ECDL Module 5

REFERENCE MANUAL

Databases

Microsoft Access 2003 Edition for ECDL Syllabus Four

ECDL Foundation
Approved Courseware

CHELTENHAM
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Contact Information

Australia / Asia Pacific / Europe (ex. UK) / Rest of the World
Email: **info@cheltenhamcourseware.com.au**
Web: **www.cheltenhamcourseware.com.au**

USA / Canada
Email: **info@cheltenhamcourseware.com**
Web: **www.cheltenhamcourseware.com**

UK
Email: **info@cctglobal.com**
Web: **www.cctglobal.com**

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Using the Application

Database Concepts

Understanding what a database is

What is data?

- **DATA** is made up of text, numbers, images and in some cases sounds which can be processed or stored by a computer. By itself data might not mean very much. In order to understand it, it needs to be interpreted (or processed) to become information.
- **INFORMATION** is the meaning given to data by the way in which it is interpreted.
- To illustrate the difference, **MURRAY**, **15000** and **10** mean little as data. But if we were able to interpret them as the name of a salesman, Murray, his annual basic salary of $15,000 and his commission rate of 10%, it would assume more meaning and could be called information. This is not necessarily the end of the story as this information could be included in another set of data and used to provide other information. Alternatively, the same data could be interpreted in another way.
- It is often helpful to think of data as the raw ingredients of a recipe which when processed and mixed in different amounts by differing techniques produce different results.

What is a database?

- A simple definition of a database is:
  A STRUCTURED COLLECTION OF RELATED DATA ABOUT ONE OR MORE SUBJECTS.

  In normal daily life we make frequent use of databases, and probably don't realise it. Here are a number of simple examples:
  - The telephone directory
  - Bus or train timetable
  - Personal address book
  - Filing cabinet

What is a relational database?

- A simple relational database, such as Microsoft Access, is a database which is based on tables. Each column within a table defines the fields, while each row defines the records. Different related data can be held in separate tables. For instance information about suppliers can be held in one table, while information about products can be held in a separate table.

Understanding how a database is organised

What is a table?

- A table holds data about a particular item, such as products or suppliers.

What is a record?

- A record is a collection of information which relates to a particular item within your database table. For instance a record in an address book may consist of the first and second name of a person, plus their phone number and address details. Each item within a record is called a field.

What is a field?

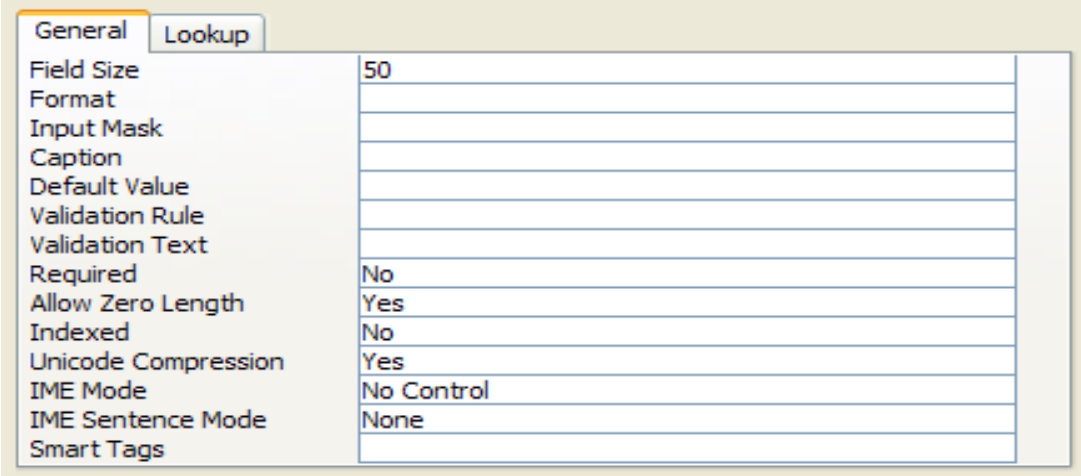
- Fields are the individual items which make up a record within your database. In the example of an address book database, first and second names of your contacts would both be field names, as would the telephone number.

What is meant by 'Field data types'?

- A field must have a specific data type format. We will see more about this later, but for now the illustration shows you the data types which are available within Microsoft Access, including **TEXT**, **NUMBER, CURRENCY** etc.

What is meant by 'Field properties'?

- Each field has a range of field properties associated with it. For instance the Field Size (set to 50 in the example shown), means that the field will hold a maximum of 50 characters.



Other properties include items such as data validation, which means that the sort of information which is being entered into a field makes sense!

Understanding what a primary key is

What is a primary key?

- Primary keys uniquely identify each record in your table and provide the following advantages:

- An index is automatically created for the primary key.
 This speeds up data retrieval and sorting.
 Also, the primary key is often used in establishing relationships.
- Records in a form or Datasheet are displayed in primary key order.
- Duplicate records are not allowed. Therefore all records are unique
- A primary key can be made up of one or more fields.

Understanding what an index is

What is an index?

- An index allows Microsoft Access to work faster when finding and sorting records. They work in a similar way to the way you would use an index in a traditional book, i.e. Access uses the index to find the location of the required data. Indexes can be created using a single field, or using multiple fields.

Understanding the purpose of relating tables in a database

Why relate tables?

- When using Access you normally set up a number of tables, such as Customers, Products, Orders, Employees etc. The next stage is to define relationships between these tables so that the information within each table can be linked with the information in the other tables. Once these table relationships are defined we can create queries, forms and reports to display information which is actually spread across several tables.

Understanding the importance of setting rules to ensure relationships are valid

Design and document your database!

- It is extremely important to spend time designing your database as time spent here will often pay dividends later on in the process, as you know where you are going and what you are trying to do.

  How do you know if you've got there if you don't know where you are going?

Questions to ask yourself

- When setting out on the difficult design stage of producing the database there are a number of questions which you should ask yourself or your user.

  WHAT DO I WANT?: You must first establish why you require your database and what you expect to get from it. It is most important to define your output needs first.

  Mistakes are often made because people try to decide what to put into their database before they know what they want from it.

  WHAT HAVE I GOT?: Knowing what you want then allows you to look critically at what data you have and make decisions as to how it should be structured in terms of fields and tables.

  WHAT DO I NEED TO DO?: This question asks you to look at any manipulation you need to carry out in order to achieve your information output: searches, sorts, and calculations.

Define your needs

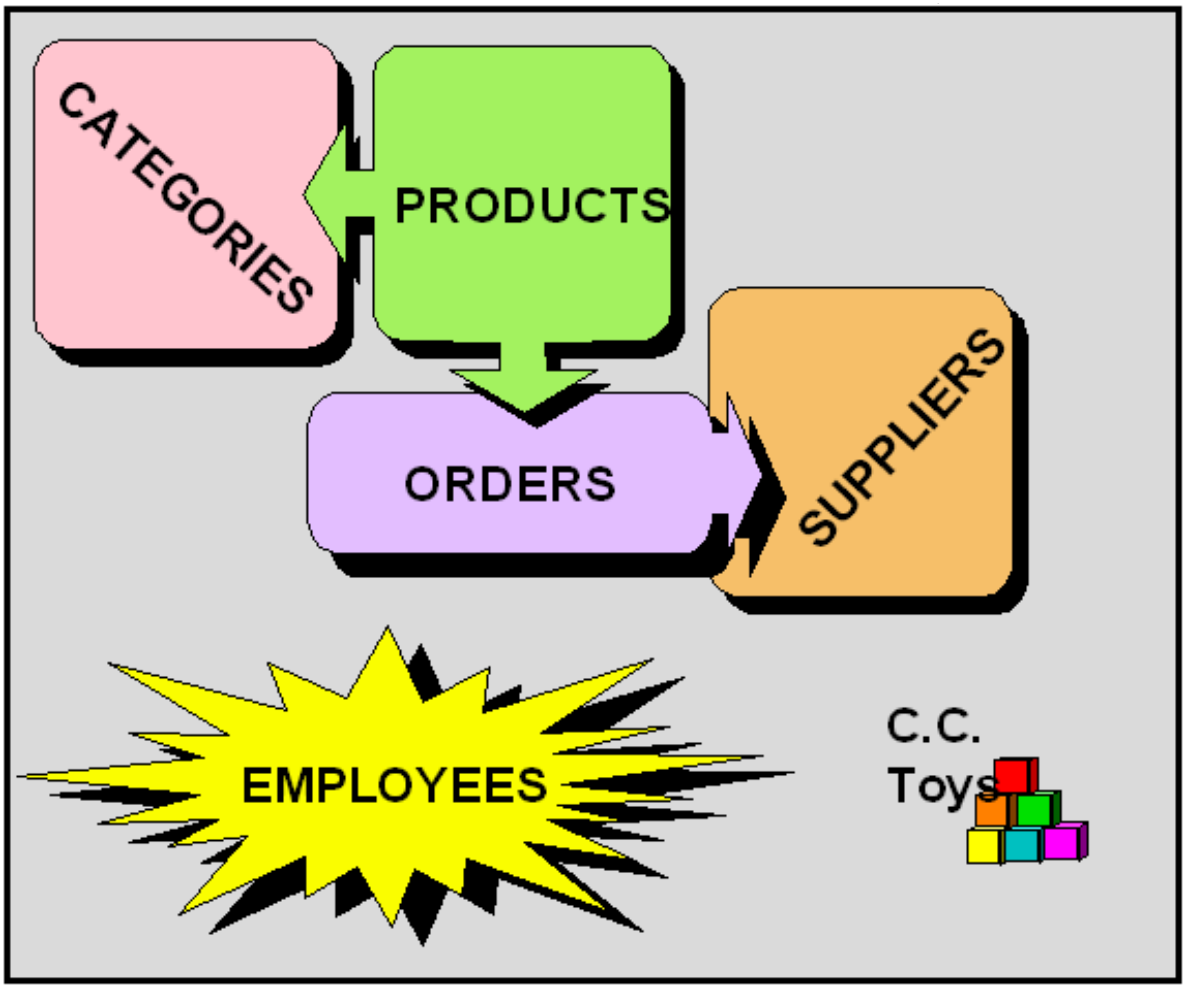
- In order to clarify your needs it is often useful to draw a simple diagram and/or write a short narrative. If the database is being designed for others, show them your sketch/narrative and use it to check your understanding of their requirements.

  EXAMPLE:

  C.C.Toys is a retailer of toys for children of all ages. It buys its toys from a

number of suppliers. It employs four staff. The store is laid out according to themes under a number of categories (e.g. Soft toys, Games Software etc.). Orders to suppliers can be for either single or multiple products.

The illustration below shows the tables needed for C.C. Toys.



Basic design rules

- If you stick to a set of rules when designing your database, it will make your life much easier when using the database!

MAKE EACH RECORD UNIQUE: Each table should be allocated a primary key. A primary key is simply a field or a combination of fields which makes a record unique. Give your table a primary key to ensure you have no duplicate records. Select the primary key yourself. If you let Access define the primary key, it will add a counter field at the beginning of each record. The counter will be incremented on every new record added to the table. Although this guarantees the uniqueness of the record, it does mean that two records could contain identical data (apart from the key itself).

MAKE EACH FIELD UNIQUE: If you have repeated the same kind of information in a table, you should put it into another table.

MAKE FIELDS FUNCTIONALLY DEPENDENT: Each field in the record should relate to the subject of the record. If it doesn't, it's either redundant or it belongs in another table!

ENSURE EACH FIELD IS INDEPENDENT: You should be able to alter any one field in a record without affecting any of the others.

ENSURE FIELDS DON'T CONTAIN CALCULATED OR DERIVED DATA: As an example, you need only hold gross pay and deductions on a person's salary record. Net pay can be calculated when it is required, when printing the pay slip for instance.

ENSURE DATA IS IN ITS SMALLEST LOGICAL PARTS: It might be useful, for instance, to keep customers' postcodes separate from the rest of their addresses so that you can analyze sales based on postal regions.

First Steps with Databases

Opening and closing Microsoft Access

To start Access

- Click on the Windows **START** icon.
- Click on **ALL PROGRAMS**.
- Click on **MICROSOFT OFFICE**.
- Click on the **MICROSOFT OFFICE ACCESS** icon from within the submenu displayed.

NOTE: The exact location of the **MICROSOFT OFFICE ACCESS** icon may vary, depending on your particular version of Microsoft Access.

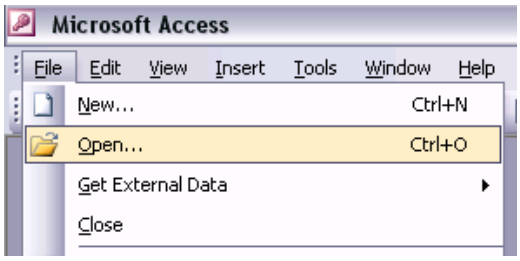
To close Microsoft Access

- Click on the application's **CLOSE** icon, at the top-right of the application window.

Opening an existing database

To open a database

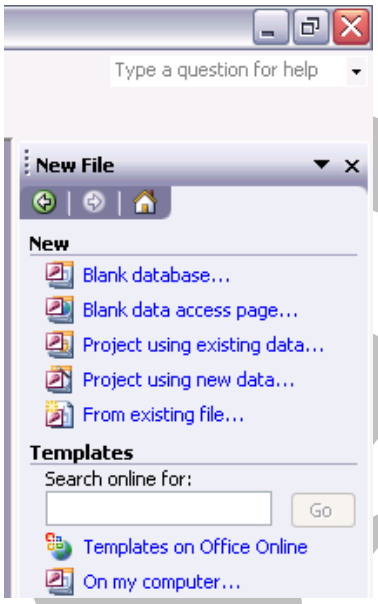
- Click on the **FILE** drop down menu and select the **OPEN** command, the **OPEN** dialog box will be displayed. Select the database you wish to open and then click on the **OPEN** button.



Creating a new database

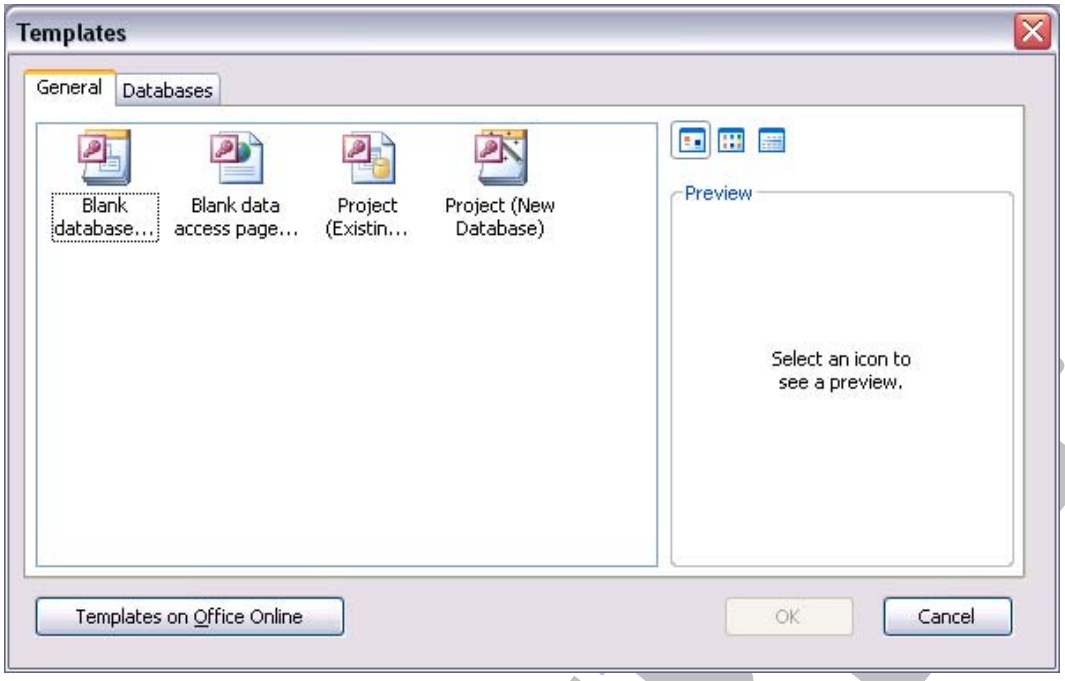
To create a new database

- Click on the **FILE** drop down menu & select the **NEW** command. This allows you to open an existing database, or it gives you options for creating a new database.



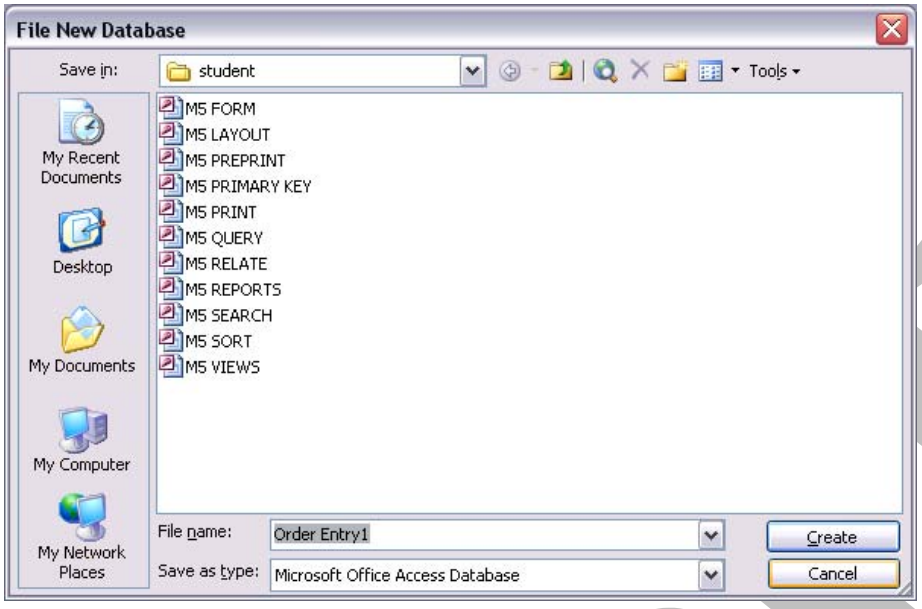
- **BLANK DATABASE:** Allows you to create a new, blank database.

