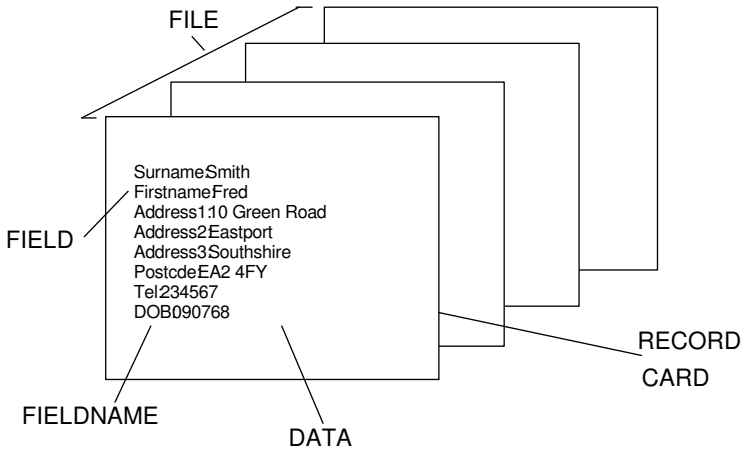
Module 5 **ECDL DATABASE WORKSHEET**

Introduction - What is a database?

A database is a collection of related information organised so that it can be referred to with speed and ease! It could be described as an 'electronic filing system'. The information is set-up so that it can be updated and recalled as required. In a physical database the information might be stored on record cards. For example:-



The Structure of a Database

A *database File* contains a number of *records*. Each record contains a number of sections called *fields*, which data is entered into. Each field has a name – *Fieldname* – which describes the data it holds. You can see from the example above that the DOB field contains the Date of Birth of John Smith – the person in the record.

Even though data held on a 'paper-based' record system may be well organised, its structure is rigid and any attempt to find information that does not conform to this structure would be very time-consuming, especially with a large record collection. For example, finding all persons living in Eastport, when the cards are alphabetically ordered on Lastname. A database held on computer, however, is very flexible and a **search** through records (**query**) may be designed to suit a unique line of enquiry, i.e. *all male persons living in Eastport over the age of 65 whose information is held on a particular database.*

Designing a Database

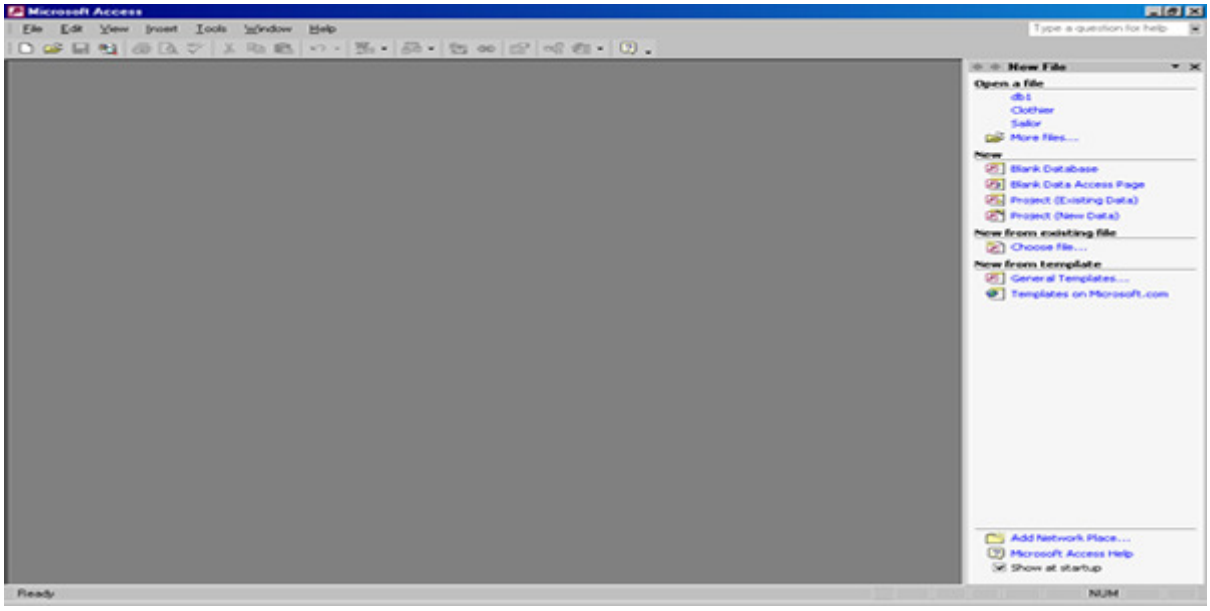
Planning a database before you commit it to your computer is essential. It is sometimes not easy to change the structure of a database once it is set-up. Below are listed some points you should consider when setting up your database…

- What is the purpose of your Database?
- What information do you require to hold?
- How are you going to obtain the information?
- Preparation of the Data
- What fields do you require and what names will they have?
- How many records are to be included?

