

## Setting up a basic database in Access 2016

1. Open Access. This is the screen that you should see

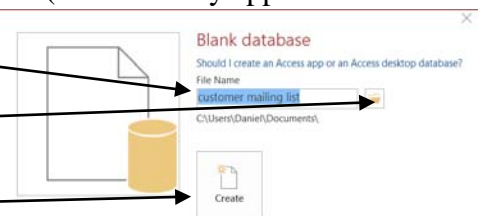


2. Click on 'Blank database'

3. Enter the name 'customer mailing list' in the 'file name' section (this will only appear after you have clicked on 'blank database')

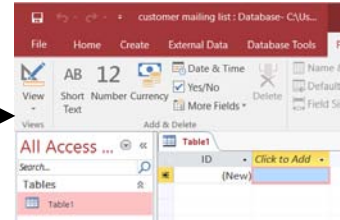
Choose a folder to save your new database into by clicking on the folder icon

Click the 'create' button



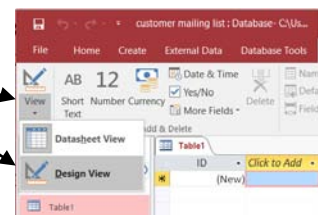
You have now set up a new database which at the moment contains no data or records

4. Now you need to start setting up your first table. Single click on 'Table1' to select it



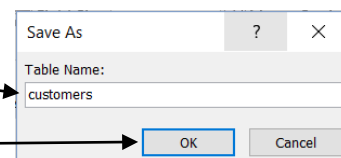
You are going to set up your table in design view

Go to 'view' and from the drop-down list select 'design view'

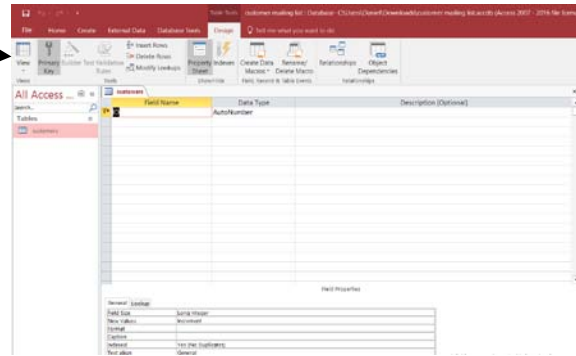


You will be asked to save your table and give it a name. Call it 'customers'

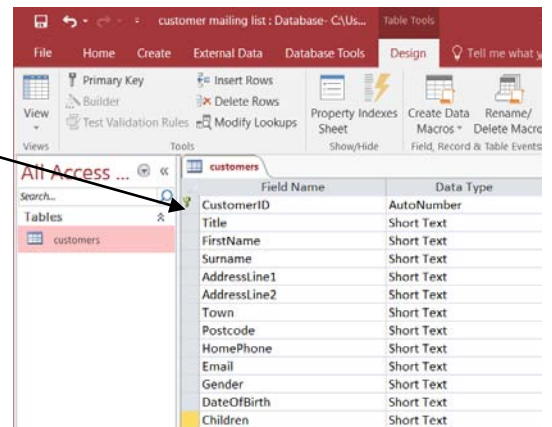
Click 'ok'



You should now be able to work on your table in design view. It should look something like this



5. Now you are going to set up your fields. Enter the field names as shown here



6. You might have noticed that the data type for most of the fields has defaulted to 'Short Text'.

The data type controls what type of data can be entered into a field. Here are some examples of data types you might use:

- Short Text                      Stores letters, numbers and symbols
- Number                         Used to store numbers, both positive, negative and decimals
- Date / Time                    Used to store dates and times
- Currency                       Used to store anything related to prices or money
- Yes / No                        Gives just two options – yes and no

Think about what will be stored in each field. Try to complete the table below.