  TEMPLATES ON MY COMPUTER: Displays the **TEMPLATES** dialog box allowing to the select from a wide range of Access templates.



You can click on the **DATABASES** tab (at the top of this dialog box), to see more options as illustrated.

- Once you have selected the type of database you wish to create the **FILE NEW DATABASE** dialog box will be displayed.



- Enter a name for your new database into the **FILE NAME** box and click on the **CREATE** button.

Saving a database to a location on a drive

To save a database

- Choose **SAVE AS** from the **FILE** menu.

To save a database file to a diskette

NOTE: Many PCs are now supplied without a floppy disk drive installed.

- There is no easy way within the Access application to save a database opened from the hard disk to a floppy disk. However, you may use the Windows Explorer to copy a file to your floppy disk.

- Start the **WINDOWS EXPLORER** program.
- Select the database file on your hard disk which you wish to copy to a floppy disk.
- Right click on the file and select **SEND TO 3 1/2" FLOPPY** command.

Using Help

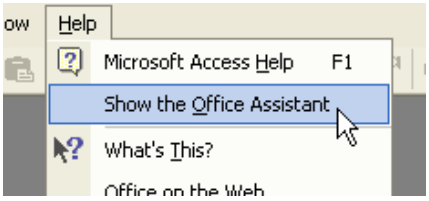
What is the Microsoft Office Assistant?

- By default this friendly little creature, will watch what you do and offer tips on how to work more productively. You can ask it questions in plain English!

Occasionally the Office Assistant will display information on the screen. If you are unsure about how to use this product you should always read the help offered. You can choose to implement the tip, have it explained, or to ignore the tip.

To display the Microsoft Office Assistant

- Select the **SHOW THE OFFICE ASSISTANT** command from the **HELP** drop down menu.

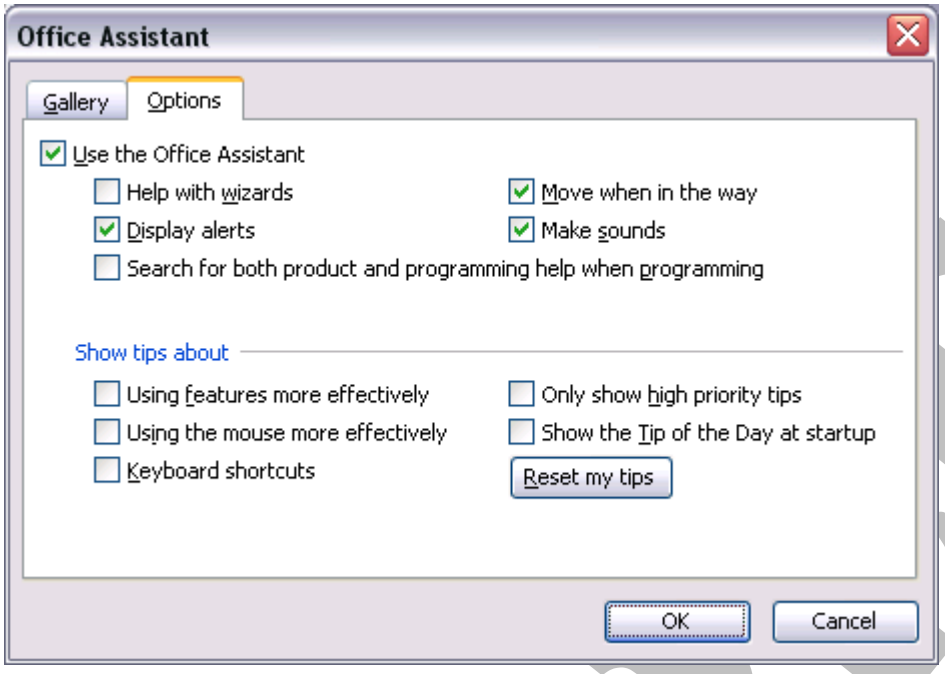


To hide the Microsoft Office Assistant

- Right click on the Office Assistant and from the menu displayed, click on the **HIDE** command.

To disable the Microsoft Office Assistant

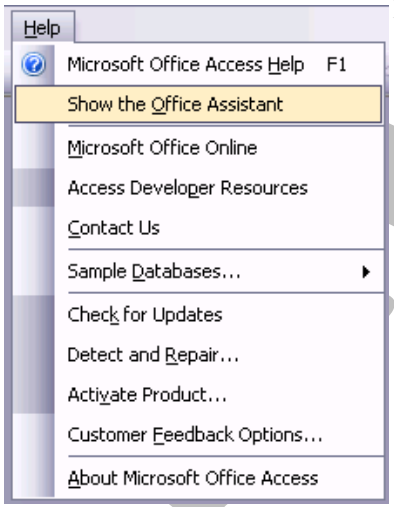
- Right click on the Office Assistant and from the menu displayed, click on the **OPTIONS** command.
- De-select the **USE THE OFFICE ASSISTANT** option.



- Click on the **OK** button.

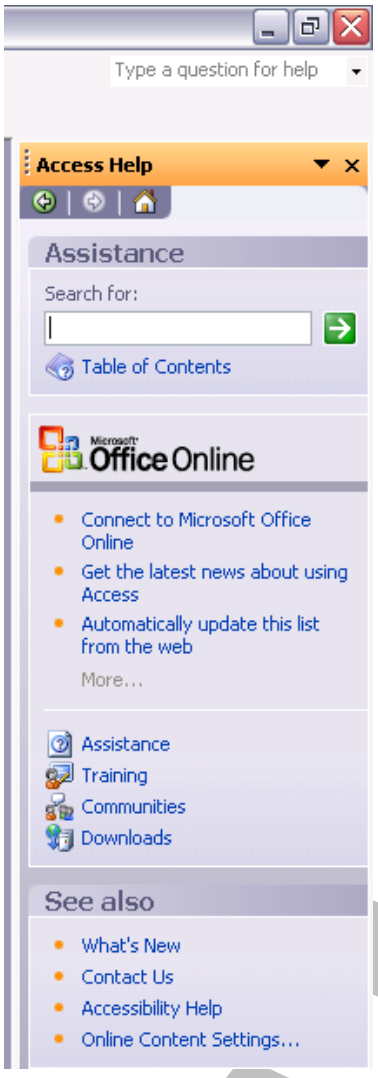
The Help drop down menu

- Click on the **HELP** drop down menu and select the command which you require. Remember that if you move the mouse arrow to the down arrow at the bottom of the menu, the menu will expand to show all available commands, as illustrated.



Help Menu - Microsoft Access Help command

- Click on **HELP** drop down menu and select the **MICROSOFT ACCESS HELP** command. By default this will display the **MICROSOFT ACCESS HELP** side panel.

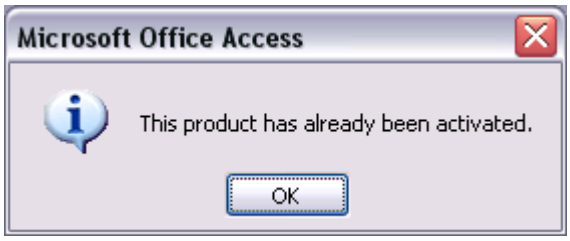


Help Menu - Microsoft Office Online

- Clicking on this option under the **HELP** drop down menu will open your web browser and display the Office Online web site.
- Through this web site you can download additional templates and software updates for Access and other Office applications.
- Click on the area of the map relating to your location, and follow the on-screen directions.

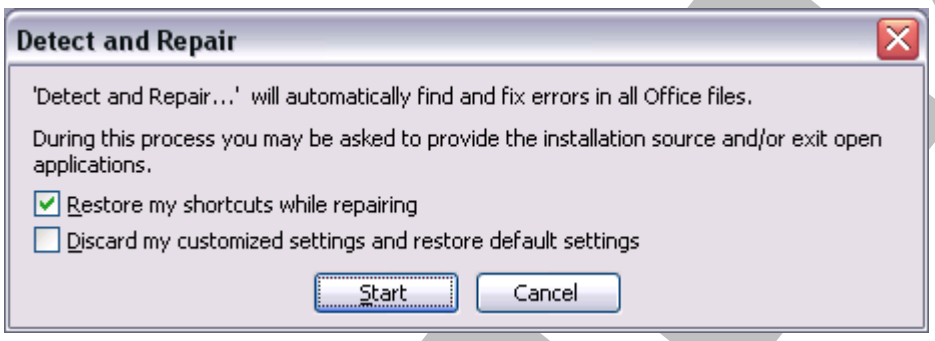
Help Menu – Activate Product

- You need to select this option when you first install Access onto a PC. It is a way of registering the Product with Microsoft and represents Microsoft attempts to prevent illegal copying of their products. You only need to activate the product once, and if you try a second time you will see the following message.



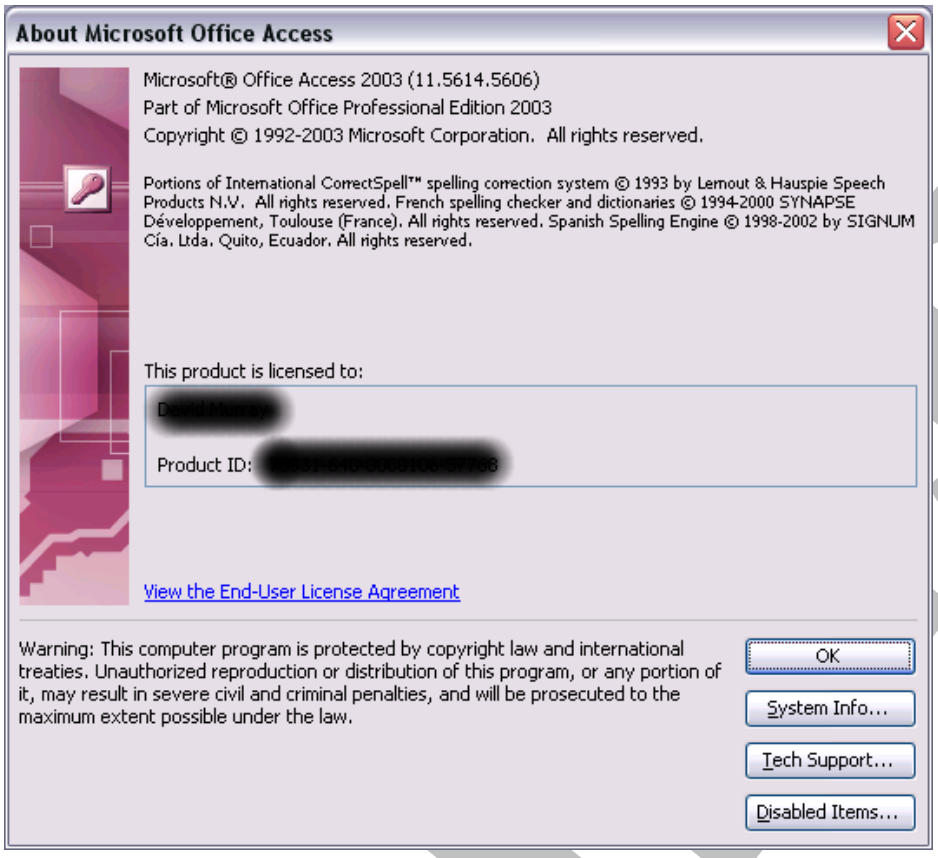
Help Menu - Detect and Repair

- Selecting this option under the **HELP** drop down menu will display the following dialog box. Click on the **START** button and follow through the on-screen prompts.



Help Menu - About Microsoft Access

- Clicking on this option under the **HELP** drop down menu will display the following dialog box. This screen will display the exact release version of the application. It will also display your Product ID (removed in the illustration for security reasons).



Closing the database

To close a database

- Choose **CLOSE** from the **FILE** menu
  OR click on the **CLOSE** icon in the top right of the **DATABASE** window.

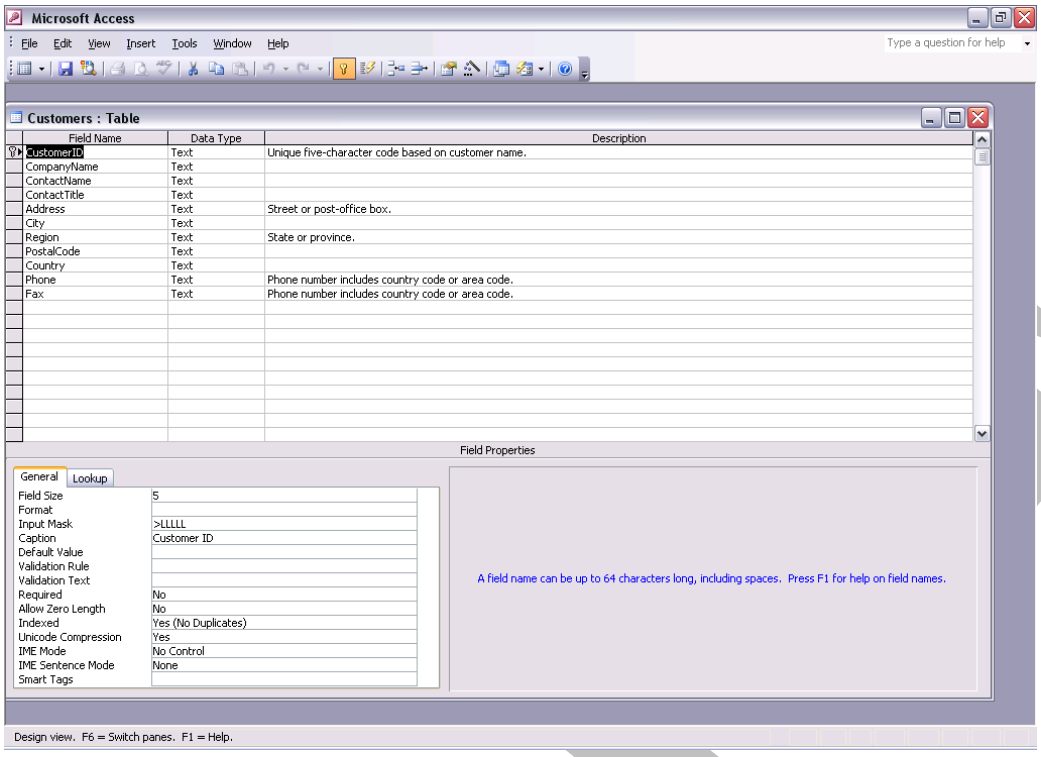
Adjusting Settings

Changing between view modes in a table, form or report

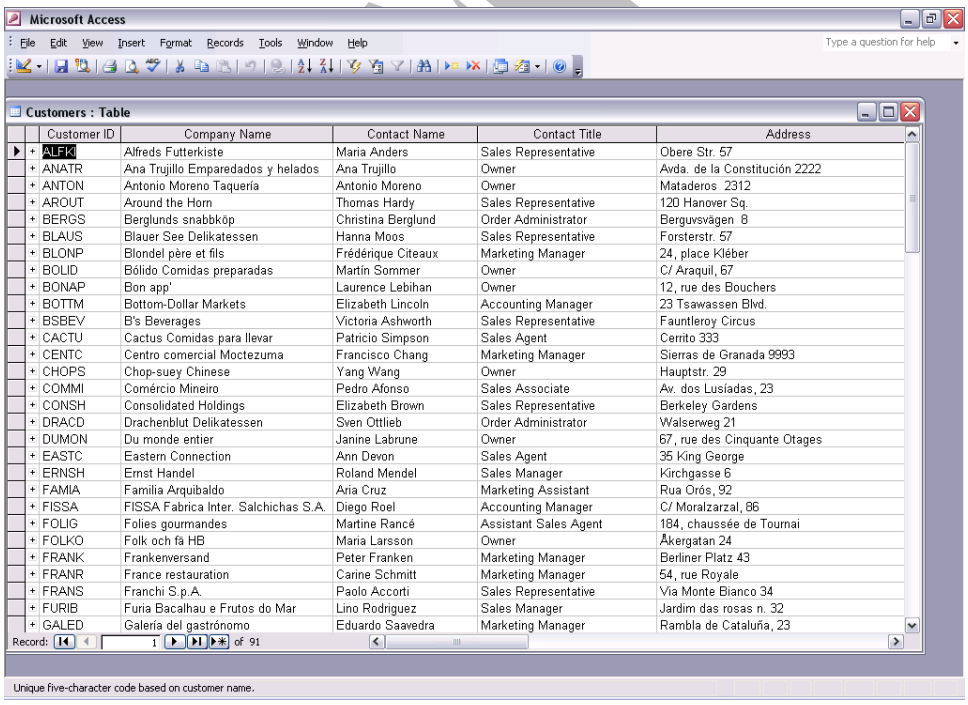
To switch between views when using tables, forms or reports

- There are two views for tables, forms and reports.

- **THE DESIGN VIEW:** This view is used by the person who creates the database in the first place (as opposed to the end user, who will later enter data into the database). This view is used, as the name suggests, to design the table, form or report. An example of a table displayed in Design View is shown below. As you can see there are all sorts of options which you can set relating to the fields within the database.



- **THE DATASHEET VIEW**: This is used by the person entering data into a database.



To switch between Design and Datasheet View

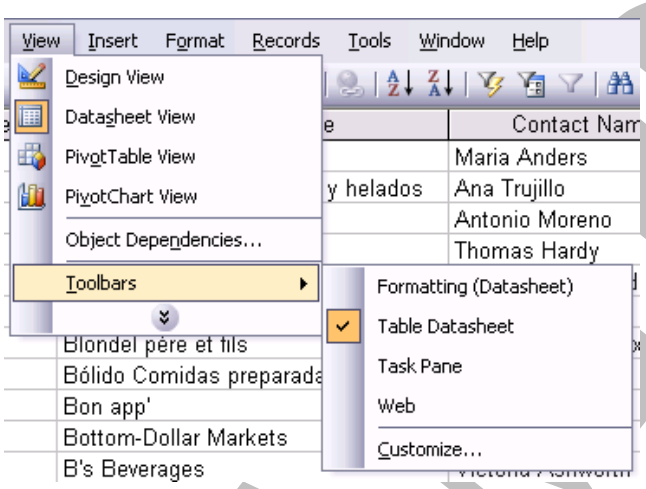
- Click on the **VIEW** icon on the toolbar.

 or 

Displaying or hiding toolbars

To display or hide a toolbar (using the View menu)

- To display a toolbar, select the **TOOLBARS** command from the **VIEW** menu to display the **TOOLBARS** drop down menu. A list of toolbars is displayed which includes: Standard, Formatting, Borders, Database, and Drawing etc.
- Choose the **TOOLBAR** you want to display by clicking on it from the list.



