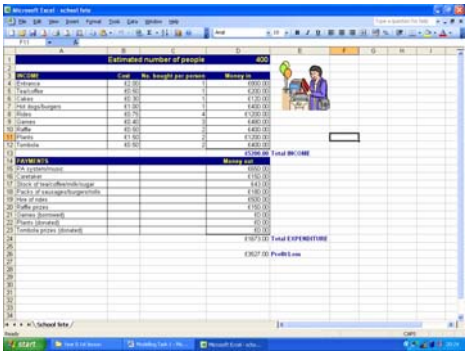
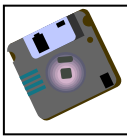
KEY SKILLS
DATA HANDLING: TASK 2



DATA HANDLING : TASK 2 - CONTENTS

- Creating queries
- Using queries
- Creating forms from a table
- Creating forms from a query



Wherever you see this symbol, make sure you remember to save your work!

DATA HANDLING : TASK 2

Before you begin this task you should create a new sub-folder in the 'Data Handling' folder that you have saved in your user area. Call this folder 'Database Task 2'.

ABOUT QUERIES

So what are queries?

Queries are used to view, change and analyse data in different ways. For example, tables that you have created previously contain many different fields. Sometimes, we may only want to view certain fields e.g. customer forenames and surnames. A query will allow us to select the data that we require.

CREATING A QUERY

- Open Microsoft Access.
- Create a new database called 'Pets'.
- Create a new table, with the following fields:
    - Pet ID
    - Pet Name
    - Type of Animal
    - Colour
    - Age
    - Outstanding Features
- Select appropriate data types for each field.
- Select appropriate field sizes for each field.
- Choose or create an appropriate primary key for the table.
- Save the table as 'Pets'.

Now add 5 records to your Pet table. Copy the records below into your table:

	Pet ID	Pet Name	Type of Animal	Colour	Age	Outstanding Features
▶	1	Samantha	Dog	Black	2	Limps
	2	Mark	Cat	Ginger	7	White Stripes
	3	George	Budgie	Yello	10	Chirps
	4	Chuckle	Dog	Black	5	White Stripes
	5	Sidney	Hamster	White	4	Smiley
*	(AutoNumber)				0	

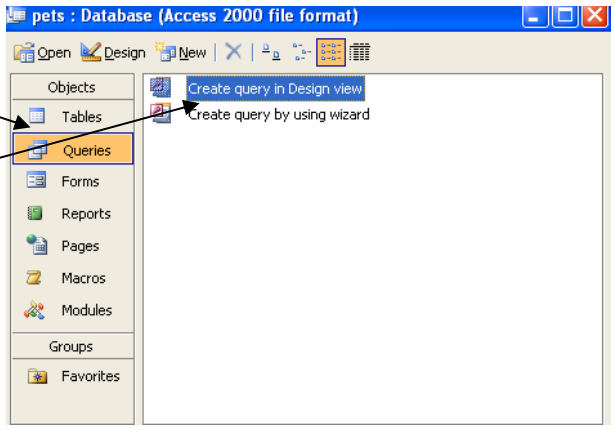
Figure 1: Pet records

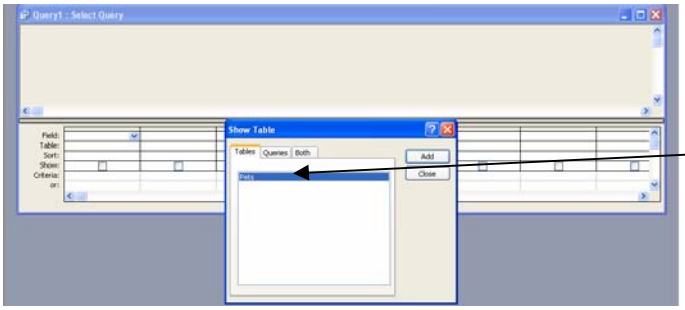
Close the Pets table.

We now want to create a query that will only display a list of all the pet names and the type of animal that they are.

