the query results

Find Unmatched Quer	y Wizard
	The query you create will list records in the table you select below that have no related records in the table you select on the next screen. For example, you can find customers that have no orders.
1 2 3 4 2 4 2 4	Which table or query contains records you want in the query results? Table: courses Table: faculties Table: students Table: tutors Table: volunteers
	View Tables O Queries O Both
	Cancel < Back Next > Finish

Click Next

> Select the students table as the table containing the related records

Find Unmatched Query Wizard
Which table or query contains the related records? For example, if you've already selected customers and you're looking for customers without orders, you would choose orders here. Table: faculties Table: students Table: volunteers View View Tables Queries Bgth
Cancel < Back Next > Finish

Click Next

A relationship already exists between the two tables, so this is reflected in the wizard. If no relationship existed, you would need to follow the instructions to create a relationship between the tables.

Find Unmatched Quer	/ Wizard	`
	What piece of information is in bot For example, a Customers and an CustomerID field. Matching fields in Select the matching field in each ta Fields in 'courses' : CourseID CourseTitle RoomNumber NumberOfModules StartDate Tutor	h tables? Orders table may both have a may have different names. able and then click the <=> button. Fields in 'students' : FirstName LastName Address1 Address2 Postcode Telephone DOB Course
	Matching fields: CourseID <=	>Course
	Cancel < Ba	ck Next > Einish

- Click Next
- > Select CourseID and CourseTitle as the fields to be displayed in the results

Find Unmatched Qu	Jery Wizard	
Find Unmatched Qu	What fields do you want to see in the Available fields: RoomNumber NumberOfModules StartDate Tutor	selected fields:
3		
	Cancel < E	ack <u>N</u> ext > <u>F</u> inish

- Click Next
- > Name the query **qryNoBookings**
- Click Finish

ſ	J.	qryNoBooking	S
		Course ID 👻	Course title 👻
		3	Trade Unionism & Its History
	*	(New)	

The results indicate that no students are enrolled on the Trade Unionism & Its History course.

Close the query

Grouping

Queries can be used to group data from tables and calculate summary information.

As an example, you will create a query to produce a count of how many students are enrolled on each of the available courses.

Create a Select query in Design View projecting only the Course field from the students table on to the QBE grid

🛃 Quer	y1	
<	students * StudentID FirstName LastName Address1 Address2 Postcode Telephone DOB Course	
Fie Tal: Sto Crite	eld: Course ole: students ort: ow: V ria: or:	

To create a grouped display from the query:

- > Click Totals from the Show/Hide group on the Design tab
- A Total row is added to the QBE grid, with the default entry Group By.

Field:	Course	
Table:	students	
Total:	Group By	
Sort:		
Show:	✓	
Criteria:		
or:		

> Run the query

Each course is listed just once.





This idea is sometimes used to display only unique values in a field. To be used, for example, when creating combo boxes or list boxes.

Switch to Design View

To count the students on each course you need to add a second field to the grid. It doesn't matter which field.

- > Add the **FirstName** field to the QBE grid
- > Click into the **Total** row for the **FirstName** field
- > Click the down arrow to see the options available

Field:	Course	FirstName	
Table:	students	students	
Total:	Group By	Group By 📉	
Sort:		Group By	Ŕ
Show:	Image: A start of the start	Sum	
Criteria:		Avg	
or:		Min	
		Max	
		Count	
		StDev	
		Var	
		First	
		Last	
		Expression	
		Where	
	◀ 📖		

Click Count

This will produce a count of first names for each course group.

> Run the query

d.	Query1		
	Course	*	CountOfFirstName 👻
	Advanced Pyrotechnics	*	8
	Sailing and Navigation		5
	Introduction to Database		7
	Forensic Science		10

To customise the name of the column:

- Switch to Design View
- > Click into the Field row for the FirstName field in the QBE grid
- > Type Number of students: to the left of FirstName

Field:	Course 🤇	Number of students: FirstName
Table:	students	students
Total:	Group By	Count
Sort:		
Show:	>	 Image: A set of the /li>
Criteria:		
or:		

\succ Run the query

d	Query1			
	Course	*	Number of students	Ŧ
	Advanced Pyrotechnics	*		8
	Sailing and Navigation			5
	Introduction to Database			7
	Forensic Science			10

- > Save the query as **qryStudentNumbers**
- Close the query

Calculated fields

Earlier in the course you used a calculated control to combine first name and last name values. Performing calculations on fields and combining fields can be achieved within queries by creating new fields called Calculated Fields.

> Create a new query in Design View and add the students table to the design

Instead of projecting the FirstName and LastName fields, you will create a calculated field called Name, which contains both the FirstName and LastName values with a space between them.

In the first column of the QBE grid, for the Field type: Name: [FirstName] & " " & [LastName]

Field:	Name: [FirstName] & " " & [LastName]
Table:	
Sort:	
Show:	✓
Criteria:	
or:	

➢ Run the query

When you base reports and forms on queries with calculated fields, you can use these fields in the same way as the fields defined in the tables.

If you need to use a particular calculated control in a number of reports, it will usually be quicker to create a calculated field in a query and base the reports on the query.

Switch to Design View

Formatting a field

It is possible to format a field within a query. This enables you, for any given field, to use different formats within the database.

In the second column of the QBE grid, for the Field type: BDay: Format([DOB], "mmm d")

Field:	Name: [FirstName] & " " & [LastName]	BDay: Format([DOB],"mmm d")
Table:		
Sort:		
Show:		
Criteria:		
on		

This takes the value from the DOB field and displays it using the format specified by the code *mmm d*.

Run the query

Date format codes include:

Code	Description		Examples	
		Format	Value	Display
m	Displays the month as ##	m	25/12/2008 7/4/1998	12 4
mm	Displays the month as 00	mm	7/4/1998	04
mmm	Displays the month abbreviated to three letters	mmm	25/12/2008	Dec
mmmm	Displays the name of the month in full	mmmm	7/4/1998	April
d	Displays the day as ##	d	25/12/2008 7/4/1998	25 7
dd	Displays the day as 00	dd	7/4/1998	07
ddd	Displays the name of the day abbreviated to three letters	ddd	25/12/2008	Thu
dddd	Displays the name of the day in full	dddd	7/4/1998	Tuesday
уу	Displays the year as 00	dd/mm/yy	7/4/1998	07/04/98
уууу	Displays the year as 0000	mmm-yyyy	25/12/2008	Dec-2008

- Switch to Design View
- In the next blank column of the QBE grid, for the Field type: Town: Format([address2], ">")

This formats the text as all uppercase (see page 176).

\succ Run the query

d.	🔁 Query1									
	Name 👻	BDay 👻	Town 👻							
	William Brown	Oct 8	ROTHLEY							
	Charles Churchill	May 15	AYLESBURY							
	Peter Haywood	May 26	MANCHESTER							
	Matthew Quintal	Feb 17	POOLE							
	Richard Skinner	Jun 21	BEER							
	John Williams	Feb 28	FROME							
	Charles Norman	Mar 15	LYME REGIS							
	James Brine	Nov 2	CONWY							

- > Save the query as **qryFormatExamples**
- > Close the query

Null values

- Create a query in Design View, projecting the FirstName, LastName and Postcode fields from the students table on to the QBE grid
- > Run the query

Observe that there are 30 records in total.

Record: I 🕂 1 of 30 🕨 🕨 🛤

- Switch to Design View
- > Enter the Criteria LE* in the Postcode column
- > Run the query

Observe that 5 records starting with LE were found.

- Switch to Design View
- > Change the Postcode Criteria to Not Like "LE*"
- > Run the query

The query has found 22 records. This may be surprising since you found that 5 out of a total of 30 records have postcodes starting with LE, implying that 25 of the records do not have postcodes starting with LE.

The reason why only 22 records were found is that **Not Like "LE*"** finds all the records <u>with a value</u> in the Postcode field that do not start with LE. It does not look for records that do not have a value in the field.

Access uses the term **Null** for empty. To find all the records where the postcode field does not start with LE, including null values:

- > Change the Postcode Criteria to Is Null or Not Like "LE*"
- > Run the query

The query has now found 25 records, including 3 with no postcode values.

- Save the query as **qryNullValues**
- Close the query

FORMS

Much of the terminology and techniques used in creating and editing Forms is the same as that used for Reports. This section assumes that you have worked through the Reports section and are therefore acquainted with the basic techniques involved in working with labels and text boxes.

While data may be entered directly into tables, users will find it much easier to use a Form for entering and editing data. Forms make your database more user-friendly.

Like reports, standard forms based on a table or query can be created easily and automatically, and edited if necessary. However, if you will need to make lots of changes to an automatically created form, you may find it more useful to start with a blank design and create the form to your desired specification.

This section takes you through the process of creating forms without using the wizards.

CREATING A FORM USING DESIGN VIEW

You will be creating the form below by starting with a blank form and inserting each control individually on to the form.

Courses						
Course title: Advanced Pyrotechnics Start date: 06 September 2010	Number of Modules Course ID: 1 5 Room Number: \$5.8					
Name of Course leader: Guido 💌 Fawkes	Le Close Form					
Record: H 🔺 1 of 5 🔹 H 🕫 😵 No Filter Searc	h					

Apart from viewing and editing existing data, the form is intended to allow the user to add new courses and enter course leaders for the courses. The course leaders' names are stored in the tutors table; therefore a Combo Box will be

employed to allow users to quickly select the course leader from the list of tutors, instead of having to type in the name each time.

In Design View the form looks like this:

✓ Form Header																	
							С	ou	rse	es							
🗲 Det	ail																
													Г	Numb	er of M	odules	
	Course	title:	Cour	seTitle	e I	1	1	J		Course	ID: C	Course	ļ		N	umbe	
	Start a	ate:	Start	Date					Roor	n Num	ber: F	RoomN					
	Name	of Coi	rse lea	der:	Τυ	itor	~									Þ	
					Su	irname	2				Close	Form				ΤĮ	
	m Foote	er	•		•			•			•						

To create the form:

> Click Form Design from the Forms group on the Create tab

A blank form showing the Detail section is displayed.



- Minimise the Navigation pane
- > If necessary, maximise the Form window
- > Adjust the width of the form to between 18 and 20 cm (I used 18)

The height of the form will be adjusted later.

It is possible to add Page Header and Footer sections and Form Header and Footer sections to the form.

Page Headers and Footers are not normally used with forms. Forms are usually displayed in Form View but Page Headers and Footers are not displayed in this View. Designers only include these sections if the form is to be printed, or if a control needs to be positioned where it cannot be seen.

The Form Header section is often used to add a title to the form, or a logo, or navigation buttons, or simply for design effect since this section can be coloured differently from the Detail section.

To add a Form Header:

Click the Form Header/Footer button from the Show/Hide group on the Arrange tab



You will not need the Form Footer.

> Drag the bottom edge of the grid to meet the Form Footer bar



- > Add a label to the Form Header section
- > Use the label to add the title Courses
- > Make the label as wide as the grid
- > Amend the properties of the label so that the text is:
 - Segoe UI
 - 28 point
 - Centred
- Change the height of the label if necessary to ensure that the title is fully displayed
- Modify the depth of the Header if necessary so that the label is centred vertically

	🗲 Form Header													
_														
			l					l						
							C	hu	rca	bC				
								ρu	120	22				
_														
🗲 Det	🗲 Detail													

Save the form as **frmCourses**

Adding fields

First you need to indicate where Access should look to find the data to be displayed on the form.

Earlier you used the Report Property Sheet to set the Record Source property for a report. The method is exactly the same for forms.

