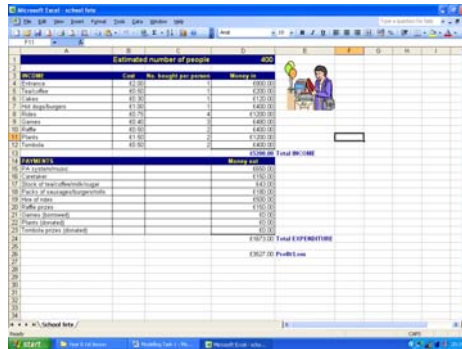


# DATA HANDLING: SETTING UP A DATABASE



	Estimated number of pupils	Cost per pupil for various items	Money spent
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## DATA HANDLING : CONTENTS

- Creating a simple database
- Creating & using tables
- Using data fields, records, data types, field sizes, primary key


## DATA HANDLING : TASK 1

Before you begin this task you should create a new folder in your user area. Call it 'Data Handling'.

Within this folder create another named 'Database Task 1'.

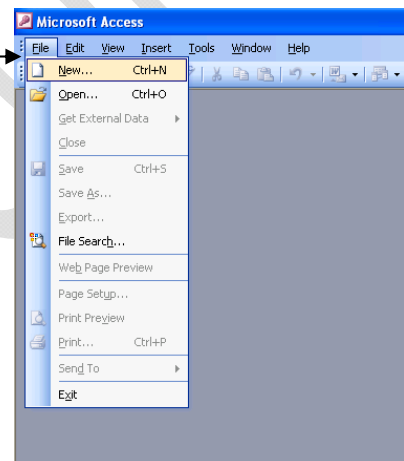
### CREATING A DATABASE

We will now set up a simple database...

To do this you will need to open Microsoft Access. 

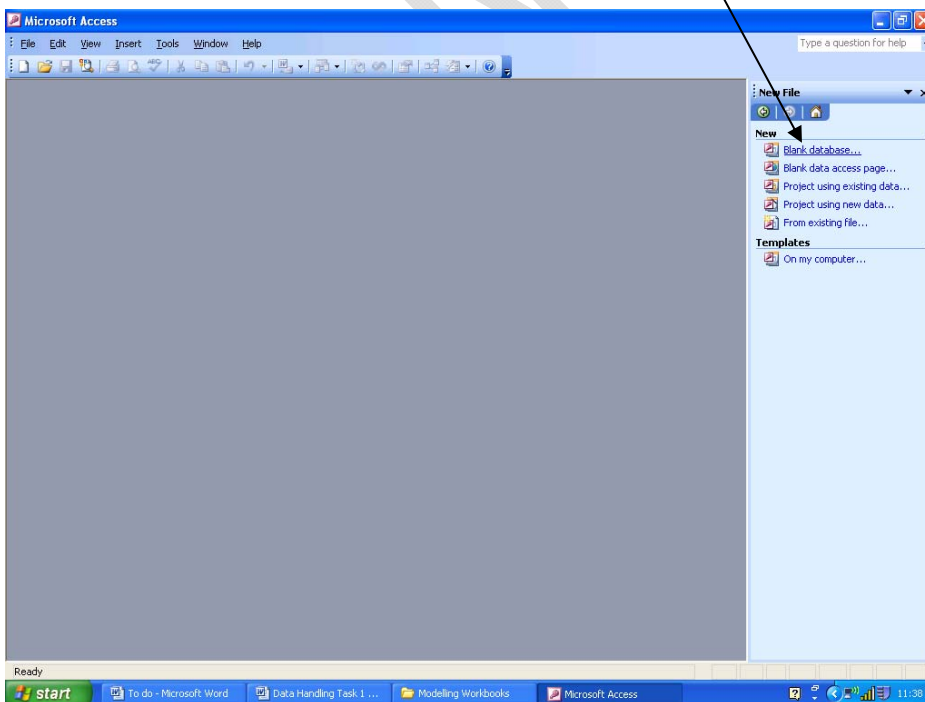
Unlike most applications, when you open Access a new document is not automatically created for you. In Access you need to save your database and name it, before you can work on it. You need to do the following:

- Select 'File'
- Select 'New'