Introduction to the Microsoft Access Application

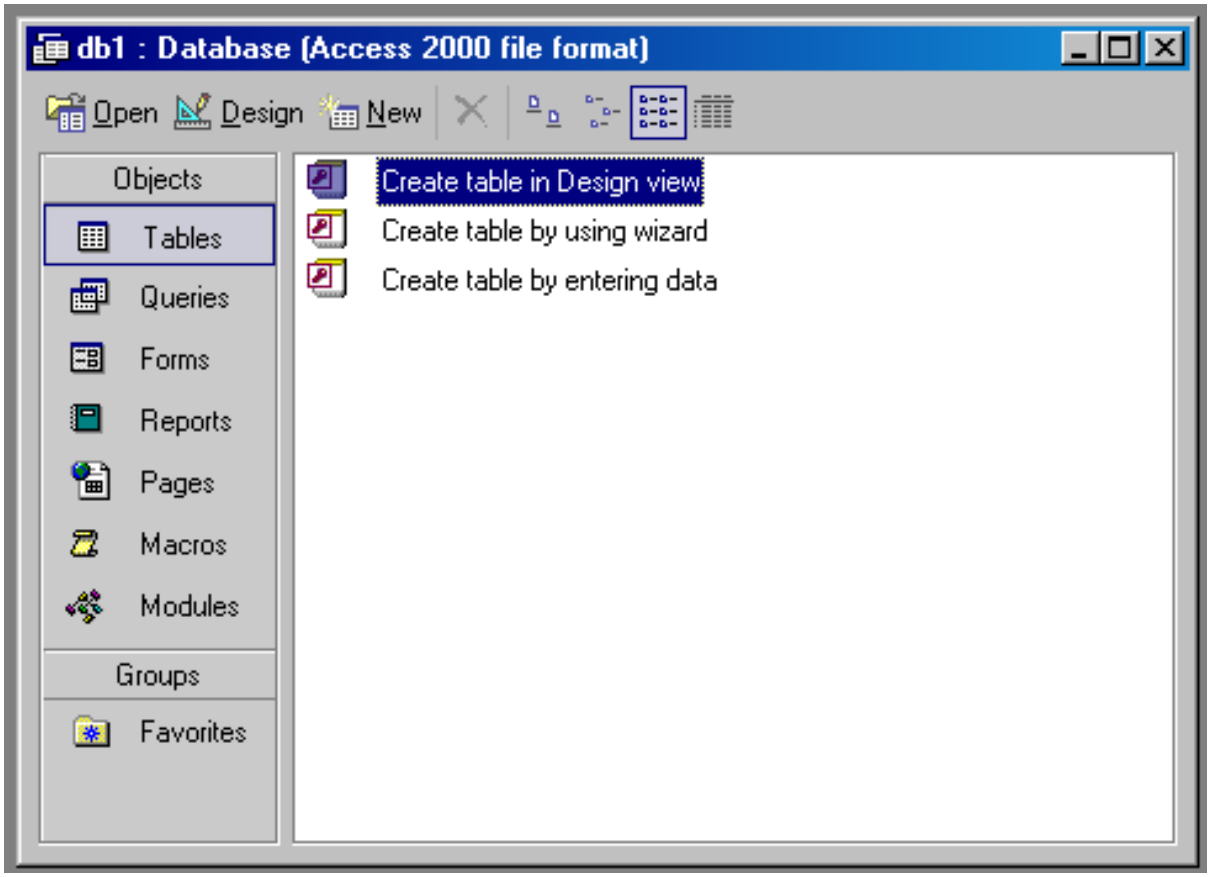
Microsoft Access is the University's Database application software – there are several others – but this is popular and easy to use yet very powerful.

To begin using Access, click on the start button and move the mouse over the Programs option. Click on the *Office XP* option and then **Click** on *Microsoft Access.*
Access will start and bring up the dialogue box as displayed below…….



If you're creating a new database, select the– Blank Database – on the right and click **OK** or go to the **File** menu and select **New**. A *File New Database* window will appear requiring you to save your database so enter a filename for your Database. We strongly recommend that you save it on your H: drive and not a floppy disk. Working from Floppy is also slower –you can transfer the file to your floppy disk later. Give your database a name that is unique to you (use your lastname as a filename) and click **Create**.

A blank database has now been created, and is represented by the next Window that appears – this has several **Objects** down its side. Clicking between these, you will see for the time being, they have options to create several different designs. Return to the **Tables** tab.

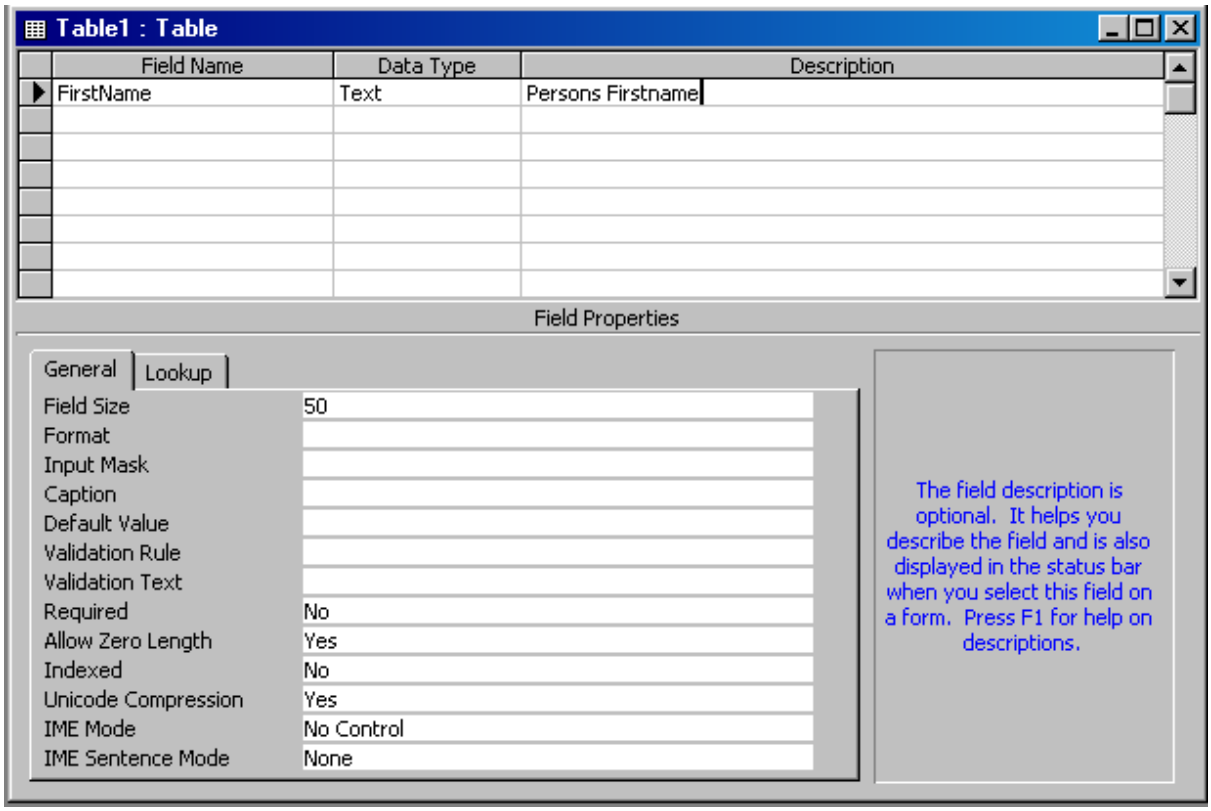


Access uses a table format for its databases so you must first design your table. You are going to construct a simple database that holds people's names and addresses – database design is important and requires some thought, but for the moment keep with the exercise.