- > Click **Property Sheet** from the **Tools** group on the **Design** tab
- > Ensure that the properties for the **Form** are displayed

Property Sheet			×
Selection type: Form			
Form		*	
Format Data Event	Other	AII	
Record Source			V ^
Caption			
Pop Up	No		
Modal	No		

To set the courses table as the source for the form's data:

- > Click the down arrow in the **Record Source** property
- > Select courses

The procedure for adding and positioning fields on to the form is also the same as for reports.

To add controls bound to fields in the courses table:

- > Click Add Existing Fields from the Tools group on the Design tab
- > Drag the **CourseTitle** field on to the **Detail** section
- > Resize and position it as shown below (see page 59 to review the method)



> Drag the **StartDate** field on to the **Detail** section



To make the design look as professional as possible, you want the two labels to be positioned the same distance from the left edge of the form.

Select the Course title label, hold down the Shift key and select the Start date label

With both labels selected, click the Left button from the Control Alignment group on the Arrange tab



Do the same with the CourseTitle and StartDate text boxes so that their left edges are aligned



The next task is to make both text boxes the same width.

- Display the Property Sheet
- > With both text boxes still selected, type **4.75cm** for the **Width** property
- Press Enter

The arrow keys are useful when you need to move controls short distances. You may need to move the Start date label and text box vertically so that they are closer to the Course title. To do this:

- Select the Start date label and the StartDate text box
- > Tap the Up Arrow key repeatedly until the controls are positioned as below

	🗲 Detail		
: -			
1	Course title: CourseTitle		+
2	Start date: StartDate		-+
- - 3			

Add the CourseID, RoomNumber and NumberOfModules fields to the form, resizing and repositioning the controls as shown below

	✓ Detail							
-	Number of Medulos							
1	Course title: CourseTitle Course D: Course Number Number							
- 2	Start date: StartDate Room Number: RoomN							
-								
3								

> Drag the **Tutor** field on to the form

> Display the form in Form View

The lookup wizard was used to link the Tutor field in the courses table to the tutors table, so a combo box control is added when the field is dragged on to a form.

	frmCourses	. =	x
	Courses		
•	Course title: Advanced Pyrotechnics Course ID: 1 5 Start date: 06-Sep-10 Room Number: \$5.8		
	Tutor: 1 🗸		
Re	ccord: H 🔞 1 of 5 🔹 🕨 H H2 🛛 🔆 No Filter 🛛 Search		

It would be more useful, however, to display the tutor's name instead of the tutor's ID number.

- > Display the form in Design View
- > Delete the **Tutor** controls from the form

Adding a combo box

You will create a combo box control bound to the Tutor field, but displaying the Tutor's name instead of the ID number.

- Ensure that the Use Control Wizards button, in the Controls group on the Design tab, is selected/highlighted. If necessary, click the Use Control Wizards button to select it
- > Click the **Combo Box control** button from the **Controls** group



> Click on a blank area within the Detail section

A Combo Box and an associated label are added to the form and the Combo Box Wizard is displayed.

E Form1	Combo Box Wizard	- = X
• • • • • • • • • • • • • • • • •	This wizard creates a combo box, which displays a list of values you can choose from. How do you want your combo box to get its values?	· · · 19 · · · A
2	I want the combo box to look up the values in a table or query. I will type in the values that I want.	
Octail	Find a record on my form based on the value I selected in my combo box.	=
Course title: CourseTitle		
	Cancel < Back Next > Einish	
Combo3:	Unbound	
Form Footer		

The text on the label may not be exactly the same as that shown in the diagram, but that is not important since you will be changing it in due course.

- > Note the different options that you can choose from the wizard
- Ensure that I want the combo box to look up the values in a table or query is selected and click Next

> Select the **tutors** table

Combo Box Wizard	
	Which table or query should provide the values for your combo box? Table: courses Table: faculties Table: students Table: volunteers
	View ⊙ <u>T</u> ables O Queries O Both
	Cancel < Back Next > Einish

- Click Next
- > Select Forename and Surname as the fields to be included in the combo box

Combo Box Wizard					
	Which fields contain the values you want included in your combo box? The fields you select become columns in your combo box.				
Available Fields:	Selected Fields:				
TutorID Telephone	Surname				
	>>				
<u> </u>					
	Cancel < <u>B</u> ack <u>N</u> ext > Einish				

Click Next

To sort the list by Surname:

> Click the down arrow and select Surname

Cor	mbo Box Wizard					
Wł	What sort order do you want for the items in your list box?					
Yo	u can sort records by up to four fields, in either ascending or descending order.					
1	Surname Ascending					
2	(None) h\$ TutorID Ascending Forename					
3	Surname Ascending					
4	Ascending					
_						
	Cancel < <u>B</u> ack <u>N</u> ext > Einish					

- > Click Next
- Ensure that there is a tick in the check box to Hide key column and adjust the widths of the columns if necessary to ensure that the names are fully displayed

Combo Box Wizard						
How wide would you like the columns in your combo box? To adjust the width of a column, drag its right edge to the width you want, or double-click the right edge of the column heading to get the best fit.						
Forename William Guido Mary George Alison	Surname Bligh Fawkes Hopkins Loveless Sparks					
Cancel < <u>Back</u> <u>Next</u> > <u>Fi</u> nish						

Click Next

To bind the combo box value to the Tutor field:

In the Store that value in this field box, click the down arrow and select Tutor

Combo Box Wizard	Microsoft Office Access can store combo box in your database, or r use it later to perform a task. Wr combo box, what do you want Mic O Remember the value for later O Store that value in this field:	the selected value from your emember the value so you can nen you select a value in your crosoft Office Access to do? use. Tutor CourseID CourseTitle RoomNumber NumberOfModules StartDate Tutor
	Cancel < <u>B</u> ack	<u>N</u> ext > <u>F</u> inish

Click Next

The last dialog box of the wizard gives you the option to change the text on the label.

> Change the default text to Name of Course Leader:



> Click Finish



The extra text in the label has caused it to overlap with the combo box.

- > Drag the label left to ensure that it is fully displayed
- > Display the form in Form View
- Click the down arrow on the combo box

Name of Course Leader:	Guido	~
	William	Bligh
	Guido	Fawkes
	Mary	Hopkins
	George	Loveless
	Alison	Sparks

Select Alison Sparks

The combo box list includes the Forename and Surname values as you specified. However, only the Forename value is displayed in the combo box.

It would be useful to also display the course leader's Surname on the form.

- > Display the form in Design View
- > Ensure that the Field List pane is displayed (see page 59)
- If there is not a Fields available in related tables section, click the Show all tables link at the bottom of the pane
- In the Fields available in related tables section of the pane, click the plus sign next to the tutors table to display the fields



- > Drag the **Surname** field on to a blank area of the form
- > Select and delete the Surname label

Position the text box below the combo box as shown below (resize the text box if necessary)

Name of Course Leader:	Tutor 🗸	
	Surname	

> Display the form in Form View

The course leader's forename and surname are both displayed.

> Use the combo box to select Guido Fawkes

Name of Course Leader:	Guido 🗸		
	Fawkes		

In Design View, align the Course Leader controls below the Start date controls as shown below

✓ Detail								
	Cours	e title	Cou	rseTitl	e			[[
	Start o	late:	Star	tDate				
	Name	of Co	urse Le	eader:	T T	utor	~	1
					S	urname	2	
Adding a command button

Most forms would benefit from a Command Button to take the user out of the form and possibly into another form.

You will add a Command Button that will simply close the form.

- Ensure that the Use Control Wizards button is selected/highlighted in the Controls group
- > Click the **Button** control from the **Controls** group



> Click on a blank area in the Detail section of the form

A rectangular button is added to the form and the Command Button Wizard is displayed.

Command Button Wiza	rd What action do you want to hap pressed? Different actions are available fo	open when the button is or each category.
	<u>Categories:</u> Record Navigation Record Operations Form Operations Report Operations Application Miscellaneous	Actions: Find Next Find Record Go To First Record Go To Last Record Go To Next Record Go To Previous Record
(Cancel < Back	Next > Einish

> In the Categories section, click Form Operations

The Actions section displays actions associated with this category.

> Click the Close Form action

Command Button Wizar	d	
Sample:	What action do you want to happ pressed? Different actions are available fo	oen when the button is r each category.
	Categories: Record Navigation Record Operations Form Operations Report Operations Application Miscellaneous	Actions: Apply Form Filter Open Form Print a Form Print Current Form Refresh Form Data
(Cancel < Back	Next > Einish

Click Next

You can now decide what is displayed on the Command Button. You have the choice of two images or display text only.

For this button you will use an image and add text to it later.

> In the **Picture** section, ensure that the **Exit Doorway** option is selected

Command Button Wiza	rd
Sample:	Do you want text or a picture on the button? If you choose Text, you can type the text to display. If you choose Picture, you can dick Browse to find a picture to display. If ext: Close Form Picture: Exit Doorway Stop Browse
	Show All Pictures
[Cancel < <u>B</u> ack <u>N</u> ext > <u>F</u> inish

- Click Next
- > Change the suggested name for the command button to cmdCloseCourses
- Click Finish



The button can be resized by dragging the resize handles, but instead you will set the size on the property sheet.

- Display the Property Sheet
- > Set the Width to 2.5cm and the Height to 0.75cm

To display text on the button as well as the image:

- > Change the Caption property to Close Form
- > Click into the **Picture Caption Arrangement** property
- Click the down arrow and select **Right** to put the caption to the right of the picture

Property Sheet	×
Selection type: Command But	ton
cmdCloseCourses	~
Format Data Event Oth	er All
Name	cmdCloseCourse 🔺
Caption	Close Form
Picture Caption Arrangement	No Picture Ca 🗙 💳
Visible	No Picture Cap
Cursor On Hover	General
Picture	Тор
Picture Type	Bottom
Width	Left
Height	Right
Top	3.598 cm

Change the Font Size to 9



- Reposition the Command Button if necessary so that the form looks similar to the image on page 94
- Save the form
- > Switch to Form View and try the button

SPECIAL EFFECTS

Although the Form is functional, you are going to improve its appearance by adding colour and graphics. You will also add extra formatting to some of the controls.

Graphics

You may want to include an image in a Form or Report for varying reasons. It could be a logo that needs to be added to every Form or Report, or you may decide to insert an appropriate image to enhance the visual appeal of a Form.

> Open the form **frmCourses** in Design View

To add an image below the Number of Modules controls:

> Click the Image button from the Controls group



> Click on a blank area in the Detail section

A control is added to the form and the Insert Picture window is displayed.

> Navigate to the folder C:\Popular pictures



Select the image AMIDEAL

> Click OK

The image is added to the form.

The image is large and therefore the form may have extended in width and/or height in order to accommodate the image.

- > With the image selected, click in the **Size Mode** property
- Click the down arrow

Property Sheet	×
Selection type: Image	
Image16	~
Format Data Event C	Other All
Name	Image16 🔺
Control Source	
Visible	Yes
Picture	AMIDEAL.wmf
Picture Tiling	No
Size Mode	Zoom 📉
Picture Alignment	Clip
Picture Type	Stretch
Width	Zoom
Height	10.899 cm

The options are Clip, Stretch, and Zoom.

The Clip option will cause the image to be cropped as you resize the control to make it smaller. The Stretch option will stretch the image as you resize; if you resize the width, then only the width will be stretched. The Zoom option enlarges the image, retaining the original aspect ratio, as you resize the control.