To display or hide a toolbar by right-clicking

- A quick way of displaying/hiding toolbars is to right click on an existing toolbar, this will display the **TOOLBARS** drop down menu, from which you can select or deselect toolbars.

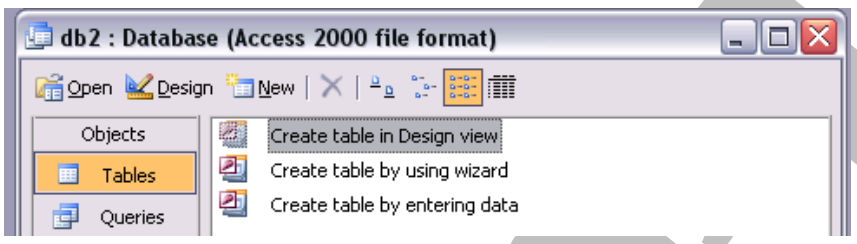
Tables

Main Operations

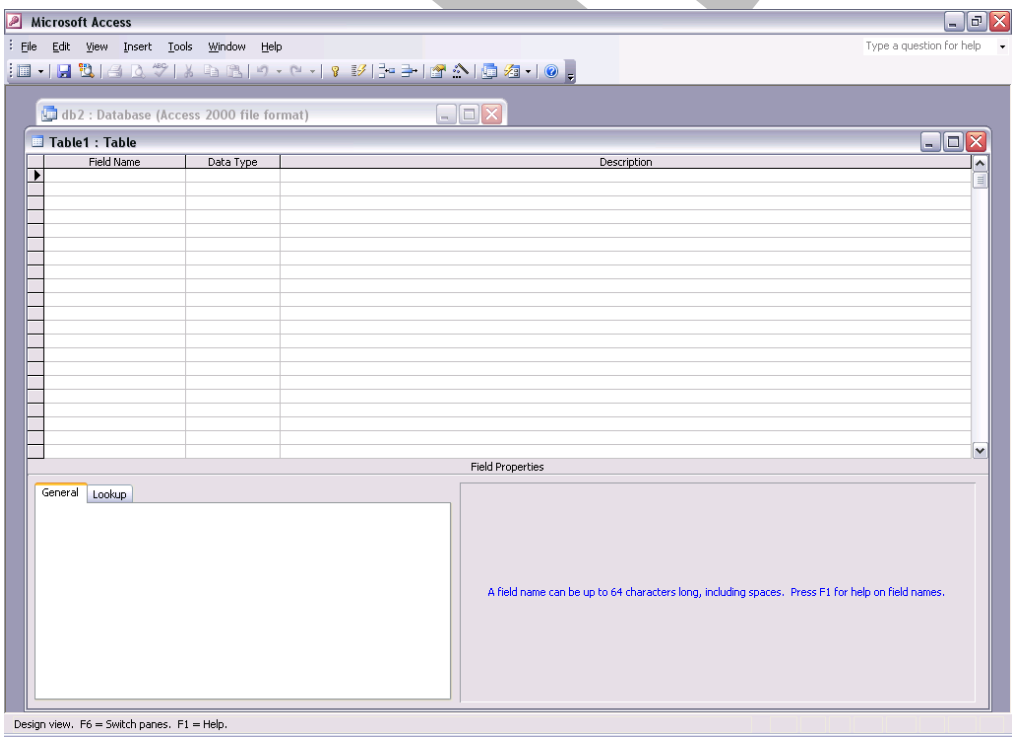
Creating and saving a table and specifying fields with their data types

To create a table and specify field data types.

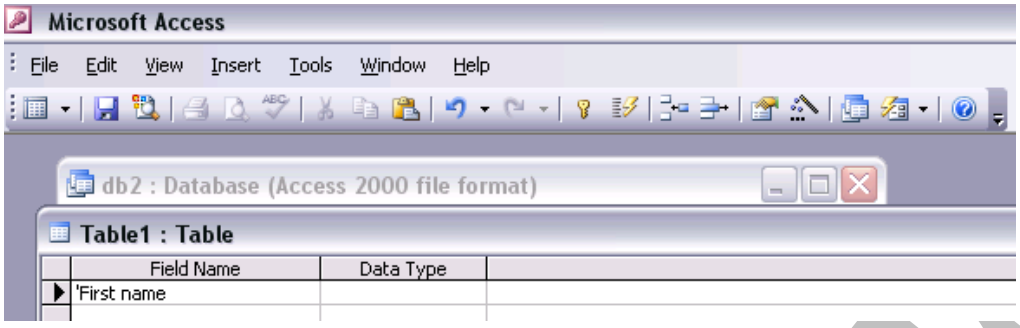
- In the **OBJECTS** section of the main dialog box, make sure that **TABLES** is selected.



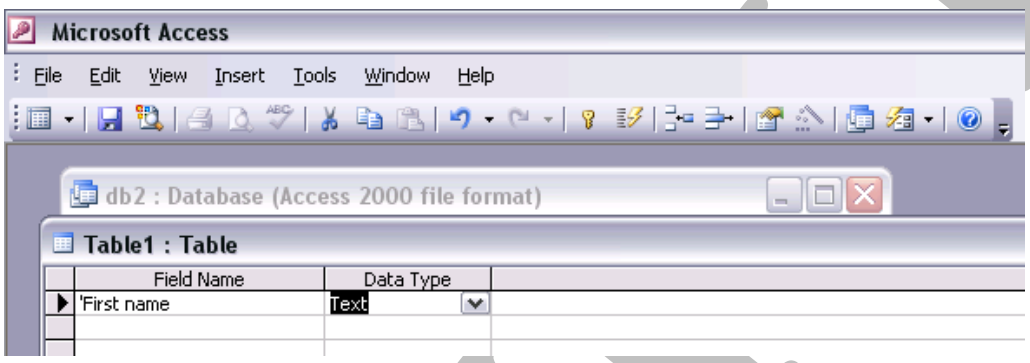
- Double click on the **CREATE TABLE IN DESIGN VIEW** option, which will open a dialog box allowing you to create a table.



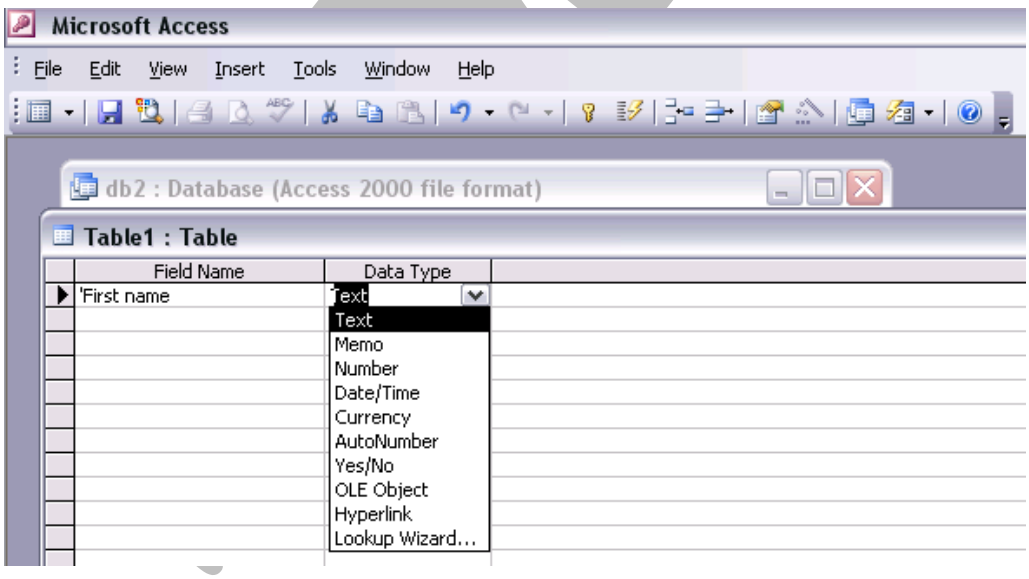
- In the **FIELD NAME** section of the dialog box, enter the name of the first field. In this example we have entered **'FIRST NAME'**.



- Press the **TAB** key (the key with the two opposing, horizontal arrows on it). This will take you to the next column, called 'Data Type'.

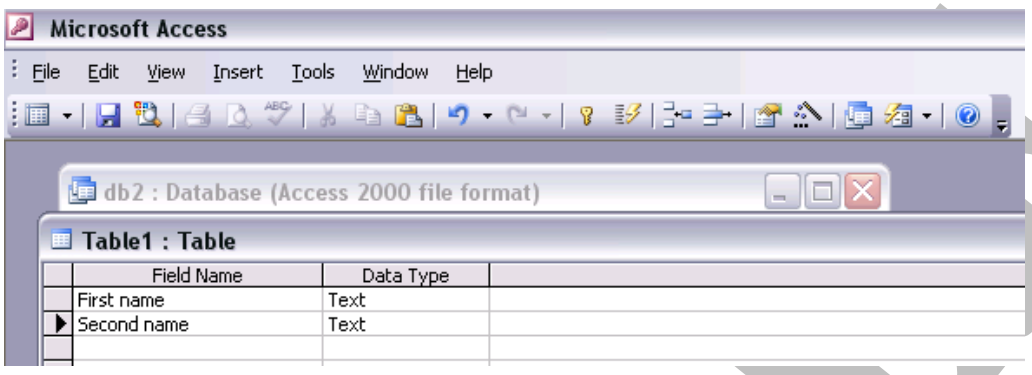


- Notice that the default data type displayed is **TEXT**. Click on the down arrow which is now displayed within the right side of this column and a popup menu will be displayed.

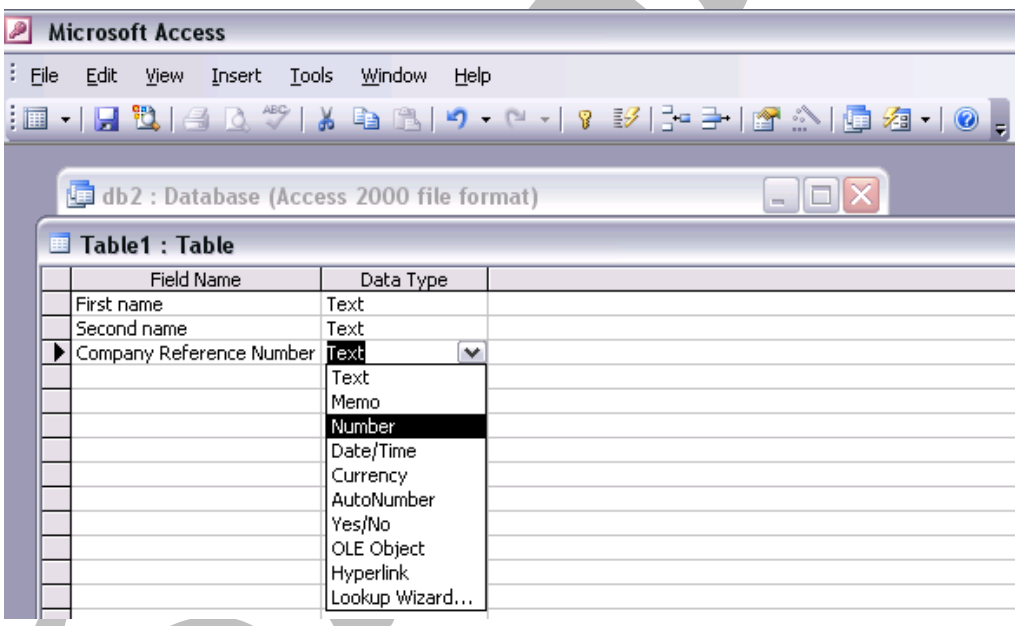


- You can use this popup menu to change the data type for that field. As the field will be the first name of a record, i.e. text, we will keep the default data type of text.
- Press the **TAB** key again and this will take you to the **DESCRIPTION** field. This optional field allows you to describe the purpose of the field.

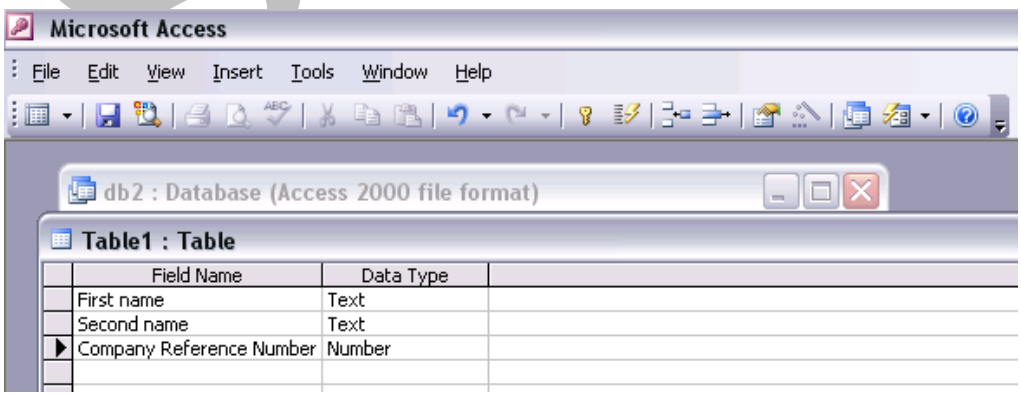
- As the field name in this case is self-evident we have no need for this optional field and can press the **TAB** key again. This will take you to the next row down in the '**FIELD NAME**' column.
- We can enter another field, such as '**SECOND NAME**'. Pressing the **TAB** key again allows you to set the data type, which again we will keep as text.



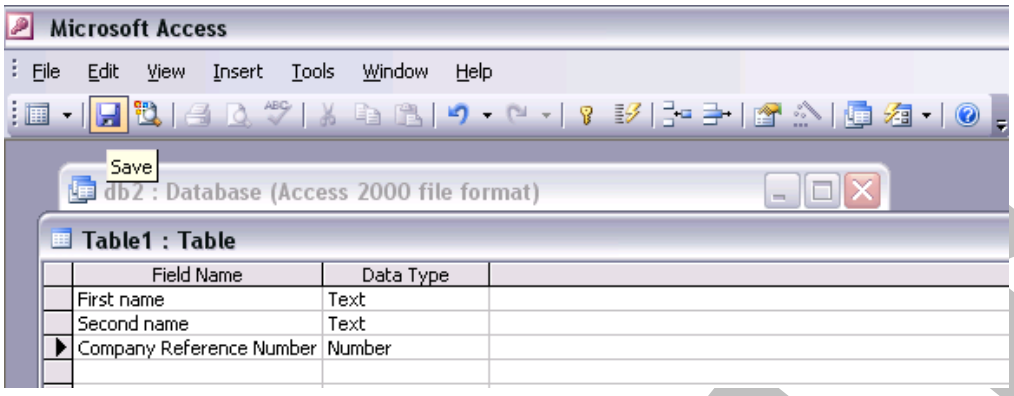
- We will now add a field called '**COMPANY REFERENCE NUMBER**', which this time we will set as a number.



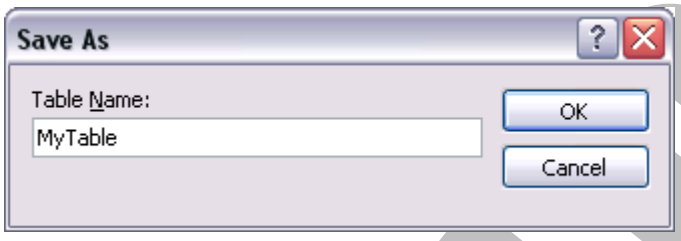
- When we have finished the table will look like this.



- We can now save the table by clicking on the **SAVE** icon.



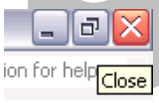
- You will see a dialog box in which you can enter your table name.



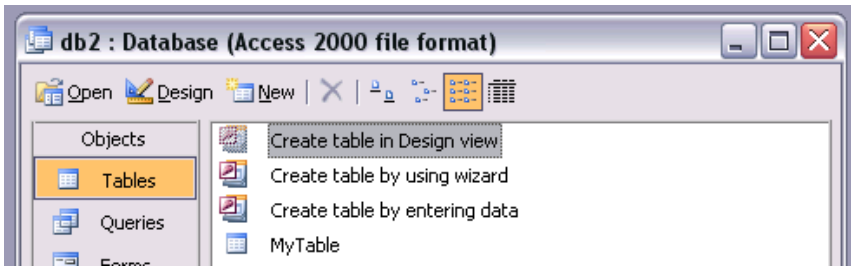
- Clicking on the **OK** button may display a further dialog box.

- Clicking on the **YES** button will save and set a primary key.

- Close the table (by clicking on the close icon at the top-right of the table window).



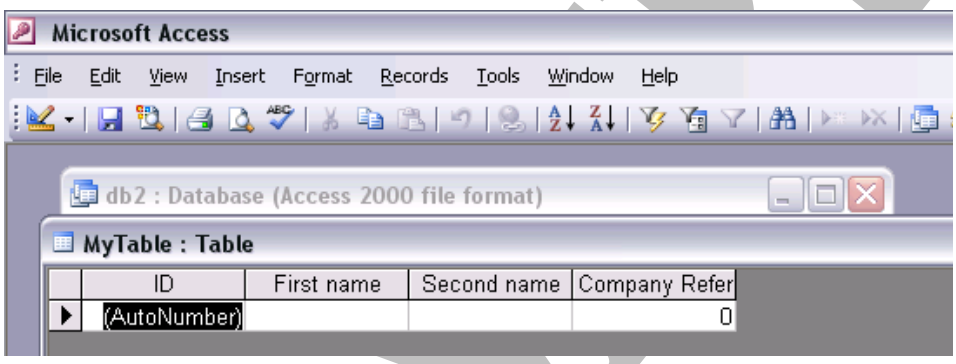
You will see the table displayed within the **DATABASE** dialog box. In the example shown the table is called '**MY TABLE**'.