Ensuring that the **Tables** tab is highlighted click on the **Create Table in Design View** option, you will be presented with **a Table Window**. The window is divided in two – the upper

section allows you to enter your fields and the lower section to change the settings of your table to improve its properties and offers some helpful hints.

Your first task is to enter some fieldnames for the database. The cursor should be positioned in **Field Name** column - type in *Firstname* and press the <ENTER> key. The cursor will move in to the **Data type** column where you are presented with a drop-down box. The first option – **Text** – is the default. Leave this selected and press <ENTER>. This will move you onto the final column named **Description.** The description field allows you to describe what is to be entered into this field. Type in here *Persons First Name* and press <ENTER>



The cursor will now be placed in the second row of the **Field Name** column. Press the <UP ARROW> key to return to the first entry – you are now going to change some of this field's properties…place the cursor, using the mouse in the field that says '**50**' in the **general** tab of the **Field Properties** window. The field size is default to 50 (meaning 50 characters long) – highlight and change this to *20*. As a general rule, use a field size that you would consider appropriate for the field's content. Use the help if you are unsure about the other entries.

Using the same approach as above, set out the extra fieldnames detailed below – choose appropriate field sizes yourself and create your own descriptions. If you make a mistake, use

the usual editing tools. Set all the fields to text except for the Age field, which should be a *number* – an option available from the **Data Type** drop down menu.

lastname title street district town postcode telephone age

The last entry you are going to make will be a Date of Birth or DOB entry. This will be different to the **text** and **number** entries we have used before.

Enter *DateOfBirth* into the **field name** column, then in the **data type** column select *Date/time.* Then, place the mouse pointer in the format field of the field properties part of the window. Select *short date.* This will be adequate for our needs. Remember this format, because during this exercise there is no control over how the date is entered, i.e month/day or day/month etc. These particular properties are controlled by the validation rules – view the Microsoft Access help files for further information on this topic. When deciding what order to store information in a database, adopt a logical approach. In the case of people – start with their name and move through to their address, etc.

Once you have entered all the above detailed fields you must save the table. Click on **File** and select **Save** – a **Save as** window will appear. The default file name is Table 1, change this to **names** for the purpose of this work sheet and then select **OK,** the table will be saved. You will be prompted for a primary key – click **No** for now – this will be explained later in the worksheet. Close this window down by clicking on the **X** in the top right corner of the table design window.

You are now ready to start populating your table with details about some people. To do this, ensure that Table 1 is highlighted and click on the **open** button. It is best if you maximise this window. Now enter all the data below into the appropriate fields. Use the <TAB> or <ENTER> key to move between the fields and records.

Andrew	Smith	Mr	35 The High Street	Uppingham	Northope	NO10 6EF	9145678	35	17/12/65
Penny	Goose	Miss	1 Higher Lane	Downham	Calthorpe	CA22 2FT	9145627	38	06/11/62
Tessa	Green	Mrs	45 Smiths Square	Uppington	Northope	NO11 6GT	9148762	20	15/12/80
Peter	Rannagi	Mr	10 Market Street	Golforks	Newham	NE43 7GH	9142987	35	15/03/64
Samuel	Bootengi	Mr	104 Lower Road	Golforks	Newham	NE12 8BH	9145968	75	18/12/25
Penny	Nylands	Miss	293 Upper Haver	Sethwick	Downton	DO24 9UJ	9145876	41	30/06/59
Phillip	Smith	Mr	28 The High Street	Uppingham	Northope	NO10 7FG	9142984	60	10/10/40

Once you have completed entering the data, press <TAB> to move down to a blank record – the data will be saved automatically.

If you want to preview the table ready for printing click on the **File** menu and select **Print Preview.** To print the file after previewing it click on the **File** menu and select **Print** then click on **OK.**

*In an ECDL test centre you may be asked to print to a file rather than a printer, in that case, just click on the **Print to file** option on this screen and type in a file name in the dialogue box after you click on **OK**.*

To close the window, either select **Close** from the **File** menu or click on the **X** in the top right corner.