Follow these steps:

- From the main menu, select ‘Queries’
- Select ‘Create query in design view’
- Either double-click on the selection, or select ‘Open’





From the ‘Show Table’ window that is displayed:

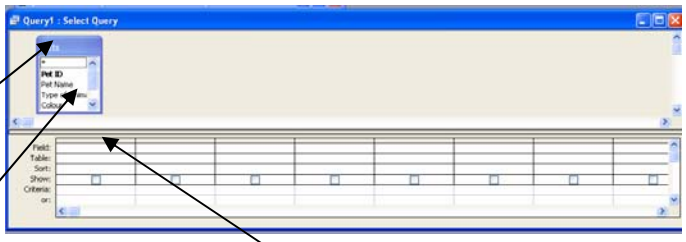
- Select ‘Pets’
- Click ‘Add’

This allows you to select fields from the pets table. If you had other tables in your database they would be listed here for you to choose from.

The query design window will be displayed.

You can see that the Pets table has been added to the top of the window.

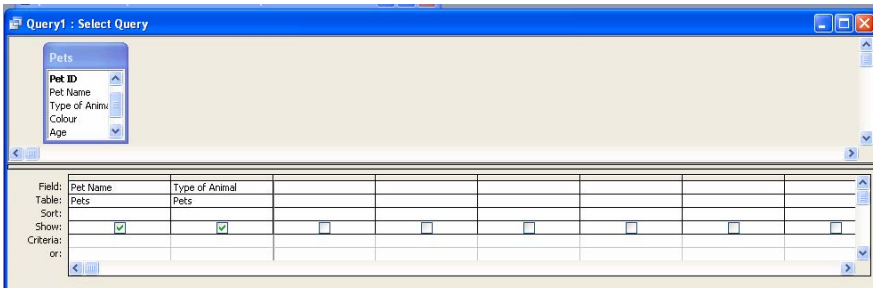
We now need to select the fields that we to include in our query.



Do the following:

- Double-click the pet name field from the list of fields in the pets table.
- The pet name field should be displayed in the query design in the first row of the first column.
- Another way of adding fields is by clicking on the field and dragging it – click on type of animal in the list of fields, hold your left mouse button down and drag the field to the first row in the second column.

Your query design should now look like this, with the pet name listed first followed by the type of animal that they are:



Select ‘File’ > ‘Save’ to save your query. Call it ‘pet names and types of animal’.

Note: It is very important to save your queries with descriptive names. You can end up with many queries and will not know what each does as they are often very similar.

You now need to think about what information will be displayed before you actually run the query.

Go back to *figure 1: Pet records* in this workbook (page 2) and think about the information that you think will be displayed.

With your query open in design view, click on the run icon 

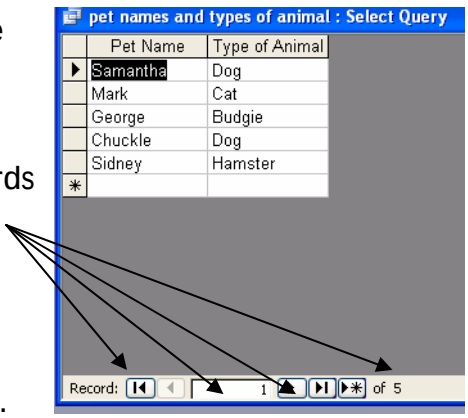
This will run the query and select the data that you have specified, as below:

As you can see, only the pet names and type of animal are listed. The query has selected only the fields that you selected.

At the bottom of the window you can move between records and it shows you how many records there are in the selection.

Try clicking on the arrows to move between records.

Close this query, saving any changes that have been made.



TASK 1

Create a new query that lists only the types of animal and the colour field.

Save the query as types of animal and colour.

Run the query to observe the results.

Close the query, saving any changes.

SELECTING CRITERIA IN A QUERY

Within a query, it is possible to narrow down the selection even more.

In the previous tasks, you have narrowed down results, by selecting fields. It is also possible to narrow down the results by selecting specified records.

To do this we will specify *criteria* in the query.

The main criteria types are:

< > = <= >= OR AND wildcard

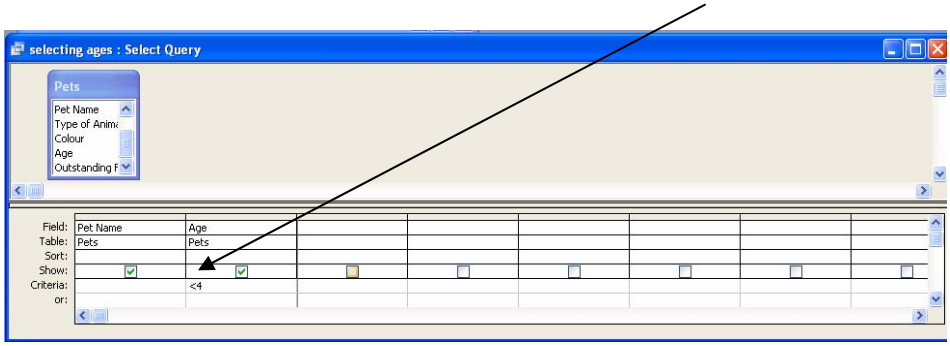
We will work through each of these:

- Create a new query, selecting only pet name and age from the list.
- Save the query as 'selecting ages'.