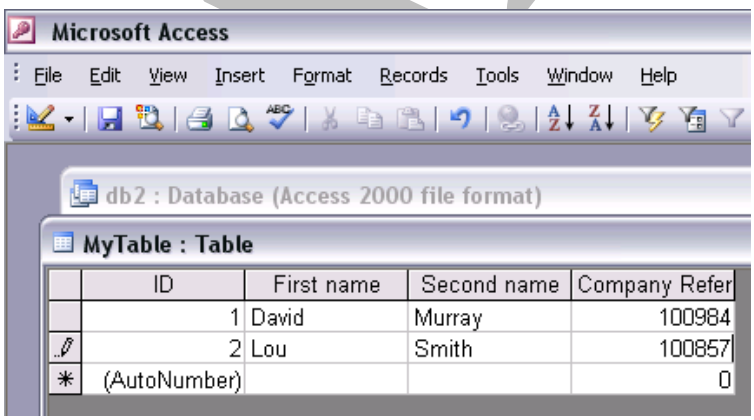
Adding and deleting records in a table

To add records to a table

- In the previous section we saw how to create a table.
- Double click on the name of the table which you wish to open. The table will be displayed, into which you can enter your data.



- We can enter data as illustrated (using the Tab key to jump from field to field).

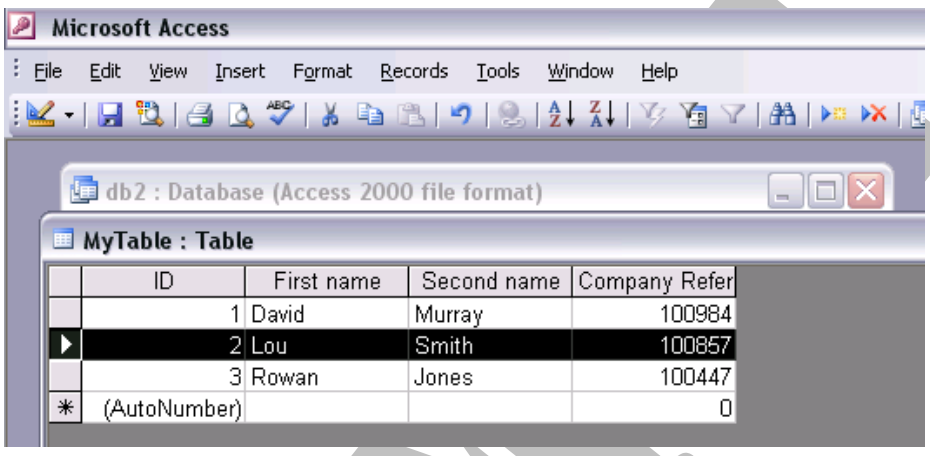


- If we try entering letters, rather than numbers into the company reference, we will see the following message displayed (as we set the data type to number, not text).

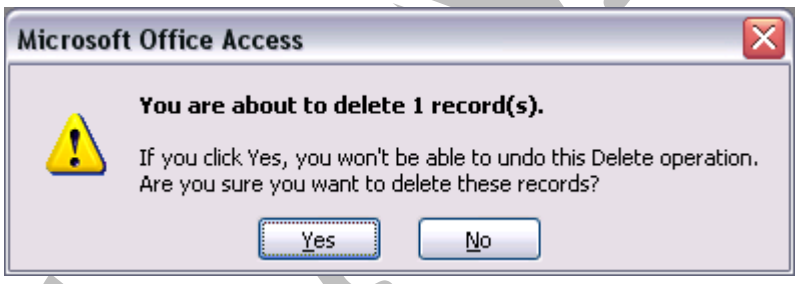
- When we have finished entering our records, we can save and close the table.

To delete records within a table

- Select the entire record row as in the example shown.



- Press the **DELETE** key. A warning dialog box will be displayed.



- Click on the **YES** button to confirm the record deletion.

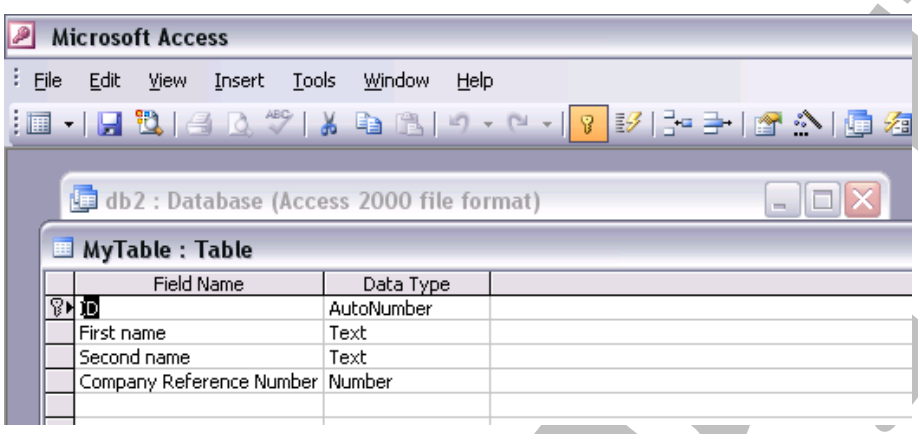
Adding a field to an existing table

To add a field to an existing table

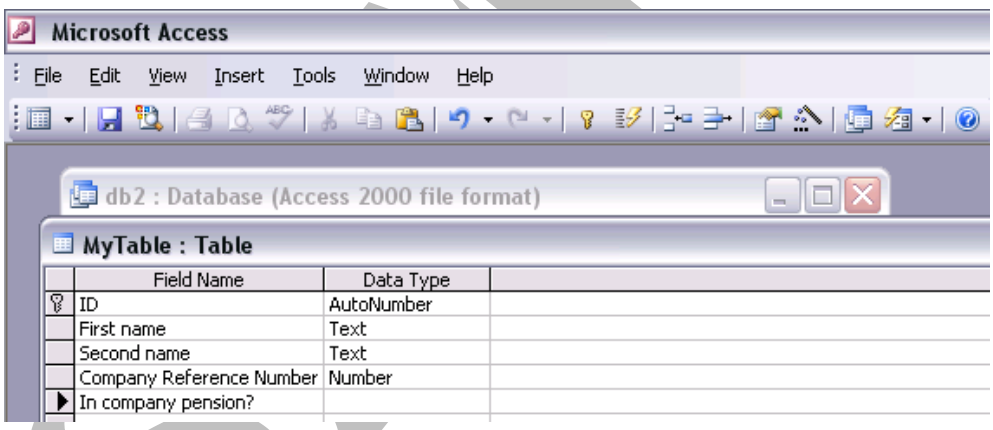
- In the previous sections we saw how to create a table and then how to add records to the table. Let's say that after using the table for a while, we have decided that there should have been one or more extra fields within the table. First we need to open the table, which we can do by double clicking on the table name, displayed within the **DATABASE** window.

- Click on the **VIEW** icon (top-left within the Access window).

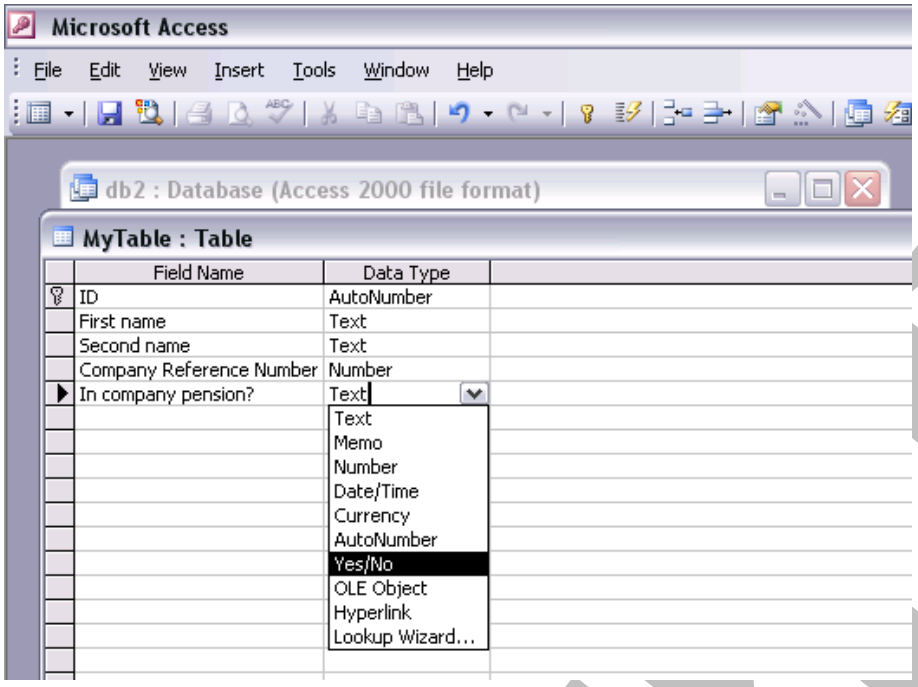
This will change the view to the design view, allowing you to modify the structure of the table. The screen will resemble that illustrated.



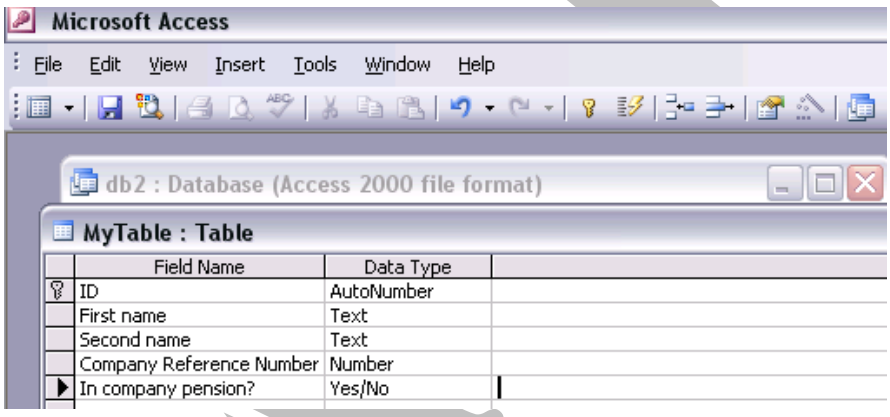
- Within the **FIELD NAME** column, click in the cell under the '**COMPANY REFERENCE NUMBER**'.
- We will enter a field relating to whether the person is in the company retirement scheme or not. We will call the field '**IN COMPANY PENSION?**'.



- In the Data Type section we will set the option to **YES/NO**.

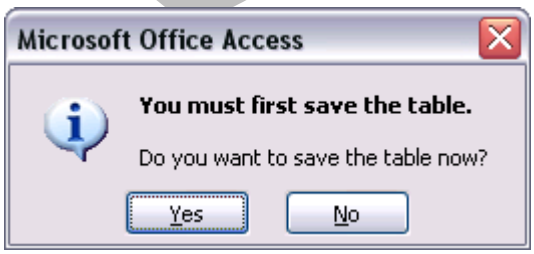


- The finished table will look like this.

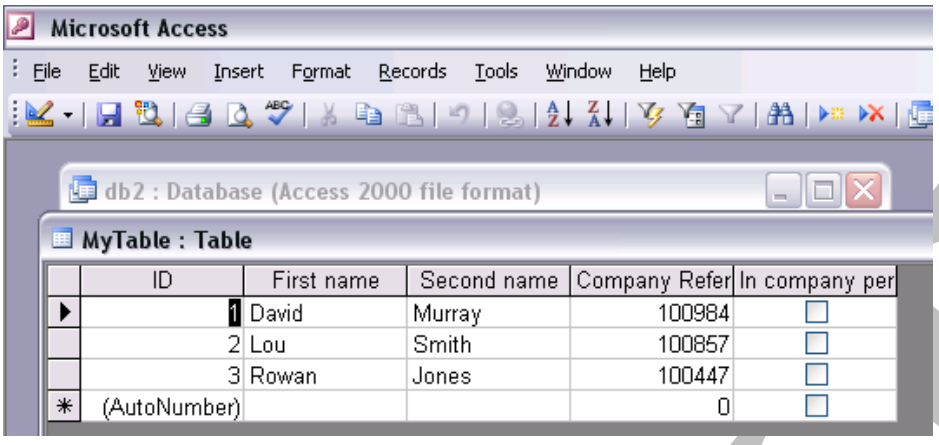


- If we click on the **VIEW** icon (top-left within the Access window) we can see the new field displayed

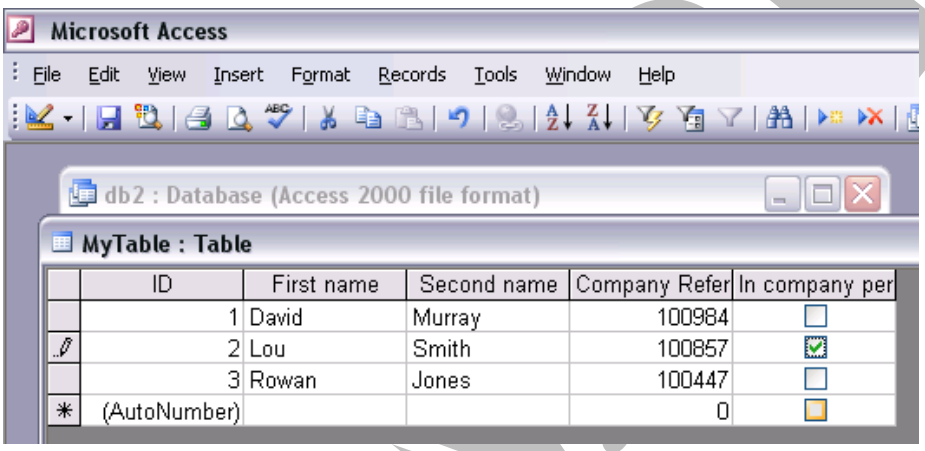
You may first be prompted to save your changes.



You will then see the tables as illustrated.



- We can either click or not click these company pension check boxes, as illustrated.



Adding and modifying data in a record

To add data to a record

- Open the table containing the record which you wish to add data to.
- Click within the field you wish to enter your data into.
- Enter your data.

To modify data within a record

- Open the table containing the record which you wish to modify.
- Edit the data within the record which you wish to modify (using the same techniques as you when using a word-processor).

Deleting data in a record

To delete data within a record

- Open the table containing the records which you wish to modify.
- Delete the data within the record which you wish to remove (using the same techniques as you would when using a word-processor, i.e. select and then press the **DELETE** key).

Using the Undo command

To use the Undo command

- Click on the **UNDO** icon in the toolbar.

Navigating within a table

To navigate through a table to edit records

- Whether you edit your records through a Datasheet or a form, there is, as usual, a variety of ways to do it. As far as your user is concerned, you should make it as straightforward and uncomplicated as possible: for the user, there should only be one right way.

  Many editing operations first involve selection. To replace a field, you first select it and then type in the new value.

- The grey area to the left of each record in the Datasheet is called the record selector. The following symbols indicate the status of the record:

 Current record.

 Record is selected.

 Record is being edited.

 Last (empty) record.

To move to a field using the mouse

- Move the mouse pointer over the required field and click.

NOTE: If you click in the leftmost position in the field, the whole field is selected.

To move through the table using the keyboard

- To move from field to field and record to record, use one of the following methods:

  TAB: to the next field.

  SHIFT+TAB: to the previous field.

  HOME: to the first field of the current record.

  END: to the last field of the current record.

  (**DOWN ARROW KEY):** to the next record.

  (**UP ARROW KEY):** to the previous record.

  CTRL+HOME: to the first field of the first record.

  CTRL+END: to the last field of the last record.

  PAGE UP: scroll up one page.

  PAGE DOWN: scroll down one page.

To move from record to record using the scroll bar and mouse

- To move from record to record:

   to the next record

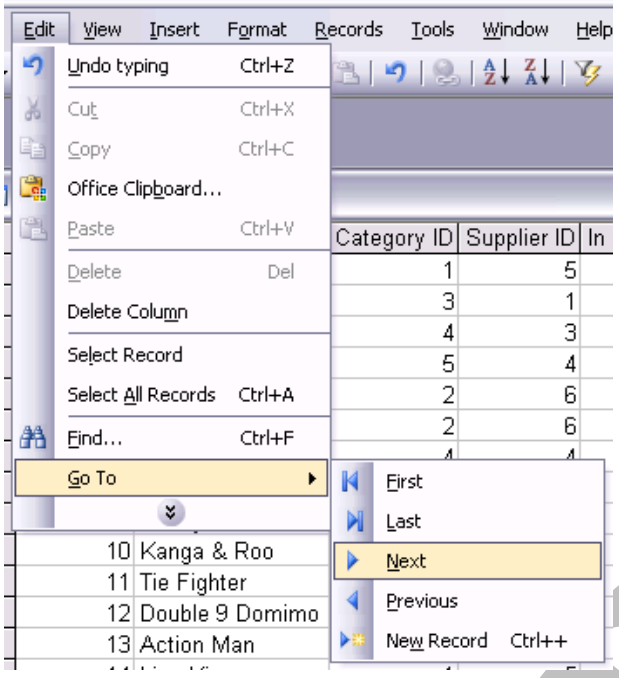
   to the previous record

   to the last record

   to the first record

To move to a specific record using the Edit menu

- Choose **GO TO** from the **EDIT** menu and select **FIRST**, **LAST**, **NEXT**, **PREVIOUS** or **NEW RECORD**.