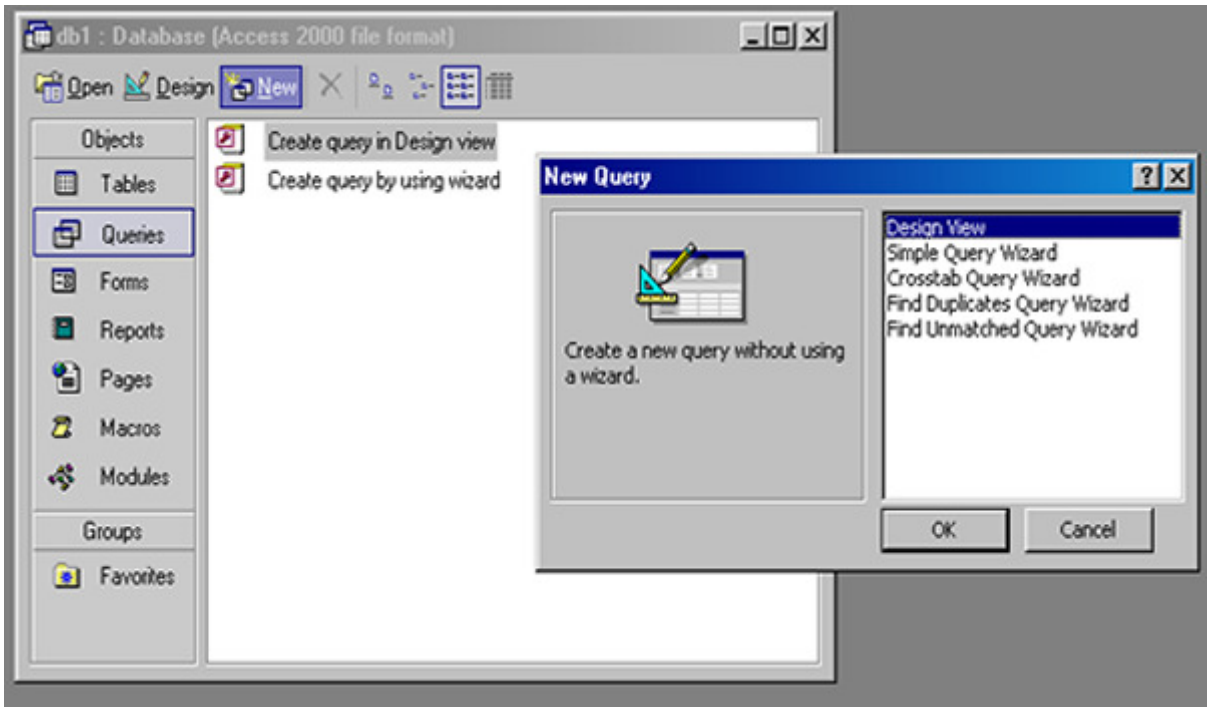
Searching the Database

You will now be able to search for specific sets of data held in the database using a Query. A database is only useful when you can retrieve sets of useful data. A Query will search the data contained within tables in accordance with predefined criteria. You will also be able to perform queries on specific fields from more than table – but for now we will stick with just the **names** table**.**

Constructing Queries

Ensure that only the Database window is open, close all others (except the main Access one!). You will notice that down the side of this window there are a number of Tabs – click on the second one named **Queries**.

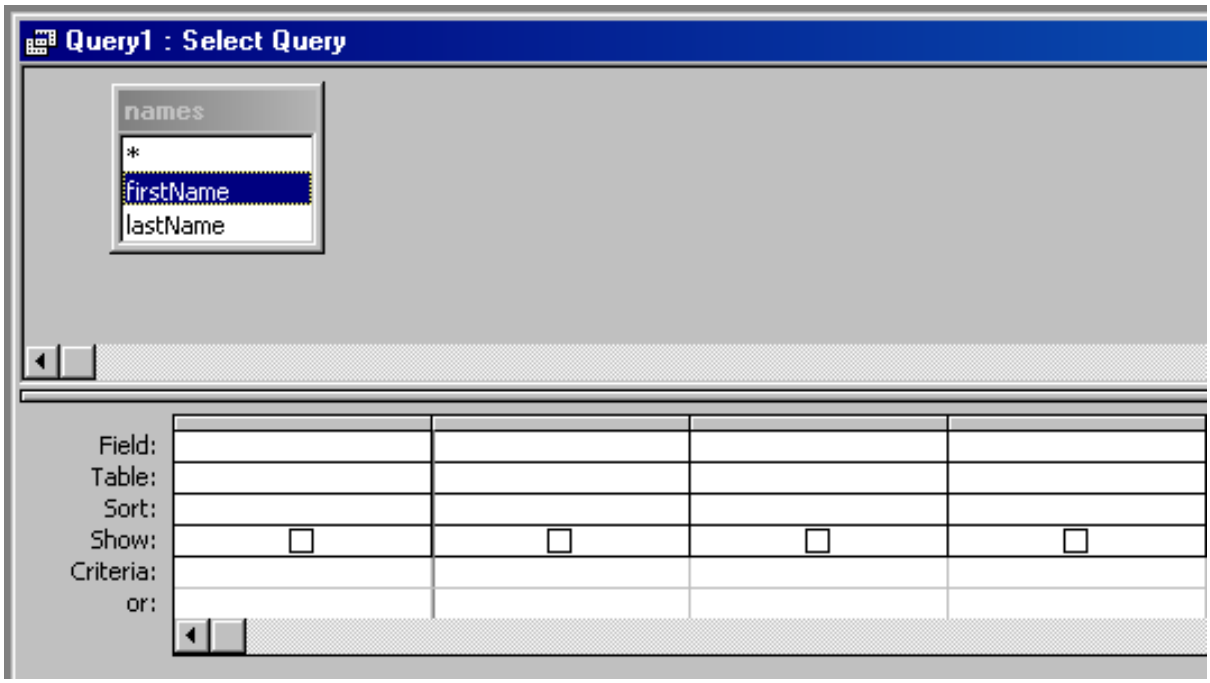
You need to create a new query so click on the **New** button. The **new query** window will open where you should ensure **Design View** is highlighted and click **OK**.



The **Show table** window will now offer you the opportunity to select which table you are going to query as you only have one table, there is only one to choose. Highlight the **names** table and click on **ADD** – you will now see that **names** has been added to the query design window – Close the **Show table** window.

The **select query** window is now in view and you can see it is divided into two. The top section shows the table that we are presently using and the lower section is called the *Graphical **Q**uery **B**y **E**xample Grid* or QBE grid for short. In the QBE grid, each column relates to a field that you will select – do not worry about this, it will become clearer as you try some queries.

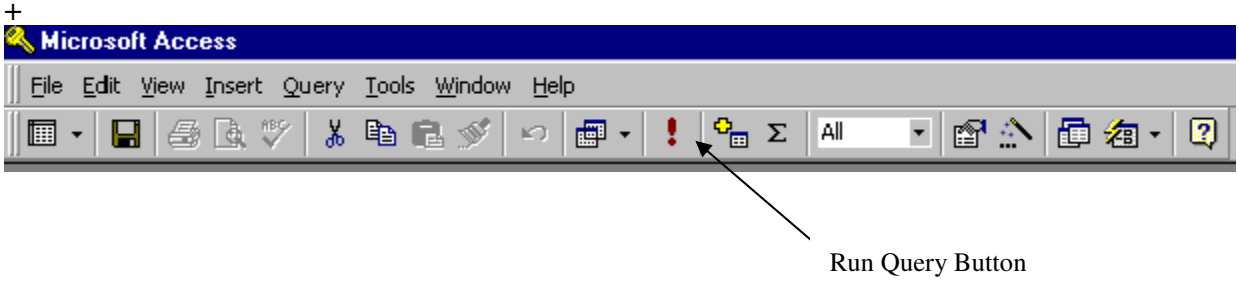
You need to add some fields to the QBE grid, so click on the field name titled **Firstname** in the upper portion of the window – it will be highlighted. 'Drag and Drop' this into the first column of the QBE grid (*Drag and Drop* – click on the highlighted field name, holding the left mouse button down, drag the mouse until the field name in anywhere in the QBE grid's first column, then release the left mouse button)



Alternatively, another way to add a field to the QBE grid is to click in the **Field** row – try this with the second column. A drop down box-arrow should appear. Click on this to see the items in the menu, select the **Lastname** field. You are going to Query just these two fields to start with.