LESS THAN (<)

We want to select all the pets that are younger than 4.

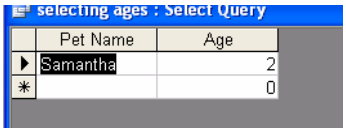
Under the age column, in the criteria box, type <4



Go back to *figure 1: Pet records* in this workbook (page 2) and determine the records that you think will be displayed. You should select all the pets whose age is less than 4.

With the query selected, click on the run icon.

Do the results of the query match your predictions?
Only one record should have been selected – Samantha.
As you have only selected the pet name and age, these are the only fields that will be displayed.



We now want to change this query. Rather than close the window, click on the design icon, to re-open the query in design view.

LESS THAN or EQUAL TO(<=)

We now want to select all the pets that are 4 or younger.

Where you have entered the criteria <4, delete this and type <=4.

Go back to *figure 1: Pet records* in this workbook (page 2) and determine the records that you think will be displayed. You should select all the pets whose age is less than or equal to 4.

With the query selected, click on the run icon.

Samantha and Sidney should be the records that are displayed.

GREATER THAN (>)

We now want to select all the pets that are older than 10.

Open the query in design view.

Where you have entered the criteria <=4, delete this and type >10.

Go back to *figure 1: Pet records* in this workbook (page 2) and determine the records that you think will be displayed. You should select all the pets whose age is greater than 10.

With the query selected, click on the run icon.

There should be no records displayed.

GREATER THAN or EQUAL TO (>)

We now want to select all the pets that are 10 or older.

Open the query in design view.

Where you have entered the criteria >10, delete this and type >=10.

Go back to *figure 1: Pet records* in this workbook (page 2) and determine the records that you think will be displayed. You should select all the pets whose age is greater than or equal to 10.

With the query selected, click on the run icon.

George should be the record that is displayed.

OR

We now want to select all the pets that are either 2 or 10.

Open the query in design view.

Where you have entered the criteria >=10, delete this and type =2 OR 10.

Go back to *figure 1: Pet records* in this workbook (page 2) and determine the records that you think will be displayed. You should select all the pets whose age is either 2 or 10.

With the query selected, click on the run icon.

Samantha and George should be the records that are displayed.

AND

We now want to select all the pets that are older than 4, but younger than 7.

Open the query in design view.

Where you have entered the criteria =2 OR 10, delete this and type >4 AND <7.

Go back to *figure 1: Pet records* in this workbook (page 2) and determine the records that you think will be displayed. You should select all the pets whose age is greater than or equal to 10.

With the query selected, click on the run icon.

Chuckle should be the record that is displayed. He is the only pet who is older than 4, but younger than 7.

Close the query. Save any changes.

WILCARD

We now want to select all the pets whose name begins with the letter S. This is where we use the wildcard feature.

Create a new query, with only the pet name field. Save the query as 'pets beginning with S'.

In the criteria for the pet name, type S*. The * represents all letters that follow the letter S.

Go back to *figure 1: Pet records* in this workbook (page 2) and determine the records that you think will be displayed. You should select all the pets whose name begins with S.

With the query selected, click on the run icon.

Samantha and Sidney should be the records that are displayed.

Save and close the query.

MORE...

So far most of the queries that we have performed are using numbers as the selection criteria.

- Create a new query, save it as outstanding features
- Add the pet name and outstanding features fields to the query design
- In the criteria for the outstanding features field type ="White Stripes"
- Go back to *figure 1: Pet records* in this workbook (page 2) and determine the records that you think will be displayed.
- Mark and Chuckle should be the records that are displayed.
- Save and close the query.

It is also possible to narrow down your results by entering criteria for more than one field. For example, we could select all dogs that are black.