To move to a specific record using the keyboard

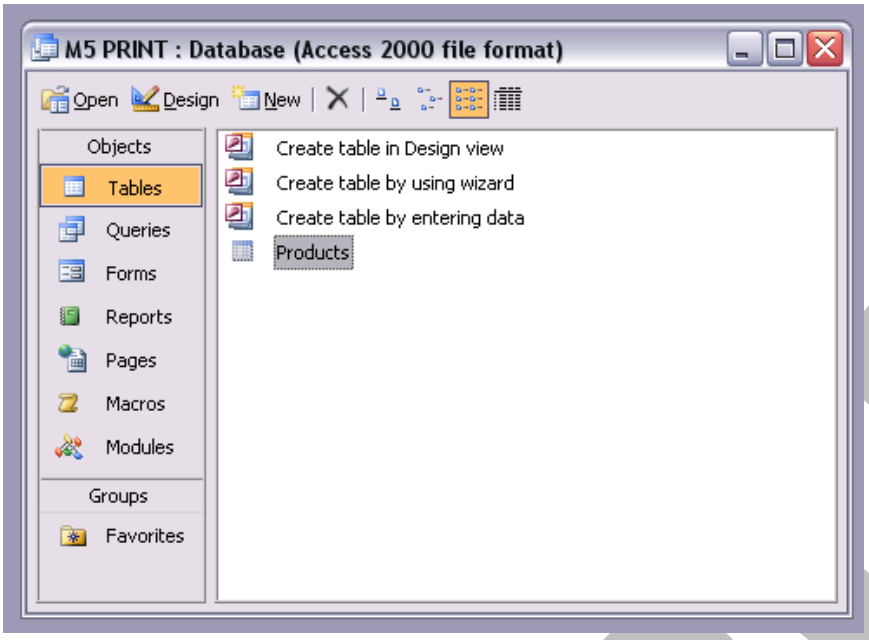
- Press **F5** to highlight the record number on the scroll bar.
- Type the number of the record you want.

- Press **ENTER**.

Deleting a table

To delete a table

- Select the table which you wish to delete, such as a table in the example below.



- Press the **DELETE** key and you will see a warning dialog box.

- Clicking on the **YES** button will delete the selected table.

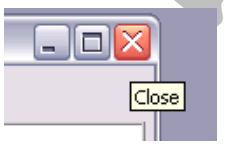
Saving and closing a table

To save a table

- To save a table, click on the **FILE** drop down menu and select the **SAVE** command.

To close a table

- To close a table, click on the **CLOSE** icon at the top-right of the table window.

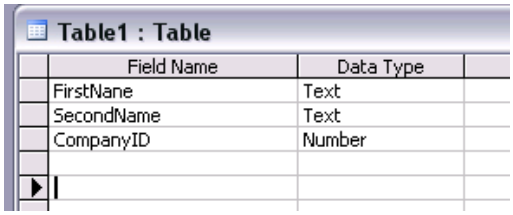


Defining Keys

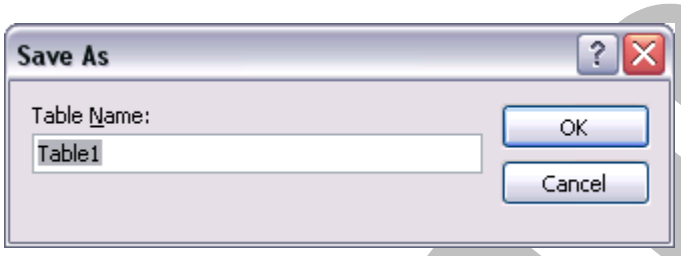
Defining a primary key

To define a primary key (automatically when creating a table)

- When you create a new table part of the process will automatically assign a primary key to the table, as in the following example where we used the **CREATE TABLE IN DESIGN VIEW** option. We created the following fields.

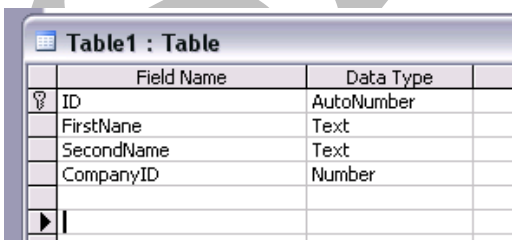


- We then save the table, as illustrated.



A dialog box is then displayed, offering to create a primary index.

- Clicking on the **YES** button will create a primary index as illustrated (using an **AUTONUMBER** Data Type).



To define a primary key (manually after a table has been created)

- You can add a primary key to a table which does not already have a primary key set. In the following example we have a table with no primary key.

Table1 : Table

	FirstNane	SecondName	CompanyID
	Dave	Murray	10098
	Lou	Smith	10026
	Rowan	Cobert	10073
▶			0

- Click on the **VIEW** icon which will display the table in design view.

Table1 : Table

Field Name	Data Type
FirstNane	Text
SecondName	Text
CompanyID	Number

You will notice that the **PRIMARY KEY** icon is visible within the Design View toolbar.

- In this case, select the **COMPANY ID** field and then click on the **PRIMARY KEY** icon.

Table1 : Table

Field Name	Data Type
FirstNane	Text
SecondName	Text
CompanyID	Number

If you look at the information displayed towards the bottom of your screen, you will see that by default **NO DUPLICATES** will be allowed.

General | Lookup

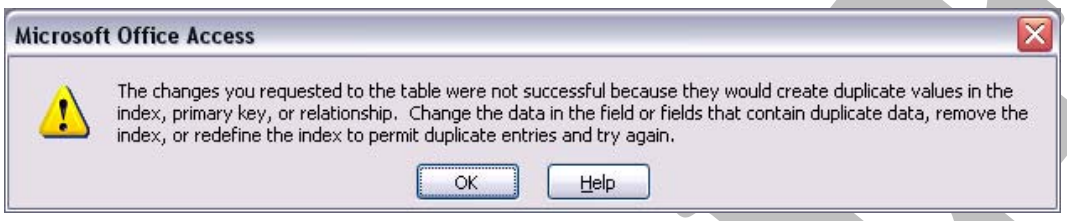
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	0
Validation Rule	
Validation Text	
Required	No
Indexed	Yes (No Duplicates)
Smart Tags	

- Save the table. If in this example we were to switch back to the Datasheet View and try to enter a record containing a Company ID field number which had already been used, as below:

Table1 : Table

	FirstNane	SecondName	CompanyID
	Lou	Smith	10026
	Rowan	Cobert	10073
	Dave	Murray	10098
	Elliot	William	10098
*			0

You would see the following error message.



Indexing a field without duplications allowed

Modifying the way a field is indexed

- Your primary key field will automatically be indexed so that duplicated entries are not allowed. Thus in the previous example, we created a primary key based on the Company ID Number. This Company ID Number was automatically indexed, so that no two people could have the same Company ID Number. If you wish to change this indexing, you need to display the table in Design View and then select the field to which a primary key has been applied. The field properties will be displayed towards the bottom of your screen. If you click on the down arrow to the right of the **INDEXED** property, you will see the various options listed from which you can select.

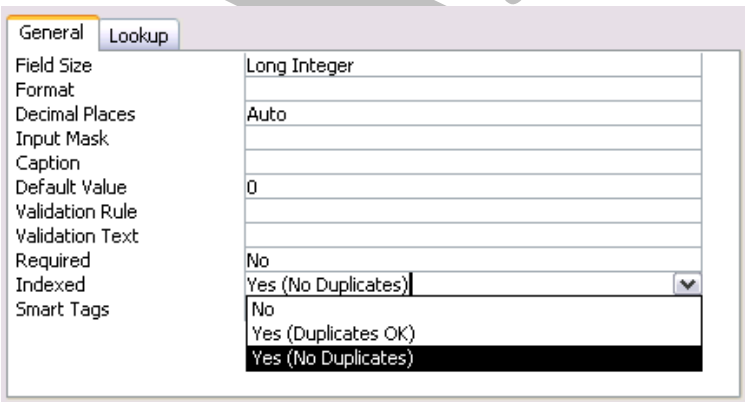


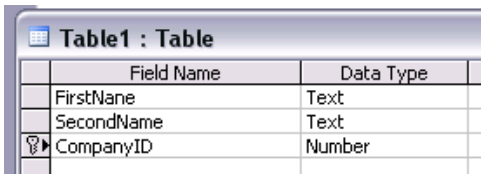
Table Design/Layout

Changing field format attributes

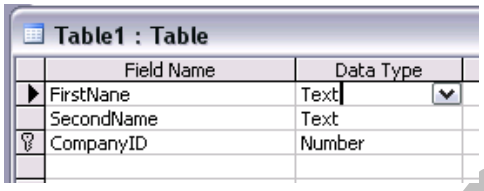
To change field format attributes.

- Open the table which you wish to modify.
- If necessary, click on the **VIEW** icon (top-left within the Access window) so that we can see the table displayed in design view.

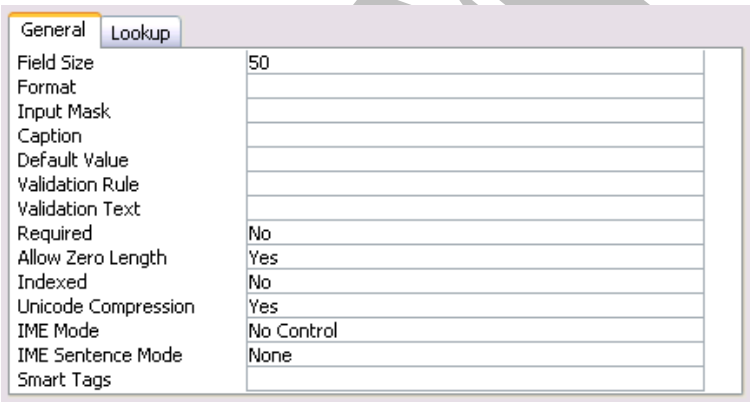
  The screen should resemble that illustrated.



- Click on the field which you wish to modify the attributes of. In this example if we click in the **DATA TYPE** cell for the **FIRST NAME** field. We will see the following information displayed.



  Towards the bottom of the screen you can see information displayed relating to field attributes.

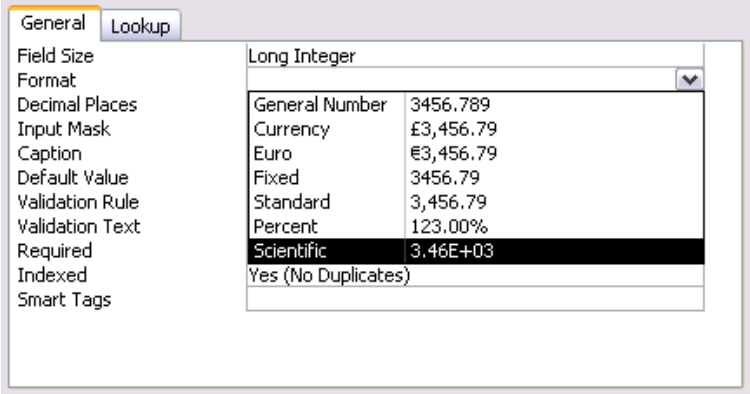


- **TO MODIFY FIELD SIZE**: Click within the **FIELD SIZE** section of the dialog box. You can see a description of the attributes function displayed to the right (in blue).

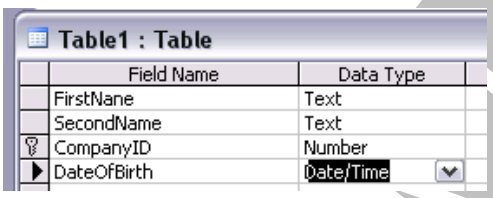
  Enter the maximum size that you wish to set for this field. The size being the maximum number of characters which can be entered into this field.

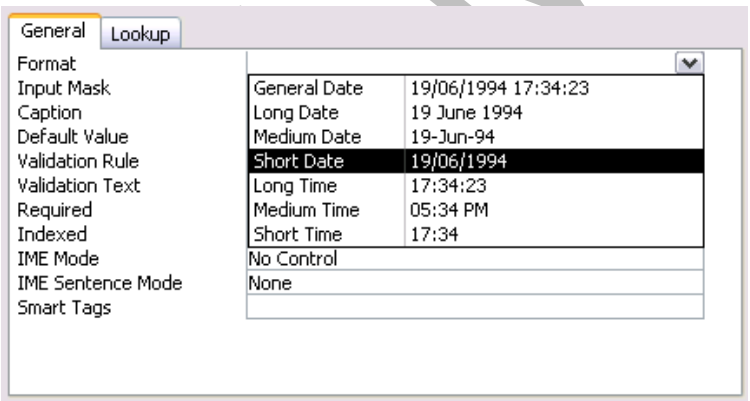
- **TO MODIFY NUMBER FORMAT**: Within a table (in design view), click on a field which has a **NUMBER** Data Type.

Click within the **FORMAT** section of the dialog box, a description of the attributes function is displayed to the right (in blue). When you click on the down arrow to the right of the **FORMAT** section you will see the different number formatting options displayed. Click on the required format.



- **TO MODIFY DATE FORMAT**: Within a table (in design view), click on a field which has a **DATE/TIME** Data Type. Click within the **FORMAT** section of the dialog box (towards the bottom of your screen). When you click on the down arrow to the right of the **FORMAT** section you will see the different options displayed, click on the required date or time format.



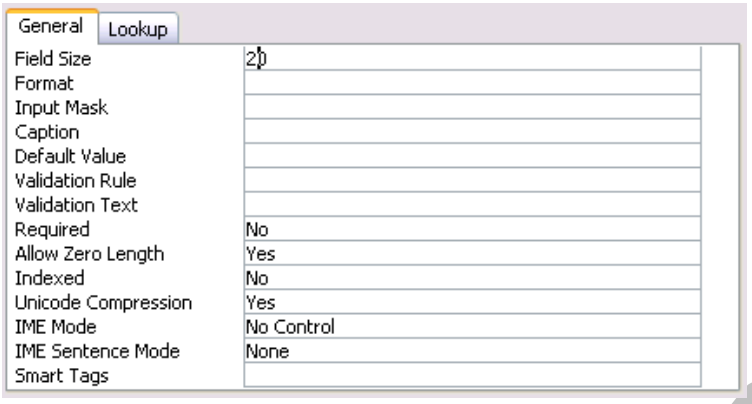


Understanding consequences of changing field size attributes in a table

Make sure that your field size attributes are long enough!

- If you make a field attribute too small you will not be able to enter all your data (when entering data in Datasheet view). In the following example the field is set to a maximum of 20 characters, which is too short for some

names.



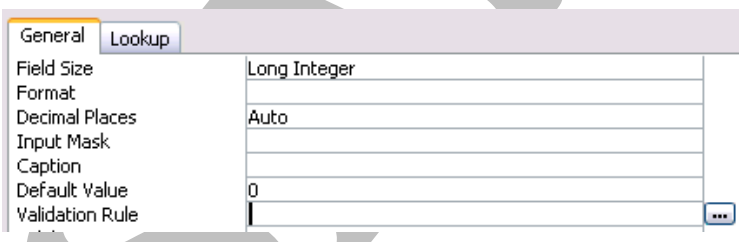
If we wished to enter information for a company called **CHELTENHAM OFFICE SUPPLIES** it would not fit into the available field space.

NOTE: The consequences of changing field size to a smaller value is that data already entered in the table would be truncated or lost.

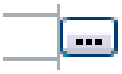
Creating a simple validation rule for number, text, date/time or currency

To create a validation rule for a number

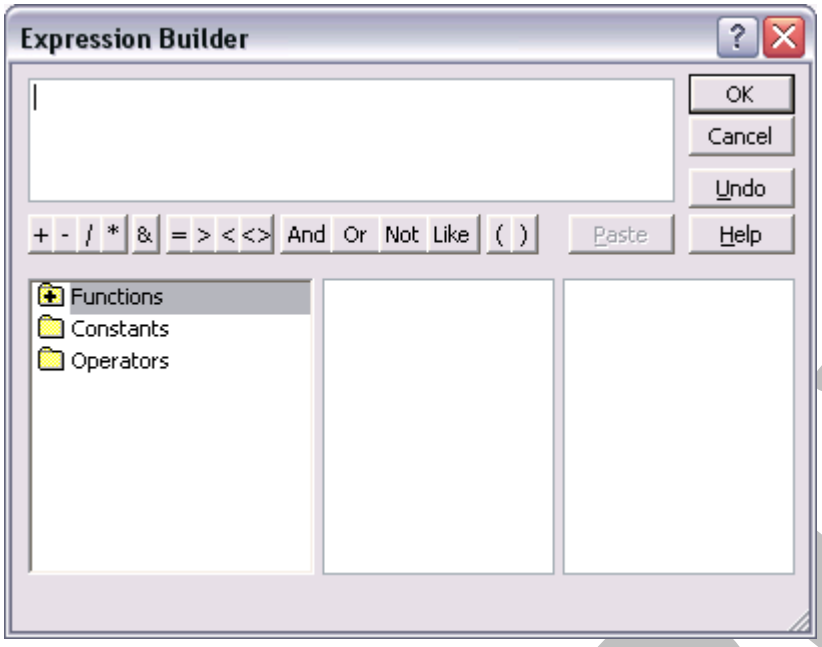
- In table design view, select a field which has a **NUMBER** Data Type.
- In the **FIELD PROPERTIES** section of the dialog box (towards the bottom of the screen), click on the **VALIDATION RULE** section. The screen will resemble that illustrated.



- Click on the small icon with the 3 dots to the right of the Validation Rule section.