You can begin searching your database by looking for all people in your database with the Firstname Penny. To do this, enter *Penny* into the first column in the row marked **Criteria.** It is important that you make sure you are searching the correct field – i.e. searching the **Firstname** field and not the **Lastname** field. To *Run* the Query, click on the **Red Exclamation Mark** found in the toolbar.

+



The Query will now return all records with a Firstname matching "Penny". Close this Query, saving it as *Query1* or as a name of your choice. This query will now be visible under the **Query** tab of the Database window.

Your first query was a single field query; you are now going to query more than one field so ensure that the **Query** tab is selected and click on the **New** query button. Again, add table one to the query and close the **Add Table** dialog box. This time you are going to add all the fields to the query – this is easy to do – Double click on the title bar of the field list marked **names**. You will notice that all the fields in **names** are now highlighted – drag and drop these (placing the mouse pointer on the highlight) into the First column and the QBE grid will format them for you.

For this query, type *Newham* into the **Town** field in the row marked **Criteria**, then type *104 Lower Road* into the **Street** field, again into the row marked **Criteria**. Click on **the Red Explanation Mark** (!) to run the query and this should return the whole of Samuel Bootengi's record – close the window and save the query as Query 2 as you did before.

Try to create some queries yourself:

1. Find out how many people are under the age of forty – use the <40 criterion for this
2. Find out who lives in Northope
3. List all people over the age of 30
4. How many Smiths are there?
5. Who was born on the 10/10/40?
6. What is Peter Rannagi's telephone number?

Creating a Report

A report could be described as a *Front-end* for a query, i.e. when a query is performed; this is what the user sees. They can be based on tables or queries. They allow you to present data in any form that you want and lets you select certain parts of your database – it's up to you.

At this point, we are going to introduce you to a Wizard – these are tools that ask you questions and then create reports, etc from your answers. A new report can be created by selecting the **Report** Tab – the fourth tab down from the top on the database window. Click on this and then select **New**.

The **New Report** dialogue box will now open. From the list of Reports select **'Report Wizard***'* and from the drop down menu below, select **names.** Click **OK**. The **report wizard**

dialogue box will now open and you will be asked a question…*which fields do you want on your report?* You need to select the appropriate fields (the information you wish the report to display) then move each of them into the 'selected fields' window by clicking on the single right arrow. Clicking on the double right arrow will move all the fields from table one across. For the purpose of this exercise, select the **firstname, lastname, postcode** and **age**. Field(s) any fields you do not want to use can be removed by clicking on the left single/double arrow. When you are happy with your selection, click **Next**.

The next question *Do you want to add any grouping levels?* can be ignored for this report. It refers to grouping 'like' data together, i.e. grouping all the people with the same lastnames together under a header called 'Smith' or 'Evans' for example. Click **Next** to skip this question.

The next question will ask you, *What sort order do you want for your records?* This part of the wizard enables you to arrange the data in the report in your chosen order and whether it ascends or descends. Choose which field you wish to appear first, then which second, third and fourth – changing the button from either *A-Z* or *Z-A*. Alternatively, skip this by pressing **Next** and allow the computer to arrange the fields automatically.

The next question – How would you like to layout your report? – concerns the format the report will be displayed on screen. Different layouts can be selected by changing the selected radio button. Leave it on **Tabular** then click **Next**.

The next question refers to the style of the page – this is purely an aesthetic thing so pick a style that you like and click **Next** to continue.

Finally, you will be asked to give your report a title – the default will be 'Table 1'. Alternatively, you can call it something else – Click **Finish**. You will automatically be taken to a preview of the report. It should display the firstname's, lastname's, age's and postcode's of the patients held in Table 1, in the order you chose. Once you have viewed the report click the **X** to close the window.

If you wish to manually change the layout of the report – highlight the report in the Report window and then click design – you will then be given an editing screen where you can adjust the layout. In the majority of cases, it will not be necessary to change the layout.

Creating a Form

Forms are useful for people who are not familiar with databases and make entering data into the database tables a lot easier – database designers design forms for someone else to fill in.

To create your form you are once again going to use a Wizard. It looks very much like the Report wizard and some of the questions are similar.

To begin, select the **Forms** tab from the database window – the third tab down from the top and then click **New.** You will be presented with a dialogue box and several methods of creating a form. Choose **Form Wizard** and from the drop down menu then click **OK**.

Where a database is constructed of more than one table, it is possible to populate multiple tables with the data entered into one form. You can select the different tables from the drop down menu (your database only has one table and will already be selected). Beneath this is a list of the fields that make up this table – you will want to populate them all so click on the double right facing arrow to move them into the **Selected Fields** window, then click **Next**.

The next question, *What layout would you like from your form?* refers to how the form will appear on the screen – this is down to personal preferences. For this exercise select **Justified** and click **Next** to continue.

The **next** dialogue box again offers options that depend on personal preference – select the style you like best and click **Next** to continue.

The final question asks you to give the Form a name – the default will suffice here – click **Finish** and you will be presented with the finished Form. When you view the form for the first time, it will display the first entry in the Database. Click on the **>*** button at the base of the window to move to a new record, this will be Record Number 8. You can immediately begin to populate Table1 using the Table1 Form, moving from field to field using the tab key. Once you have filled in all the fields, press <Enter> and you will reset the form and be able to make another entry.

Add these people to the database (Use the form)

Mary	Ellenski	Ms	37 Maudlet Street	Computon	Suiter	SU25 J98	9145644	35	12/12/65
Peter	Sothall	Mr	23 Brompton Close	Badgerton	Ellingham	EL78 B78	9245988	17	17/10/83

Simply closing the window will save all the information – you can view these new entries by clicking on the **Open** button in the **Table** tab.