Do the following:

- Create a new query, save it as black dogs.
- Add the pet name, type of animal and colour fields to the query design.
- In the criteria for the type of animal type ="Dog"
- In the criteria for the colour type ="Black"
- Go back to *figure 1: Pet records* in this workbook (page 2) and determine the records that you think will be displayed.
- Samantha should be the record that is displayed.
- Save and close the query.

TASK 2

Create another **three** queries that incorporate one or more of the criteria types e.g. < > = OR AND wildcard, to select different records. Save your queries with appropriate names.

Write down the queries that you have carried out and the criteria that you have used.

IMPORTING DATA AND CREATING QUERIES

We will now import some existing data and create queries using this data.

- Use the link on teach-ict.com to find the 'Key Skills Data Files' on the QCA website.
- Select the 'Catering' data file and save it to your area
- You should save it in the Data Handling > Database folder that you created for this lesson.
- You will be using the .txt file called 'DetailsA.txt' inside the 'catering' data file folder

- Open Microsoft Access
- Create a new database called 'Catering'
- Import the DetailsA file into the database, keep the table name as DetailsA
- Check the data types and if necessary change to a more appropriate type
- Check the field lengths and if necessary change to a more appropriate length

TASK 3

Now create some queries to select specific data from the table.

For each of the following bullet points create a separate query, saving each with an appropriate query name.

After you have created a query, look at the data in the table, to determine which records should be displayed. Then run the query to see if the results match your prediction.

- Select all customers who live in Whitehall. Display their first name, last name and address.

- Select all customers who have more than 20 people eating (numbers field) and who pay more than £12 per person. Display the customers' first name and last name and also the numbers field and price per person field.

- Select all customers who have chosen G or GD or GDT as an optional extra. Display the customers' first name and last name and optional extras.

- Select all customers whose last name begins with the letter B. Display their first name and last name.

- Select all customers who have to pay between £10 and £12 per person. Display their first name and surname, the numbers field and the price per person field.

Save the database, but do not close it – you will still use it for the next tasks.

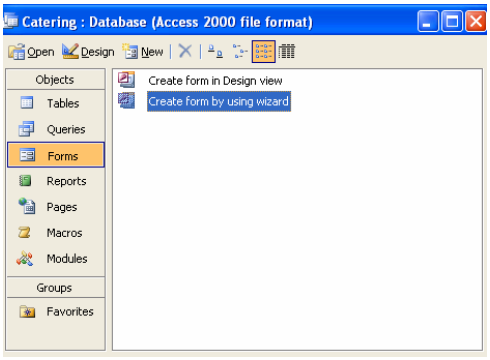
For the following tasks, you will still use the catering database.

FORMS

A form is primarily used to enter or display data in a database. You can also use a form as a switchboard that opens other forms and reports in the database. We will be using them to enter or display data.

Forms can be created manually or using a wizard, from either a table or a query. We will use wizards to create forms from tables and queries.

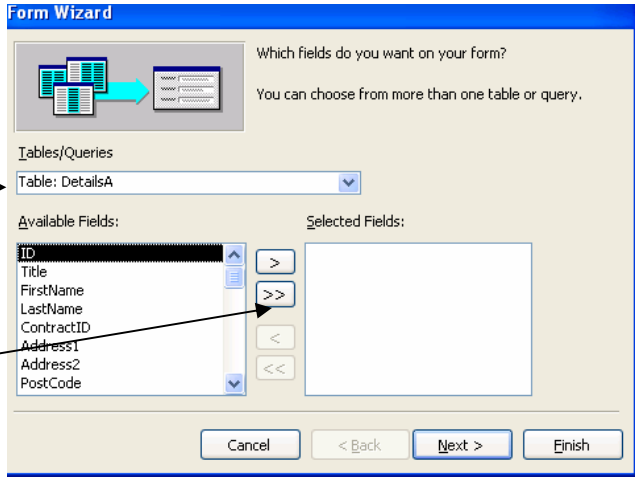
USING A WIZARD TO CREATE A FORM FROM A TABLE

