MODELLING
IF...THEN

IF...THEN Function

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

IF….Then Function

Some functions do not calculate *values* but instead do logical tests using logical comparisons like

= (equal to)

< (less than)

> (greater than)

or the combinations <=, >=, <>.

Such a test allows you to do one thing when the comparison is TRUE and something different when it is FALSE.

 The IF function has three arguments inside parentheses (brackets) which are separated by commas:

- the comparison statement
- the cell value to use when the comparison is true
- the cell value to use when the comparison is false.

The general form of an IF function is –
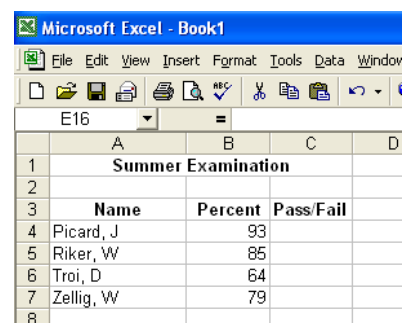
=IF(logical comparison, value if TRUE, value if FALSE)

A value can be a number, text within double quotes, a cell reference, a formula, or another logical test.

This probably sounds horribly complicated – it isn't really once you have had a go at a few.

TASK 1

- Open up a new worksheet.

- Set up the spreadsheet on the right

- We want to know whether students have passed or failed their examination. The pass mark is 70.

- If students have passed their exam, we want 'Pass' to be placed into column C. If they have failed their exam, we want 'Fail' to display.

- Click your mouse into cell C4

- We want to use the function wizard to help us write this formula.

- Click on the f_x button to the left of the formula bar.

- This screen will appear.

- Highlight 'IF' in the left hand pane and then click 'OK'
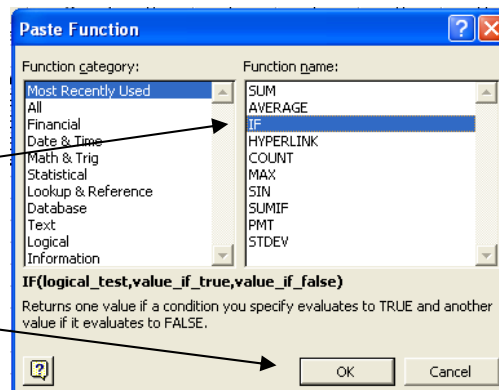
- This screen will now appear.

- There are three boxes that you need to complete.
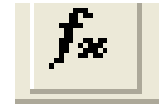
- The first box, 'Logical test' is where you need to put the cell reference that you are looking at and the condition that you are interested in.

- In this case, we want to know if cell B3 is greater than 70.

- To fill this section in, click into the logical test box

- Then click the blue and red button to the right hand side of
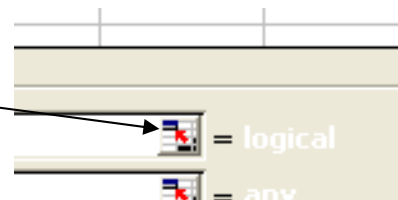
- This will allow you to click into cell B4.

- Once you have clicked into cell B4, press the return or enter key.

- You will see that B4 has appeared in the box
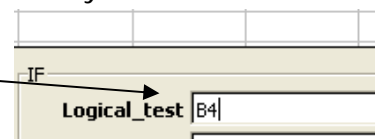
- Now that we have the cell we are interested in, we need to tell it what our condition is. In this case, we want to know if the result is over 70.
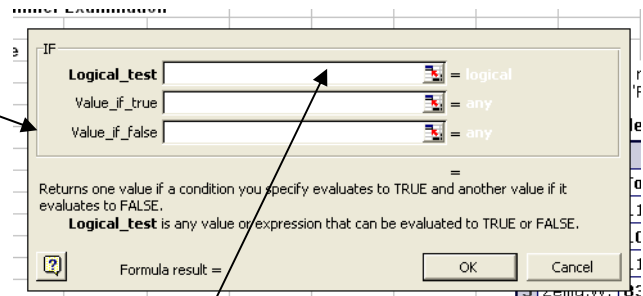
- We simply need to type >70 (greater than 70) next to B4 – no spaces needed.