- > Ensure that **Zoom** is selected
- Scroll to the bottom of the image and drag one of the resize handles to make the image smaller
- Resize and reposition the image so that the form looks similar to the diagram on page 94
- If the image caused the width of the form to extend, drag the width back to the original setting (see page 95)
- Drag the Form Footer bar upward to reduce the height of the form, leaving no more than two or three blank rows below the controls
- Save the form

> Select all the text boxes and combo box



- > Click in the Special Effect property on the Property Sheet
- Click the down arrow

Border Width	Hairline
Border Color	+C0C0C0
Special Effect	Flat 💉
Font Name	Flat
Font Size	Raised
Text Align	Sunken
Font Weight	Etched
Font Underline	Shadowed
Font Balic	Chiseled
Fore Color	=000000

Select Sunken

To make the text on the labels slightly different from that in the text boxes:

> Select all the labels in the Detail section

Ø Detail				
				Number of Modules
Course title: CourseTit	le I I I	Course I	D: Coursel	Numbe
Start date: StartDate		Room Numbe	r RoomN	
Name of Course Leader:	Tutor 🗸			
	Surname		Close Form	

Set the Font Name property to Segoe UI, the Font Size to 10, and Font Italic to Yes

Using colour

The Form comprises two sections and several controls: text boxes, labels, and a combo box. Each individual one of these components can be coloured differently.

- > Select the label in the Form Header
- Click in the Back Color property

A down arrow and an ellipsis button are both displayed for this property.

Click the down arrow

A long list of options is displayed enabling you to choose one of the theme or system colours by name.

Back Style	Normal
Back Color	#FFFFF 🛛 🗙 🚥
Border Style	Alternate Row
Border Width	Background Form
Border Color	Background Light Hea
Special Effect	Background Dark Heac
Font Name	Borders/Gridlines
Font Size	Text Black
Text Align	Text Description
Eart Wainht	Text Light
Ford United	Text Dark
Pont Underline	Highlight
Fort Ralic	Access Theme 1
Fore Color	Access Theme 2
Is Hyperlink	Access Theme 3
Display As Hyperlink	Access Theme 4
Gridline Style Top	Access Theme 5
Gridline Style Bottom	Access Theme 6
Gridling Shile Left	Transparent

> Click the ellipsis button

A more conventional colour picker is displayed.



- > Select Light Blue from the Standard Colors section
- > Press Enter (or click on a different property) to see the colour change
- > Click outside the label in the Form Header section
- > Display the colour picker in the **Back Color** property
- Select Light Blue 2



- > Click on a blank area in the Detail section
- > Display the colour picker in the **Back Color** property
- Select Light Blue 1
- > Select all the text boxes and combo box in the Detail section
- > Display the colour picker in the **Back Color** property
- > Select the lightest grey colour from the **Standard Colors** section
- > Press Enter (or click on a different property)
- In the Form Header section, draw a horizontal line at the bottom, stretching right across the form
- > Save the form
- > Display the form in Form View

OTHER PROPERTIES WORTH NOTING

The form is more visually appealing than before, but you may notice that the label for the title and the horizontal line do not stretch right across the form.

Horizontal anchor

- > Display the form in Design View
- > Select the horizontal line in the Form Header
- > Click in the Horizontal Anchor property
- > Click the down arrow

Horizontal Anchor	Left	\times
Vertical Anchor	Left	2/
Display When	Right	Ň
Tag	Both	

> Select Both

This anchors the line at both edges, ensuring that, if the form is extended in Form View, the line will also extend.

Set the Horizontal Anchor for the label in the Form Header so that it is also anchored at both ends

Enabled and Locked

These two properties work together to secure an individual control. By default each control is Enabled and Not Locked.

Select the CourseID text box

You do not want users to attempt to change the ID number. To ensure that users will not be able to change this value on the form, you can either Disable the control, or Lock it, or both Disable and Lock it.

When a control is disabled, it cannot be given the focus. In other words, users are not able to click into it. It is also greyed out, unless it is also locked.

When a control is locked, users cannot make changes to the data even if they are able to click into the control.

Enabled	Locked	Can select?	Can edit value?	Control greyed out?
Yes	No	Yes	Yes	No
Yes	Yes	Yes	No	No
No	No	No	No	Yes
No	Yes	No	No	No

The following table lists the effects of the different combinations of settings:

By selecting from the drop down list, change the Enabled property to No and the Locked property to Yes (Hint: You may find it easier to locate these properties from the Data tab)

The Course Leader's surname is another value that you do not want users to edit or select, since this control is simply reflecting what was selected from the combo box.

- Click the Surname text box
- > Change the Enabled property to No and the Locked property to Yes

Limit To List

This property and the one that follows are available for combo boxes and can both be found on the Data tab.

Limit To List enables you to decide whether or not users can type a value into the control if it is not in the list. On this form the course leaders are to be limited to the names that exist in the tutors table.

- Click into the Combo Box control
- > Check that the Limit To List property is set to Yes

Auto Expand

This property will help users who decide to type into the combo box.

When Auto Expand is set to Yes, if the user starts typing into the control, Access displays the first value from the available list that begins with the characters already typed.

> Check that the Auto Expand property is set to Yes

Tab index

When all the controls have been placed on the form, you need to check that the Tab key takes the user from one control to another in a logical and helpful order. If necessary, the Tab Index property can be changed for some controls to ensure that the order is correct.

- Display the form in Form View
- > Use the Tab key to cycle through the controls

The Course ID and Course Leader's Surname are disabled and locked; therefore these fields are skipped as you cycle through the record.

To practice reordering the tab sequence, you will change the order to:

Course title Course ID Number of Modules Start date Room Number Tutor combo box Surname Command button

Course ID and Surname have been included in the list because every field must have a Tab Index value even if they are to be skipped when tabbing.

- > Display the form in Design View
- > Ensure that the Property Sheet is displayed
- Click the CourseTitle text box
- > Select the **Other** tab in the Property Sheet
- > Note that the **Tab Index** value is **0**

This was the first field to be placed on the form, so it was automatically assigned the smallest index value.

- Click the CourseID text box
- Change the Tab Index to 1

The *Tab Stop* property enables you to decide if an individual control should be skipped when the user Tabs through the controls on the form.

Since users are not allowed to change the CourseID, change the Tab Stop property of the CourseID text box to No (this is considered to be good practice, even though it is not entirely necessary since the Enabled property is set to No and this also ensures that the control is skipped)

- Change the Tab Index for each of the following controls: NumberOfModules text box to 2
 StartDate text box to 3
 RoomNumber text box to 4
 Tutor combo box to 5
 Surname text box to 6
 Close Form command button to 7
- > Set the **Tab Stop** property for the **Surname** text box to **No**
- Verify in Form View that the Tab sequence is as expected, and that the Course ID and Surname boxes are skipped

Alternative method for changing the tab order			
> In Design View, select the CourseTitle text box (any text box would be okay)			
> Click Tab Order from	Click Tab Order from the Control Layout group on the Arrange tab		
Tab 0			
Section			
Form H Detail	leader CourseTitle		
Form F	Footer NumberOfModules		
	StartDate RoomNumber		
	Combo11		
	cmdCloseCourses		
	Image16		
Click to click an multiple	select a row, or d drag to select srows. Drag		
selecte	a desired tab		
order.			
	OK Cancel Auto Order		
To make StartDate seco	ond in the order:		
> Click the selection b	oox to the left of StartDate to select the row		
	NumberOfModules		
	StartDate RoomNumber		
	Combo11		
> Drag the row up abo	> Drag the row up above CourseID by dragging the selection box		
Drag RoomNumber above NumberOfModules			
> Verify in Form View	that the Tab sequence is as expected		

The other properties discussed in this section are general Form properties.

- > Display the form in Design View
- > Display the properties of the Form



Caption

When a Caption property is set for the form, this is displayed as a title on the Form Title Bar when in Form View; otherwise the form name is displayed on the Title bar.

The name frmCourses is not a useful title for the form.

- > Select the All tab on the Property Sheet
- > Click in the **Caption** property and type **2010 Courses**

Pop Up and Modal

These two properties are often set in conjunction.

When the Pop Up property is set to Yes, the form opens in its own window above all other open objects. Be aware that setting to Yes also disables the Views group on the ribbon when the form is displayed in Form View, making it more difficult to change to Design View.

When the Modal property is set to Yes, the form opens in a Modal window, meaning that the user must close the form before continuing with another task on the database.

This particular form does not need to be modal.

> Ensure that both the **Pop Up** and **Modal** properties are set to **No**

Restricting available views

It is advisable to decide what view or views your form is designed to be displayed in, and disable all other views.

Restrict the user to only Form View and Layout View by setting Allow Datasheet View, Allow PivotTable View and Allow PivotChart View to No

Allow Form View	Yes
Allow Datasheet View	No
Allow PivotTable View	No
Allow PivotChart View	No
Allow Layout View	Yes

Record Selectors and Scroll Bars

The Record Selector allows the user to select and delete or print an individual record. It is a good idea to remove the Record Selector whenever this facility is not needed because, apart from disabling this feature, it enhances the look of the form.

> Set the **Record Selectors** property to **No**

Scroll Bars are also often disabled in forms for aesthetic reasons.

- > Set the Scroll Bars property to Neither
- > Ensure that the Auto Resize property is set to Yes

Auto Resize automatically adjusts the display of the form to the size that you designed it. If it is set to No, the form appears in the way the user last saved it, which can easily be too small if they resized it for some reason. Since scroll bars will not be present to warn the user that the complete form is not displayed, it is important that Auto Resize is set to Yes.

- > Save the form
- > Display the form in Form View to see the effect of the changes
- Close the form

EXERCISE



- > Create a blank form in Design View
- > Display the Form Header (you do not need the Form Footer)
- > Make the width of the form 18cm
- Create a label in the Form Header, and use this to give the form the heading Student Information. Change the font size to 22. Resize and reposition as shown in the diagram below
- > Set the **Record Source** for the form to be the **students** table
- Drag all the fields from the students table on to the Detail section of the form and reposition and resize as shown in the diagram below (the darker boxes are labels)
- > Add a Command Button, named cmdCloseStudents, to close the form

-8	frmStu	Idents																- =	x
	1.1.1	1 * 1 * 3	2 * 1 * 3	3 • 1 • •	4 * 1 * 8	5 * 1 * 6	8 * 1 * 3	7 * 1 * 3	8 × 1 × 5	9 • 1 • 10	1 1 1 1	1 · · · 12	2 + 1 +1	3 • 1 • 1	4 * 1 * 1	5 · · · 1	6 · · · 1	7 • • •1	8 •
	For For	m Head	er																
- 1	Stu	ıde	nt l	nfo	rma	atic	n												
	€ Det	ail																	
- - - 1		-																	≣
2		Cours	e title		Cours	e				×					¶r• c	lose F	orm		-
3		First r	ame:			Last n	ame:							Addre	ess:]			-
4		FirstN	lame	1		LastN	ame	1			Str	eet		Addre	ess1			<u> </u>	
5		Date	of Birt	h:		DOB					To	wn/Cit stcode	y	Addre	ess2 '				-
- - 6				–					[70	stebue		Teleo			-		
											Te	lephor	ne:	Telep	none				
•	+ For	m Foote	er																→

> Ensure that the Tab Order is as displayed in the diagram below

Tab Order	? 🔀
Section: Form Header Detail Form Footer	Custom Order: Course FirstName LastName DOB Address1
	Address2 Postcode Telephone cmdCloseStudents
Click to select a row, or click and drag to select multiple rows. Drag selected row(s) to move them to desired tab order.	
ОК	Cancel Auto Order

- > Save the form as **frmStudents**
- > Change the form's Caption to 2010 Students
- Display the form in Form View and check that all fields are displayed as expected
- > Use the Tab key to check the Tab Order
- > Save the form
- > Use the Command Button to close the form

APPLYING AUTOFORMATS

Rather than define the format of each object in the form separately, you can apply one of the AutoFormats installed with Access.

> Open the **frmStudents** form in Design View

When a form is opened the whole form is initially selected. This is important for the next step, because AutoFormats are applied to the selected object(s).

> Click AutoFormat on the Arrange tab

A gallery of AutoFormat designs is displayed.