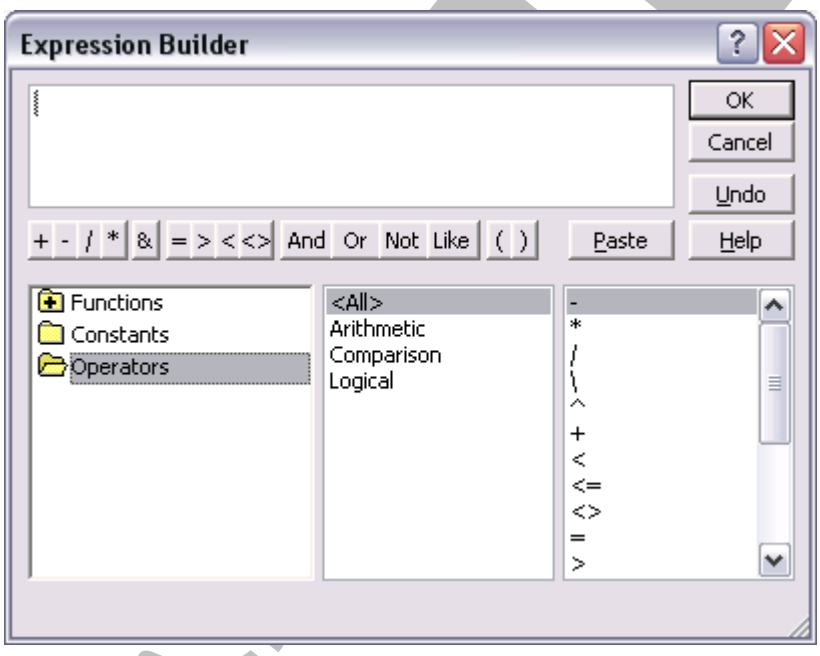


This will display the Expression Builder, as illustrated.



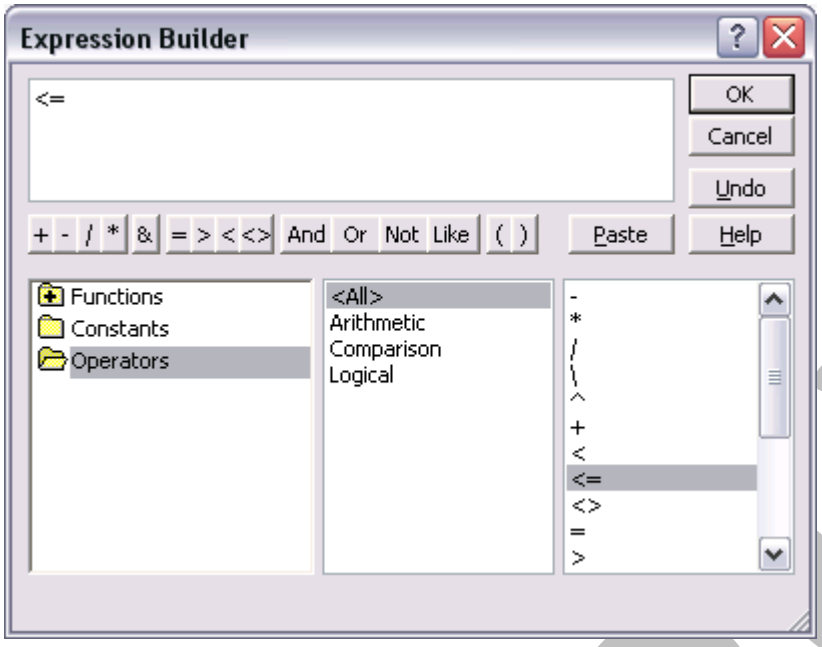
Let's say we want to limit numbers to between 1 and 10,000. We can use the Expression Builder to achieve this.

- Within the left section of the dialog box, click on **OPERATORS**. The dialog box will display a range of operators, as illustrated.

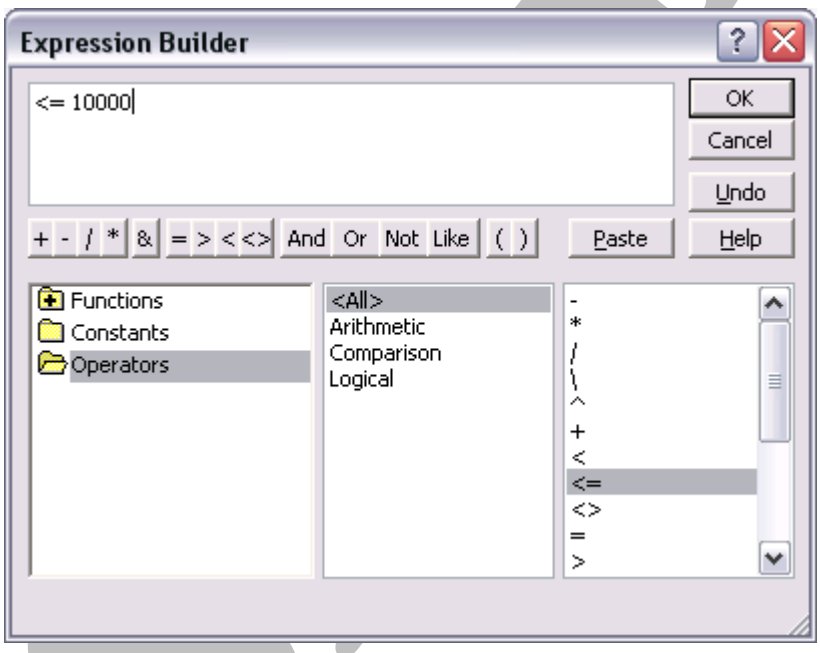


- In this case we wish to limit valid entries to between 1-10,000, so we **DOUBLE CLICK** on the following item:

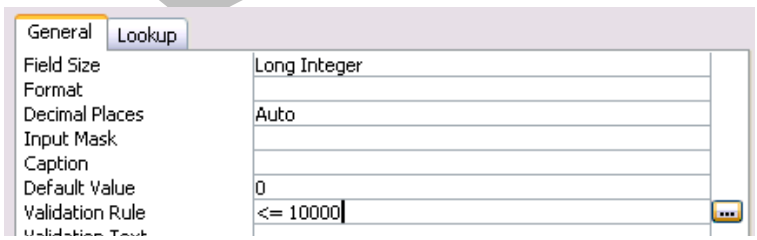
The screen will be as illustrated.



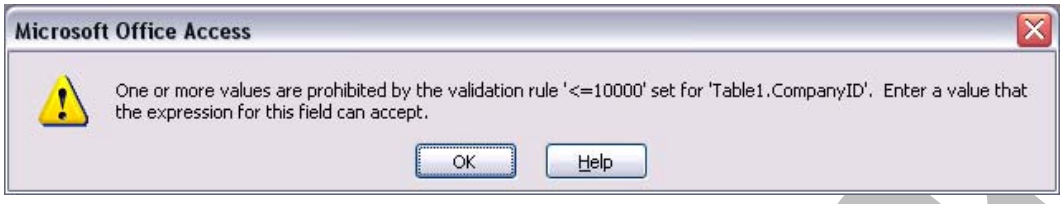
- We can then type in the value 10000. The screen will be as illustrated.



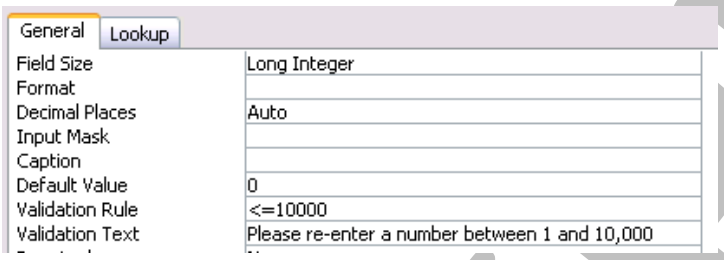
- Click on the **OK** button and the Field Properties section of the dialog box will be as illustrated.



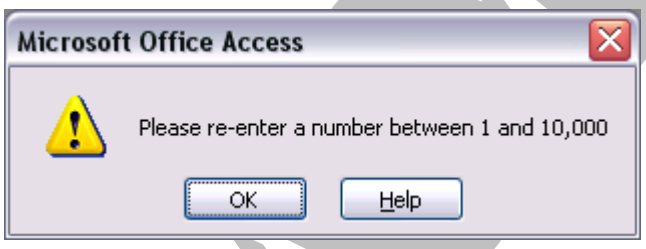
- If we were to switch to Datasheet View and enter a number into the validated field which was over 10,000, we would see a rather confusing message such as the one below.



We can make this message clearer by creating a custom message. To do this we would click within the **VALIDATION TEXT** area of the dialog box and enter our message, such as '**PLEASE RE-ENTER A NUMBER BETWEEN 1 AND 10,000'**.

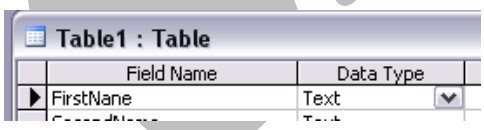


- If we were to switch to Datasheet View and enter a number which is between 1 and 10,000, it would be accepted. If however the number was over 10,000, we would see the following error message.

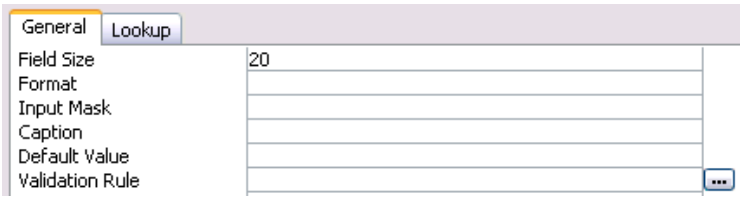


To create a validation rule for text

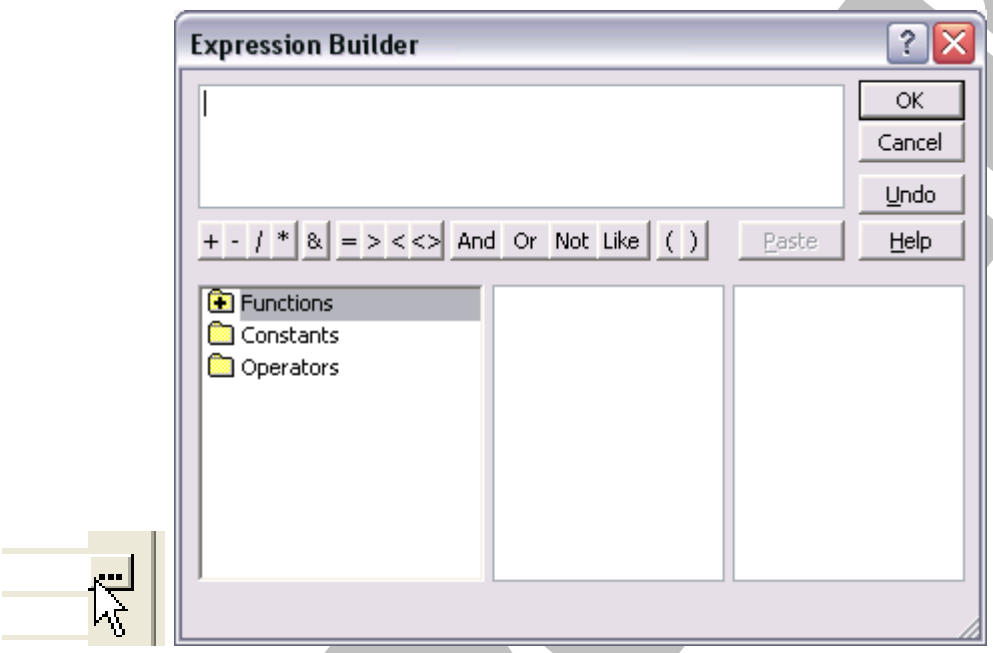
- In table design view, select a field which has a **TEXT** Data Type.



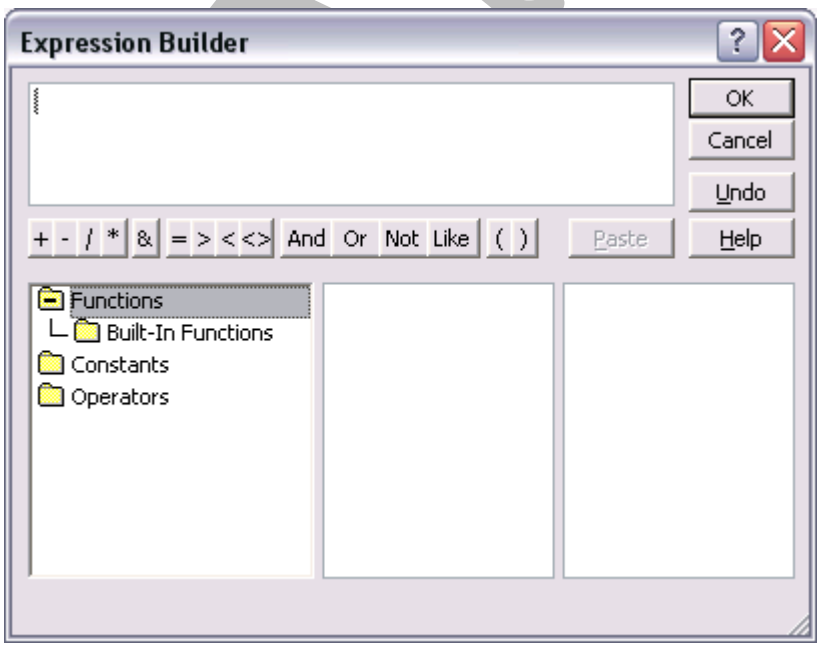
- In the **FIELD PROPERTIES** section of the dialog box (towards the bottom of the screen), click on the **VALIDATION RULE** section.



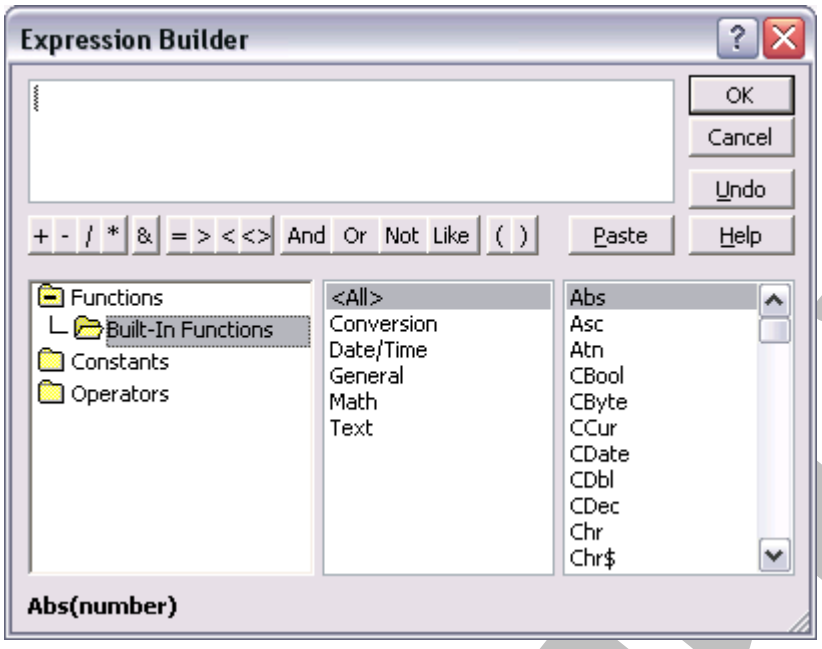
- Click on the small icon with the 3 dots to the right of the Validation Rule section.



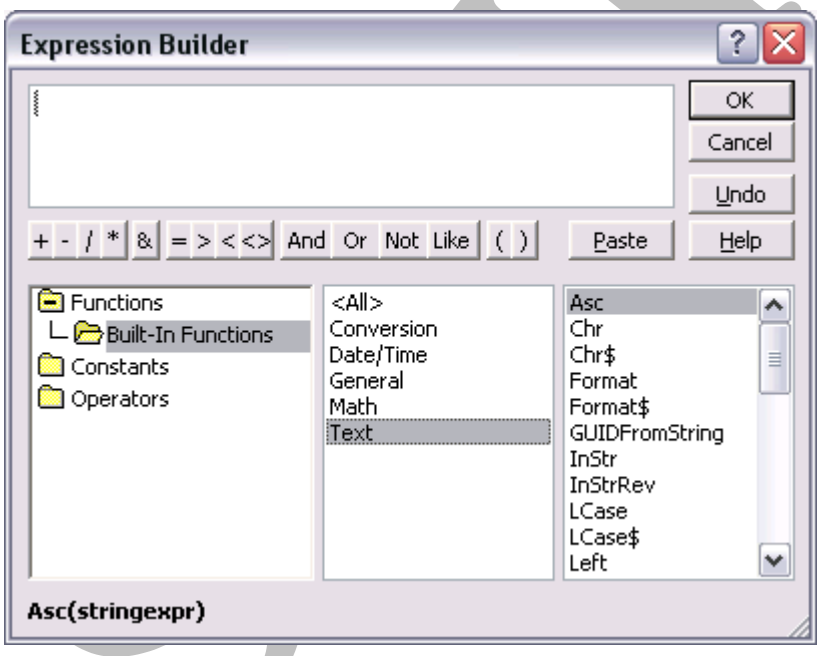
- **DOUBLE CLICKING** on the **+** to the left of **FUNCTIONS** will display the following:



- Clicking on the **BUILT-IN FUNCTIONS** icon will display the following:

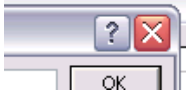


- In the central column, click on **TEXT** to display text validation functions.

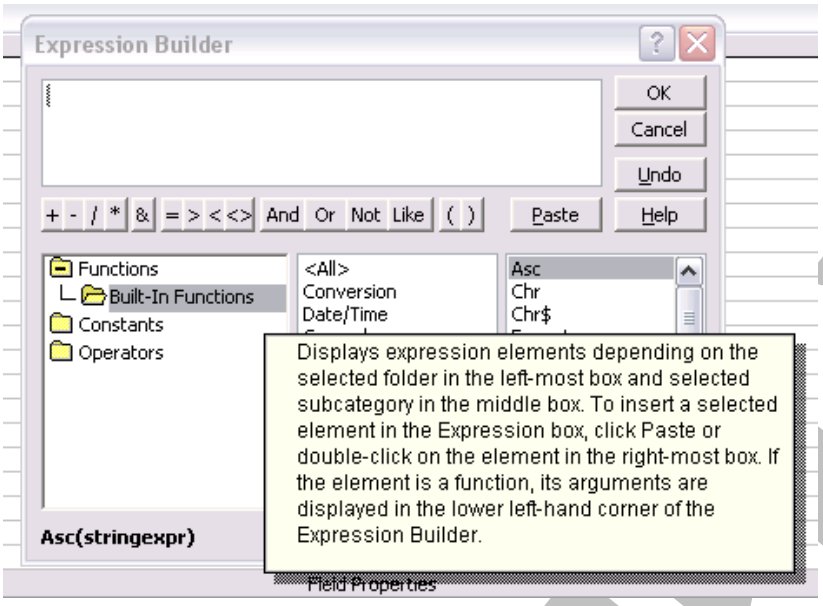


You can pick the text validation function that you require.