You now have a complete database – a table containing persons records, methods of data entry (Forms) and retrieval (Reports) and methods of searching (querying) for specific data. To practice these skills and to familiarise yourself further with access try completing some of the following tasks…

Tasks to do

1. Try creating some more reports, but instead of basing them on a Table as we did last time, base it on a Query – use the report Wizard for this. Reports are more likely to be used for displaying the output from a Query than a Table. The information held in tables tends to be less specific, where as reports are forms of sorted and organised information – and are relevant to particular needs.

2. Sort the Table on one Field. You can put your records in any order by using a simple sort. Placing names in alphabetical order, for instance, may make searching a table quicker, especially if it is a large table.

   To sort your table, open the table by clicking on the **Table Tab** in the database window and then click on the **open** button. Now place the cursor in the **Lastname** field and click on the **sort** button in the toolbar – it has an **A-Z** on it and an arrow pointing down. The field is now sorted alphabetically. Try it with other Fields. You'll notice there is also a descending sort button marked **Z-A** with an arrow pointing down.

3. Question: Why is this useless when you try to sort on the Street Field? Find out. How would you solve this?

4. Sort the Table on more than one field: Why sort the table on more than one field? If you sort the Lastname field alphabetically, you'll find for example that the Smiths are

not sorted alphabetically by their Firstnames. So a sort on the Lastname will place them in order and then a sort on the Firstname will put them in order, but does this change the order of the Lastnames?

To do a sort on more than one field you use a *filter*. Open Table1 in *Datasheet view* by clicking on the **open** button in the database window. Select *Records* from the menu above and then *Filter* and *Advanced Filter/sort…* This will bring up another QBE Grid – like the one used for producing a query.

To produce the sort, drag the **Lastname** down to the first column, and from the **sort** row, select **ascending**. Repeat this for **Firstname**. To *Run* the Filter, click on the '**funnel'** icon found in the tool bar. This will close the QBE Grid and return you to the data sheet – you will now notice the order of the Table's contents has changed.

5. Try running a filter on:

    i. Town and Age

    ii. Lastname and Town

(a new filter will overwrite an old one)

6. Question – are there any other sorts that would be useful?

Filters also have other uses. You can hide records that you don't want to see at a particular time. Say, for instance, you had 400 records and wanted to search them visually quickly, you could run a query but there is a quicker way. Open the **Advanced Filter/sort QBE** Grid again.

Remove any other filters by clicking on the Red **X** in the toolbar. Add the **Town** Field to the Grid. This time, Type *Northope* into the Criteria cell – Click the '**funnel'** Button. Only records with Northope in them will be returned.

You will have to decide whether this is quicker that applying a query…

How do you get the other records back? Simply, click on the **Records** menu and click on **Remove Filter Sort.** This returns the table to its original state.

7. Some final tasks…

i. Sort all records in order of age.
ii. Hide all the people from Calthorpe
iii. Create a query of all the people over the age of forty and then compile a report of them.
iv. Add yourself to your database using your form.
v. Create a small database of your choice.

Take a break now if you need it before Part 2

In this part you are going to build on the skills you obtained in the first session. This worksheet covers how to set up a relational database with several different tables and shows you how to link them. There will be also a chance to look at Macros.

You are going to produce a new table for your database. This database was designed in the first worksheet.

Follow this carefully

To open your database go to the file window and select **Open Database**. Should be on your H: drive. This will load the database. If you have doubts about this please ask for help from the technical assistants.

Adding a primary key

The power of a relational database system such as Microsoft Access comes from its ability to quickly find and bring together information stored in separate tables using queries, forms, and reports. In order to do this, each table should include a field or set of fields that uniquely identifies each record stored in the table. This information is called the primary key of the table. Once you designate a primary key for a table, Access will prevent any duplicate or Null values from being entered in the primary key fields. (If you do not know what this means look in **Help)**

You have to make one change to this database to allow you to link it to other tables. Each record in the different tables needs a unique identifier so the information can be linked. Open the **Names** table by selecting it and clicking on the **Design** button. The table will open.

You need to insert a new field at the top of the other fields so click to the left of the **Firstname** field to highlight that row. Click on the **Insert** menu and select **Insert Row**. Into the blank fieldname type *ID* this is short for identification. As the **Datatype** choose **Autonumber.** The database will insert a number into this field for you starting at 1 so each record will have a unique identifier. You also need to choose this field as the primary key, so ensure that the row is still selected then click on the icon that looks like a **key** on the toolbar. It will insert a small key to the left of the fieldname column.

Don't forget to save your database design by clicking on **Save** in the **File** menu.

Open up the Names table and you will see the table with the ID field filled in. Close down this table.

Now you are going to build your second table. Ensure that the *Tables* tab is highlighted and click on **New**, when the dialogue box opens select **Design View** then click **OK**. You will be presented with the **Table Window**. The upper part of the table window allows you to enter your fields. The lower window allows you to improve your table by setting its properties as before.

You are now going to enter the fieldnames for the database. The cursor should be in the **Field Name** column. Type in *ID* and choose the **Datatype** as **Autonumber**. Enter a description for this entry. This is to match your other table. Use the **<Tab>** key to move to the next entry and type in *Employer* and press the **<ENTER>** key. The cursor moves to the **Data Type** column and gives you a drop down data type menu. The first option text is the default. Leave **Text** selected. The lower window needs some describing. The field size default is **50**, this is large for an *Employer* field so highlight it using the mouse and type in *30*. Try to be realistic in your field sizes to save memory. Ask if you are unsure about the other entries, some of these will be described later.

Move on to the final column entitled **Description**. This allows you to type a description of the field. Type in here *Persons employer* and press **<ENTER>.**

Using the above information set out the extra **Fieldnames** below. You will have to choose appropriate field widths yourself. Also you may type in your own descriptions. If you make a mistake, use all the usual editing tools. Set all the fields to **Text**. Type these in.

Street

Town

The last field is different. You are going to set up a Salary field so type *Salary* as a fieldname but choose **Currency** as the type.

Do not forget to save your table design by clicking on **Save As** in the **File** menu and calling this table *Work.* You will be prompted for a primary key select **No**.