		AutoFormat					
		X0000C	X0000C	200000	xxxxx	××××	•
Paper			X0000C		X00000	XXXXXX	
		x00000	20000C		xxxxx	×****	
		X0000	200000	200000	x	XXXXXX	
		XXXXXX	X0000C	xxxxx		20000	-
	(Auto <u>F</u> o	rmat Wizard	>			

- > Hover the mouse over an AutoFormat design to see its name
- Select the Paper AutoFormat

The whole form is formatted using the colours and fonts from the selected AutoFormat.

> Click Undo to remove the formatting

If Undo is not initially available, switch to Form View and back to Design View.

AutoFormats can be applied to individual sections of a form, or to individual controls.

- > Click the Form Header bar to select only the Header
- > Apply the **Paper** AutoFormat

The formatting is applied to the Header section only.

Click Undo

User-defined AutoFormats

If you have a formatted form, and wish to use the same formatting on other forms, you can create a new AutoFormat from your existing form.

You will save the formatting from the frmCourses form and apply it to frmStudents.

- > Open the form **frmCourses** in Design View
- Click AutoFormat
- Click AutoFormat Wizard
- Select None from the AutoFormats list (this is not strictly necessary, but is good practice in case the AutoFormat gets accidentally overwritten)



- Click Customize
- > Select Create a new AutoFormat based on the Form 'frmCourses'

🖪 Customize AutoFormat	x
Customize Options Oreate a new AutoFormat based on the Form 'frmCourses'.	OK Cancel
O Update 'None' with values from the Form 'frmCourses'.	Concer
🔿 Delete 'None'.	
This will allow you to create your own AutoFormats based on the document you have open.	

> Click OK

> Change the suggested Style Name to ShadesOfBlue



- > Click OK
- Click Close on the AutoFormat dialog box
- Close frmCourses

To apply the ShadesOfBlue AutoFormat to frmStudents:

- Ensure that frmStudents is open in Design View and that the whole form is selected
- Click AutoFormat
- Click AutoFormat Wizard
- > Select **ShadesOfBlue** from the AutoFormat list
- Click OK

One current problem with AutoFormat is that it moves labels to the right if the contents are either centre or right aligned. This can be overcome by creating your user-defined styles without special text alignment, leaving any such alignment tasks to be done after the AutoFormat is applied.

The ShadesOfBlue AutoFormat includes an aligned label in the Form Header. Some adjustment is therefore needed.

- Drag the Student Information label to the left edge of the form without resizing it
- > Check the right edge of the form and resize the width to 18cm
- > Save the form

To prepare for the next example:

> Apply the **None** AutoFormat to the form

AutoFormat options

When applying User-Defined AutoFormat styles, it is possible to omit certain aspects of the style.

- > Ensure that the whole form is selected in Design View
- Click AutoFormat
- Click AutoFormat Wizard

The AutoFormat dialog box is displayed.

- Select the ShadesOfBlue AutoFormat
- Click the Options button

Three check boxes are displayed at the bottom of the dialog box.



These attributes refer solely to the data boxes (text boxes, combo boxes, etc) and labels. They have no effect on other controls, or the background of the form itself.

To apply the AutoFormat without changing the background colour or border effect of the data boxes and labels:

- > Remove the ticks from the **Color** and **Border** check boxes
- > Click OK



At present, these options do not work smoothly for the built-in AutoFormats, and are therefore only recommended for use with User-Defined AutoFormat styles.

Close the form without saving

SUBFORMS

A sub form is a form within another form. Sub forms are useful when displaying information from tables where a one-to-many relationship exists.

There is a one-to-many relationship between the tutors table and the courses table. Each tutor can be assigned to many courses. The example that follows, uses this relationship to illustrate the concept of a sub form.

Automatically creating a form with a sub form

> Select the **tutors** table in the Navigation pane (do not open the table)

Tutor ID:	1					
Forename:	Guido					
Surname:	Fawkes					
Telephone:	2543875					
Email:	gfawkes@uni.ac	.uk				
Email:	gfawkes@uni.ac	urse title 🗸 🗸	Room Numbt +	Number of Modules 👻	Start date 🔹	
Email: Course *	gfawkes@uni.ac e ID + Cou 1 Advanced (New)	urse title 🔹 🗸	Room Numbt + S5.8	Number of Modules + 5	Start date + 06-Sep-10	
Email:	gfawkes@uni.ac e ID • Cou 1 Advanced (New)	urse title 🔹 🗸	Room Numbe + S5.8	Number of Modules + 5	Start date • 06-Sep-10	

> Click Form from the Forms group on the Create tab

Sub form showing the course that the tutor is linked to

There are two forms displayed on the screen.

The main form has a Columnar layout and displays the fields from the tutors table, while the embedded sub form (showing the course information) has a Datasheet layout.

Sub forms usually have a Datasheet, Tabular, or similar layout that displays each record in a separate row.

Use the Navigation buttons at the bottom of the main form to scroll through the different tutors

Courses can be added to a tutor's list by using the sub form.

> Close the form without saving it

In this next exercise, you will create the form shown below.

32010 Course Lists	- = X
	se lists
Course title: Advanced Pyrotechnics Start date: 06-Sep-10 Room Number: S5.8 S5.8	Students on this course William Brown Richard Skinner James Loveless Francis Tresham Harry Watson Bernie Charles Katherine Smith Samantha Martin
	Sub form

Here the main form (also referred to as the Parent form) displays data from the courses table, while the sub form (also referred to as the Child form) displays information from the students table.

This arrangement is possible because there is a one-to-many relationship between the courses and students tables, such that each course can contain many students.

In the diagram above, the Parent form shows details of the Advanced Pyrotechnics course and the Child form displays a list of students enrolled on this course.

When a different course is selected, a different set of students is displayed.

You will edit a copy of the form frmCourses to create the parent form, create a separate form to contain the student names as the child, and then put the two forms together.

To create the parent form:

- > Select **frmCourses** in the Navigation pane (do not open the form)
- > Click Copy from the Clipboard group on the Home tab
- Click Paste
- > Change the suggested name to frmCourseLists

Paste As		? 🗙
Form Name:		
frmCourseLists		
	ОК	Cancel

- > Click OK
- > Open frmCourseLists in Design View
- > Change the title in the Form Header to **Course lists**
- > Drag the Close Form button to the left of the title in the Form Header
- Delete the image and the Course Leader, Course ID, and Number of Modules controls from the Detail section
- > Arrange the remaining controls as shown below

=	f	rmCo	urseLis	ts														-	. =	x
P		5 I 5 I 6 F	- 1 - C	2 + 1 + 3	3 • 1 • •	4 * 1 * 8	5 * 1 * 6	3 C I C I	7 • 1 • 8	3 * 1 * 1	9 * 1 * 1	0 • • • 11	1 * 1 * 1	2 • • • 1	3 · 1 · 1	4 K. U. K.1	5 · · · 1	6 • • • 1	7 • • • 1	18
-		+ For	n Head	er																
1	ł		¶ ∳¢io	ose For	m			C	οι	ırs	e l	ist	S		1			1		
2	ł										_		_							
		€ Det	ail																	
+																				
1	ŀ		Course	title:	Cou	rseTitl	e													
2	$\left \right $		Start a	ate:	Star	tDate														
3							RC	om Ni	mber:											
								R	oomN											
4 - -																				
5	ŀ																			
6	ŀ																			
7	_																			
-																				
Ĺ	Ľ		n Foote	er				· · ·	·											
														_	_	_	_	_		P

- > Change the Caption property of the form to 2010 Course Lists
- > Change the **Record Source** property of the form to **courses**
- Save and close the form

To create the Child form:

- > Click Form Design from the Forms group on the Create tab
- > Set the **Record Source** property to **students**
- Place a text box on the form and create a Calculated Control to combine the firstName and lastName fields with a space between the two values
- Resize the Calculated Control so that it is just wide enough to display the text in full
- Delete the associated label
- Reposition the Calculated Control near the left side of the form and as close as possible to the top
- Drag the right edge of the form towards the Control so that the space on the right is approximately the same as that on the left
- > Drag the bottom of the form up to the bottom border of the Control

Detail [firstName] & " " & [lastName]		1 2 3 4 5 6	ŝ
=[firstName] & " " & [lastName]		🗲 Detail	
	-	=[firstName] & " " & [lastName]	

> Save the form as **sfrmStudentList**

Save As	? 🔀
Form Name:	
sfrmStudentList	
	OK Cancel

> Display the form in Form View

The name of one student is displayed on the form. To see the other students you need to use the navigation buttons to scroll through the individual records.

Sub forms are usually configured to show the records as a continuous list.

> Display the form in Design View

To display the names as a list:

- > Ensure that the Form's Property Sheet is displayed
- Click the **Default View** property
- > Click the down arrow

Form	*
Format Data Event O	ther All
Record Source	students
Caption	
Pop Up	No
Modal	No
Display on SharePoint Site	Policy Table Setting
Default View	Single Form 🛛 🗙
Allow Form View	Single Form
Allow Datasheet View	Continuous Forms
Allow Proffable View	Datasheet
Allow ProtChart View	PivotTable
Allow Launut View	PivotChart
Reduce	Split Form

- Select Continuous Forms
- > Display the form in Form View

🔳 sfrmStudentList 🛛 🗕 🗖	x
William Brown	
Charles Churchill	
Peter Haywood	
Matthew Quintal	
Richard Skinner	
John Williams	
Charles Norman	
James Brine	
James Hammett	
James Loveless	-

> Display the form in Design View

The other properties that you will set are mainly for cosmetic purposes.

> Set the properties shown below:

Object	Property	Setting
Form	Record Selectors	No
	Navigation Buttons	NO
	Scroll Bars	Vertical Only
Detail	Back Color	Light Blue 1
		(#EFF2F7)
Calculated Control	Back Color	Light Gray 1
		(#ECECEC)

Save and close the form

To combine the two forms:

- > Open frmCourseLists in Design View
- > Drag sfrmStudentList on to the Detail section from the Navigation pane
- > Position and resize the sub form control as shown below



- > Change the text on the sub form label to: Students on this course
- Use the Format Painter to copy the formatting of the Course title label to the sub form label

- > If necessary, drag the label up to fully display the text
- > Display the Property Sheet for the sub form control
- > Change the Special Effect property to Sunken
- > Save the form
- > Display the form in Form View

■ 2010 Course lists – ■ × Course lists							
Course title: Advanced Pyrotechnics Start date: 06-Sep-10 Room Number: \$5.8	Students on this course William Brown Richard Skinner James Loveless Francis Tresham Harry Watson Bernie Charles Katherine Smith Samantha Martin						

- > Use the navigation buttons to scroll through the different courses
- > Display the form in Design View

Adding a count on the parent form

You will create a calculated control on the parent form that displays the number of students enrolled on each course.

- > Add a text box to the form in the space below the Room Number
- > Set the Name property of the text box to txtNumStudents
- Copy the formatting from the Room Number text box to the new unbound text box
- > Change the text on the associated label to Number enrolled

> Reposition and resize the new controls as shown below



Access does not allow you to count the records on the sub form directly from the parent form. You need to create a control on the sub form to calculate a count of the records, and reference this from the parent form.

- > Save and close frmCourseLists
- > Open sfrmStudentList in Design View

You now need to decide where on the form to place the control to count the records.

The function of the control that you are about to create on the sub form is to perform a calculation and hold the result, but not to display it.

There are two possible solutions. It can be positioned anywhere, including overlapping other controls, with its **Visible** property set to **No**, or it can be positioned where it cannot be seen when the form is displayed in Form View.

Page Headers and Page Footers are not displayed in Form View. You will therefore create the calculated control in the form's Page Header.

Click the Page Header/Footer button from the Show/Hide group on the Arrange tab



A Page Header and Page Footer are added to the form.