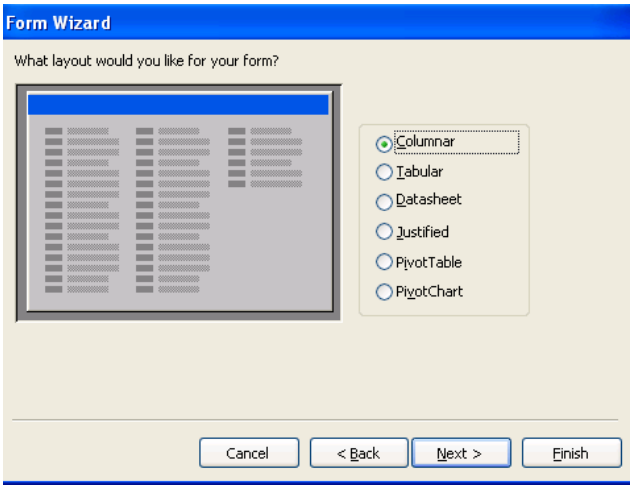


- From the main menu select 'Forms'
- Then either double-click on 'Create form by using wizard' or select it and click 'Open'

Form Wizard
Step 1

- Select the table or query that you want to create a form from. In this case, choose the DetailsA table.
- You now need to choose the fields that you want to include in the field.
  In this case, click on the double arrows to select all fields from this table.
- Select 'Next>'

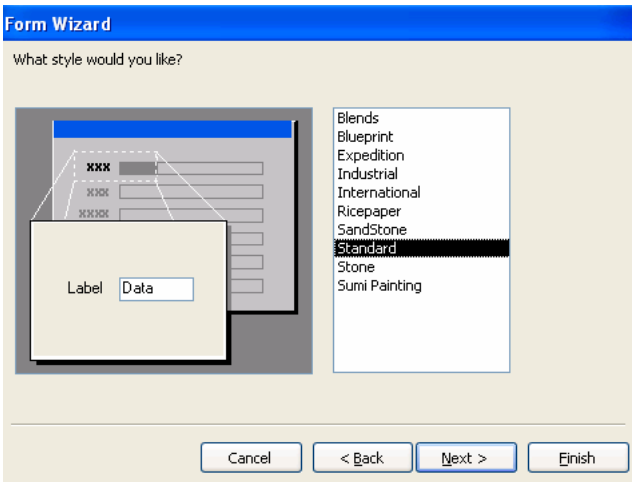




Step 2

- This step enables you to choose the layout that you would like for your form.
- Select 'Columnar'
- Select 'Next>'

Step 3

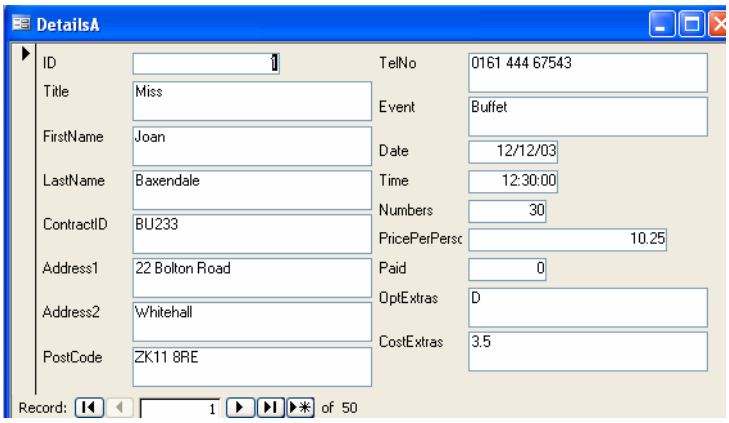


- In this step you can select the style for your form e.g. the background design
- Choose a style of your choice
- Select 'Next>'

Step 4

- Give the form the title 'Details Form' when asked
- Select 'Finish'

After selecting Finish, your form will appear.
If your table contains records that you have already created, the records will be displayed in the form. If the table is empty, the form will also be empty.



Close and save the form.

USING A WIZARD TO CREATE A FORM FROM A QUERY

- From the main menu select 'Forms'
- Then either double-click on 'Create form by using wizard' or select it and click 'Open'
- In the first step of the wizard, choose the query that you created to select all customers who have to pay between £10 and £12 per person.
- Select all fields from this query to display.

- Step through the wizard, selecting the same options as in the previous form. Choose a different style this time.
- Save the form with an appropriate name as the table is from the query that you have created – usually the name suggested by Access is appropriate, I suggest you add 'form' to the end of the name.

- When the form has opened, look at the records and check that they are the same records as when the query is run.