You are now going to fill in the table with the relevant details. **Click** on the datasheet icon to display the table and you can start filling it in. The **ID** field needs no entry so just press the **<TAB>** key to move to the next field. Here is the information you need.

ID	Employer	Street	Town	Salary
1	Heavens Gate Nursing Home	10 Sydenham Street	Northope	£8,000.00
2	The Crispy Duck	6 Tollgate Square	Newham	£10,000.00
3	Crafts Are Them	45 Follop Drive	Swigwell	£15,000.00
4	Shangri La Kennels	10 Market Street	Newham	£30,000.00
5	Swatham and Sons	8 Allerton Road	Ligwell	£20,000.00
6	The Copper Kettle	78 Quickwell Hill	Downton	£10,000.00
7	Smiths Bros	28 The High Street	Northope	£50,000.00

Don't forget to save the table when you have finished it and then close it to return to the database window.

Relationships

So far you have two separate tables with an identifier that is the same in each table, you now have to link the two tables together so the information for the ID field in the **Names** table is linked to the ID field in the **Work** table.

Click on the **Relationships** icon in the toolbar and the two tables will be displayed with a link between the ID fields of each table. Click on **File** and select **Save**. Return to the Database

window by closing down the relationships dialogue box. (Click in the **File** menu and select **Close**).

To test whether the two tables are linked you need to test the table with a couple of queries.

Queries

You need to create a new query so click on the **New** button. The **new query** window will open where you should ensure **Design View** is highlighted and click **OK**. The **Show table** window will now offer you the opportunity to select which table you are going to query as you have two tables, so choose **names**. Highlight the **names** table and click on **ADD** – you will now see that **names** has been added to the query design window – Close the **Show table** window.

You need to add some fields to the QBE grid, click on the field name titled **Firstname** in the upper portion of the window, it will turn green. Place the mouse pointer on the green area and holding down the left mouse button drag the field name into the first column in the QBE grid. This is one way to do it. The other way is to place the mouse pointer in the second column and click the left mouse button. A drop down menu button appears. Click on this to see the items in the menu and select the **Surname** field.

You want to find out what their jobs are so select and drag the **Employer** field down to the QBE grid. Click in the first column with the **Firstname** field and in the row marked **Criteria**. You want to find out where all the Penny's work so type *Penny* into this row. It is important to ensure that you are searching on the correct field as the query will only search that field. Click on the **Query** menu and select **Run** to run the query.

All the records with the first name **Penny** will be displayed with their appropriate job. Notice that the query takes information from each table and places it into one query. You have combined the information. You may save this query on closing down the window and saving it as query1. You are again at the database window with the query1 query visible in the query box.

You are now going to query more than one field so ensure that the query tab is highlighted click on the **New** button and then on the **OK** button. Again add the two tables to the query

window and close down the window. This time you are going to add more fields from each table. So add the following fields from the **Names** table: **Firstname, Surname, Town, Telephone**. From the **Work** table add the fields **Employer, Salary.**

You are going to query all the salaries under £15,000 of the people who live in Northope. Select the **Salary** field in the QBE grid and type *<15000* into the row marked criteria. **(Do not** forget the < sign as this means less than). Next, you need to select the **Town** field and type *Northope* into the row marked **Criteria**. Click on the **Query** menu and select **Run** to run the query and the computer will display the appropriate record. Save this query as query2.

Try to create a query yourself now. Save this query as *query3*.

You should feel happier now working with two tables.

Three tables

You are now going to add a further table to your database. This is going to be people's interests. Now each person may have more than one interest so the counter field you used for the first part of this exercise will not work any longer. You need to change the counter field to include a unique identifier. As the tables are linked, you need to destroy or delete the link first. Let us get going.

Open the **Edit** menu and select **Relationships**, The relationships dialogue box now appears. You now have to destroy the link between the two ID fields from each table. **Click** on the link line between the two tables and then press the **<Delete>** key, a dialogue box appears asking you if this is what you want to do so select **OK** and the link is destroyed and the line disappears. Exit from this dialogue box and you are back at the database window.

You are now going to change the **Names** table, so make sure the **Names** table is highlighted click on the **design** button. The field you are changing is the ID field.

Click in the datatype box and a drop down arrow appears click on this and select **Text** as the type. You need to index this field so not to allow any duplicates. In the **Field Properties** box at the lower half of the screen click in the box marked **Indexed**. Ensure that the option **Yes (No Duplicates)** is highlighted**.** Save the table and go back to the database window view.

Click on the **Names** table and select **Open** because you now want to type in some new ID's for the people. Below are the new IDs copy these into the ID column. **Do not forget to save the table.**

Tab ID
1DD
2DD
3DD
4DD
5DD
6DD
7DD

Now you have done that you need to do the same for the **Work** table. Do not forget to change the design from a counter field to a text field. Use the same ID as above. Don't forget to check the Duplicates option in the Index row ant the bottom of the screen. Save the table, when you have finished, as *Interests* by going to the **File** menu and select **Save As**.

You now want a third table, so return to the Database window ensuring that the Table option is selected. **Click** on new table. Type in *ID* in the first column and Select text as the datatype in the second column. Press the **<Tab>** key until you return to the first column and then type *Interests.* Set that also to text. You are not going to set any primary keys in this table because we want to allow duplicates so save the table and choosing not to have a primary key. Return to the database window and open the table into the datasheet view. Enter the data below into the respective rows.

ID	Interests
2DD	Writing
1DD	Reading
5DD	Squash
7DD	Weights
3DD	Aerobics
6DD	Gymnastics
4DD	Sports
2DD	Massage
5DD	Cycling
6DD	Walking
3DD	Photography
1DD	Socialising
7DD	Poetry
5DD	Badminton
5DD	Bowling
6DD	Horse Riding
7DD	Campanology
2DD	Sky Diving
4DD	Chess
6DD	Bridge
4DD	Painting
5DD	Cooking
6DD	Ornithology
2DD	Cars
3DD	Athletics
6DD	Water Sports
7DD	Sailing
1DD	Skiing
3DD	Flower Arranging
1DD	Fishing

Save the table then close it down and return to the database window.