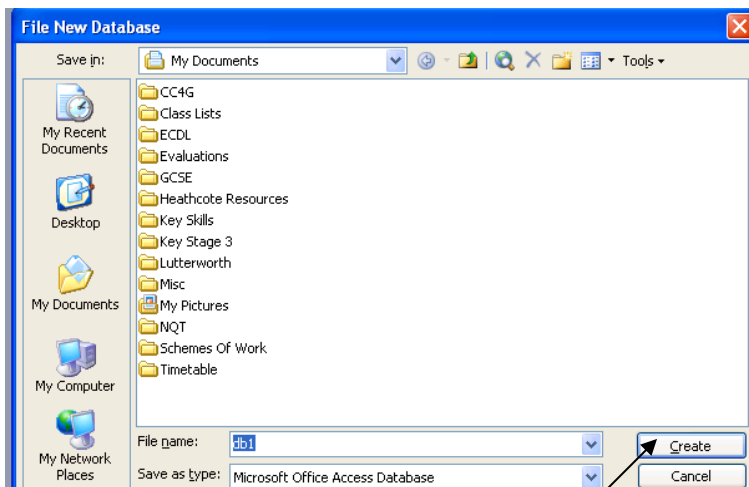
A window will be displayed on the right hand side of the screen, asking you what you want to create.

You should select 'Blank database...' from the list.



The window below will appear, requesting a name for your database.

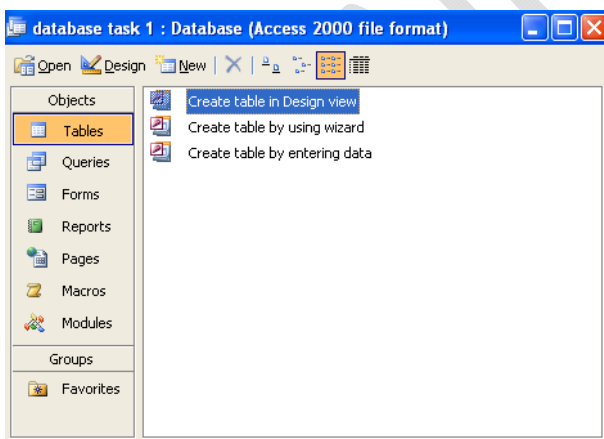
Enter 'database task 1' as the file name for the database, making sure that you save the database in the 'Data Handling' > 'Database Task 1' folder that you created at the beginning of this workbook.



After entering a file name, select 'Create'.

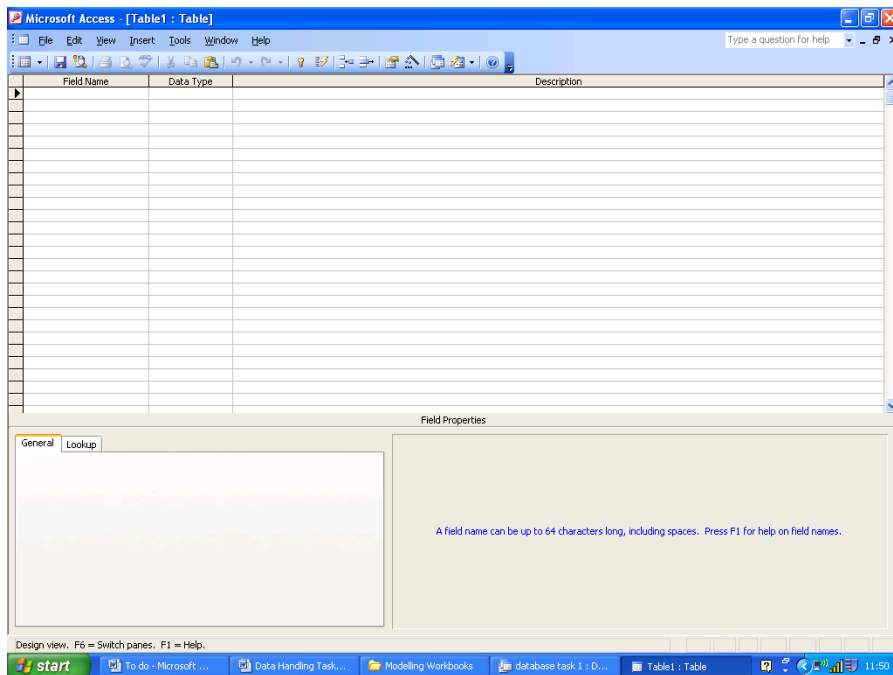
## SETTING UP THE DATABASE - TABLES

After saving the database, the following window will appear. This is the main option box that you will use to set up everything within the database.



The first thing that we need to do is create a *table*. A table is a collection of data about a specific topic. This will form the foundation to our database and the information that it will contain.

- Double-click (or select and then click 'Open') on 'Create table in Design View'
- The following window will be displayed:



Tables organise data into columns (called *fields*) and rows (called *records*). For example, in a database containing details about customers, examples of *fields* would be: forename, surname, address, telephone number. Each customer in the database would be a *record*.