- You can use the '**WHAT IS THIS**' help icon to get more information about these functions. To use this click on the question mark at the top-right of the dialog box and then click on an item to get more help.



A sample help screen is illustrated. Get into the habit of using the help which is available!



To create a validation rule for a date or time

- In table design view, select a field which has a **DATE/TIME** Data Type.
- In the **FIELD PROPERTIES** section of the dialog box (towards the bottom of the screen), click on the **VALIDATION RULE** section. You can enter an expression such as the following, which would only allow a date to be entered using the year 2002.

  >=#1/1/02# AND < # 1/1/03#

To create a validation rule for currency

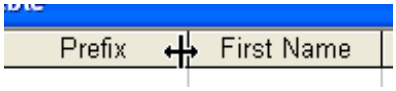
- In table design view, select a field which has a **CURRENCY** Data Type.
- In the **FIELD PROPERTIES** section of the dialog box (towards the bottom of the screen), click on the **VALIDATION RULE** section. You can enter an expression such as the following, which would only allow an amount to be entered in the range of 1 to 10000.

  >0 AND <=10000

Changing width of columns in a table

To change the width of a column

- Move the mouse pointer to the line at the right of the field (column heading). It will change to resemble a solid vertical bar intersected by a double-headed arrow.



- Drag the column border to the size you want.

Moving a column within a table

To move a column(s)

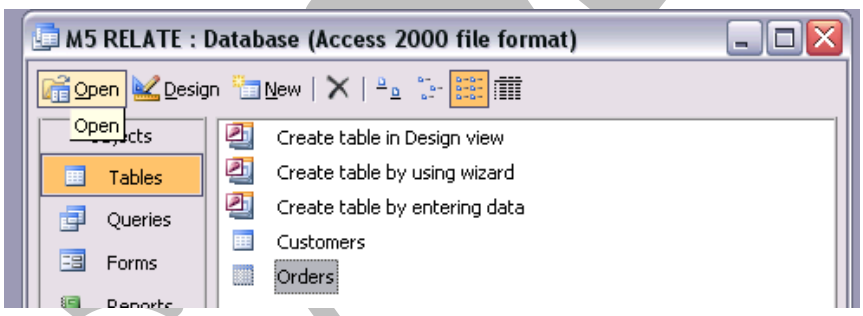
- Select the column(s) and release the mouse button.
- Click on the field selector and drag the column(s) to the new location. As you drag the columns a solid bar between columns indicates the current position of the columns being moved.

Table Relationships

Creating a one-to-one or one-to-many relationship between tables

To create a relationship between tables

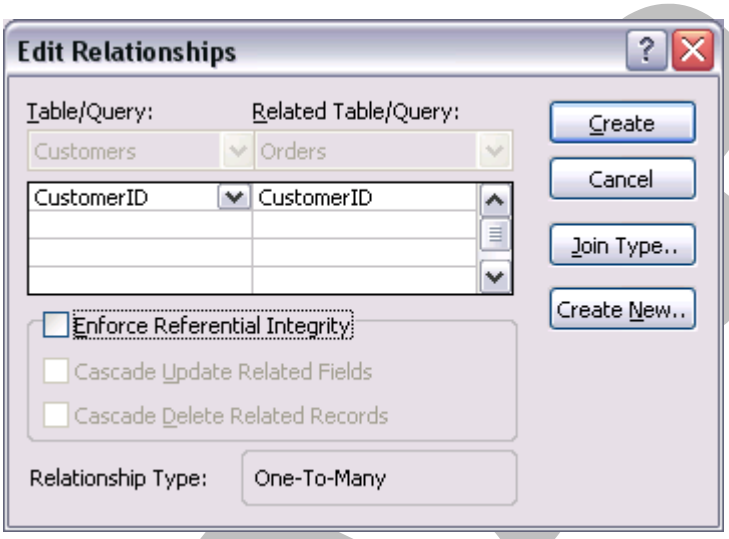
- Open the Access application.
- Open a database



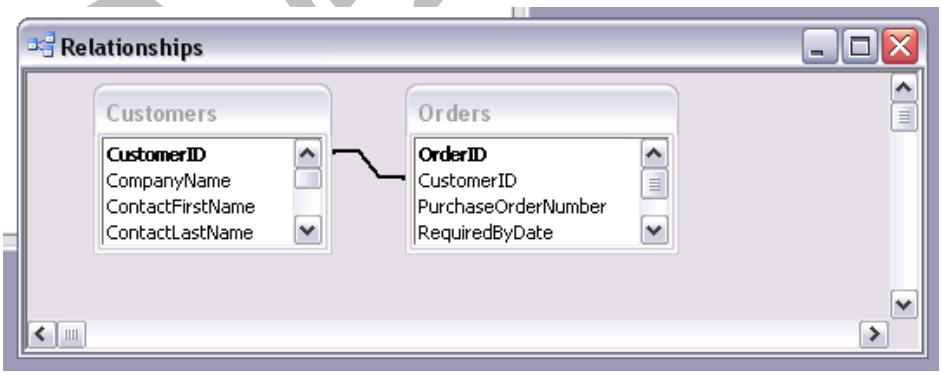
- Click on the **RELATIONSHIPS** icon on the toolbar.

- The **RELATIONSHIPS** window will be displayed.

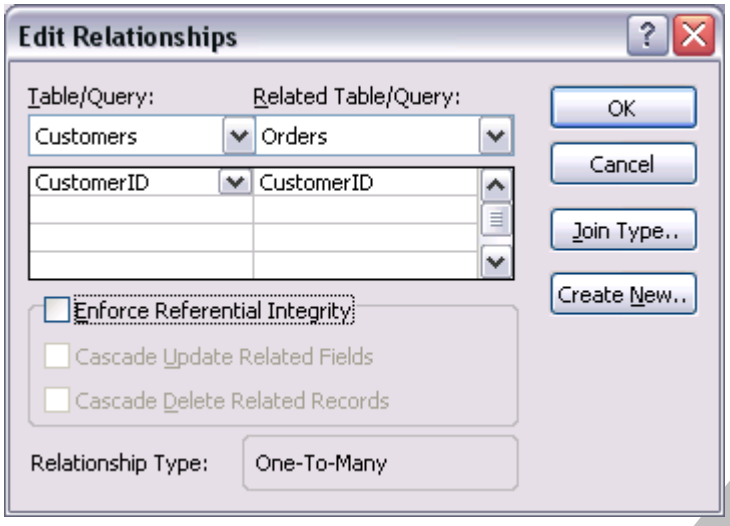
- In this example, drag the **CUSTOMERID** field from the **CUSTOMERS** table and drop it on top of the **CUSTOMERID** field in the **ORDERS** table. The **EDIT RELATIONSHIPS** dialog box will be displayed.



- Click on the **CREATE** button to establish a one-to-many relationship between the 2 fields.



- Edit the relationship you have just created by double clicking on the line which connects the 2 fields. The **EDIT RELATIONSHIPS** dialog box will be displayed once more.



- Select the **ENFORCE REFERENTIAL INTEGRITY** check box.
- Select the **CASCADE UPDATE RELATED FIELDS** check box.
- Select the **CASCADE DELETE RELATED RECORDS** check box.
- Selecting these options will ensure that changes made to the CustomerID field in one table are reflected in the related field in the other table.
- Click on the **OK** button to apply the changes.
- Close the database.
- Close the Access application.

Deleting relationships between tables

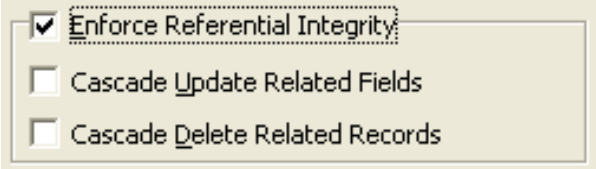
To delete a relationship between tables

- Click on the **TOOLS** drop down menu and select **RELATIONSHIPS**.
- Click on the relationship line which you wish to delete.
- Press the **DELETE** key, and you will see a warning dialog box, asking if you wish to **PERMANENTLY** delete the relationship. Click on the **YES** button to confirm the deletion.

Applying rule(s) to relationships

To enforce referential integrity

- When you create a relationship, or when you double click on an existing relationship line (within the **RELATIONSHIPS** window), you will see the **EDIT RELATIONSHIPS** dialog box. You can apply relationship rules, by clicking on the **ENFORCE REFERENTIAL INTEGRITY** check box. This ensures that relationships between records in related tables are valid. It means that you will not be able to accidentally modify related data.



Selecting **CASCADE UPDATE RELATED FIELDS** means that if you change the primary key in the record of a table, Access updates the corresponding fields in related records with the new value. Example: If you change the number of an order, i.e. the primary key of the Orders record, Access will update the order number field on all of the associated Order Details records.

Selecting **CASCADE DELETE RELATED RECORDS** means that if you delete a primary record, the corresponding records in related tables will be deleted. Example: If you delete an Order record, all of the Order Detail records relating to that order will be deleted.

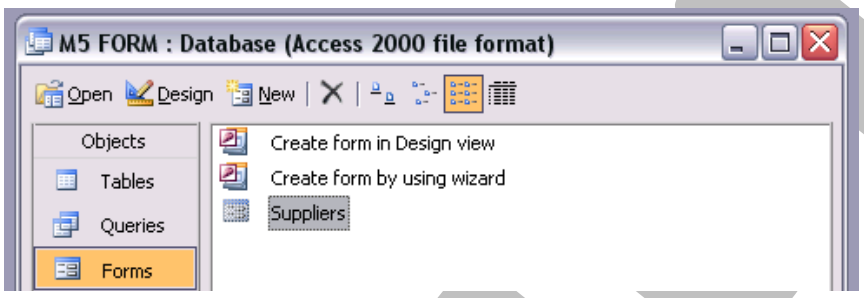
Forms

Working with Forms

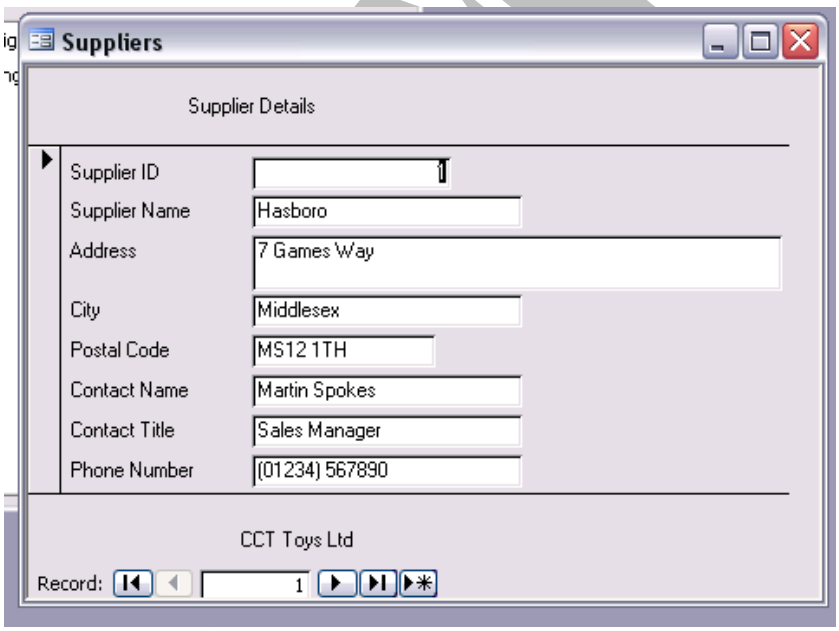
Opening a form

To open a form

- Within the main **DATABASE** window, select **FORMS** from the Objects list and then select the form you wish to open, such as **SUPPLIERS** within the database in the example shown.



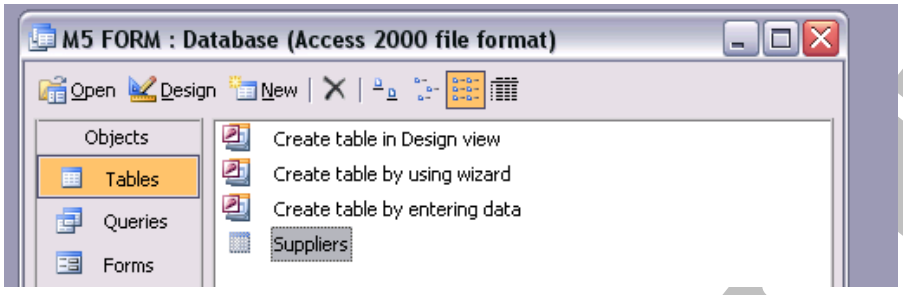
- Double click on the selected form to open, as illustrated.



Creating and saving a form

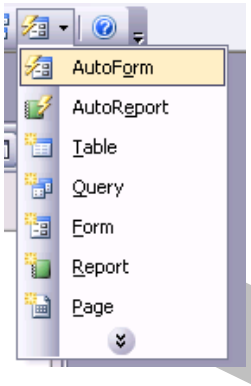
To create a form using the AutoForm Wizard

- In the **DATABASE** window select either **TABLE** or **QUERY** from the Objects list.
- Click on a **TABLE** or **QUERY** name to select it.

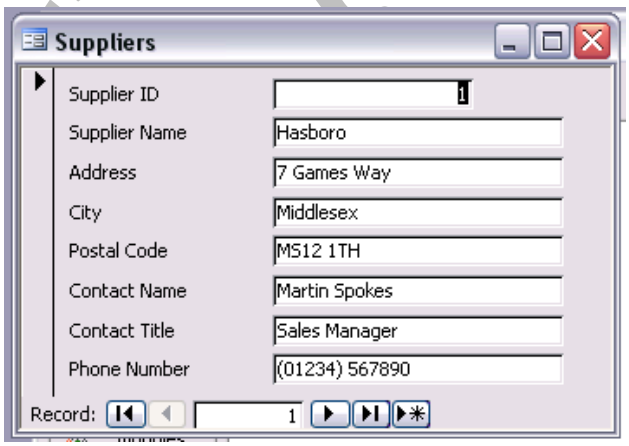


- Click the down arrow next to the **NEW OBJECT** icon (within the **STANDARD** toolbar)

and from the drop down menu displayed, select the **AUTOFORM** command.



- This will display a form which you can use to enter the information into the table or query.

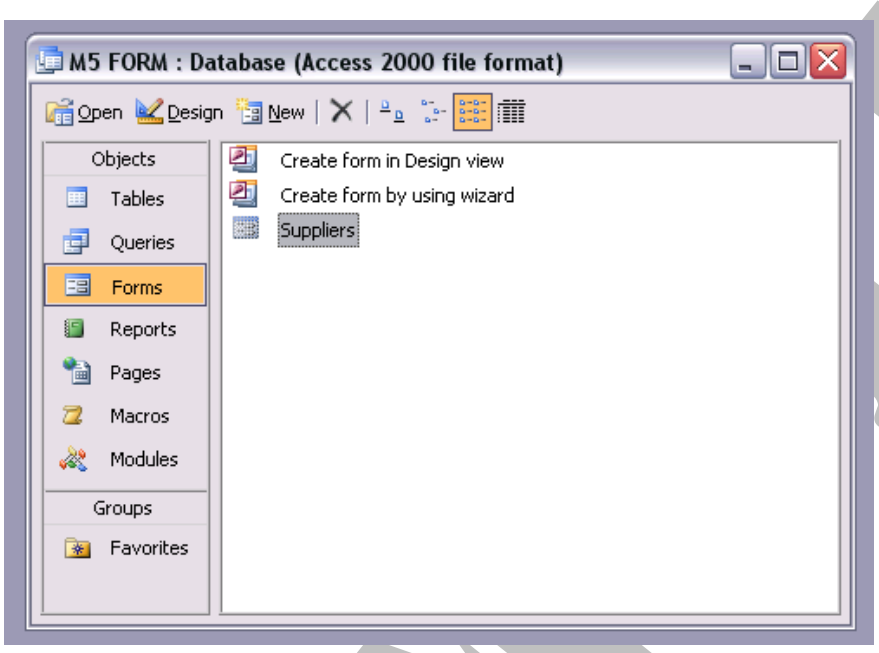


The Form Wizard

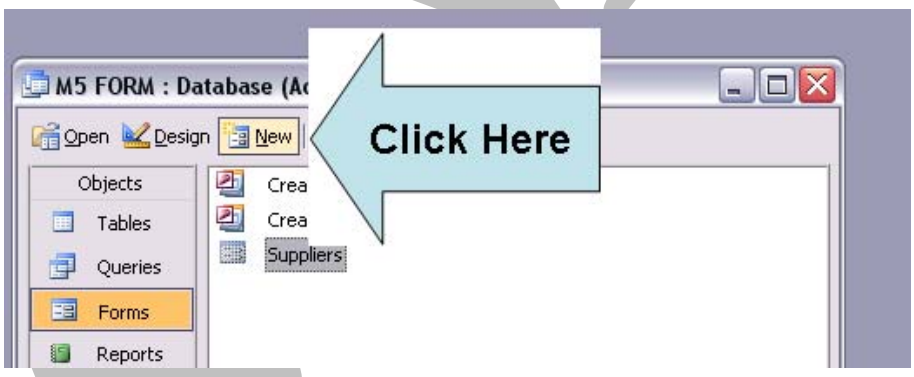
- If possible, use the **FORM WIZARD** to create your forms. It is easy to use and effective. You can modify the design later if you wish.