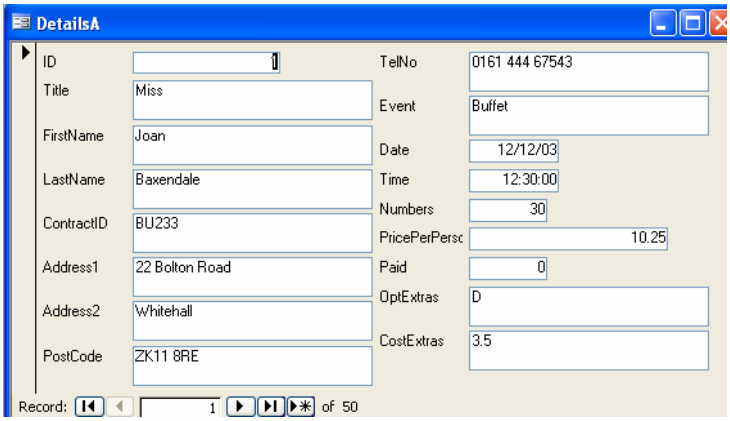
- Save and close the form.

ENTERING RECORDS INTO A FORM

If there are no records in a form, you can enter the details into the current record.

To enter data, click in the white box and enter the information.

If records exist in the form click on icon displaying and arrow and a star. This creates a new record. You can then enter data into each field explained above.



Add an extra 2 records to this form.

FORMATTING A FORM

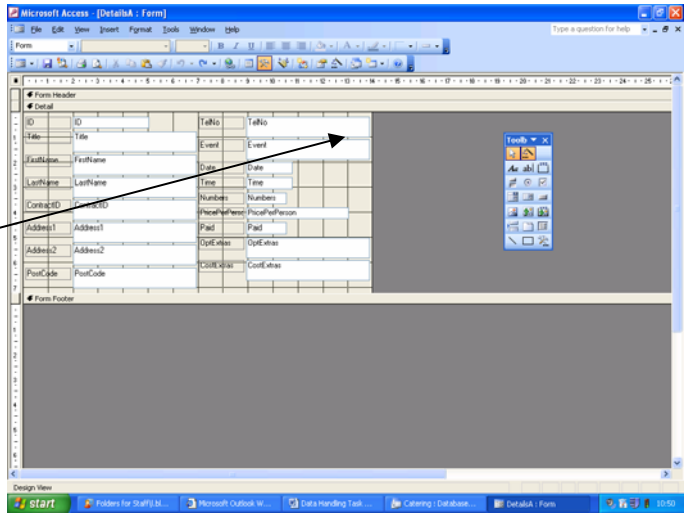
A form is not automatically presented in the most attractive way. It is very easy to change the design and layout of a form.

To change the design of the form, click on the design view icon. 

You should also maximise the screen so that you can see the area you have to work with.

It is possible to make the form wider:

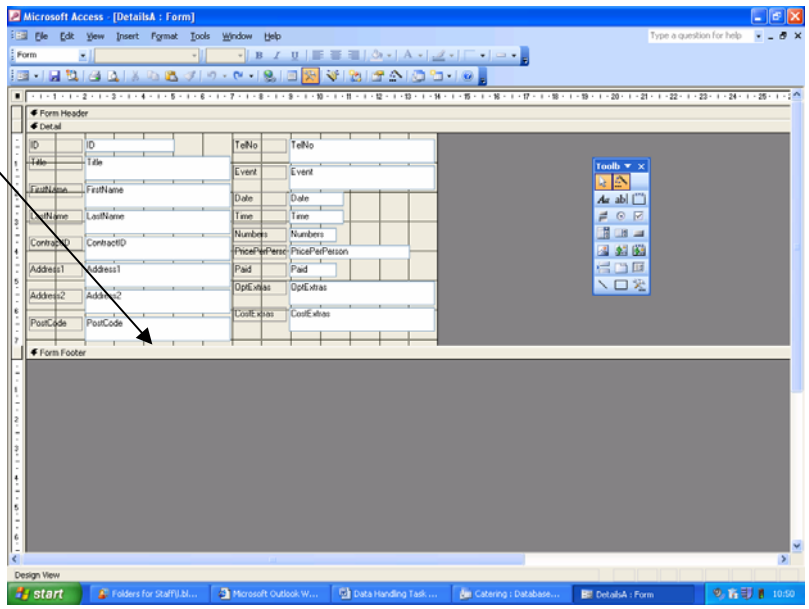
- With your mouse, hover over the right hand side of the edge of the form, until the cursor changes to a horizontal line with two arrows pointing from it.
- You can then click and drag to



adjust the width.