Field name	Example of data stored	Data type
Title	Mr,	Short Text
First Name	John	Short Text
Surname	Doe	
Address Line 1	23 High Street	
Address Line 2	Little Big Village	
Town	Best Town	
Postcode	AB12 3CD	
Home Phone	01234 567890	
Email	johndoe@myemail.com	
Gender	Male	
Date of Birth	01/01/65	
Children	Yes	

This is what you should have come up with:

Field name	Example of data stored	Data type
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Title	Mr,	Short Text
First Name	John	Short Text
Surname	Doe	Short Text
Address Line 1	23 High Street	Short Text
Address Line 2	Little Big Village	Short Text
Town	Best Town	Short Text
Postcode	AB12 3CD	Short Text
Home Phone	01234 567890	Short Text
Email	johndoe@myemail.com	Short Text
Gender	Male	Short Text
Date of Birth	01/01/65	Date/Time
Children	Yes	Yes/No

### Phone number

You probably got most of them right with the exception of Home Phone. Most people are likely to have chosen 'number' and at first glance that would seem sensible. However, phone numbers should ALWAYS be stored as text.

Why? Because all phone numbers start with a 0 and if you store them as a number data type it will automatically drop the leading 0. Think about how you write numbers, you would put 234 not 0234.

The second reason is that data stored as a number might have calculations performed on it such as adding, multiplying etc. There is no reason whatsoever for ever wanting to add phone numbers together.

So, remember, phone numbers are always stored as 'short text'.

### CustomerID

The only field we haven't mentioned is 'customerID'.

If you have a look to the left of the name 'customer ID' you will notice a small key symbol. This means that this field is set as the primary key.

A primary key is a field within a database which ensures that every record can be uniquely identified. This is important because every record in a database must have something to uniquely identify it. Think about school, you all have a unique student number. If you have a bank account, you have a unique bank account number.

Now you can choose your own unique identifier for each record. Think about the Argos store, they have thousands of items all with their own product code to identify them. Argos had to make sure that each code was unique.

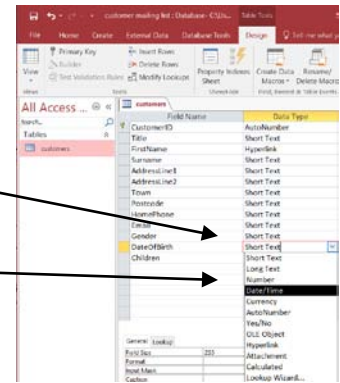
However, for your database you don't need to do this, you can use the data type 'autonumber'.

Autonumber means each time you create a new record i.e. add a new customer to the database, the autonumber data type will ensure that the customerID is given a new, unique number. So it will start at 1 and then the next record you add will be given the next unique number, i.e. 2 and so on.

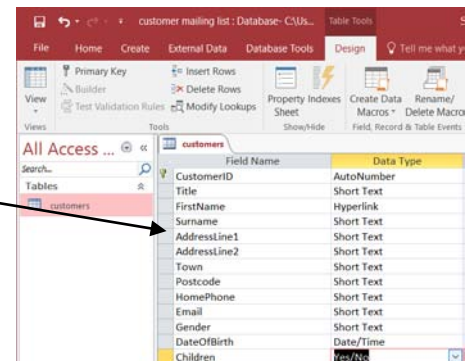
Now you know what the different data types for your fields should be you can change them in your database table.

Make sure you are in the 'data type' column, next to the correct field name and click your mouse.

An arrow will appear which opens up a drop-down box with all of the available data types



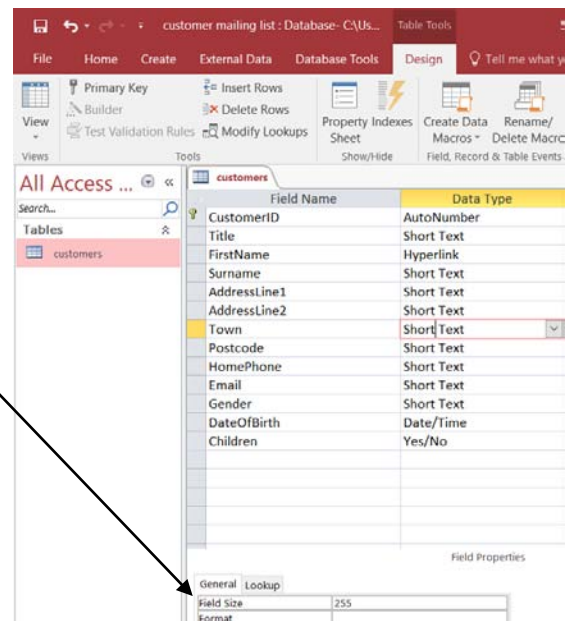
Your fields and data types should look like this



7. Access automatically gives each 'Short Text' data type field a maximum number of 255 characters that can be entered.

This can be seen if you click onto one of the text fields in your table. The field size will be shown in the 'field properties' section

None of your fields are going to have anything close to 255 characters entered. The 'title' field stores 'Mr', 'Mrs', 'Miss' or 'Ms', so this field really only needs a maximum of 4 spaces allowed. First name is unlikely to be more than 12 characters.