## FIELDS

We need to set up a table by entering the field names that we require. The easiest way to do this is in 'design view' layout (shown in the image above - you should have this displayed on your screen now).

In the field name column type the following fields:

- Title
- Forename
- Surname
- Road
- Town
- County
- Postcode
- Home telephone number
- Mobile telephone number
- Age

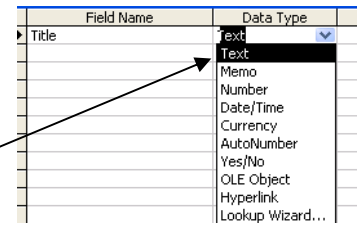
## DATA TYPES

Now that we have entered the fields that we require, we need to set up the *data type* for each field. The data type determines what type of data a field can hold, for example number or text.

## TASK 1

For each of the fields that you have entered you need to decide what type of data the field will hold.

You need to click in the 'data type' column next to the field you want to set the data type for and select the most appropriate type from the drop down menu.



Field Name	Data Type
Title	Text
	Text
	Memo
	Number
	Date/Time
	Currency
	AutoNumber
	Yes/No
	OLE Object
	Hyperlink
	Lookup Wizard...

## Answers to Task 1

Check that you have title, forename, surname, road, town, county and postcode set with data type text. Age should be number.

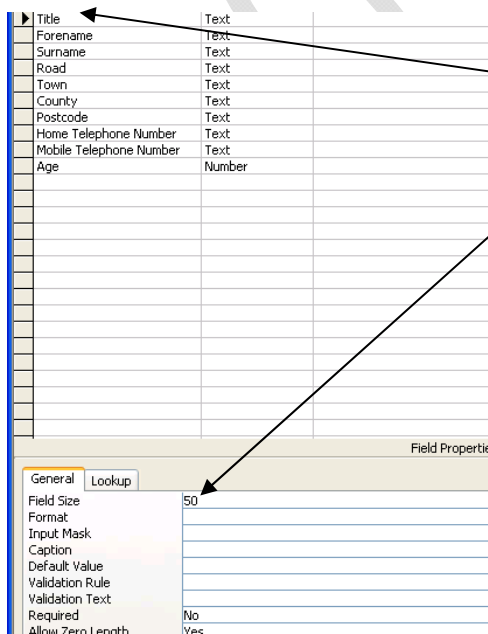
Note: If text is chosen, this includes numbers and letters e.g. an address would contain both so text is the most appropriate option.

Telephone numbers are more complicated! You would think that they should be set with number as the data type - actually they need to be text! This does not sound logical as there are only numbers entered. However, if the data type is set to number, when the user tries to enter a number that will begin with 0 (e.g. 01926 for the area code), the 0 is automatically taken away from the beginning, as strictly a number does not have a 0 before.

The rule is therefore: for a telephone number use text as the data type.

## FIELD SIZES

We now need to think about field sizes. Field sizes are used to set the maximum number of characters that can be entered into a field. This helps reduce the amount of storage space required to save the database. To set up field sizes you should do the following:



Title	Text
Forename	Text
Surname	Text
Road	Text
Town	Text
County	Text
Postcode	Text
Home Telephone Number	Text
Mobile Telephone Number	Text
Age	Number

Field Properties	
General	Lookup
Field Size	50
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	No
Allow Zero Length	Yes

Select the Title field - you will see that an arrow points to it to show that it is selected

You will now see that the default field size is set to 50.

You need to change this to a more appropriate size. 'Miss' is possibly the largest value that would be entered so a field size of 4 would be appropriate.

Type in 4, to replace 50.

## TASK 2

Select each field in turn and set an appropriate field size. Remember that spaces count!

### Answers to Task 2

The values you have chosen in Task 2 do not have to be exactly the same as I suggest, but should be around the same values:

Field Name	Field Size
Title	4
Forename	15
Surname	15
Road	25
Town	15
County	15
Postcode	7
Home Telephone Number	11
Mobile Telephone Number	11
Age	3

### PRIMARY KEY

In a database it is very important to set a primary key. A primary key is just simply a field that will uniquely identify a record.

Example: If we are thinking about a school database, each pupil in the school will be a record. To identify a pupil it is not possible to use any of the fields we have set in our database already, as there is no single field that will identify a pupil. We cannot use forename or surname, as often more than one pupil has the same.

In this school an office number identifies each pupil. No two pupils will have the same office number - it is unique to the pupil.

This is all a primary key is.

It is possible to set up your own primary key (i.e. office number / customer number) or Microsoft Access can set up one automatically for you.