There is no need to resize any of these sections because they will not be displayed in Form View.

- > Add a text box to the Page Header
- > Set the Name property to txtNumStudentsOnSub
- Set the Control Source property to =Count(*) (this means count all records)

🖃 sfrmStudentList 💷 🗖 🗙	Property Sheet ×
· · · 1 · 1 · 2 · · · 3 · · · 4 · · · 5 · · · 6 · · · ·	txtNumStudentsOnSub
Text2: =Count(*)	Format Data Event Other All
	Name txtNumStudentsOnSub 🔺
	Control Source = Count(*)
	Format
	Decimal Places Auto

- > Save and close the form
- > Open frmCourseLists in Design View
- Select the Unbound text box

You now need to set the Control Source of this control to equal the value of txtNumStudentsOnSub.

The Expression Builder

The naming conventions of forms and sub forms can be tricky, so you will use the **Expression Builder** to build the name for you. The expression builder organises all the elements of the database into a hierarchical structure.

- Click in the Control Source property
- > Click the ellipsis button to launch the Expression Builder



The upper section of the Expression Builder contains an expression box where you construct your expression. To build the expression, you can type directly into the expression box, or locate elements using the three columns in the lower section of the Expression Builder and paste them into the box.

- > Double-click the plus sign by **frmCourseLists** in the left column of the builder
- Click the sub form sfrmStudentList
- > Click the element txtNumStudentsOnSub in the middle column
- > Ensure that <Value> is selected in the column on the right
- > Click Paste

Expression Builder								
[sfrmStudentList].Form![txtNumStudentsOnSub] OK Cancel Undo + - / * & = > < <> And Or Not Like () Paste Help								
 frmCourseLists frmStudentList Tables Queries Forms Reports Functions Constants Operators 	<form> <field list=""> Label3 txtNumStudentsOnSub Text0 Page Header Detail Page Footer</field></form>	<value> AfterUpdate AfterUpdateEmMac AggregateType AllowAutoCorrect AutoTab BackColor BackStyle BeforeUpdateEmMac BeforeUpdateEmMac BorderColor</value>						

- > Click OK
- > Save the form
- > Display the form in Form View
- > Scroll through the courses to verify that the count is working as expected

E 2010 Course lists	_ = X
	rse lists
Course title: Advanced Pyrotechnics Start date: 06-Sep-10 Room Number: S5.8 Number enrolled: 8	Students on this course William Brown Richard Skinner James Loveless Francis Tresham Harry Watson Bernie Charles Katherine Smith Samantha Martin
Record: H 4 1 of 5 + H H2 🕅 No Filter Search	

> Close the form

DATA ENTRY FORMS

The forms that you have already created can all be used to enter data into the tables on which they are based. However, many database designers prefer to create different forms for different purposes, and would present the user with a blank form if it is to be used for data entry.

You will create the following form for the purpose of entering new students into the database.

E 2010 Students			- = x					
Student Data Entry								
	Save Record	🖸 Clear Form	🖟 Close Form					
Course title:		×						
First name: Date of Birth:	Last name:	Street Town/City Postcode Telephone:	Address:					

- > Create a copy of the form **frmStudents** and save it as **frmStudentEntry**
- > Open frmStudentEntry in Design View
- > Change the title in the Form Header to Student Data Entry
- Drag the Detail bar downward to create space in the Form Header for the command buttons
- > Drag the **Close Form** button into position in the Form Header

Student Data Entry															
											Þ	Close Fo	rm		
												- I			
Ø Detail	✓ Detail														

> Display the properties for the **Close Form** button

- Click the Back Style property
- > Click the down arrow

Height	1.016cm
Тор	2.116cm
Left	9.603 cm
Back Style	Normal 💉
Transparent	Transparent
Font Name	Normal
Font Size	9

- > Select Transparent
- > Click the down arrow for the Cursor On Hover property

Picture Caption Arra	Right	
Visible	Yes	
Cursor On Hover	Default	1
Picture	Default	2
Picture Type	Hyperlink hand	
Width	2.894 cm	

> Select Hyperlink hand (to help users identify this as a button)

To create a Command Button to Save the record:

- > Create a new Button Control to the left of the Close Form button
- In the Command Button Wizard, select Record Operations from the Categories column and select Save Record from the Actions column



Click Next

> Select the Save Record picture

Command Button Wizar	d
Sample:	Do you want text or a picture on the button? If you choose Text, you can type the text to display. If you choose Picture, you can click Browse to find a picture to display. ○ Text: Save Record ③ Picture: Check Mark Save Record Browse ⑤ Picture: Check Mark Save Record Browse
	Cancel < <u>B</u> ack <u>N</u> ext > <u>F</u> inish

- Click Next
- > Change the suggested name to cmdSaveStudent
- Click Finish
- > Change the Caption property to Save Record
- > Display the caption to the right of the picture (see page 108)
- > Set the **Back Style** property to **Transparent**
- > Set the Cursor On Hover property to Hyperlink hand
- > Resize and reposition the button as shown below

	✓ Form Header															
	Student Data Entry															
			_							<u> </u>	.)					
			Ter.													
			2	Save R	ecord						1	Close F	orm			
			_								· · · · ·					
🗲 Detail																

To create a Command Button to Clear the form:

- > Create a new Button Control between the Save and Close buttons
- In the Command Button Wizard, select Record Operations from the Categories column and select Undo Record from the Actions column

Command Button Wiza	rd	
Sample:	What action do you want to hap pressed? Different actions are available fo	pen when the button is or each category.
	Categories:	Actions:
	Record Operations Form Operations	Delete Record Duplicate Record
	Report Operations Application	Print Record Save Record
	Miscellaneous	Undo Record
(Cancel < Back	Next > Einish

Click Next

Select the Undo picture

Command Button Wizard					
Sample:	Do you want text or a picture on the button? If you choose Text, you can type the text to display. If you choose Picture, you can click Browse to find a picture to display.				
Cancel < <u>B</u> ack <u>N</u> ext > <u>F</u> inish					

- Click Next
- > Change the suggested name to cmdClearForm and click Finish

- > Change the **Caption** property to **Clear Form**
- > Set the Caption to display on the right of the picture
- > Set the **Back Style** and **Cursor On Hover** properties as the other buttons
- > Resize and reposition the button as shown below

	€ Form Header														
	Student Data Entry														
			9	Save R	ecord			<mark>KO</mark> CI	ear For	m	P	Close F	orm		
							-	i	-						
🗲 Deta	🗲 Detail														

> Insert horizontal lines above and below the buttons

To convert the form to a Data Entry form:

> Set the form properties listed below:

Form Property	Setting
Рор Ир	Yes
Modal	Yes
Record Selectors	No
Navigation Buttons	No
Scroll Bars	Neither
Data Entry	Yes

The most important property in the above list is the Data Entry property. When the Data Entry property is set to Yes, the form no longer displays records from the underlying table or query. The user is therefore presented with a blank form.

- Close the Property Sheet
- If necessary, drag the bottom edge of the form down to ensure that all the controls are visible
- Save the form
- Display the form in Form View
- > Enter any text in some of the fields
- > Click the **Clear Form** button to undo the entry
> Enter the following data

2010 Students				_ = ×
	Studen	t Data	Entr	у
	🖉 Save Record	🖸 Clear Form		🖟 Close Form
Course title:	Sailing and Navigation	*		
First name: Fred Date of Birth:	Last name: Flintstone 30-Sep-60	5 7 7	treet 'own/City Postcode 'elephone:	Address: 345 Cave Stone Road Bedrock BD1 3RK 2313166

Click the Save Record button

Notice that there is no indication that the action was successful.

You will rectify this within the next topic by presenting the user with a blank form once the record is saved.

> Close the form using the Close Form button

MACROS

A macro is a tool that enables you to automate tasks and add functionality to your forms and reports.

In Access, macros can be regarded as a simplified programming language that you write by building a list of actions to perform.

Macros may be created as named objects, in which case they will be displayed as objects in the Navigation pane, or they can be attached to a form, report or control, in which case the macro will be embedded within the form or report, and will not be displayed as a separate object.

Each of the examples used here will be attached to a control on a form and will be linked to what is referred to as a 'form event'.

A form event is an action that is associated with the form as a whole, or with a control on the form. Often events are associated with user action. Form events include: opening a form, selecting a control, editing the value of a control, clicking a command button, closing a form.

Linking a macro to an event will mean that, when the particular event occurs, the macro will run automatically.

Without you realising it, some macros have already been added to your forms.

You will view the macro that is embedded in the cmdCloseStudents command button control.

If a macro is embedded in a form it will be listed as one of the property values of the form.

- > Open frmStudentEntry in Design View
- > Select the **Close Form** command button
- > Ensure that the Property Sheet is displayed
- > Select the **Event** tab on the Property Sheet

The possible events associated with this control are listed.

Notice that the **On Click** event has an **Embedded Macro** as the value of its property.

Property Sheet		×	
Selection type: Comma	nd Button		
cmdCloseStudents	~		
Format Data Event	Other All	\sim	
On Click	[Embedded Macro		← Launch Builde
On Got Focus		\cup	
On Lost Focus			
On Dbl Click			
On Mouse Down			
On Mouse Up			
On Mouse Move			
On Key Down			

The Macro Builder

The Macro Builder is the tool that is used to create, display, and edit macros.

To display the Macro Builder:

> Click the Launch Builder button in the On Click property

2	frmStudentEntry : cmdCloseS	tudents : On C	lick		x
	Action	Arg	guments	Comment	
	Close 💙	, , Prompt			
					_
					-
					-
					-
		Action A	rguments		
0	bject Type				
0	bject Name				
Sa	Pron Pron	ipt			
			Closes the specifi window if none is	ied window, or the active specified. Press F1 for help.	
			on	this action.	

The top section of the Macro Builder lists the Actions that the macro will perform. This macro has just one Action: **Close**.

The bottom section of the Builder shows the **Arguments** for the selected Action and also displays a description of any item selected.

The **Close** Action will close the active window if no object is specified in the Action Arguments, therefore it correctly closes the form on which the button sits. However, to illustrate the process, you will specify the form **frmStudentEntry** as the window to be closed.

	Action	Arguments
Object Type Object Name Save	Table Query Form Report Macro Module Data Access Page Server View Diagram Stored Procedure	Select the type of object to close. Leave blank to select the active window. Press F1 for help on this argument.
	Function	

> Click in the **Object Type** argument and click the down arrow that appears

- > Select Form
- > Click the down arrow for the **Object Name** argument

	Action A	rguments
Object Type F Object Name Save	Form frmCourseLists frmCourses frmStudentEntry frmStudents sfrmStudentList	Enter or select the name of the object to close. The list shows all current database objects of the type selected with the Object Type argument. Press F1 for help on this argument.

- Select frmStudentEntry
- > Click the **Save** button on the Quick Access Toolbar to save your changes

Notice that the selected arguments are displayed in the Arguments column in the top section of the window.

You cannot use the Arguments column to set or change argument values. The purpose of the column is to help you to read the macro when it consists of a list of different Actions.

When a macro contains more than one action, each action is put in a new row.

Action names can be selected from a list or typed into the Action column, but only the listed actions will be acknowledged and accepted.

To see a list of Actions:

- > Click in any cell in the Action column and click the down arrow
- > Scroll through the list



To close the Macro Builder:

> Click Close on the Macro Tools Design tab

You have already saved the desired changes, so if prompted to save further changes:

Click No

Saving changes to the macro is not sufficient. You also need to save changes to the form.

- > Click **Save** on the Quick Access Toolbar
- > View the form in Form View
- > Check that the Close Form button works as expected

Adding an action to a macro

In the previous section, you used the Student Data Entry form (frmStudentEntry) to enter data about a new student.