It is a good idea to make the field size smaller. This is because for every character space allowed one byte of storage is taken up. So a field size of 255 will take up 255 bytes of storage but in reality you might only be using up 5 of those character spaces.

Your database is small so it probably doesn't matter much, but in large scale databases it is very important to change the field size so that expensive storage isn't wasted and also the database doesn't become slow to search.

You are going to change the field size for your short text fields **only** (not number, date/time, yes/no or any other data type)

Click into the field called 'title' and the field size box will appear.  
Click into the 'field size' where it has defaulted to 255 characters and change it to 4.

Click into all your other 'Short Text' fields and think of the most letters you are likely to need for that field. Then change the 'Field size' number to something more appropriate.

## 8. Save your database table

## 9. You are going to put some validation into your database.

Validation provides a set of rules that are checked when you try to enter data into your table. If the data you entered breaks one of the rules then it will not allow you to continue and will probably give you an error message. For example, if you know that none of your customers is likely to have been born before 1920 then you could put a rule that checks the date of birth you entered is always after 1920. If you enter 1918 you will get an error message.

There are different types of validation rules and we will have a look at setting up a few of them.

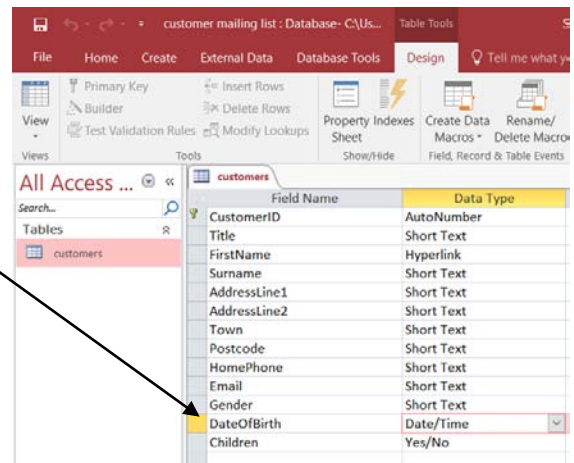
### Range check

Click onto the 'date of birth' field

In the 'field properties' section, click into 'validation rule'

You use the same symbols from maths:

- > greater than
- < less than
- = equal to



In the 'validation rule' box type >01/01/1920 and press your 'enter' key.

Access will automatically put # symbols in the correct place for you.

This means that you can only enter dates after 01/01/1920.

BUT, what if you wanted to enter 01/01/1920. At the moment the validation rule would stop you because only dates after this are allowed. Try amending the rule using the maths symbols above.

You have your rule in place and if you enter something wrong then you won't now be allowed to continue until you change it. However, if this was the first time you had seen the database you might not know that there was a validation rule in place and you certainly wouldn't know what it was. So, it is important to provide an error message to tell the user what they have done wrong and how to correct their mistake.

In the 'validation text' section enter a suitable error message, for example 'Please check that the year of birth entered is not before 1920'

10. Now try setting up a validation rule on the 'gender' field that will only allow you to enter 'M' or 'F'.

When you press your 'enter' key, Access will add speech marks in the correct places.

Write an appropriate error message

General		Lookup	
Format			
Input Mask			
Caption			
Default Value			
Validation Rule	>=#01/01/1920#		
Validation Text	Please check that the year of birth entered is not before 1920		
Required	No		
Indexed	No		
IME Mode	No Control		
IME Sentence Mode	None		
Text Align	General		
Show Date Picker	For dates		

General		Lookup	
Field Size	12		
Format			
Input Mask			
Caption			
Default Value			
Validation Rule	"M" Or "F"		
Validation Text	You must enter either M or F for gender		
Required	Yes		
Allow Zero Length	Yes		
Indexed	No		
Unicode Compression	Yes		
IME Mode	No Control		
IME Sentence Mode	None		
Text Align	General		

11. Sometimes it is very important that you do not forget to enter data into a field – it might be a problem if you want to contact your customers and find that you don't have their name or address stored.