- Make your form wider.

You can adjust the height of the form. With your mouse, hover over the bottom edge of the form (at the top of the page footer grey bar), until the cursor changes to a vertical line with two arrows pointing from it. You can then click and drag to adjust the height.



- Increase the height of your form.

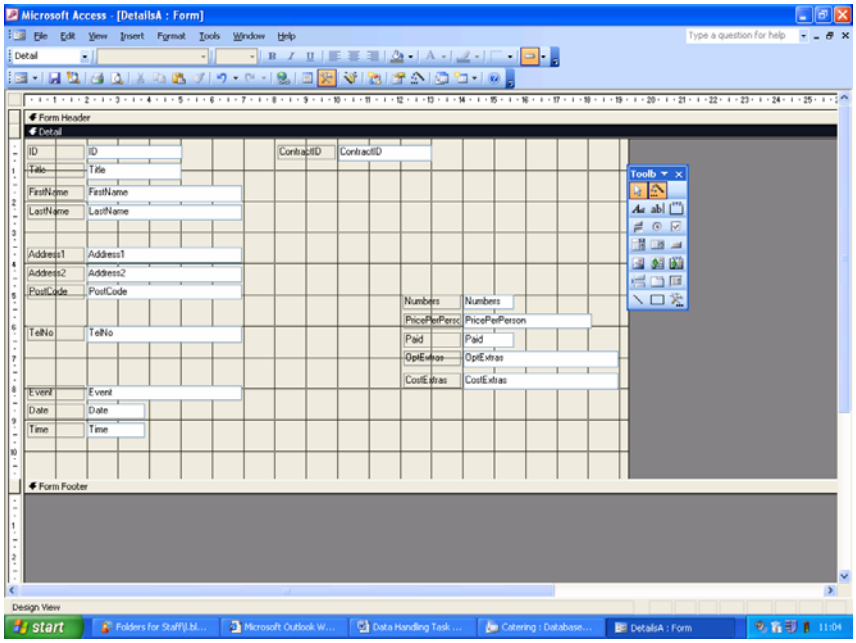
Each field label and entry box can be resized and moved to a different position. To do this you just need to click on the label/box and drag it to where you want to place it.

- Move your fields around to improve the appearance.

You can also adjust the height and width of the fields, by selecting them and moving the handles (black dots in the corners and middle). This is necessary to do for short fields e.g. title.

- Adjust the size of your fields to make them look better.

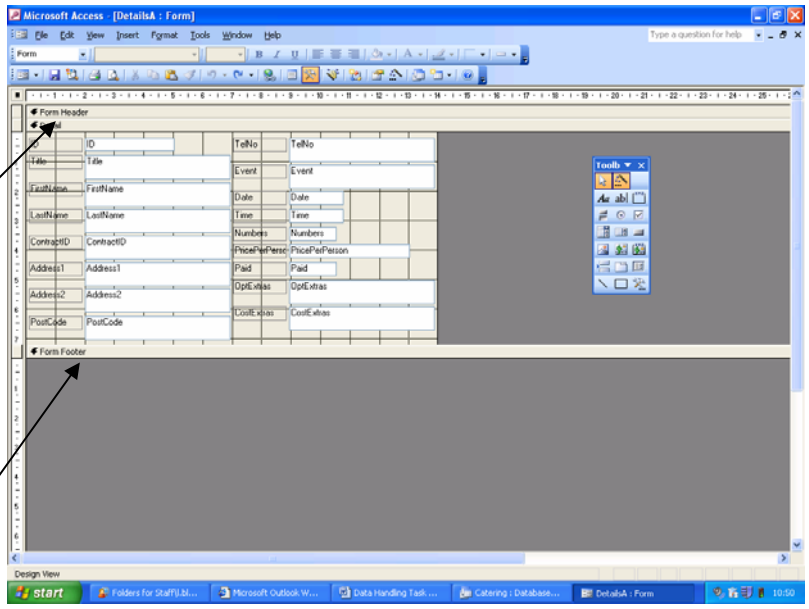
Below is an example of how the form can be changed. In this simple example, fields have been grouped as appropriate.