The **Save Record** button saved the record but gave no indication that the action completed successfully (see page 142). You will edit the macro in the **On Click** event property to present the user with a new blank record after the data is saved.

- > Open frmStudentEntry in Design View
- > Select the Save Record command button
- > Display the Macro Builder for the On Click event property

💈 frmStudentEntry : cmdSaveStude	ent : On Clie	:k	_ = = 1	x
Condition		Action	Arguments	*
	OnError		Next,	
	RunComn	nand	SaveRecord	
[MacroError]<>0	MsgBox		=[MacroError].[Descript	t
				-
	Action A	rguments		
Go to Next				ר
Macro Name				
		Enter a conditional Type three periods	expression in this column.	
		from th	e previous row.	

This macro currently has three actions: OnError, RunCommand, and MsgBox.

Before you add the new action to the macro, we will discuss briefly what each of the existing actions mean.

The **OnError** action is used to specify how the programme should respond if it encounters an error when executing this macro.

> Ensure that one of the cells in the first row is selected

The bottom pane displays the possible arguments for the OnError action.

> Click the **Go to** argument and click the down arrow

Go to Next Macro Name Fail If an error occurs, Next goes to the next action, Macro Name jumps to the macro name below, and Fail halts and aborts the macro. For more help, press F1.
<u> </u>

There are three options to choose from. Read the description box for an indication of what each of the options mean.

> Ensure that **Next** is selected

> Click the **RunCommand** action

This action is used when you want the database to run one of the built-in commands.

The Command to be executed is the only argument offered. Like most of the other arguments, the value is set by choosing from a list of possible commands.

- > Click the down arrow for the **Command** argument
- Scroll through the list
- > Ensure that **SaveRecord** is selected
- > Click the MsgBox action

This action displays a message box.

The arguments for this action enable you to specify the message, decide whether to accompany the message display with an audible beep, choose the type of icon, and enter a title for the message.

Message	=[MacroError].[Description]
Beep	Yes
Type	None
Title	

You can type the text for the message directly into the Message argument, or use an expression to generate the desired message.

The message argument in this macro uses an expression to display a description of the macro error.

This message box should appear only if an error occurs, that is what the entry in the Condition column is designed to do. The action will be executed if the condition is satisfied, in other words if there is an error.

The Condition column is not displayed in the Macro Builder by default. The Conditions button in the Show/Hide group on the Design tab will toggle this column on and off.

> Click the **Conditions** button in the **Show/Hide** group

The Condition column is hidden. To show the Conditions column once more:

Click the Conditions button

You will add an action at the end of the existing list that will empty all the controls on the form.

- > In the row below MsgBox, click in the Action box
- > Click the down arrow and select **GoToRecord**
- > Click in the **Record** argument and select **New**

💈 frmStudentEntry : cmdSav	eStude	ent : On Click		- =	x		
Condition		Action		Arguments	-		
		OnError		Next,			
		RunCommand		SaveRecord			
[MacroError]<>0		MsgBox		=[MacroError].[Description], Y	e		
		GoToRecord	*	, , New,			
		Action Argun	nents				
1200.00		Action Argui			_		
Object Type Object Name							
Record N	lew	~	Calantabas				
Offset			the first or	last record, an earlier or later record			
			(Previous or	Next), or go to a specific record. You			
			can also go to a new record. Next, Previous, and Go To are affected by the Offset argument. Press F1 for help on this argument.				

This action is equivalent to clicking the New Record navigation button on the form.

- Save and close the Macro
- > Save the form
- > Display the form in Form View
- Enter data for a new student on the Advanced Pyrotechnics course and verify that the Save Record button works as expected
- Close the form

Synchronising Combo boxes

The idea here is that when users select a value from one combo box it alters the list of values presented in the second combo box, so that users are presented with appropriate values from which to select.

One situation in which this is useful is when a long list of options is divided into categories. Selecting a category from the first combo box causes the second combo box to list the options for the selected category.

- > Create a copy of frmStudentEntry and save it as frmComboSync
- > Open frmComboSync in Design View

The intention is to replace the existing Course combo box with two combo boxes. The first combo box will be used to choose the faculty and the second will be used to choose a course within the selected faculty.

You will eventually delete the existing Course combo box, but not until you have verified that the new boxes are working correctly.

Drag the Course combo box and its label to the right to make room for the new controls

🗲 Det	ail											
							Course	title:]			
							Cours	e			*	
						-				Í.		

- > Add a new Combo Box control to the form
- > Choose to look up values from the faculties table

Combo Box Wizard	
	 This wizard creates a combo box, which displays a list of values you can choose from. How do you want your combo box to get its values? I want the combo box to look up the values in a table or query. I will type in the values that I want. Find a record on my form based on the value I selected in my combo box.
	Cancel < Back Next > Finish

Combo Box Wizard	Which table or query should provide the values for your combo box? Table: courses Table: students Table: students Table: tutors Table: volunteers
	View Iables Queries Both
	Cancel < <u>B</u> ack <u>N</u> ext > Finish

> Select FacultyName as the field that contains the values to be displayed

Combo Box Wizard	
	Which fields contain the values you want included in your combo box? The fields you select become columns in your combo box.
Available Fields:	Selected Fields:
FacultyID	FacultyName >> <
	Cancel < <u>Back</u> <u>N</u> ext > Einish

- > It is not necessary to Sort the data in this example
- Ensure that the Hide Key column check box is selected as you work through the Wizard
- The value selected in this control will not be stored in any of fields on the students table, therefore select the radio button to Remember the value for later use

Combo Box Wizard							
	Microsoft Office Access can store the selected value from your combo box in your database, or remember the value so you can use it later to perform a task. When you select a value in your combo box, what do you want Microsoft Office Access to do?						
	<u>Remember the value for later u</u> Store that value in this field:	ise.					
	Cancel < <u>B</u> ack	Next > Einish					

- > Use Faculty as the text on the label
- > Reposition and resize the Combo Box as shown below

€ Det	✓ Detail												
									Course	title:			
	Faculty Unbound				~	Cours	e		*				
			•										

- > Set the Name property for this control to **cboFaculties**
- > Save the form and keep it open in Design View

For the second Combo Box to display the courses in the selected faculty, you need to create a query that will display the appropriate courses and use this as the source for the list.

- Create a query in Design View
- > Add the **faculties** and **courses** tables to the Design
- Add the CourseID and CourseTitle fields from the courses table, and the FacultyID field from the faculties table

You want this query to display the courses for the faculty selected in the cboFaculties control. An appropriate criterion must therefore be written in the FacultyID field.

> Click in the Criteria row for the FacultyID field in the query grid

You need to instruct the application to pick up the value from the cboFaculties control on the frmComboSync form. This can be typed in if you know the syntax for the expression, but for this example you will use the Expression Builder.

> Click **Builder** from the **Query Setup** group on the **Design** tab



Expand the Forms and Loaded Forms category and sub-category and select frmComboSync

Expression Builder							
+ - / * & = > < <> Ar	nd Or Not Like ()	OK Cancel Undo Paste Help					
Query1 Tables Queries Forms Loaded Forms All Forms Reports	<form> <field list=""> Label8 cmdCloseStudents cmdSaveStudent Line17 Line18 cmdClearForm Label0 FirstName Label1</field></form>	<value> AfterDelConfirm AfterDelConfirmEmf AfterDelConfirmEmf AfterFinalRender AfterInsert AfterInsert AfterLayout AfterLayoutEmMacr AfterRender AfterRender AfterRender</value>					

> Scroll down the middle column if necessary and select cboFaculties

Expression Builder		? 🛛
+ - / * & = > <<> An	d Or Not Like ()	OK Cancel Undo Paste Help
Forms Loaded Forms Forms All Forms Reports Functions Constants Operators S	Telephone Label6 DOB Label7 Course Label9 Faculty Label choFaculties Form Header Detail Form Footer	AfterUpdate AfterUpdateEmMac AggregateType AllowAutoCorrect AllowValueListEdits AutoExpand BackColor BackStyle BeforeUpdate BeforeUpdateEmMa

- > Ensure that Value is selected in the column on the right
- Click Paste



> Click OK

The appropriate expression is inserted as the FacultyID criterion.

Do not run the query at this stage because the combo box cboFaculties does not currently have a value.

- The FacultyID field is not to be displayed when the query is Run. Remove the tick from the Show check box
- > Save the query as **qryFacultyCourses**
- Close the query

The Combo Box Wizard will not be as helpful in configuring the second combo box control, so you will switch off the Wizard and manually set all the necessary properties.

To turn off the Wizard:

Click the Use Control Wizards button from the Controls group on the Design tab



On form frmComboSync, insert a new Combo Box below the Faculty Unbound control

- > Set the Name property to cboFacultyCourses
- > Select the **Data** tab on the Property Sheet
- > Click the **Row Source** property and click the down arrow

Property Sheet X							
Selection type: Combo E	lox						
cboFacultyCourses	~						
Format Data Event	Other All						
Control Source							
Row Source	<u> </u>						
Row Source Type	courses 🔒						
Bound Column	faculties qryFacultyCourses						
Limit To List							
Allow Value List Edits	qryFormatExamples						
List Items Edit Form	dryGroup an/NeBeekings						
Inherit Value List	dryNoBookings						
Show Only Row Source	gryNullvalues gryStudentDunlicates						
Input Mask	dryStudentNumbers						
Default Value	students						
Validation Rule	tutors						
Validation Text	volunteers						
Enabled	Tes						

Select qryFacultyCourses

This sets the query as the source of the list of values for the Combo Box.

- > Ensure that the **Row Source Type** property is **Table/Query**
- > Ensure that the **Bound Column** property is 1

The query will display two fields (columns): CourseID and CourseTitle. The Bound Column property specifies which of these two values will be taken to be the value of the control.

This is not to be confused with the value to be displayed. You will set this next.

- > Select the **Format** tab on the Property Sheet
- Set the Column Count property to 2, since there will be two fields in the query result
- > Set the **Column Widths** property to **0cm;4cm**

The 0cm for the first column means that the CourseID value is not to be displayed. The 4cm value for the second column should be sufficient to display each course title fully. If this value is not quite sufficient then it can be adjusted later.

> Change the text on the associated label to **Course title**

> Reposition and resize the control as shown below

🗲 Detail		
		Course title:
Faculty	Unbound	Course V
Course title	Unbound	
First name:	Last name:	Address:
FirstName	LastName	Street Address1
		Town/City Address2
Dute of Birth.		Postcode Postcode
		Telephone: Telephone

- > Save the form
- > Display the form in Form View
- Try choosing a faculty using the first combo box, then use the second control to choose a course

Notice that there is a slight problem with the second control. It works as expected when there are no values in the boxes to begin with, but once you make a selection, if you then change the faculty it has no effect on the second combo box.

To correct this you need to use a macro to instruct the application to update the courses combo box whenever the faculty combo box is updated.

- > Close the form and reopen it in Design View
- > Select **cboFaculties** (the Faculty Unbound Combo Box)
- > Select the **Event** tab on the Property Sheet
- > Click the After Update event property

Any macro embedded here will be executed whenever the value in the cboFaculties control changes.

> Click the Launch Builder button

No Macro, Visual Basic Code, or Expression is linked to this event, so the Choose Builder dialog box is displayed.

Choose Builder 🛛 🛛 🔀
Macro Builder Expression Builder Code Builder
OK Cancel

- > Select Macro Builder and click OK
- > Click the down arrow in the Action box of the first row
- > Scroll through the list of Actions and select **Requery**

The Requery Action is used to update the data in a specified control by requerying the source of the control.

> In the Control Name Argument type cboFacultyCourses

2	🛿 frmComboSync : cboFaculties : After Update 🛛 📃 📼 🗴							
	Action	Arg	guments	Comment				
	Requery 😽	cboFacultyCo	ourses					
					•			
		Action A	rguments		_			
C	ontrol Name cboF	acultyCourses	Forces a requery of active object, or a control is specified not based on a table a recalculation of th on	a specified control on the requery of the object if no I. If the specified control is e or query, this action force: ne control. Press F1 for help this action.	5			

- > Save and Close the Macro Builder
- > Save the form
- > Display the form in Form View
- > Verify that the two combo boxes are now synchronised correctly

The two controls work correctly, but they have absolutely no effect on the student record displayed on the form. To ensure that the course selected is accepted as the course for the current record, you need to create one further macro.

- > Close the form and reopen it in Design View
- Select cboFacultyCourses (the new Course title combo box)
- > Ensure that the **Event** tab on the Property Sheet is selected
- > Launch the Macro Builder for the After Update event

The Action that you need to use for this macro is called **SetValue**. This Action is used to set the value of a field, control or property on a form or report.

You will find, however, that the SetValue Action is not available in the list by default. Access regards some Actions, including SetValue, as having a higher security risk and therefore does not display them in the default list.

To see all the available Actions:

> Click Show All Actions from the Show/Hide group on the Design tab



In the first row of the Macro Builder, display the list of Actions and select SetValue

An exclamation mark appears on the left of the row. This is to warn you that the selected Action will only be allowed to run in 'Trusted Applications'.

Two Arguments are available for the SetValue Action: Item and Expression. Item refers to the object whose value is to be changed, and Expression refers to the value to be set. You want to set the Course field to be equal to the value in cboFacultyCourses.

- > Click in the **Item** Argument
- > Click the Launch Builder button
- Expand the Forms and Loaded Forms category and sub-category and select frmComboSync
- > Select <**Field List**> from the options in the second column
- > Select **Course** from the list of fields in the third column

> Click Paste

Expression Builder	? 🗙				
[Forms]![frmComboSync] + - / * & = > < <>	OK Cancel Undo Help				
Tables Queries Forms Loaded Forms FrmComboSyn All Forms Reports Functions	 	<form> <field list=""> Label8 cmdCloseStudents cmdSaveStudent Line17 Line18 cmdClearForm Label0 FirstName Label1</field></form>		Address1 Address2 Course DOB FirstName LastName Postcode StudentID Telephone	

- > Click OK to accept this expression as the Item whose value is to be set
- > Click in the **Expression** Argument
- > Launch the Expression Builder
- Use the Builder to select the Value of the Combo Box cboFacultycourses on the open form frmComboSync



- > Paste the expression in the Expression Box
- Click OK
- > Save and close the Macro Builder
- > Save the form

- Display the form in Form View
- > Select a faculty and a course using the two new combo boxes

You should now find that the selected course is now also displayed in the control that is bound to the Course field (the original combo box). This verifies that the SetValue Action is working correctly. The two new combo boxes can now completely replace the original control.

- > Close the form and open it in Design View
- > Delete the original Course title Combo Box bound to the Course field
- Edit the macro embedded in the On Click event of the Close Form command button so that the current form will close when the button is clicked
- > Save the form
- Display the form in Form View
- > Use the Close Form button to close the form

COMPLETING THE USER INTERFACE

Usually a database application is organised in such a way that users never need to use the Navigation Pane or the commands on the ribbon in order to accomplish the standard tasks for which the database was designed.

The application will usually have a main form which opens automatically when the database is launched. If the database is complex, the main form may not display any data but act solely as a switchboard, with Command Buttons which when clicked will open other forms or reports.

For this database you will use the form **frmCourseLists** as the main form. You will first add four buttons to the form to enable users to input new students and courses, print a list of students in course groups, and close the application.

- > Open frmCourseLists in Design View
- > Delete the **Close Form** button
- Drag the Detail bar downward to create enough space in the header for the Command Buttons to be positioned below the title
- > Drag the horizontal line down to the bottom of the header

Next you are going to create the Command Buttons as shown in the diagram below.

🔳 2010 Course lists	_ = X							
Course lists								
New Student New Course	Print Lists Close the Application							
Course title: Advanced Pyrotechnics Start date: 06-Sep-10 Room Number: S5.8 Number enrolled: 10	Students on this courseWilliam BrownRichard SkinnerJames LovelessFrancis TreshamHarry WatsonBernie CharlesKatherine SmithSamantha MartinThis OneAnn Other							
Record: H 4 1 of 5 + H H3 W No Filter Search								

- > Ensure that the Use Control Wizards button is selected
- Using the Wizard to select the appropriate object to be opened etc, as listed in the table below, create the following Command Buttons

Command Button	Action when clicked
New Student	Open the form frmComboSync
New Course	Open the form frmCourses
Print Lists	Print the report rptAttendance
Close the Application	Close the database application

- Minimise the Navigation Pane
- > Minimise the Ribbon
- > Save and close the form

To give a name to the application and configure the database to launch frmCourseLists on startup:

- Click the Office Button
- Click Access Options
- > Select the Current Database category
- > In the **Application Title** box, type **2010 Enrolment**
- > In the Display Form box, select frmCourseLists

Access Options		? 🔀
Popular Current Database	Options for the current database.	
Datasheet	Application Options	
Object Designers	Application Iitle: 2010 Enrolment	
Proofing	Application Icon: Browse	
Advanced	Use as Form and Report Icon	
Customize	Display Form: frmCourseLists V Display Status Bar	
Add-ins	Document Window Options	≡.
Trust Center	 Overlapping Windows Tabbed Documents 	

Click OK

The following message is displayed.



- Click OK
- > Save the database on the desktop so that the file can be accessed easily

To save the database on the desktop:
Click the Office Button
Point to Save As
Select Access 2007 Database
Select Desktop as the place to 'Save in'
Click Save

- > Exit Access
- > Double click the **2010 Students** file on the Desktop

The application is launched with the title **2010 Enrolment** on the name bar, and the form **Course Lists** opens automatically.

Verify that each button works as expected and finish by using the Close the Application button to close Access

IMPORTING FROM OTHER APPLICATIONS

If you have data already saved in a suitable format in a database, a spreadsheet, or a text file, you can import it directly into a table. The table you import into may be a new or existing one.

If you import into a new table, Access will create fields to match the data you are importing, and also allow you to edit the Field Names and Data Types.

If you choose to import into an existing table, you must make sure that the field sizes are adequate to contain the data. If there is a conflict between the field size and number of characters in the data, the offending records will not be imported.

The usual method for importing data is through the use of the Import group on the External Data tab. However, in some situations, Copy and Paste is a viable alternative.

COPYING DATA FROM EXCEL

If you have data saved in a workbook you can use Copy and Paste (the Office Clipboard) to copy it directly into Access. A new table will be created and the data copied into place.

- > Open the **enrolment** database
- > Launch Excel
- > Open the **PayRates** workbook that is saved in **C:\AccessIntermediate**

	A	В		С	D
1	Course Leader	Module	Rate	of Pay	Hours
2	Guido Fawkes	Dangerous Occupations	£	12.00	36
3	William Bligh	Tourism	£	12.50	30
4	George Loveless	Politics	£	15.00	24

- Select cells A1 to D4
- > Click the **Copy** button on the ribbon
- Switch to the enrolment database
- > Click the **Paste** button on the ribbon

The following message is displayed:



As the first row does contain headings:

Click Yes

The following message is displayed:



Click OK

A new table named **Sheet1** is added in the Navigation pane.

- Rename the new table payRates
- > Open the table and check that the information has been imported correctly

	payRates				
	Course Leader 👻	Module 👻	Rate of Pay 👻	Hours	Ŧ
	Guido Fawkes	Dangerous Occupations	£12.00		36
	William Bligh	Tourism	£12.50		30
	George Loveless	Politics	£15.00		24
*					

- Close the table
- Close Excel

IMPORTING DATA FROM EXCEL

You are now going to use the import method to bring data from a spreadsheet into a new table.

- > Ensure that the **enrolment** database is open
- > Click Excel from the Import group on the External Data tab



The Get External Data dialog box is displayed. From here you choose both the source and the destination of the data.

Get External Data - Excel Spreadsheet
Select the source and destination of the data
Specify the source of the data.
Ele name: Browse
Specify how and where you want to store the data in the current database.
⊙ Import the source data into a new table in the current database.
If the specified table does not exist, Access will create it. If the specified table already exists, Access might overwrite its contents with the imported data. Changes made to the source data will not be reflected in the database.
○ Append a copy of the records to the table: courses
If the specified table exists, Access will add the records to the table. If the table does not exist, Access will create it. Changes made to the source data will not be reflected in the database.
Link to the data source by creating a linked table.
Access will create a table that will maintain a link to the source data in Excel. Changes made to the source data in Excel will be reflected in the linked table. However, the source data cannot be changed from within Access.
OK Cancel

To select the Excel file C:\AccessIntermediate\Project information as the source:

- Click the Browse button
- > Navigate to the AccessIntermediate folder on drive C
- > Select the **Project information** spreadsheet

File Open																			(?	×
Look in:	🛅 AccessInt	Inte	rmediate											~	¢	Ŧ	1	\times			-
My Recent Documents Documents My Computer My Network Places Training Documents Ahypc on '.host\Sh	Project info	nte s.xls	mation.x	s Isx											9				_		
	File <u>n</u> ame:																~				
	Files of <u>t</u> ype:	Μ	licrosoft	Excel ((*.xls	s;*.x	dsb;*	*.xlsm	ı;*.xls	;x)							*				
Too <u>l</u> s 🔻														(Q	en			Can	cel	

> Click Open

You now have three options regarding where and how the imported data should be stored: in a new standard database table, appended to an existing table, or in a new linked table. If you choose to create a linked table, changes in the spreadsheet will be reflected in the table.

> Select Import the source data into a new table in the current database

> Click OK

The wizard begins.

> Ensure that the **Show Worksheets** option is selected

Sheet1 is the only worksheet containing data.

> Ensure that **Sheet1** is selected

🔳 Import Spreadsheet Wizard			x						
Your spreadsheet file contains more than one worksheet or range. Which worksheet or range would you like? Show Worksheets Show Named Ranges									
Sample data for worksheet 'Sheet1'.									
1ProjectID ProjectName	ProjectDescription	ProjectBeginDate	ProjectEndDate 🔺						
2AD582 Gunpowder	How not to blow yourself up	9/30/2001	1/31/2001						
3EY145 Fireworks	How to create a good show	1/10/2001	4/30/2001						
451745 Sailing	How to navigate to world	3/21/2001	8/1/2001						
			Þ						
Cancel									

- Click Next
- Confirm that the first row of the data contains the column headings (these will be used as field names)

Ξ	Import Sprea	dsheet Wizard					x
	Microsoft Acce row specified (First Row C	ess can use your colu contain column head ontains Column Head	umn headings as field name ings? dings	es for your table. Do	es the first		
[ProjectID	ProjectName	ProjectDescript	ion	ProjectBeginDate	ProjectEndDate	7
ł	1 AD582	Gunpowder	How not to blow	yourself up	9/30/2001	1/31/2001	
Ì	2 EY145	Fireworks	How to create a	good show	1/10/2001	4/30/2001	
	384745	Sailing	How to navigate	to world	3/21/2001	8/1/2001	•
	•						•
-				Cancel	< <u>B</u> ack	Next > Einish	

Click Next

This step in the wizard enables you to select individual columns of data and edit the Field Name, Data Type and Indexed property. You are also able to stipulate that a particular field should not be imported.

🔳 Imp	ort Sprea	dsheet Wizard						x
Yoi infi F I	u can specif ormation in i field Options field Na <u>m</u> e: ndexed:	y information about the 'Field Options' ar ProjectID Yes (Duplicates Ok	each of the ea.	fields you are Data <u>T</u> ype: Do not ii	importing. Select fie Text mport field (<u>S</u> kip)	elds in the area below. You c	an then modify field	
Pro 1AD5 2EY1 3SA7	ojectID 82 45 245	ProjectName Gunpowder Fireworks Sailing	Project How not How to How to	Descript to blow create a navigate	ion yourself up good show to world	ProjectBeginDate 9/30/2001 1/10/2001 3/21/2001	ProjectEndDate 1/31/2001 4/30/2001 8/1/2001	
							<u> </u>	
					Cancel	< <u>B</u> ack	Next > Einish	

Click Next

You need to decide if a primary key is required, and whether to let Access add the primary key.

Import	Spreadsheet	Wizard Microsoft Access uniquely identify	recommends that y each record in your	ou define a primary key for table. It allows you to retr	your new table. A primary k ieve data more quickly.	ey is used to	x			
3 KWA KWA KWA 2 KWA KWA KWA 2 KWA KWA KWA										
4	*** *** ***	O Choose my	own primary key.	-	~					
		○ N <u>o</u> primary	æy.							
ID	ProjectID	ProjectName	ProjectDescı	ription	ProjectBeginDate	ProjectEndDate				
11	AD582	Gunpowder	How not to b	low yourself up	9/30/2001	1/31/2001	_			
22	EY145	Fireworks	How to creat	e a good show	1/10/2001	4/30/2001				
		~~~~~			.,		-			
•										
	Cancel < <u>Back</u> <u>Einish</u>									

> Select Choose my own primary key and use ProjectID as the key

🔳 Import Spreadsheet Wizard					x
	t Access recommends that identify each record in yo <u>A</u> ccess add primary key. pose my own primary key. primary key.	: you define a primar ur table. It allows yo ProjectID	y key for your new table. A g u to retrieve data more quid	rimary key is used to dy.	
Project ID ProjectName	ProjectDescript	ion	ProjectBeginDate	ProjectEndDate	
1 ND582 Gunnowder	How not to blow	vourself un	9/30/2001	1/31/2001	
2 EV145 Fireworks	How to create a	good show	1/10/2001	4/30/2001	
2S1745 Seiling	How to newigete	to world	8/21/2001	8/1/2001	
					•
		Cancel	< <u>B</u> ack	Next > Einish	)

- Click Next
- > Change the name of the new table to **projects**

📧 Import Spreadsheet	Wizard	x
	That's all the information the wizard needs to import your data. Import to Table: projects	
	I would like a wizard to analyze my table after importing the data.  Cancel < Back Next > Finish	_
	Cancel < Back Next > Einish	

A check box option invites you to have the table analysed. If you choose to have it analysed, a wizard checks the table to determine if it needs to be split into two or more tables, to avoid repeating the same field value in different records.

It is not necessary to analyse this table.

Click Finish

If you need to perform this same import on other occasions, then you would choose to **Save import steps**. You would then run the import, in future, by selecting it from the **Saved Imports** option.

For this exercise you will not save the import steps.

Get External Data - Excel Spreadsheet	? 🗙
Save Import Steps	
Finished importing file 'C: \AccessIntermediate \Project information.xlsx' to table 'projects'.	
Do you want to save these import steps? This will allow you to quickly repeat the operation without using the wizard.	
Save import steps	
	Close

## Click Close

The projects table is added to the Navigation pane.

- > Open the table to check that the structure and data are correct
- Close the table

# IMPORTING A DATABASE OBJECT

Tables, queries, forms, reports and macros can be imported from other databases, but if there are differences in field names, etc, imported objects may need to be modified before they can be used successfully in the current database.

You will import the form frmStudentEntry from the 2010 Students database into the enrolment database.

- > Ensure that the **enrolment** database is open
- > Click Access from the Import group on the External Data tab
- In the Get External Data dialog box, use the Browse button to navigate to the folder C:\AccessIntermediate



- > Select 2010 Students and click Open
- Ensure that Import tables, queries, forms, reports, macros, and modules into the current database is selected

iet External Dat	a - Access Database			? 🛛
Select the s	ource and destination of the dat	a ////		
Specify the sour	e of the data.			
<u>F</u> ile name:	C:\AccessIntermediate\2010 Students.ac	:db		Browse
Specify how and	where you want to store the data in the cu	rrent database.		
<ul> <li>Impor If the s name c</li> </ul>	t tables, queries, forms, reports, mac pecified object does not exist, Access will o f the imported object. Changes made to so	ros, and modules into the reate it. If the specified object urce objects (including data in	e current database. ct already exists, Access will n tables) will not be reflected	append a number to the in the current database.
C Link to Access source	• the data source by creating a linked will create a table that will maintain a link to and vice versa. NOTE: If the source datab	table. the source data. Changes m ase requires a password, the	ade to the data in Access wi password will be stored with	l be reflected in the the linked table.
			ОК	Cancel

Click OK

The Import Objects dialog box is displayed.

- Select the Forms tab
- Click frmStudentEntry to select it



> Click OK

There is no need to save the import steps.

- > Close the Get External Data dialog box
- > Open frmStudentEntry in Design View

You will notice a green triangle in the top left corner of two controls: the **Course** combo box, and the **DOB** text box. This suggests that there is a problem with these controls.

Click in the DOB text box

An Exclamation Mark icon is displayed on the left.

Click on the Exclamation Mark to see information about the error and how it may be corrected

🗲 Det	ail																
					Invalid (	l Control	l Propert	l ty: Cont	i rol Sou	rce							
	Course	title:			No Such	n Field i	n the Fi	ield List									
				1	Edit the	<u>C</u> ontro	l's Cont	trol Sou	irce Pro	perty			<u> </u>				
					Edit the	<u>F</u> orm's	Record	Source	Proper	ty							
	First n	ame:		1	<u>H</u> elp on	This Er	ror						Addre	ss:			j
	FirstN	ame		-	Ignore E	Fror					et		Addre	ess1			
			L		Error Ch	ecking	<u>O</u> ption	IS	1		n/City		Addre	ess2			,
	Date d	r Birth.		<u>المجار</u>	DOB	-		-		Pos	tcode		Postc	ode 	1		
										Tel	ephone	:	Telep	hone			

The text indicates that the control is trying to reference a non-existent field.

Sometimes it may be that a corresponding field exists in the current database but under a different name, and therefore this can be fixed by editing the Control Source property.

On this occasion, no date of birth field exists in the underlying table so, to correct the problem, either a new field will need to be created, or the control must be removed. However, you will not make any corrections to this form.

- Close the form
- Exit Access

# **APPENDIX A**

# FIELD PROPERTIES

Field properties are used to determine how Access handles and stores data, for example a date. When you create a field, a list of properties is displayed. The list of properties available is dependent on the data type chosen.

#### Field size

When a field has been specified as a text field, the field size can be set to any value from 1 to 255. This specifies the maximum number of characters that will be accepted in the field.

For number fields, the field size options are: Byte, Integer, Long Integer, Single, Double, Replication ID and Decimal.

Field size options for numbers	Range	Decimal Places	Storage Size
Byte	0 to 255	No decimal places	1 byte
Integer	-32,768 to 32,767	No decimal places	2 byte
Long Integer	-2,147,483,648 to 2,147,483,647	No decimal places	4 bytes
Single	-3.4E38 to 3.4E38	Up to 7	4 bytes
Double	-1.797E308 to 1.797E308	Up to 15	8 bytes
Replication ID	Unique ID required for replication	n/a	16 bytes
Decimal	-9.99E27 to 9.99E27	Up to 28	12 bytes

#### Format

The format chosen determines how data is displayed.

Numerical Formats		
	How data is entered	How data is displayed
General number	1234.56	1234.56
Currency	1234.56	£1,234.56
Fixed (2 places default)	1234.56	1234.56
Percent	0.1234	12.34%
Scientific	0.001234	1.234E-3

Date Formats		
	How you might enter data	How data is displayed
General Date	18/4/98	18/04/98 23:39:00
Long Date	18/4/98	18 April 1998
Medium Date	18/4/98	18-Apr-98
Short Date	18/4/98	18/04/98
Long Time	10.15	10:15:00 PM
Medium Time	10.15	10:15 PM
Short Time	10.15	10:15

Text Formats		
	How data is entered	How data is displayed
>	>uppercase	UPPERCASE
<	<lowercase< th=""><th>lowercase</th></lowercase<>	lowercase

### Decimal places

With numeric fields you can set the number of decimal places to between 0 and 28.

If you choose Auto, the number of decimal places will be allocated according to the field size.

#### Input Mask

Use an input mask to control what characters can be entered into a field. The input mask is made up of special codes and placeholders.

For example, an input mask of LLO indicates that the field must contain two letters and one digit.

Input Mask	What it means
codes	
0	Enter a digit (compulsory)
9	Enter a digit (optional)
#	Digit, + or - sign or space
L	Letter (compulsory)
?	Letter (optional)
А	Letter or digit (compulsory)
a	Letter or digit (optional)
£	Any character or space (compulsory)
С	Any character or space (optional)
.,:;-/	Decimal point, date & time separators
<	Convert character(s) to lower case
>	Convert character(s) to upper case
!	Fill from right to left
\	Characters shown as literal

#### Caption

The caption property can be regarded as an alias for the field name. If a caption is defined, this will be used as the field heading when the table is displayed in Datasheet View. The caption will also be used to set the text displayed by default in labels for forms, reports and queries.

## Default value

A default value is a value that is automatically entered into the field when a new record is created. This is useful if it is possible to predict what the value in the field is likely to be.

### Validation rule

This property limits the values entered into the field.

For example, a validation rule of >1000 AND <2000 would ensure that only numbers between 1000 and 2000 would be accepted in the field.

#### Validation text

Used in conjunction with the validation rule. If the user attempts to input a value that violates the validation rule, then the validation text is displayed as a message to the user.

#### Required

Used on any field to indicate that a value must be entered.

#### Allow zero length

Used with a text or memo field. Access uses two different types of empty fields: the null field and the zero length field.

A field, for example 'fax number', might be empty because the person does not have a fax number, or because you do not know their fax number. Access allows you to distinguish between these two situations. You can use a null value to indicate that the information is not known, and a zero length value to indicate that the information does not exist.

To enter a zero length value in a field, type two inverted commas "" into the empty field.
### Indexed

Used on any field to speed up data retrieval. Similar to an index in a book, if an indexed field is used in a search or query, Access will search the index, which is much quicker than searching the whole database.

However, indexing many fields will slow down data entry, because both the table and the indexes are updated. Use indexing wisely to get the best performance from your database.

Index setting	Meaning
NO	No index
YES (Duplicate OK)	Create an index on this field - different records are allowed to have the same value in this field
YES (No duplicates)	Create a unique index on this field - no duplicates allowed (useful for information such as a National Insurance number where there should be one only)

### Unicode compression

This can be used in non-numeric fields to compress the data if fewer than 4,096 characters are stored in the field. It has no effect if the field contains more characters.

## IME mode and IME sentence mode

Used to control the conversion of characters and sentences in East Asian versions of Windows.

#### Smart tags

Enables you to choose smart tags to attach to the field.

## Append only

This is only available for memo and hyperlink data types. You can keep track of the history of changes to the value in a field by setting this property to Yes.

If the property is set to No, then any previously saved field value history will be deleted.

# Text format

This property is only available for memo fields and enables you to choose between Rich Text (which allows a degree of formatting to the text) or Plain Text.

## Text align

Enables you to choose the default alignment for the value within the field. The options are: General, Left, Centre, Right and Distribute.

### Show date picker

This property enables you to choose whether or not to display a calendar control when users edit a date/time field value.

Note, however, that if an input mask is set for the date/time field, then the Show Date Picker property will be overridden and a calendar control will not be available.