We are going to make e-mail a 'required' field i.e. you will always be required to enter data into this field – you cannot leave it blank.

Click into the field called 'e-mail'

Go to the 'field properties' section

Look for 'Required' – at the moment it defaults to 'no'.

Click into 'Required' and an arrow will appear. Choose 'Yes'.

Now, you cannot leave this field blank when you come to enter data.

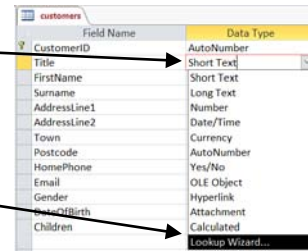
The screenshot shows the 'Field Properties' dialog box for the 'Email' field. The 'Required' property is set to 'Yes', and the 'Validation Text' property is set to 'Require data entry in this field!'. The 'Email' field is highlighted in yellow in the background table.

12. Some things you will find that you type in over and over again. This is a pain as it takes a lot of time to do, and there is the risk that one time you might make a mistake and enter 'Mis' instead of 'Miss'.

You are going to set up a drop down list that will give you a list of options for title



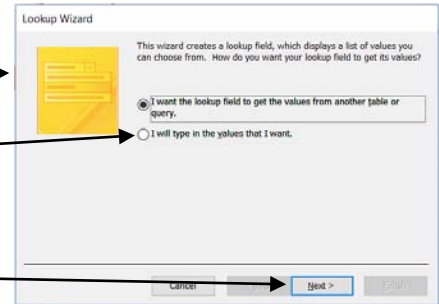
Click into the 'data type' area of 'title' field



The drop down box will appear.

This time, choose 'look up wizard'

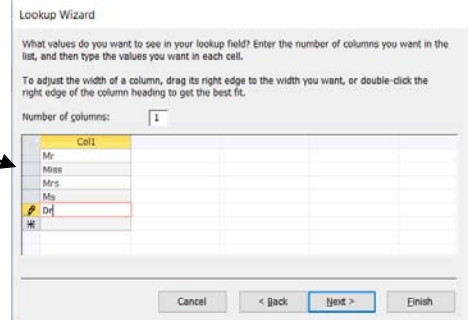
This box will appear.



Choose 'I will type in the values that I want'

Click 'Next'

Type in a list of the titles that you want to use



Click to go to the next row. If you press 'enter' it will take you to the next screen. If this happens just press the 'back' button.

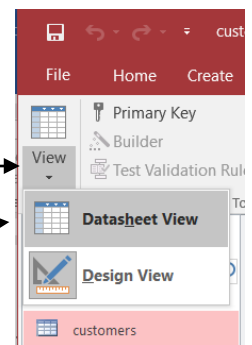
Click 'Next' again and then click 'Finish'

You can't see this list until you start entering your data in datasheet view but it is there.

Save your table.

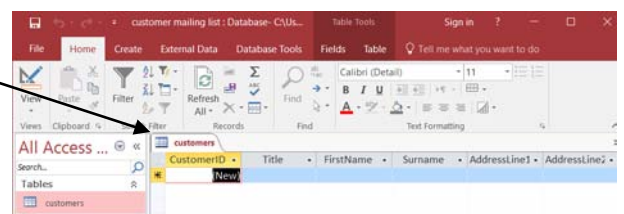
13. You have set up your table and now you are going to enter a few records into it.

Click on the arrow underneath 'view'



Choose 'datasheet view'. This is the view that you use to enter data directly into the table.

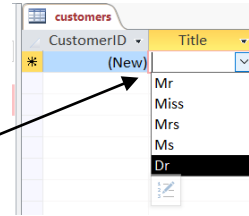
This is what your table should now look like



Don't enter anything into the 'CustomerID' field. The autonumber data type will automatically give it a new number when you start the first record. Just 'tab' across to the 'title' field.

Enter data for one customer.

You should see your drop-down box in the title field.



In the 'gender' field you should only be able to enter M or F – try something else and check you get your error message.

You should not be able to leave the email field blank – give it a go and see what happens.

Try entering a date of birth before 1920 and see what happens.

**14.** Enter at least five records into your table (make up the data).