You need to set up a new field called 'Customer Number' to act as the primary key - the field that will identify each customer in the database. To do this, follow these steps:

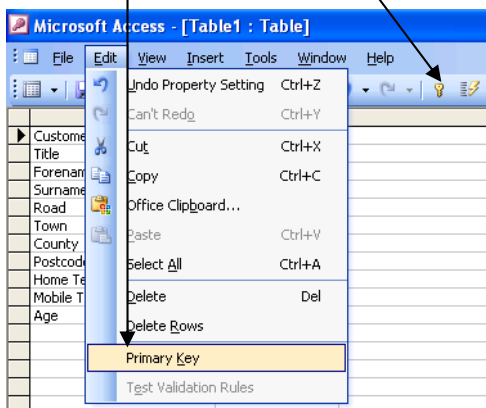
- Make sure that the title field is selected
- Select 'Insert' from the main menu bar

- Select 'Row' - this will insert a blank row at the top of your list
- Give the field the name 'Customer Number'
- Instead of choosing text, number etc. for the data type, select 'AutoNumber' from the drop down box (in the data type column)


AutoNumber will automatically insert a number into this field on each record. The number will be unique to each record.

Now that you have the field set up you need to identify it as the primary key:

- Make sure that the Customer Number field is selected
- Click on the key icon on the toolbar
- Or, select 'Edit'
- Select 'Primary Key'



You will see that a key is placed next to the field name, to identify the field as the primary key.

Field Name	Data Type
 Customer Number	AutoNumber
Title	Text

## ENTERING DATA INTO YOUR TABLE

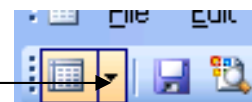
You have now set up your table! Before you do anything else you need to save it:

- Select 'File'
- Select 'Save'
- Give the table the name 'Customer Table'

The next step is to enter data into the table.

To enter data:

- From the toolbar, select the arrow next to the view icon
- From the drop-down box, select 'Datasheet view'



Customer Num	Title	Forename	Surname	Road	Town	County	Postcode	Home Telephone	Mobile Telephone	Age
(AutoNumber)										

You will see the table set out as above. Each column represents a field and each row represents a record.

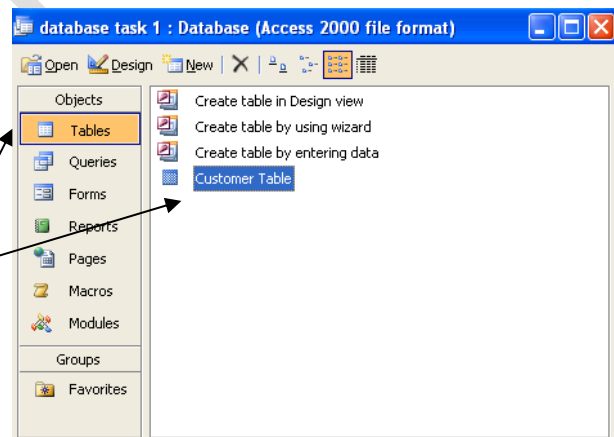
Add 3 records to your table. Remember Customer Number is automatically generated for you so you do not need to enter anything into this field.

Customer Num	Title	Forename	Surname	Road	Town	County	Postcode	Home Telephone	Mobile Telephone	Age
1	Miss	L	Blachford	Smith Street	Rugby	Warwickshire	CV22 5HT	01788123456	07970123456	
2	Mr	Peter	Robinson	Leamington Ro	Leamington Sp	Warwickshire	CV21 7WJ	01926453467	07967546282	
3	Mrs	Susan	Fredrick	Dury Street	Warwick	Warwickshire	CV21 2SJ	01926345242	07792020191	

Your table should look similar to the one shown above. Every person is a record (with a unique number to identify each) and every column is a field to record the details. Each record in a table has the same fields.

You should now SAVE your database:

- Select 'File'
- Select 'Save'
- Close the table - 'File' > 'Close'
- You will now see that your Customer table has been added to your list of tables on the main menu





## TASK

Now it's your turn....

1. You need to create a new *database* of DVDs that are in stock at a rental shop. Save the database as 'DVDs'
2. Create a new *table* in the database that has the following *fields*. You should call the table DVDs in store.
  - DVD title e.g. Pretty Woman
  - Director e.g. Randal Kleiser
  - Classification e.g. PG
  - Genre e.g. Musical
  - Starring e.g. John Travolta, Olivia Newton-John
  - Number of discs e.g. 1
  - Main Language e.g. English
  - Product Code e.g. 123456
3. Select appropriate data types for each of the fields you have created
4. Select appropriate field sizes for each of the fields
5. Select or insert an appropriate primary key
6. Make sure the table is saved
7. Add 3 records to the table

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