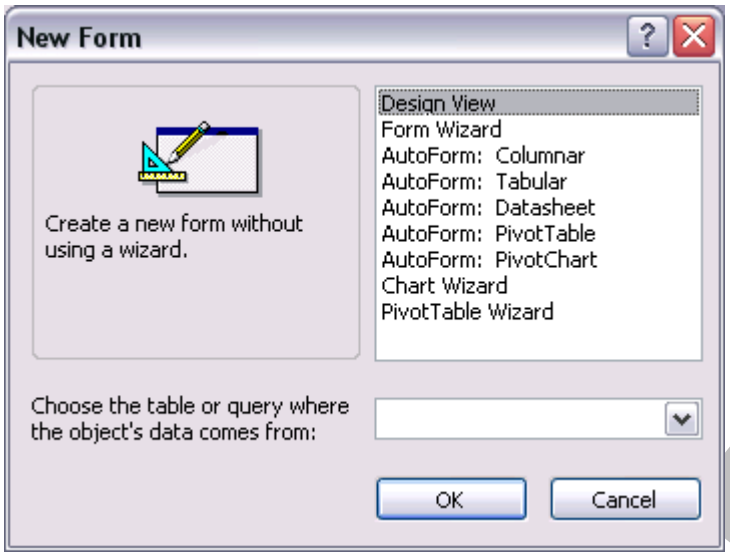
To create a form using Form Wizard

- In the **DATABASE** window select **FORMS** from the Objects list.

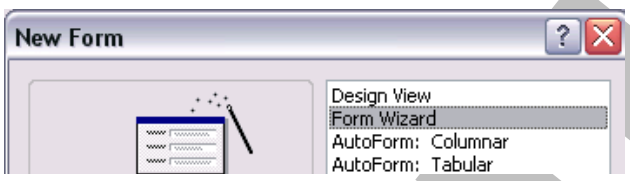


- Choose the **NEW** button, which will display the **NEW FORM** dialog box.

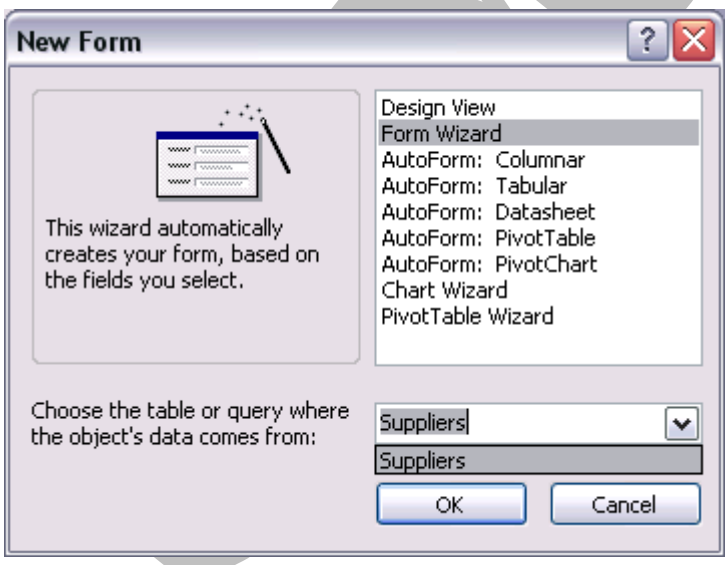




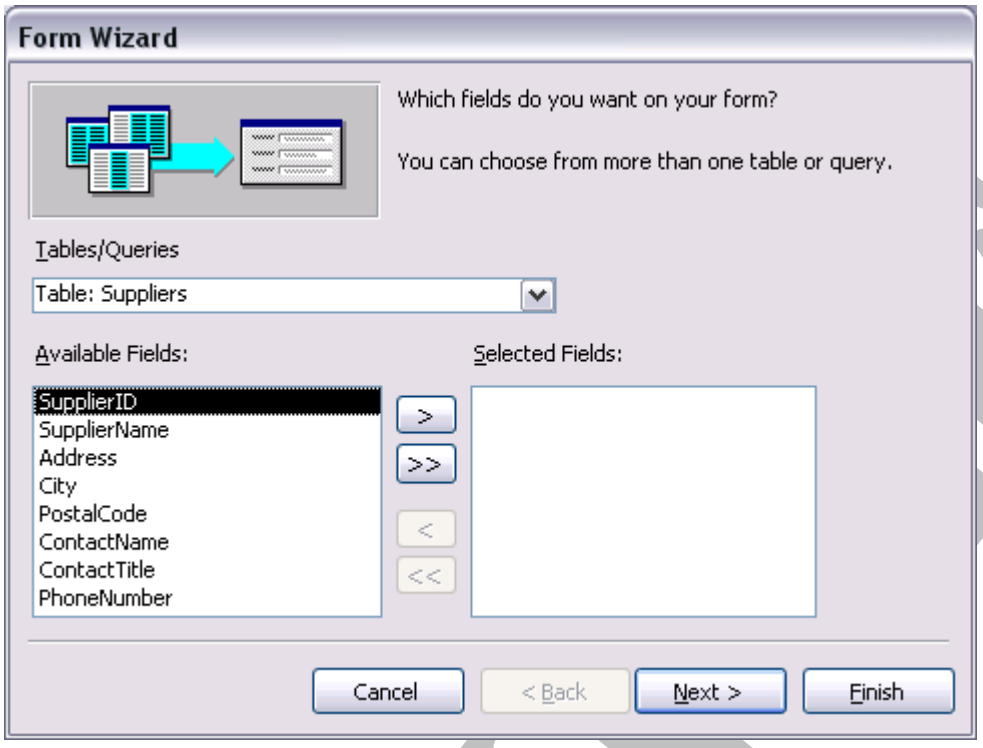
- Select the **FORM WIZARD**.



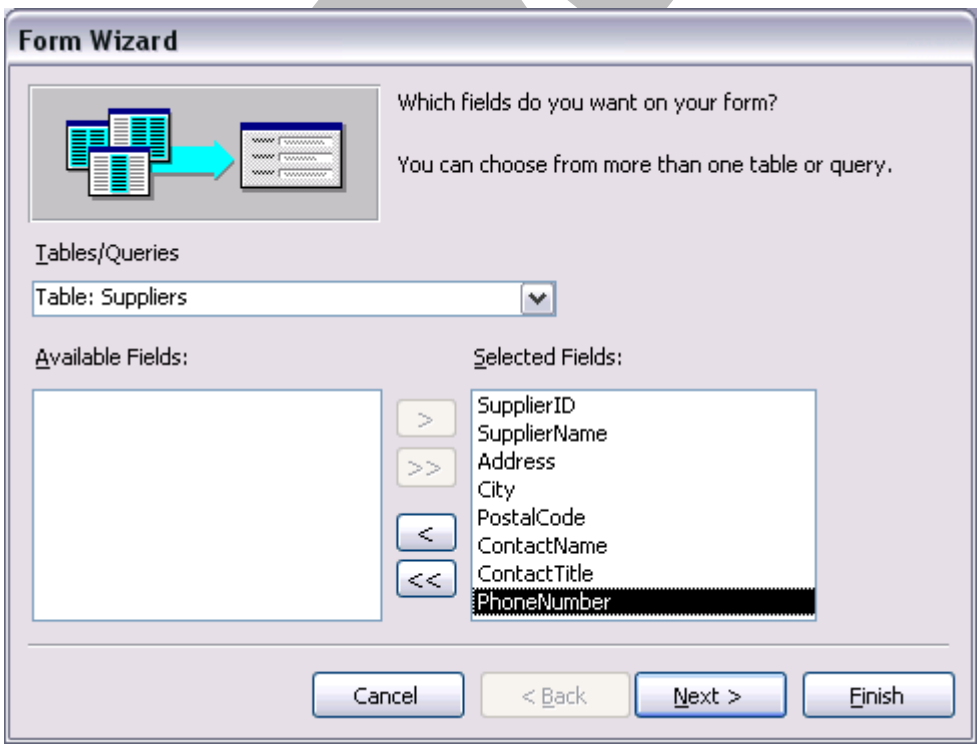
- Choose the table or query where the objects data will come from.



- Click on the **OK** button to display the next page of the **FORM WIZARD**.



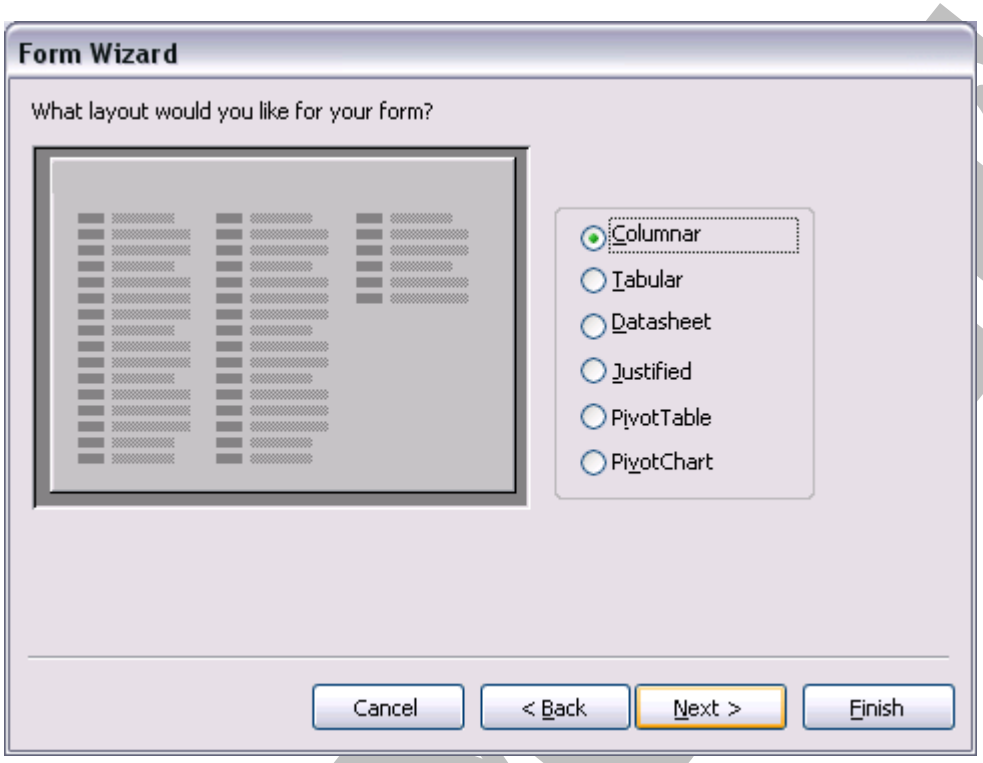
- Click on the field which you wish to add to the form, click on the right printing arrow button to add it to the **SELECTED FIELDS** section of the dialog box.
- Repeat this procedure so that all the required fields are added.



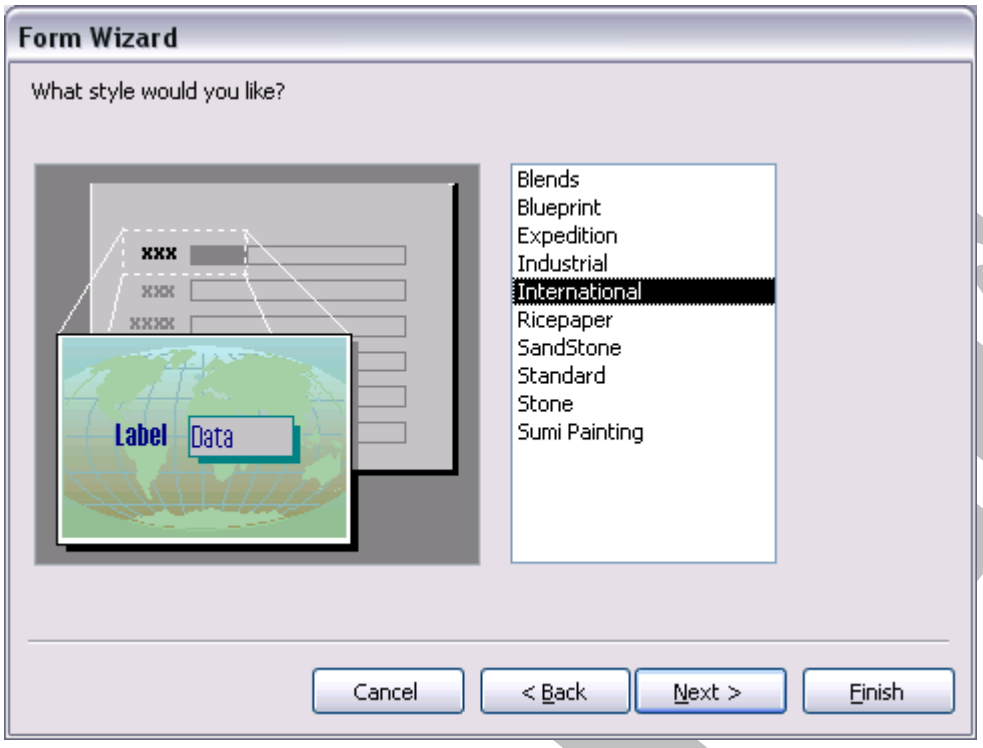
Remember that you can use the down arrow in the **TABLES/QUERIES**

section of the dialog box to select a different data source which will contain other fields.

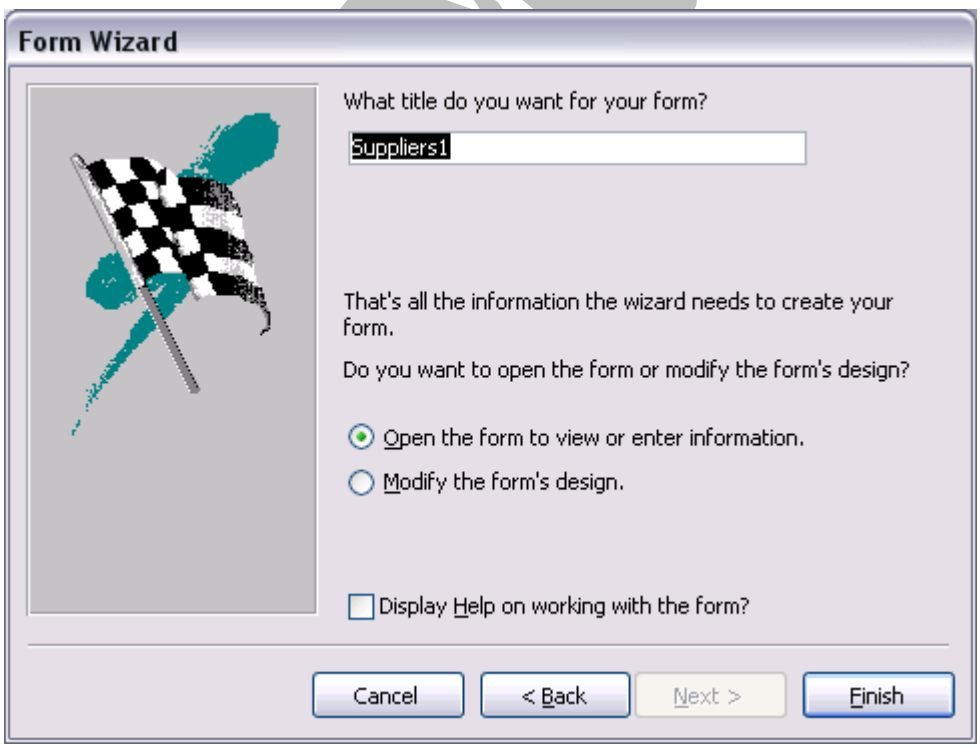
- When you have added the required fields click on the **NEXT** button.
- The next page of the dialog allows you to define the layout of the form.



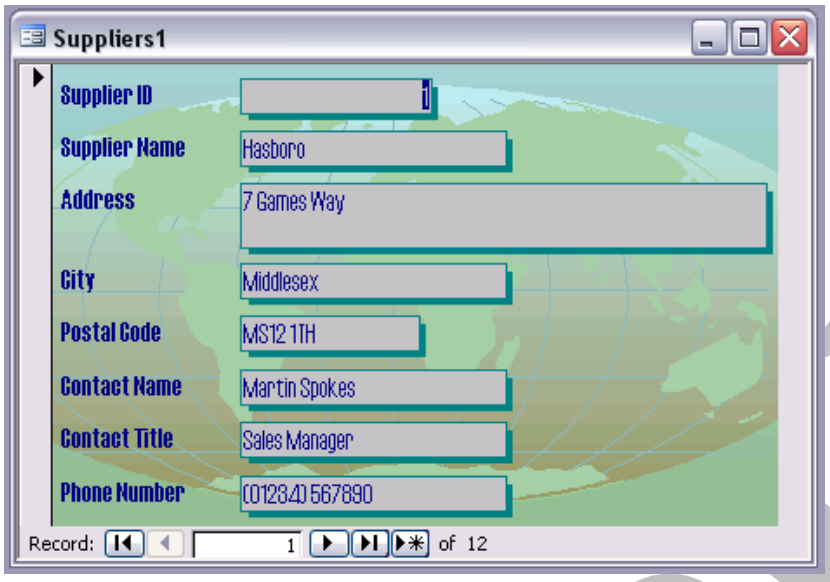
- Choose the desired option and then click on the **NEXT** button.
- The next page of the **FORM WIZARD** allows you to choose a pre-defined style.



- Select the required option and click on the **NEXT** button to continue.
- This next page of the **FORM WIZARD** allows you to name the form and set final options for using the form.



- Click on the **FINISH** button to create the form.
- If you chose to "**OPEN THE FORM TO VIEW OR ENTER INFORMATION**", then the form will be displayed as illustrated.



Using a form to enter, modify or delete records

To enter data into a form

- Open the form you wish to use by selecting **FORMS** from the Objects list in the **DATABASE** window and double clicking on the name of the form. The **FORM WINDOW** will be displayed.
- Entering data into a form is much like entering data into a table. Type your data into the form field, once finished press the **TAB** key to move to the next field. Pressing **TAB** in the last field will take you to the next record.
- To create a new record, click on the **NEW (BLANK) RECORD** icon at the bottom of the **FORM WINDOW**.

This is the end of the preview.

To see the rest of this manual you need to purchase the courseware from Cheltenham Courseware.

Please see our web site at:
http://www.cctglobal.com