You now have to restore the relationships between the different tables. Open the **Edit** menu and select **Relationships**, The relationships dialogue box now appears. Add the Interests table to the relationship dialogue box by clicking on the **Relationships** menu and selecting **Add Table**. You now have to link the three ID fields from each table so that the information from one table is linked to the other tables. Now place the pointer on the **ID** field of the **Names** table and holding down the LMB drag the pointer to the ID field of the **Work** table. Another dialogue box will appear, click on the **Create** button and you will see a line between these two fields. Place the pointer on the **ID** field of the **Names** table and holding down the LMB drag the pointer to the ID field of the **Interest** table. Click on the **Create** button and you will see a line between these two fields. Finally Link the ID field of the **Work** table to the ID field of the **Interest** table. It is important to link all the ID fields of all the tables. Don't forget to save the relationships and close down the box. Take a rest now you deserve it.

To test the links you now have to query the three tables. This time you are going to have a set of tasks to do rather than being told exactly what to do.

Tasks

1. Who works at The Crispy Duck?
2. What are Penny Nylands interests?
3. Where does Andrew Smith work?
4. Who lives in the town of Newham?
5. Who likes cooking?
6. List all the interests of Robert Smith
7. Who earns more than £20,000 per year?
8. Who works at 45 Follop Drive?

That finishes the use of querying and relationships.

Subforms

Subforms are useful for showing information from more than one table in a form. They are a form contained within a form. You need to create one to see how this works. You will use a form wizard to do this.

In the Database window, click **Forms** under **Objects**. Click the **New** button on the Database window toolbar. In the **New Form** dialog box, double-click **Form Wizard**.

In the first wizard dialog box, select the **Table: names** table from the list. This is the "one" side of the “one-to-many” relationships because each persons details only appears once in this table.

Double-click the **firstname, lastname, town** fields you want to include from this table.

In the same wizard dialog box, select the **Table: interests** from the list. This is the "many" side of the one-to-many relationship because each person can have more than one interest.

Double-click all the fields to include them from this table.

When you click **Next**, the wizard asks which table you want to view by so click **By Interests**.

In the same wizard dialog box, check that the select the **Form With subform(s)** option is selected.

Follow the directions in the remaining wizard dialog boxes. When you click **Finish**, Microsoft Access creates two forms, one for the main form and subform control, and one for the subform.

Task to Do

Create a mainform of the names of the people and as a subform to include the name and address of the employer.

Creating a form from a query

Creating a form from the results of a query will enable you to use the fields from as many tables as you want.

Ensure that the **Query** tab is highlighted in the database window. Click on the **New** button and add all the tables to the query. Close the box. Now from the **Names** table select the **Firstname, lastname** and **Age** fields. From the **Work** table select the **Employer** field and from the **Interests** table choose the **Interests** field.

In the criteria row under the age field type in *>40*. We are going to query all the people over 40. Click on the **Query** menu and select **Run.** Now save this query as **Combine**.

Next, you have to place this query in a form. So ensure that the **Form** tab and **Create form by using wizard** options are highlighted and click on the **New** button. Select the query **Combine** for your form and select **Form Wizard** and then **OK.** Add the fields as before and then work through the wizard choosing you options. Click **Finish** and the form is then produced.

A parameter query

If you frequently run the same query but with different criteria then a parameter query is the answer. Try one now.

You need to create a new query so click on the **New** button. The **new query** window will open where you should ensure **Design View** is highlighted and click **OK**. The **Show table** window will now offer you the opportunity to select which table you are going to query as you only have one table, there is only one to choose. Highlight the **names** table and click on **ADD** – you will now see that **names** has been added to the query design window – Close the **Show table** window.

Now bring down all the fields into the **QBE** grid (remember how) and click in the **Criteria** row under the **Town** field. Now type this in *[place]* using the square brackets next to the enter key. (This name must not be a fieldname). Save the query as *Town* on the C:\ drive. Close down the query window. In the database window double click on the query name **Town** and a box appears asking for a place, now type in the name *Newham* and select **OK**. The query will run and select only the records with the town Newham. Try it again with a different town name.

Tasks to do

1. Set up a parameter query on the surname field.
2. Set up a parameter query on two fields.

Designing a report without the wizard

Fieldnames can be inserted into a report to design the layout of a report to your liking. Ensure the report tab is highlighted in the database window. Choose **New** for a new report and then select the **Names** table to add to the report. This time you are not going to use a wizard so select **Blank Report.**

The blank report is open and you will see a box containing a list of the field names from the names table. Drag the **firstname** field into the area marked **Detail** and into the middle of the first row and then drag the surname field to line up below it. You will notice that if you place the mouse pointer on the outside of the fieldname box the pointer changes to a hand, this means that you can drag the field into a new position. So ensure that these two fields line up. When you have finished click on the background to remove any selected points. Now drag

other fieldnames next to the first two to lay out a two-column report. View this by selecting **Print Preview** from the **File** menu. When you have finished click on **Close.**

You can also insert charts into your report. Select the **Edit** menu and choose **Insert Object...** Choose **Microsoft Clipart Gallery** from the list and click on **OK** then answer no to the first dialog box and then click on **OK** on the second box. The clipart gallery will appear so choose your clipart and select **OK** when you have finished. The clip art will be placed in the Report. Experiment with moving it around and sizing it as before if you need to.

Save this report as chart and close it down. Now view it from the database window.

Final Tasks to do

1. Set up a form to input people's interests.
2. Hide all the people from Newham
3. Make a report that contains people's names and interests only.
4. Who works at Heavens Gates Nursing Home?
5. List all the people who have a salary under £20,000
6. Set up a parameter query to query peoples interests
7. Delete the Interests table

The Answers to the Query Tasks

1. Query 3 – 4 People, Andrew, Penny Goose, Tessa and Peter
2. Query 4 – Andrew, Tessa and Philip all live in Northope
3. Query 5 – Andrew, Penny Goose, Peter, Samuel, Penny Wylands and Philip are all over the age of 30
4. Query 6 – Peter Rannagi's phone number is 9142987
5. Query 7 – There are 2 Smiths
6. Query 8 – Philip Smith was born on the 10/10/40