- Once we have our Logical test in place, we simply need to tell it what we want to display if this condition is met (True) and what we want to display if this condition is not met (False).
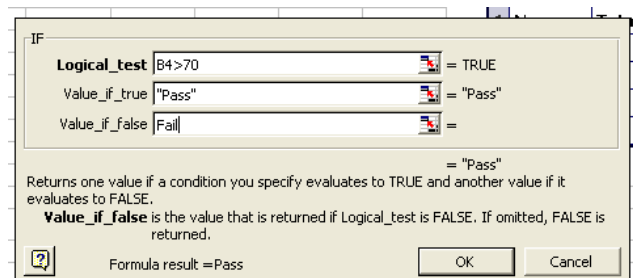
- In this case, if our condition is met (the exam mark is greater than 70), we want Pass to display, and if our condition is not met (the exam mark is less than 70), we want Fail to display.

- Fill in your box like the one shown here. You do not need to put the speech marks around the word 'Pass' – Excel will do that for you.

- When you have filled this in correctly, click 'OK' and you will see that 'Pass' has been displayed, because Picard.J did indeed get over 70 marks.

- Drag this formula down and check to see if the right pass/fail result has been displayed.

TASK 2

- Open a new worksheet

- Enter the data shown on the right.

- We have details here of five salespeople. They have a monthly sales target of £24,000.

- We need to know if they have met their sales target in cell B10.

- Because we want to include £24,000 in the test, we can't just put the symbol '>' or Joanna would be shown as not meeting her target. Thus this time, we need to use '>=' greater or equal to.

- So, click your mouse into cell C4.

- Click on the f_x button to the left of the formula bar.

- In the 'logical test' box, use the blue and red button to allow you to select cell B4 – after all, we are interested in whether David has met his sales target.
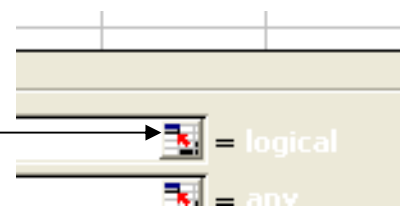
- Once you have B4 displayed in the logical test box, you need to write your condition.
- This condition needs to include >= and the cell reference which contains the sales target to be met.

- It should look something like this:

- In the 'value if true', type 'met'

- In the 'value if false' type 'not met'

- and click 'OK'.

- Drag your formula down.

- Your results should look something like this:

- Does that look right? Not really – Matthew and Olivia clearly haven't met their targets, and yet it is displaying 'Met'.

- What could have gone wrong?

- Remember the absolute cell reference from above? In this case, we are accessing one cell – B10 and then dragging the formula down. Excel is trying to be too helpful.

- We need to alter our formula so that when it is dragged down, it only looks at cell B10.

- Click into cell C4.

- Go to the formula bar and put dollar signs in front of the B and the 10 (B10).
- Your formula should look like this:

  - =IF(B4>=B10,"Met","Not met")

- Use autofill to drag the formula down to cells C5:C8

- Your results should now look like this:

- Check them closely – are they right? They should be now.

OK, now it's time for you to try some IF..Then functions on your own.

TASK 3

- Open a new worksheet

- Enter the data as shown on the right.

- If an athlete jumps 70m or more, they will qualify.

- Write a function that will display 'Qualify' if they have met or exceeded the 70m requirement, or 'Not Qualify' if they have jumped below this limit.

TASK 4

- Open a new worksheet

- Enter the data as shown on the right

- Make row 3 deeper as shown.

- Wrap the text in cells A3:D3 so that it looks similar to the example.

- Write a formula in cell D4 to display 'Yes' if the percentage attendance is below the 'average' in cell C9.

- Remember to use an absolute cell reference!

- Drag your formula down to cells D5:D7. Check that the results are what you expect.

TASK 5

Open a new worksheet

Enter the data as shown on the right.

In cells F4:F8 write a formula to calculate the total marks gained over the four week period.

If a student gains over 45 total marks in a four week period, they will be given a merit slip.

In cell G4, write a function that will display 'merit' if the mark is 45 or more and display 'no' if they have failed to earn a merit.