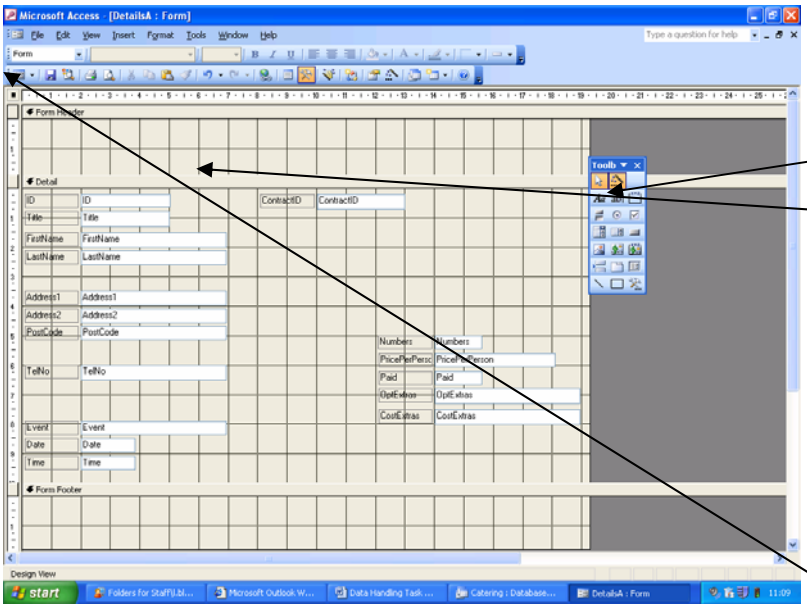
You can also add a header to the form.

- With your mouse, hover below the Form Header bar until the cursor changes to a horizontal line with two arrows pointing from it.
- You can then click and drag to adjust the height.

Now adjust the height of the footer, by hovering below the Page Footer bar with your mouse and dragging.



Your form should now look similar to the example below:



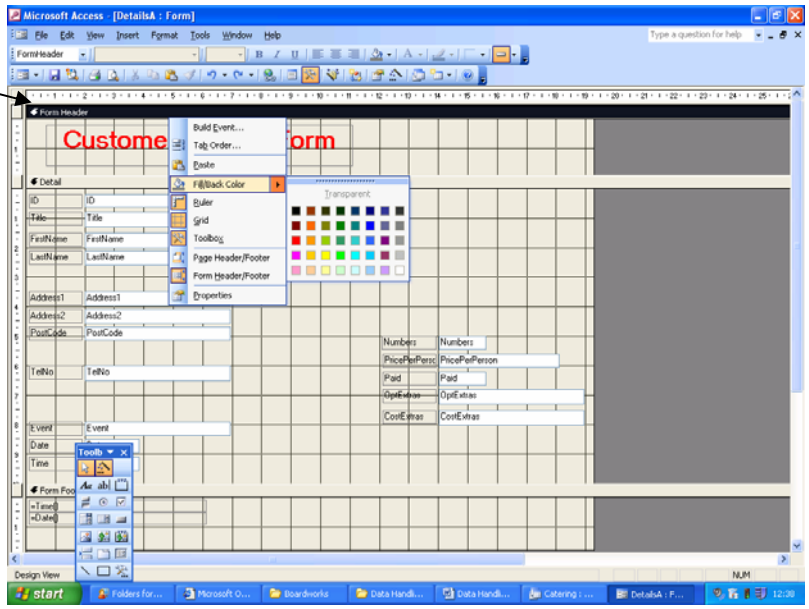
To add some text to the form you can simply use a text box.

- Click on the text box icon
- Draw a rectangle in the page header
- Type the heading Customer Details Form into the text box
- To change the font size, style or colour, click outside the text box
- Select the text box, then change the font as you do in other applications.
- Click on the form view icon to see what the form looks like

It is possible to automatically add the date and time to your form.

- Select 'Insert'
- Select 'Date and Time'
- Choose the style you want to include
- The date and time will, as default, be placed in the page header, each in a text box.
- Although the actual date and time is not displayed this is correct.
- Select each text box and move into to the page footer.
- View the page in form view to see the actual date and time.

We now want to change the background colour of the form:



- Right-click on the page header bar
- Select 'Fill/Back Colour'
- Select a colour of your choice
- Now select the detail bar
- Change the main part of the form to a different colour
- Do the same for the form footer
- View the form in form view to see your colour changes

An example of a formatted form is below: