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Microsoft Excel 2007

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Scenarios in Excel 2007

Scenarios come under the heading of "What-If Analysis" in Excel 2007, similar to tables in that you are changing values to get new results. For What if I reduce the amount I'm spending on food? How much will I have? Scenarios can be saved, so that you can apply them with a quick click.

An example of a scenario you might want to create is a family budget. You make changes to individual amounts, like food, clothes, or fuel, and see how these changes effect your overall budget.

We'll see how they work now, as we tackle a family budget. So, create the spreadsheet below:

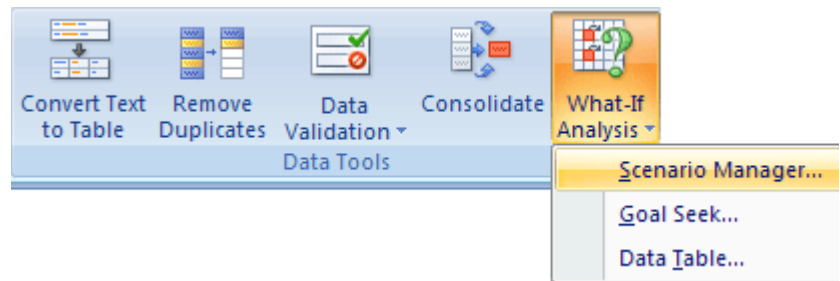
	A	B	C	D	E
1	The Family Budget				
2		OUTGOINGS		INCOME	
3	Mortgage	440		1200	
4	Fuel Bills	85			
5	Council Tax	45			
6	Credit Cards	29			
7	Food	280			
8	Clothes	150			
9	Phone Bill	45			
10	Direct Debits	80			
11					
12	Total Outgoings	1154			
13	Income Left			46	
14					

The figure in B12 above is just a SUM function, and is your total debts. D3 is how much you have to spend each month (not a lot!). The figure

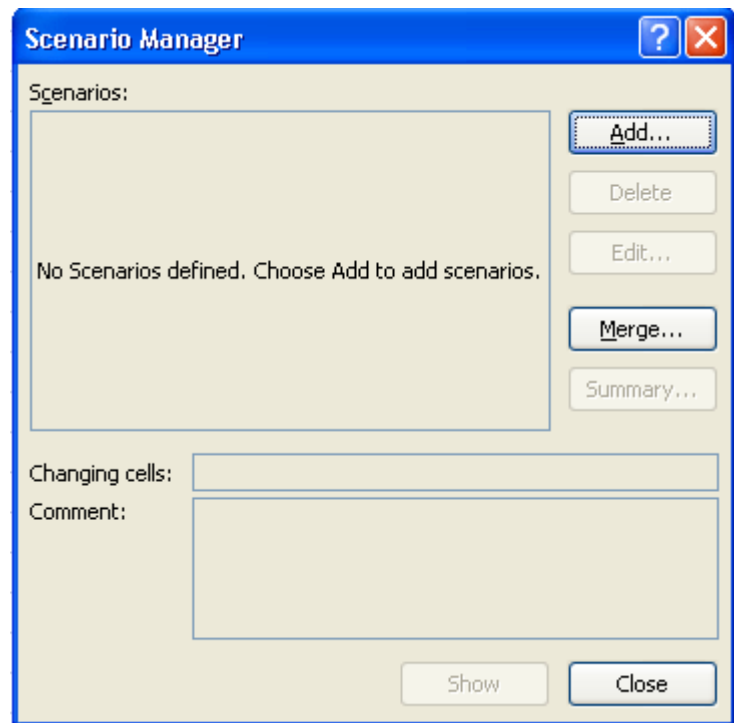
much you have left after you deduct all your debts.

With only 46 pounds spending money left each month, clearly some changes need to be made. We'll create a scenario to see what effect the various budget

- From the top of Excel click the **Data** menu
- On the Data menu, locate the **Data Tools** panel
- Click on the **What if Analysis** item, and select **Scenario Manager** menu:



When you click **Scenario Manager**, you should see the following dialogue



We want to create a new scenario. So click the **Add** button. You'll then see a dialogue box popping up:

Add Scenario

Scenario name:

Changing cells:

J22

Ctrl+click cells to select non-adjacent changing cells.

Comment:

Created by user on 09/11/2006

Protection

☒ Prevent changes

☐ Hide

OK Cancel

The J22 in the image is just whatever cell you had selected when you clicked the **Changing Cells** button. We'll change this. First, type a Name for your Scenario in the **Scenario Name** box. Call it **Original Budget**.

Excel now needs you to enter which cells in your spreadsheet will be changing in this first scenario, nothing will be changing (because it's our original). But we need to specify which cells will be changing. Let's try to reduce the Food, Clothes Bill, and the Phone bill. These are in cells B7 to B9 in our spreadsheet. In the **Changing Cells** box, enter B7:B9

Don't forget to include the colon in the middle! But your Add Scenario box should look like this:

Add Scenario

Scenario name:

Original Budget

Changing cells:

B7:B9

Ctrl+click cells to select non-adjacent changing cells.

Comment:

Created by Home and Learn

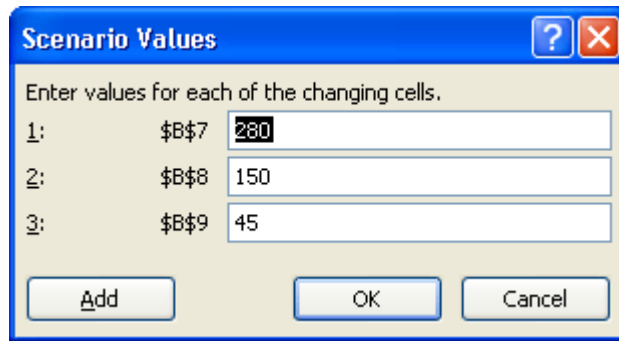
Protection

☒ Prevent changes

☐ Hide

OK Cancel

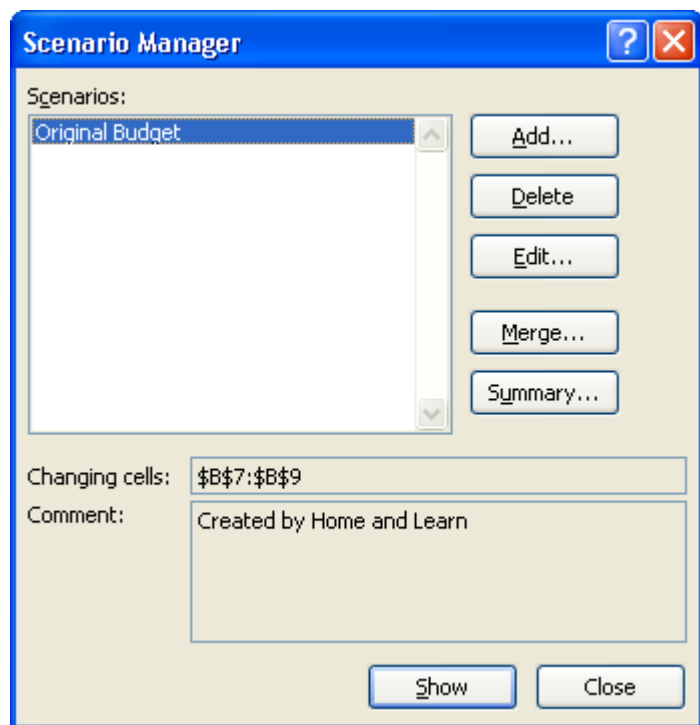
Click OK and Excel 2007 will ask you for some values:



The Scenario Values dialog box is shown with a blue title bar and standard window controls. It contains a text area with the instruction "Enter values for each of the changing cells." Below this are three input fields labeled 1:, 2:, and 3:. Each field has a cell reference to its left and a text box to its right. The values entered are 280, 150, and 45 respectively. At the bottom are three buttons: Add, OK, and Cancel.

Label	Cell Reference	Value
1:	\$B\$7	280
2:	\$B\$8	150
3:	\$B\$9	45

We don't want any values to change in this first scenario, so just click OK and taken back to the Scenario Manager box. It should now look like this:

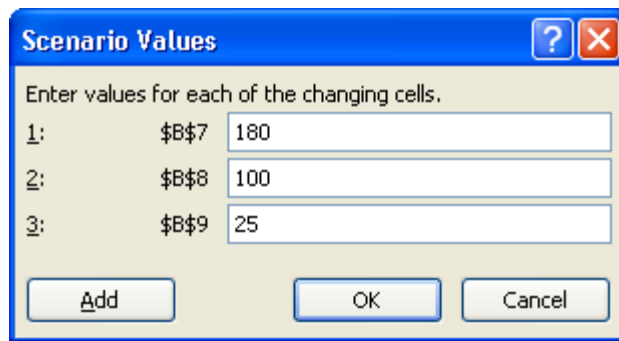


The Scenario Manager dialog box is shown with a blue title bar and standard window controls. It features a list box on the left labeled "Scenarios:" containing "Original Budget". To the right of the list box are five buttons: Add..., Delete, Edit..., Merge..., and Summary... Below the list box is a text field labeled "Changing cells:" containing "\$B\$7:\$B\$9". Below that is a text area labeled "Comment:" containing "Created by Home and Learn". At the bottom are two buttons: Show and Close.

Now that we have one scenario set up, we can add a second one. This time enter some new values - our savings.

Click the Add button again. You'll get the Add Scenario dialogue box with a new Name, something like **Budget Two**. The Changing Cells area should say B7:B9. So just click OK.

You will be taken to the Scenario Values dialogue box again. This time to change the values. Enter the same ones as in the image below:



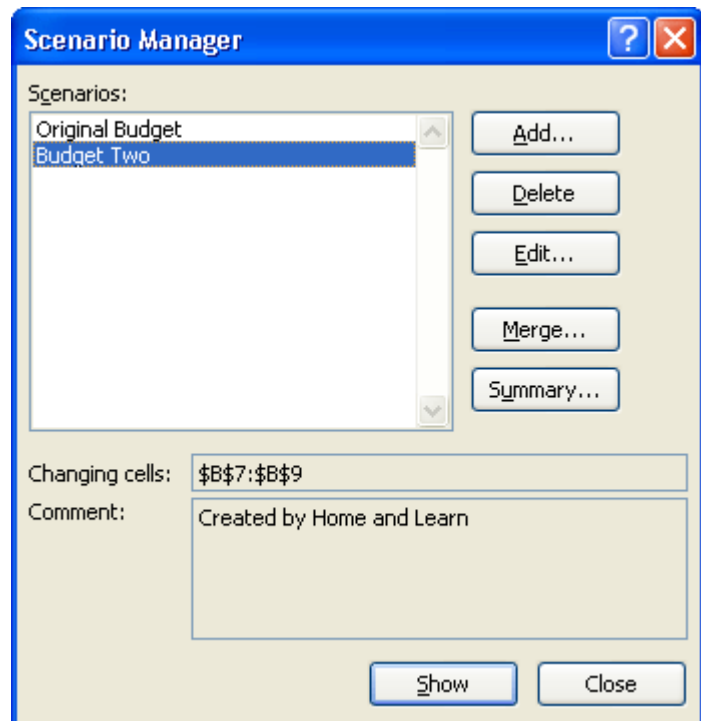
Scenario Values

Enter values for each of the changing cells.

1:	\$B\$7	180
2:	\$B\$8	100
3:	\$B\$9	25

Buttons: Add, OK, Cancel

These are the new values for our Budget. Click OK and you'll be taken to Scenario Manager. This time, you'll have two scenarios to view:



Scenario Manager

Scenarios:

- Original Budget
- Budget Two

Buttons: Add..., Delete, Edit..., Merge..., Summary...

Changing cells: \$B\$7:\$B\$9

Comment: Created by Home and Learn

Buttons: Show, Close

As you can see, we have our Original Budget, and Budget Two. With Budget Two selected, click the **Show** button at the bottom. The values in your spreadsheet will change, and the new budget will be calculated. The image below shows what it looks like in the spreadsheet:

	A	B	C	D	E
1	The Family Budget				
2		OUTGOINGS		INCOME	
3	Mortgage	440		1200	
4	Fuel Bills	85			
5	Council Tax	45			
6	Credit Cards	29			
7	Food	180			
8	Clothes	100			
9	Phone Bill	25			
10	Direct Debits	80			
11					
12	Total Outgoings	984			
13	Income Left			216	
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

?

×

Scenario Manager

Scenarios:

Original Budget

Budget Two

Add...

Delete

Edit...

Merge...

Summary...

Changing cells:

\$B\$7:\$B\$9

Comment:

Created by Home and Learn

Show

Close

Click on the Original Budget to highlight it. Then click the Show button. values will be displayed!

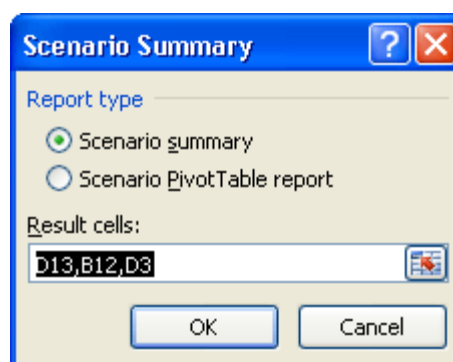
Click the **Close** button on the dialogue box when you're done.

So a Scenario offers you different ways to view a set of figures, and all switch between them quite easily.

How to Create a Report from a Scenario

Another thing you can do with a scenario is create a report. To create a report for your scenarios, do the following:

- Click on **Data** from the Excel menu bar
- Locate the **Data Tools** panel
- On the Data Tools panel, click **What if Analysis**
- From the What if Analysis menu, click **Scenario Manager**
- From the Scenario Manager dialogue box, click the Summary button to open the following dialogue box:



What you're doing here is selecting cells to go in your report. To change the report, click on your spreadsheet. Click individual cells by holding down the CTRL key on your keyboard, and clicking a cell with your left mouse button. Select the cells B12, D13, and D3. If you want to get rid of a highlighted cell, just click inside the CTRL key held down. Click OK when you've selected the cells. Excel will create your Scenario Summary:

Scenario Summary			
		Current Values:	Budget Two
Changing Cells:		Original Budget	
\$B\$7	280	280	180
\$B\$8	150	150	100
\$B\$9	45	45	25
Result Cells:			
\$D\$13	46	46	216
\$B\$12	1154	1154	984
\$D\$3	1200	1200	1200
Notes: Current Values column represents values of changing cells at the time Scenario Summary Report was created. Changing cells for each scenario are highlighted in gray.			

All right, it's not terribly easy to read, but it looks pretty enough. Perhaps enough to convince our family to change their ways. Unlikely, but a nice never hurts!

We'll now move on to Goal Seek.

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Goal Seek in Excel 2007

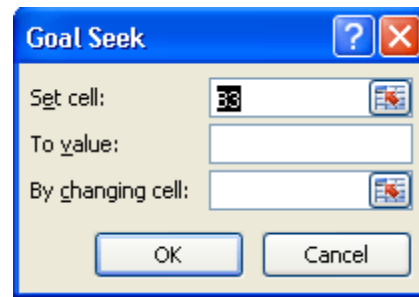
Goal Seek is used to get a particular result when you're not too sure of value. For example, if the answer is 56, and the first number is 8, what number? Is it 8 multiplied by 7, or 8 multiplied by 6? You can use Goal out. We'll try that example to get you started, and then have a go at a n example.

Create the following Excel 2007 spreadsheet

	B3			
	A	B	C	D
1	Number Certain	8		
2	Number Unsure	6		
3	Answer We Want	48		
4				

In the spreadsheet above, we know that we want to multiply the number in B2. The number in cell B2 is the one we're not too sure of. The number in cell B3. Our answer is wrong at the moment, because we have 48. To use Goal Seek to get the answer, try the following:

- From the Excel menu bar, click on **Data**
- Locate the **Data Tools** panel and the **What if Analysis** item. From the **What if Analysis** menu, select **Goal Seek**
- The following dialogue box appears:



The first thing Excel is looking for is "Set cell". This is not very well named. It means "Which cell contains the Formula that you want Excel to use". For us, the formula is in B3. We have the following formula in B3:

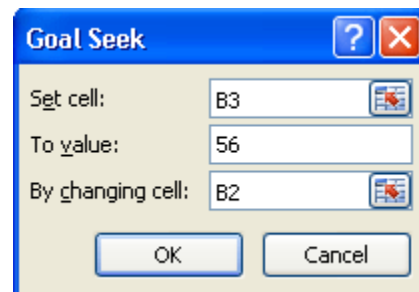
$$= B1 * B2$$

So enter B3 into the "Set cell" box, if it's not already in there.

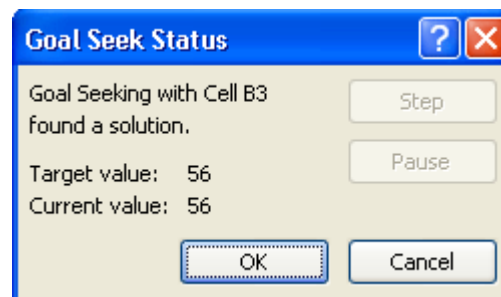
The "To value" box means "What answer are you looking for"? For us, we want the answer to be 56. So just type 56 into the "To value" box.

The "By Changing Cell" is the part you're not sure of. Excel will be changing the value of this cell to get the answer 56. For us, it was cell B2. We weren't sure which number, when multiplied by the value in B3, gives the answer 56. So type B2 into the box.

Your Goal Seek dialogue box should look like ours below:



Click OK and Excel will tell you if it has found a solution:



Click OK again, because Excel has found the answer. Your new spreadsheet will look like this one:

B3		fx	$= B1 * B2$	
	A	B	C	D
1	Number Certain	8		
2	Number Unsure	7		
3	Answer We Want	56		
4				

As you can see, Excel has changed cell B2 and replace the 6 with a 7 answer.

We'll now try a more practical example.

Goal Seek Number Two

Consider this problem:

Your business has a modest profit of 25,000. You've set your profit Goal of 35,000. At the moment, you're selling 1000 items each. Assume that you'll still sell 1000 items. The question is new profit of 35,000, by how much do you have to raise you

Create the spreadsheet below, and we'll find a solution with Goal Seek

J15		fx			
	A	B	C	D	E
1	Current Sales Figures			Future Sales Figures	
2	Items Sold	1000		Items Sold	
3	Price Per Item	£25.00		Price Per Item	£
4	Profits	£25,000.00		Profits	£25,0
5					

The spreadsheet is split into two: Current Sales, and Future Sales. We'll use the Future Sales with Goal Seek. But for now, enter the same values for both sections. The formula to enter for B4 is this:

$$= B2 * B3$$

And the formula to enter for E4 is this:

$$= E2 * E3$$

The current Price Per Item is 25.00. We want to change this with Goal Seek because our prices will be going up to hit our new profits of 35,000. So

- From the Excel menu bar, click on Data

- Locate the Data Tools panel and the What if Analysis item. From Analysis menu, select Goal Seek
- The following dialogue box appears:

The Goal Seek dialog box is shown with the following fields:

- Set cell:** E4
- To value:** (empty)
- By changing cell:** (empty)

Buttons: OK, Cancel

For "Set cell", enter E4. This is where the formula is. The "To Value" is our new profits to be. So enter 35000. The "By changing cell" is the price of. For us, this was the price each item needs to be increased by. coming from cell E3 on our spreadsheet. So enter E3 in the "By changing cell". Your Goal Seek dialogue box should now look like this:

The Goal Seek dialog box is shown with the following fields:

- Set cell:** E4
- To value:** 35000
- By changing cell:** E3

Buttons: OK, Cancel

Click OK to see if Excel can find an answer:

The Goal Seek Status dialog box is shown with the following information:

- Goal Seeking with Cell E4 found a solution.
- Target value: 35000
- Current value: £35,000.00

Buttons: Step, Pause, OK, Cancel

Excel is now telling that it has indeed found a solution. Click OK to see version of the spreadsheet:

	A	B	C	D	E
1	Current Sales Figures			Future Sales Figures	
2	Items Sold	1000		Items Sold	
3	Price Per Item	£25.00		Price Per Item	£35,000.00
4	Profits	£25,000.00		Profits	£35,000.00
5					

Our new Price Per Item is 35. Excel has also changed the Profits cell to

Exercise

You've had a meeting with your staff, and it has been decided that a price from 25 to 35 is not a good idea. A better idea is to sell more items. Your profit of 35 000. Use Goal Seek to find out how many items you'll have with your new profit figure.

In the next part, we'll take a closer look at cell references in Excel 2007

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Data Tables in Excel 2007

In Excel, a Data Table is a way to see different results by altering an in formula. As an example, we're going to alert the interest rate, and see how much a £10,000 loan would cost each month. The interest rate will be our input. By asking Excel to alter this input, we can quickly see the different monthly payments. Want to know how much we'd pay back each month if the interest was 20 percent a year. But other banks may be offering better deals. So we'll ask Excel to calculate how much we'd pay each month if the interest rate was 22 percent a year, and 18 percent a year.

The formula we need is the Payment one you met in [a previous section](#). Here it is again:

PMT(rate, nper, pv, fv, type)

We only need the first three arguments. So for us, it's just this:

PMT(rate, nper, pv)

Rate means the interest rate. The second argument, **nper**, is how many payments you've got to pay the loan back. The third argument, **pv**, is how much you borrow.

Let's make a start then. On a new spreadsheet, set up the following layout:

	A	B	C	D
1	Payment Terms			
2				
3	Interest Rate			
4	Num of Months			
5	Loan Amount			
6				

So we'll put our starting interest rate in cell B3 (**rate**), our loan length in (**nper**), and our loan amount in cell B5 (**pv**).

Enter the following in cells B3 to B5:

	A	B	C	D
1	Payment Terms			
2				
3	Interest Rate	24.00%		
4	Num of Months	60		
5	Loan Amount	£10,000.00		
6				

So you need to enter 24.00% in cell B3, 60 in cell B4, and £10,000 in c

We'll enter our formula now. Click inside cell D2 and enter the following

=PMT(B3 / 12, B4, -B5)

Cell B3 is the interest rate. But this is for the entire year. In the formula, whatever is in cell B3 by 12. This will get us a monthly interest rate. B4 is the number of months, which is 60 for us. B5 has a minus sign before minus figure because it's a debt.

When you press the enter key on your keyboard, Excel should give you £287.68.

Now that we have our function in place, we can create an Excel Data Table though, we need to tell Excel about those other interest rates. It will work out the new monthly payments. Remember, Excel is recalculating function. So it needs some new values to calculate with.

So enter some new values in cells C3, C4, and C5. Enter the same one image below:

	A	B	C	D
1	Payment Terms			
2				£287.6
3	Interest Rate	24.00%	22.00%	
4	Num of Months	60	20.00%	
5	Loan Amount	£10,000.00	18.00%	
6				

We have put the PMT function in cell D2 for a reason. This is one Row Column to the right of our first new interest rate of 22%. The new montl are going to go in cells D3 to D5. Excel needs the table setting out this

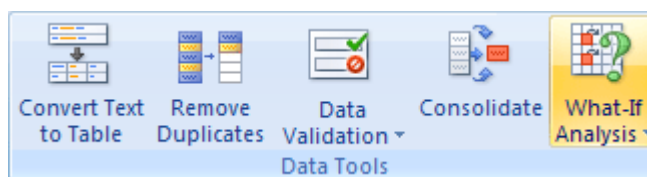
So that Excel can work out the new totals, you have to highlight both th and the Function you're using.

So Highlight the cells C2 to D5. Your spreadsheet should look like this:

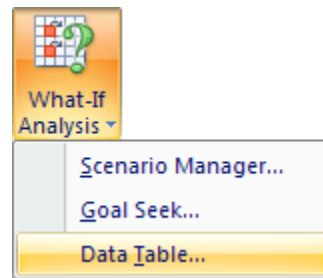
	A	B	C	D
1	Payment Terms			
2				£287.68
3	Interest Rate	24.00%	22.00%	
4	Num of Months	60	20.00%	
5	Loan Amount	£10,000.00	18.00%	
6				

As you can see, the cells C2 to D5 are now highlighted. This includes c interest rate values in the C column, and our PMT function in cell D2. V create an Excel 2007 Data Table. This will work out new monthly payer So do this:

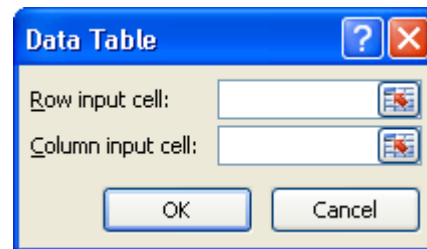
- From the Excel menu bar, click on **Data**
- Locate the **Data Tools** panel
- Click on the "What if Analysis" item:



When you click on the "What if Analysis" item, you'll see the following n



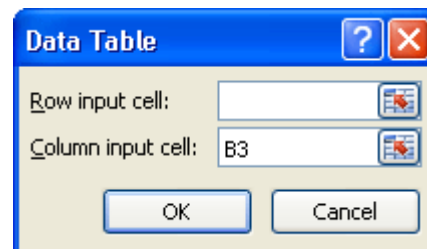
Click on **Data Table**, and you'll see this small dialogue box:



In the dialogue box, there is only a **Row input cell** or a **Column input** Excel to fill downwards, down a column. So we need the second text box dialogue box "Column input cell". If we were filling across in rows, we would use the "Row input cell" text box.

The Input Cell for us is the one that contains our original interest rate. That's the one you want Excel to substitute.

So click inside the Column input cell box and enter B3:



Click OK. When you do, Excel will work out the new monthly payments

	A	B	C	D
1	Payment Terms			
2				£287.6
3	Interest Rate	24.00%	22.00%	£276.1
4	Num of Months	60	20.00%	£264.9
5	Loan Amount	£10,000.00	18.00%	£253.9
6				

So if we could get an 18 percent interest rate, our monthly payments would be £253.93.

If you click inside any of the cells D3 to D5, then look at the formula bar, you will see this:

{=TABLE(B3)}

That's Excel's way of telling you that a Table has been created, based on the data in cell B3

We'll try one more Data Table in the next part. We'll try an easier formula

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A Second Data Table

We'll do one more [Data Table](#), just so that you get the hang of things. I'll use a more simple formula than PMT, and we'll use Rows instead of Columns for the scenario:

You have 250 items that you want to sell on EBay. Your unit price is this - All items are only £5 each! Except, you feel £5 is a bit expensive for the goods you're selling! What you want to know is how much profit you'll make if you reduce your prices to £4.50, then to £4.00, and how much for a reduction to £3.50 if everything gets sold.

To start creating your Table, construct a spreadsheet like the one below that you start on a new sheet.

	A	B	C	D	E
1	Number of Items	250			
2	Price Per Item	£5.00			
3	Reductions	0	£4.50	£4.00	£3.50
4	Profits				
5					

In cell B1 is the number of items we want to sell (250). Cell B2 has the price (£5.00). And the **Reductions** Row has our new values. Cell B3 has a 0 as there's no reduction for £5.00. Row 4 is where our Profits will go.

The formula to work out the profits is simply the **Number of Items** multiplied by the **Price Per Item**. So click inside cell B4 and enter the following formula:

$$= B1 * B2$$

Your spreadsheet will then look like this:

	A	B	C	D	E
1	Number of Items	250			
2	Price Per Item	£5.00			
3	Reductions	0	£4.50	£4.00	£3.50
4	Profits	£1,250.00			
5					

So if we manage to sell all our items at £5, we'll make £1,250. We're a bit of a fool though. Realistically, all our items won't sell at this price! Let's use an Excel Data Table to work out how much profit we'd make at the other prices.

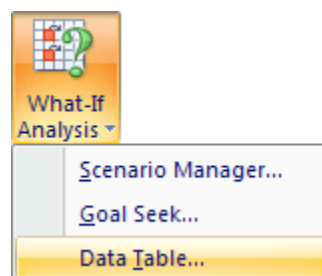
Again, we put the answer in cell B4 for a reason. This is because when Excel calculates a Data Table in Rows, the formula must be inserted in the Left of your first new value, and then one Row down. Our first new value is in cell C3. So one column to the left takes us to the B column. One row down is row 4. So the formula goes in cell B4.

Next, click inside cell B3 and highlight to cell E4. Your spreadsheet should look like this one:

	A	B	C	D	E
1	Number of Items	250			
2	Price Per Item	£5.00			
3	Reductions	0	£4.50	£4.00	£3.50
4	Profits	£1,250.00			
5					

Excel is going to use our formula in cell B4. It will then look at the new values in Row 3 (not counting the zero), and then insert the new totals for us. To create the Data Table then, do the following:

- From the Excel menu bar, click on **Data**
- Locate the **Data Tools** panel
- Click on the "What if Analysis" item
- Select **Data Table** from the menu

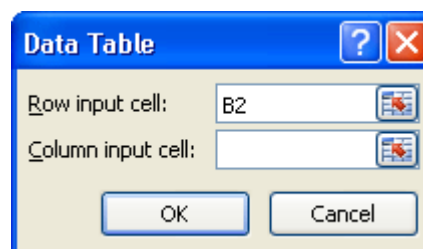


Just like last time, you'll get the Data Table dialogue box. The one we've used before though, is Row Input Cell. But what is the Input Cell this time?

Ask yourself what you are trying to work out, and what you want Excel to work out the new prices. The formula you entered was:

$$= B1 * B2$$

Excel is going to be changing this formula. You only need to decide if you want to alter the B1 or the B2. B1 contains the number of items; B2 contains the price per item. Since we're trying to work out the profits we'd get if we change the price, we need Excel to change B2. So enter B2 for the Row Input Cell:



When you click OK, Excel will work out the new profits:

	A	B	C	D	E
1	Number of Items	250			
2	Price Per Item	£5.00			
3	Reductions	0	£4.50	£4.00	£3.50
4	Profits	£1,250.00	£1,125.00	£1,000.00	£875.00
5					

So setting a price of £3.50 per item, you'd make £875 profit. You'd make £4.00 per item, and £1,125 if you sell for £4.50.

Hopefully, Data Tables weren't too difficult! But they are a useful tool to analyse values that can change. In the next section, we'll take a look

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Named Ranges in Excel 2007

A Named Range is way to describe your formulas. So you don't have to refer to a cell:

= SUM(B2:B4)

You can replace the cell references between the round brackets. You can use a descriptive name, all of your own. So you could have this, instead:

= SUM(Monthly_Totals)

Behind the Monthly_Totals, though, Excel is hiding the cell references. But it works, now.

Open up Excel 2007, and create the spreadsheet below:

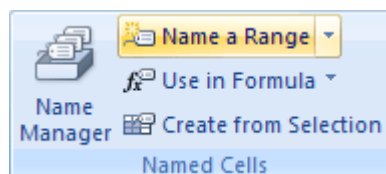
	B5			=SUM(B2:B4)
	A	B	C	D
1		Monthly_Totals	Monthly_Tax	
2		124	12	
3		234	23	
4		344	34	
5	Results	702		
6				

The formula is in cell B5, and just adds up the monthly totals in the B column.

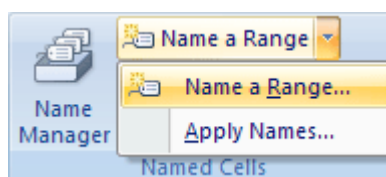
Define a Name

Setting up a Named Range is a two-step process. You first Define the Name, then you Apply it. To Define your name, do this (make sure you have the cell B5):

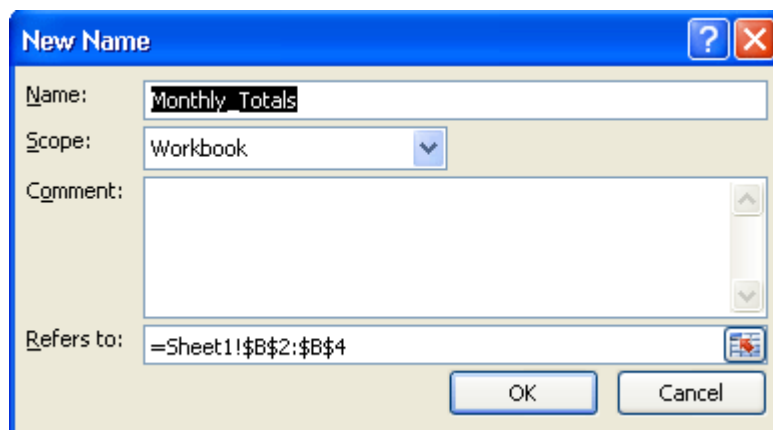
- Highlight the cells B2 to B4 (NOT B5), then click the Formulas menu
- Locate the Named Cells panel
- Click Name a Range



From the **Name a Range** menu, click **Name a Range**:



You'll then get the following dialogue box:



Click OK on the New Name dialogue box. Notice that the Name is our **Monthly_Totals**.

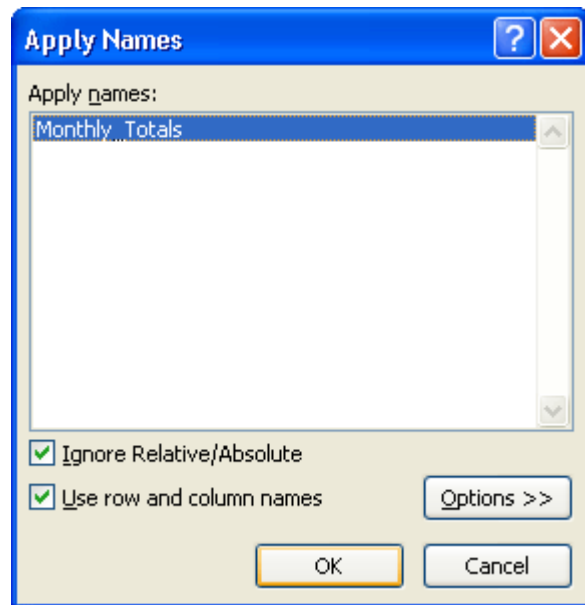
When you click OK, you'll be returned to your spreadsheet. You won't see any changes. But what you have done is to Define a Name. You can now Apply the Name.

Apply a Name

To apply your new Name, click into cell B5 where your formula is, and then click the Formulas menu.

- On the **Named Cells** panel, Click **Name a Range**

- From the menu, select **Apply Names**
- From the Apply Names dialogue box, select the Name you want to apply



When you click OK, Excel should remove all those cell references between brackets, and replace them with the Name you defined:

B5		fx =SUM(Monthly_Totals)		
	A	B	C	D
1		Monthly_Totals	Monthly_Tax	
2		124	12	
3		234	23	
4		344	34	
5	Results	702		
6				

In the image above, cell B5 now says:

=SUM(Monthly_Totals)

The cell references have been hidden. But Excel still knows about them and can't see them!

Exercise

Study the spreadsheet below, now that we have added another Name called C5:

	C5		$\sum$	= SUM(Monthly_Tax)
	A	B	C	D
1		Monthly_Totals	Monthly_Tax	
2		124	12	
3		234	23	
4		344	34	
5	Results	702	69	
6				

Using the same techniques just outlined, create the same Named Range image above. Again, the formula we've used is just a SUM formula:

= SUM(C2:C4)

You need to start with this, before you Define the Name and Apply it.

Using Named Ranges in Formulas

We'll now use two Named Ranges to deduct the tax from our monthly t

So, to define two new Names, do the following:

1. Click inside cell B5 to highlight it
2. From the **Formulas** menu bar, locate the **Named Cells** panel, and **a Range > Name a Range**
3. From the **New Name** dialogue box, click in to the **Name** textbox and enter **Monthly_Result** (with the underscore character)
4. Click OK
5. Click inside cell C5 and do the same as step 2 above. This time, I enter **Tax_Result** as the Name

You should now have two new Names defined. We'll now Apply these Names. First, add a new label to your spreadsheet:

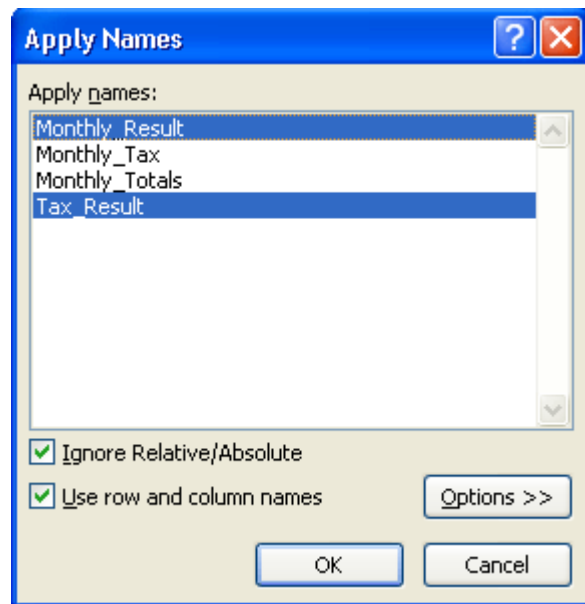
	B7		$\sum$	= B5 - C5
	A	B	C	D
1		Monthly_Totals	Monthly_Tax	
2		124	12	
3		234	23	
4		344	34	
5	Results	702	69	
6				
7	Final Total	633		
8				

Click in to cell B7, next to your new label, and enter the following formula

$$= B5 - C5$$

With the formula in place, we can Apply the two new Names we've just

- From the **Formulas** menu bar, locate the **Named Cells** panel, and a **Range > Apply Names**
- The Apply Names dialogue box appears
- Click **Monthly_Result** to select it
- Click on **Tax_Result** to select it:



- Click the OK button
- Excel will replace your cell references with the two Names you Defined
- Your spreadsheet should look like ours:

B7		fx		= Monthly_Result - Tax_Resu	
	A	B	C	D	
1		Monthly_Totals	Monthly_Tax		
2		124	12		
3		234	23		
4		344	34		
5	Results	702	69		
6					
7	Final Total	633			
8					

If you look at the formula bar, you'll see the two Named Ranges. The formula is easier to read like this. But it's not terribly easy to set up! They can be useful though.

In the next part, we'll take a look at Pivot Tables.

[< -- Absolute Cell References](#) | [Pivot Tables in](#)

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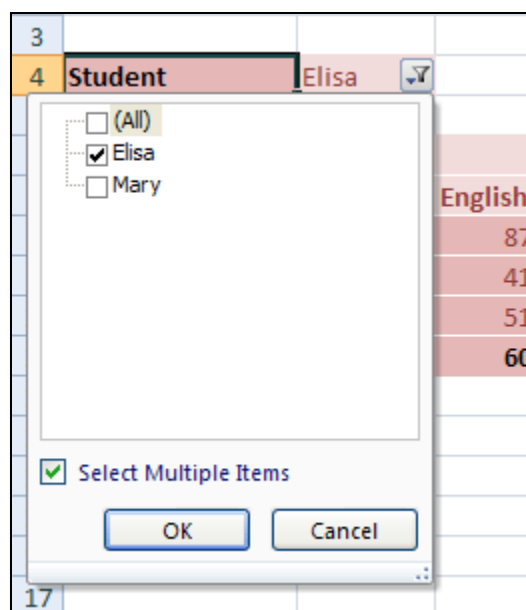
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Pivot Tables in Excel 2007

A Pivot Table is way to present information in a report format. The idea can click drop down lists and change the data that is being displayed. For example, you can choose just one student from a drop down list and view only his or her scores. Pivot tables are a lot easier to grasp when you see them in action. Here's the one we're going to create in this section:

3								
4	Student	Elisa						
5								
6	Student Averages	Subject						
7	Month	Art	English	French	History	Maths	Science	Grand
8	January	89	87	62	81	65	58	
9	March	92	41	56	91	71	41	
10	Febuary	83	51	57	84	72	89	
11	Grand Total	88	60	58	85	69	63	
12								
13								

Look at Row 4. This shows that the student is Elisa. If we click Elisa's cell, we'll see this:



Now we have another student to select (we'll only use two students, for example). We could untick Elisa, and tick Mary instead. Then her scores would display.

The Subject and Month cells also have drop down lists. So we could view January's scores, and just for Art and English, for example. So this is a Pivot Table - a report that we can manipulate by selecting in the drop down lists. Let's make a start.

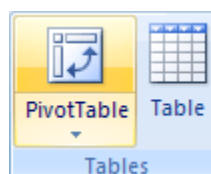
The first thing you need for a Pivot Table is some data to go in it. Instead of creating the data out, you can simply grab ours. Go to this web page on our website to download the spreadsheet to your own hard drive:

[Download the Data for the Pivot Table](#) (Right click and select **Save Link As...**)

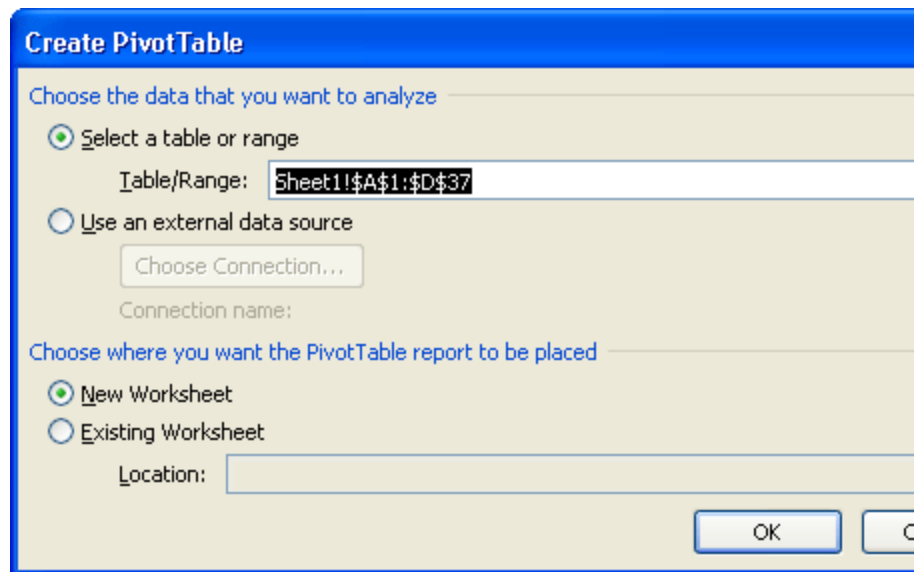
Once the spreadsheet is on your own computer, open it up. You should see something like this:

[The Pivot Table Data in an Excel 2007 Spreadsheet](#) (New version available)

Highlight the data that will be going in to your Pivot Table (cells A1 to D13). Then, on the Excel 2007 menu bar, click **Insert**. From the Insert menu, locate the **Tables** group.



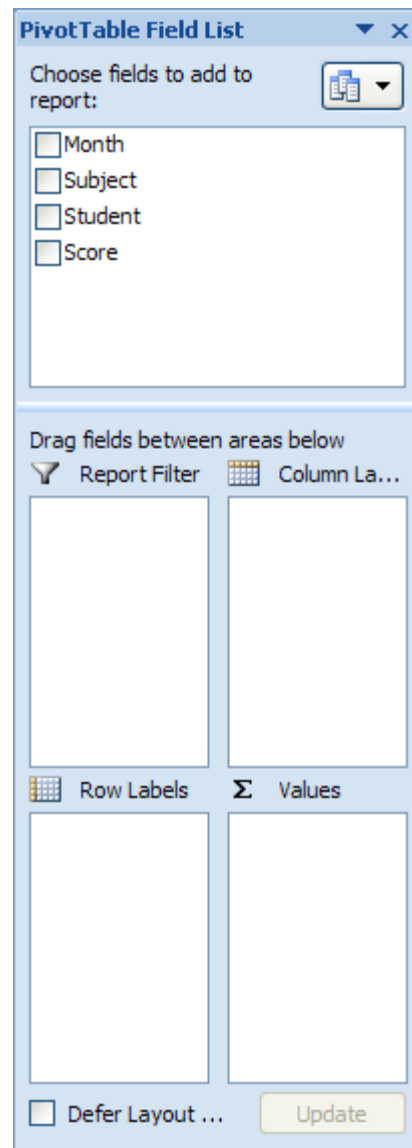
On the **Tables** panel click **Pivot Tables**. The **Create Pivot Tables** dialog box appears:



In the dialogue box above, the data that we highlighted is in the **Table/Range** textbox. You can select different cells by clicking the icon to the right of Table/Range textbox. You can also specify an external data source, such as a file, for the data in your Pivot Table.

We've selected a **New Worksheet** as the place where the Pivot Table report should be placed. Click OK.

When you click OK, Excel 2007 presents you with a rather complex layout. The layout on the right should look something like this one below:



It helps to have a look again at what we're trying to create. Here's the completed Pivot Table again:

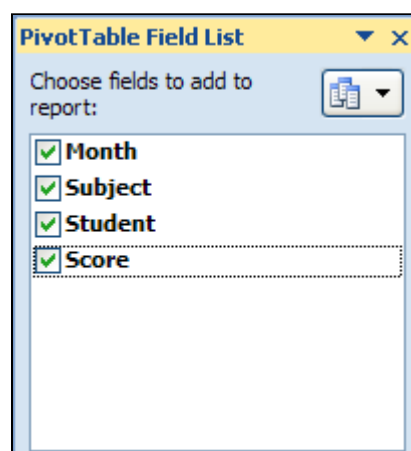
3								
4	Student	Elisa						
5								
6	Student Averages	Subject						
7	Month	Art	English	French	History	Maths	Science	Grand Total
8	January	89	87	62	81	65	58	
9	March	92	41	56	91	71	41	
10	February	83	51	57	84	72	89	
11	Grand Total	88	60	58	85	69	63	
12								
13								

Now take a look at the **Pivot Table Field List** image again, the one above.

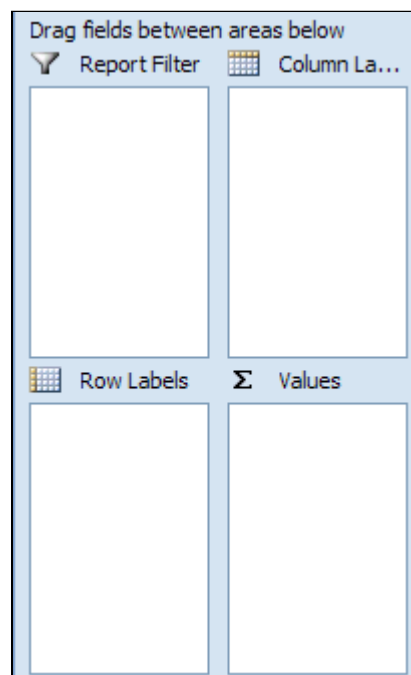
completed pivot table. It has tick boxes for Month, Subject, Student, and Score. These are column headings from the original spreadsheet data. We've placed the Pivot Table in cell A7, Subject is in cell B6, Student is in cell B4, and the Average scores in cells C8 to G10. You'll see how it works, though.

The idea is that you tick a box in the Pivot Table Field List, and then drag the field to one of the areas below. Excel 2007 will take care of the rest.

So, tick all four boxes in the field list:

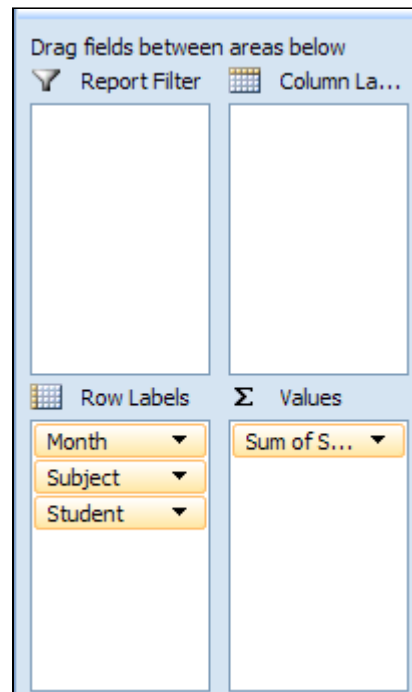


Excel will create a basic (and messy) Pivot Table for you. But we're going to move the fields into the 4 areas below. Here's the 4 areas we can drag to:



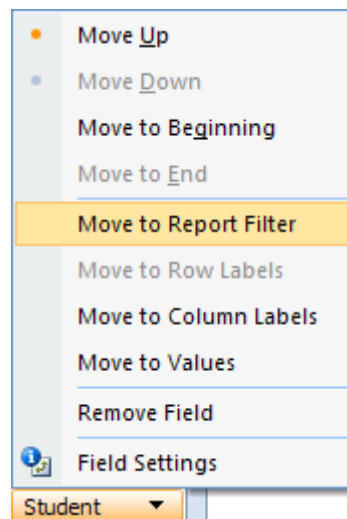
For the **Report Filter**, we want the name of a Student. For the **Column Labels**, we want the Subject, and for the **Row Labels**, we'll just have the Month. The Values area will be the Average scores.

If you look at the Field areas after you have ticked all four boxes, howe see something like this:



Month, Subject and Student have all been grouped under **Row Labels** and drop these, though.

So click on **Student** in the **Row Labels** box. Hold down your left mouse button then drag it in to the **Report Filter** box. If you don't fancy dragging and simply click the Student item with your left button. From the menu that appears select **Move to Report Filter**:



Your Field areas will then look like this:

Drag fields between areas below

Report Filter Column Labels

Student

Row Labels Values

Month Subject

Sum of S...

Move Subject from **Row Labels** to the **Column Labels** area:

• Move Up
 • Move Down
 Move to Beginning
 Move to End
 Move to Report Filter
 Move to Row Labels
 Move to Column Labels
 Move to Values
 Remove Field
 Field Settings

Subject

Your Field areas will then look like this:

Drag fields between areas below

Report Filter Column La...

Student Subject

Row Labels Values

Month Sum of S...

The Pivot Table on your spreadsheet will look a lot different, too. It should look like this:

	A	B	C	D	E	F	G	H
1	Student	(All)						
2								
3	Sum of Score	Column Labels						
4	Row Labels	Art	English	French	History	Maths	Science	Grand Total
5	January	150	174	154	139	118	93	828
6	March	140	82	146	158	106	82	714
7	February	142	119	150	145	126	145	827
8	Grand Total	432	375	450	442	350	320	2369
9								

Our Pivot Table is coming along, but the scores are all wrong, and it needs a bit. We'll continue this tutorial in the next part, below.

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This tutorial continues from [the previous part](#).

Pivot Tables - Part Two

The reason why the scores from our Pivot Table are so strange is because we are using the wrong formula. It's using a Sum total when we want it to use an average.

Here's the Pivot Table so far:

	A	B	C	D	E	F	G	H
1	Student	(All)						
2								
3	Sum of Score	Column Labels						
4	Row Labels	Art	English	French	History	Maths	Science	Grand Total
5	January	150	174	154	139	118	93	
6	March	140	82	146	158	106	82	
7	February	142	119	150	145	126	145	
8	Grand Total	432	375	450	442	350	320	2074
9								

The numbers have all been added up. But we want averages, instead. To change the formula, click on **Sum of Score** under the **Values** field area:

Drag fields between areas below

Report Filter Column Labels

Student Subject

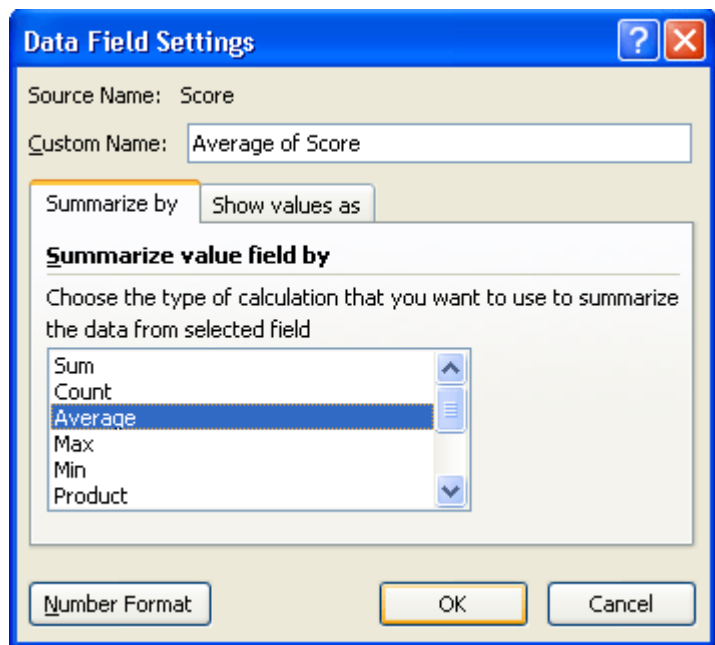
Row Labels Values

Month Sum of S...

You'll see the following menu:

- Move Up
- Move Down
- Move to Beginning
- Move to End
- Move to Report Filter
- Move to Row Labels
- Move to Column Labels
- Move to Values
- Remove Field
-  Field Settings
- Sum of Score ▾

Select, Field Settings to see the following dialogue box:



Change the Formula from Sum to **Average**, and then click OK. Your Averages won't be formatted to any decimal places. So highlight your data. On the Excel 2007 ribbon, locate the Number panel. Format your Averages so that it displays two decimal places. Your Pivot Table will then look like this:

	A	B	C	D	E	F	G
1	Student	(All)					
2							
3	Average of Score	Column Labels					
4	Row Labels	Art	English	French	History	Maths	Science
5	January	75	87	77	70	59	4
6	March	70	41	73	79	53	4
7	February	71	60	75	73	63	7
8	Grand Total	72	63	75	74	58	5
9							
10							

Almost there!

Look at cells A3, B3 and A4 above. These all have the not very descriptive labels: Average of Score, Column Labels, and Row Labels. You can click inside these cells and type your own headings, in exactly the same way as you would to edit a normal cell.

In the new version of the Pivot Table below, we have renamed these cells to be more descriptive and centred the data.

	A	B	C	D	E	F	G
1	Student	(All)					
2							
3	Student Averages	Subject					
4	Month	Art	English	French	History	Maths	Scien
5	January	75	87	77	70	59	47
6	March	70	41	73	79	53	41
7	Febuary	71	60	75	73	63	73
8	Grand Total	72	63	75	74	58	53
9							

Only one thing left to do - spruce up the table by adding a bit of colour.

Click anywhere on your Pivot Table to highlight it. Now look at the men
Excel 2007. You'll notice a Design menu. Click on this to see the variou

The **Pivot Table Style Options** panel is interesting.

☒ Row Headers
 ☐ Banded Rows

☒ Column Headers
 ☐ Banded Columns

PivotTable Style Options

Select **Banded Rows** and see what happens. Now click **Banded Colu**

Next to this panel, there are lots of Pivot Table Styles to chose from. St
catches your eye. Here's our finished Pivot Table again, only with a diff

	A	B	C	D	E	F	G	
1	Student	(All)						
2								
3	Student Averages	Subject						
4	Month	Art	English	French	History	Maths	Science	Gr
5	January	75	87	77	70	59	47	
6	March	70	41	73	79	53	41	
7	Febuary	71	60	75	73	63	73	
8	Grand Total	72	63	75	74	58	53	
9								

And here's the original:

3								
4	Student	Elisa						
5								
6	Student Averages	Subject						
7	Month	Art	English	French	History	Maths	Science	Grade
8	January	89	87	62	81	65	58	
9	March	92	41	56	91	71	41	
10	February	83	51	57	84	72	89	
11	Grand Total	88	60	58	85	69	63	
12								
13								

There's a lot more you can do with Pivot Tables, but we hope that this i
whetted your appetite!

In the next section, we'll take a look at the Quick Access Toolbar in Exc

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Conditional Formatting

You can use something called Conditional Formatting in your spreadsheet. Conditional Formatting allows you to change the appearance of a cell, depending on its value. What we'll do is to colour the Overall Averages on our Student Exam spreadsheet, based on the grade. Here's the spreadsheet we'll be working on.

	A	B	C	D	E	F	G
1		Steven	Mary	Ann	Raymond	Mark	Peter
2	Maths	76	89	43	48	51	
3	English	55	85	78	61	47	
4	Science	65	82	39	58	52	
5	History	45	91	56	72	49	
6	Geography	51	84	54	64	47	
7	Art	43	63	49	62	39	
8	Computer Studies	63	95	45	59	41	
9	French	35	91	65	26	28	
10							
11	Overall Average	54.13	85.00	53.63	56.25	44.25	72.50

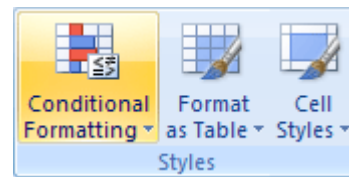
- Open up [your Student Exam spreadsheet](#) (You did complete it, didn't you?)
- Highlight the cells with Overall Grades, which should be cells B11:G11

The Overall Averages range from 44 to 85. We'll colour each grade, depending on the grade. The following different colour will apply to the following grades:

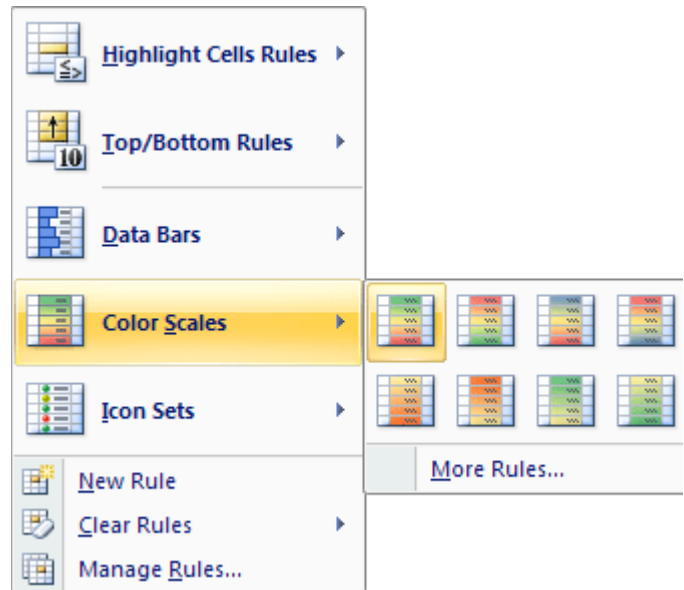
- 50 and below
- 51 to 60
- 61 to 70
- 71 to 80
- 81 and above

So five different bands, and a colour for each. To set the Conditional Formatting in Excel 2007, do the following:

- With your Overall Averages highlighted, click on the Home menu
- Locate the **Styles** panel, and the **Conditional Formatting** item:



The Conditional Formatting menu gives you various options. The easiest is the Color Scales option. Select one of these and Excel will colour the cell background.



That's not quite what we're looking for, though. We'd like to choose our own **More Rules**, from the **Colour Scales** submenu. You'll see the following dialogue box:

New Formatting Rule

Select a Rule Type:

- ▶ Format all cells based on their values
- ▶ Format only cells that contain...
- ▶ Format only top or bottom ranked values
- ▶ Format only values that are above or below average
- ▶ Format only unique or duplicate values
- ▶ Use a formula to determine which cells to format

Edit the Rule Description:

Format all cells based on their values:

Format Style: 2-Color Scale ▼

Minimum		Maximum	
Type:	Lowest Value ▼		Highest Value
Value:	(Lowest value)		(Highest value)
Color:			
Preview:			

OK Cancel Preview

The one we want is the second option, **Format only cells that contain** set up our values. When you click this option, the dialogue box change

New Formatting Rule

Select a Rule Type:

- ▶ Format all cells based on their values
- ▶ Format only cells that contain...
- ▶ Format only top or bottom ranked values
- ▶ Format only values that are above or below average
- ▶ Format only unique or duplicate values
- ▶ Use a formula to determine which cells to format

Edit the Rule Description:

Format only cells with:

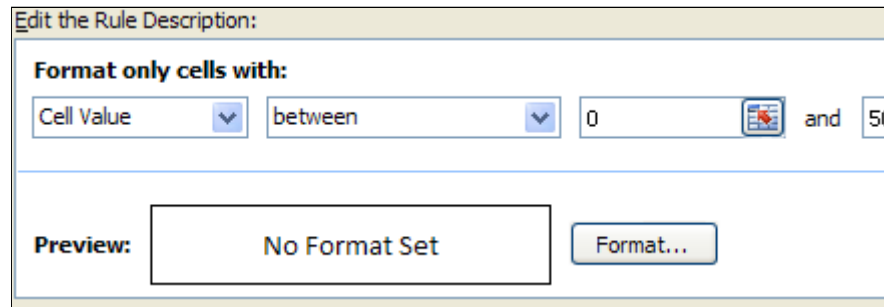
Cell Value ▼ between ▼ and

Preview: No Format Set Format...

OK Cancel

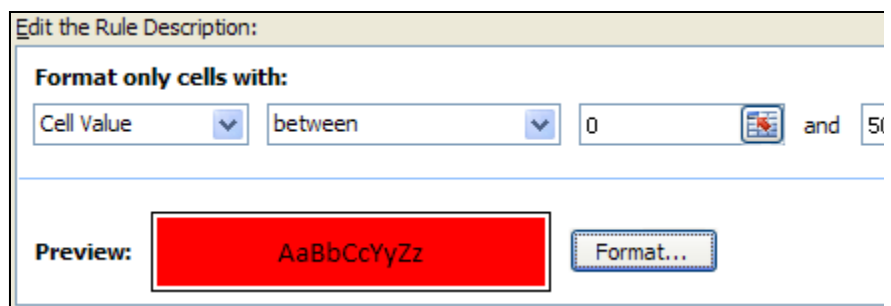
The part we're interested in is the bottom part, under the heading **Edit**. It says **Cell Value** and **Between**, in the drop down boxes. These are the only ones you need to type a value for the two boxes that are currently blank in the dialog. You can then click the **Format** button to choose a colour.

So type 0 in the first box and 50 in the second one:



Excel Conditional Formatting 'Edit the Rule Description' dialog box. The 'Format only cells with:' section shows 'Cell Value' in the first dropdown, 'between' in the second, '0' in the third, and '50' in the fourth. The 'Preview' section shows 'No Format Set'.

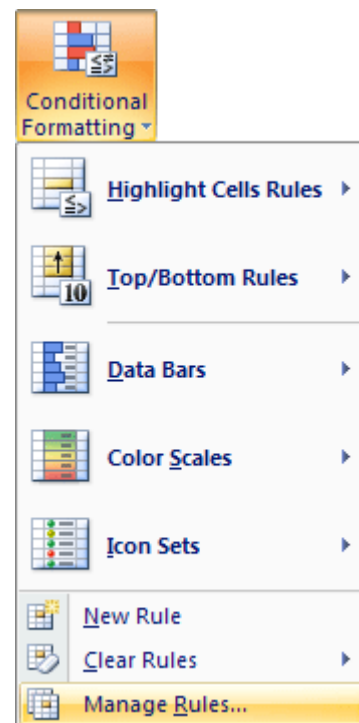
Then click the **Format** button. You'll get another dialogue box popping up called 'Format Cells'. You've met this before. Click on the Fill tab and choose a colour. Click OK and you should see something like this under Edit the Rule Description:



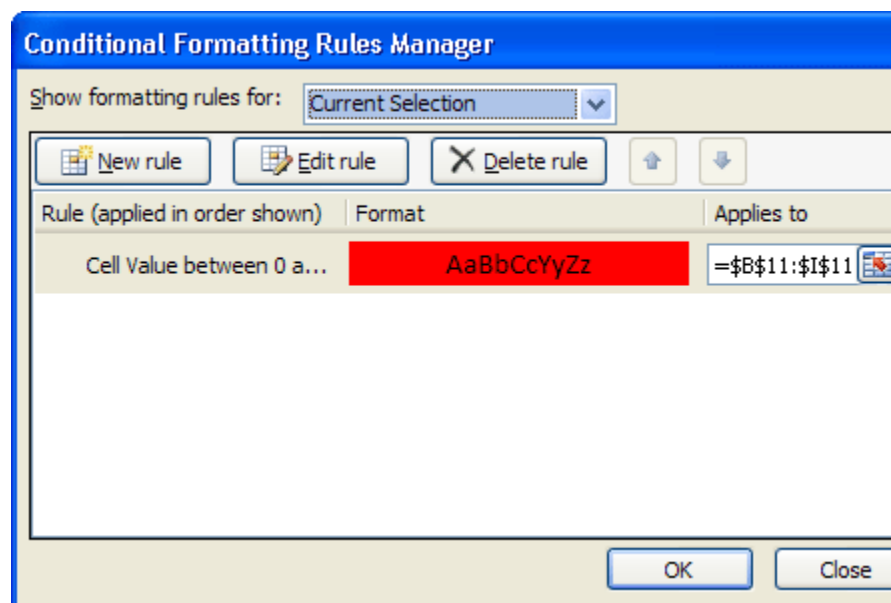
Excel Conditional Formatting 'Edit the Rule Description' dialog box. The 'Format only cells with:' section shows 'Cell Value' in the first dropdown, 'between' in the second, '0' in the third, and '50' in the fourth. The 'Preview' section shows 'AaBbCcYyZz' in a red box.

The Preview is showing the colour we picked. So we've said, "If the Cell Value is between 0 and 50 then colour the cell Red".

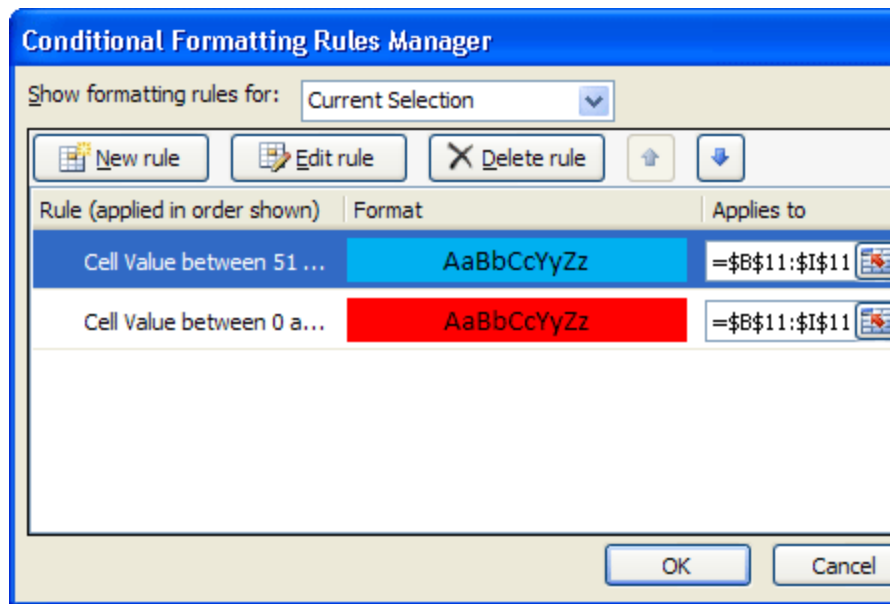
Click OK on this dialogue box to get back to Excel. You should find the selected cells turned red. To format the rest of the cells, click on Conditional Formatting again. From the menu, click on **Manage Rules**:



You'll get yet another complex dialogue box popping up! This one:



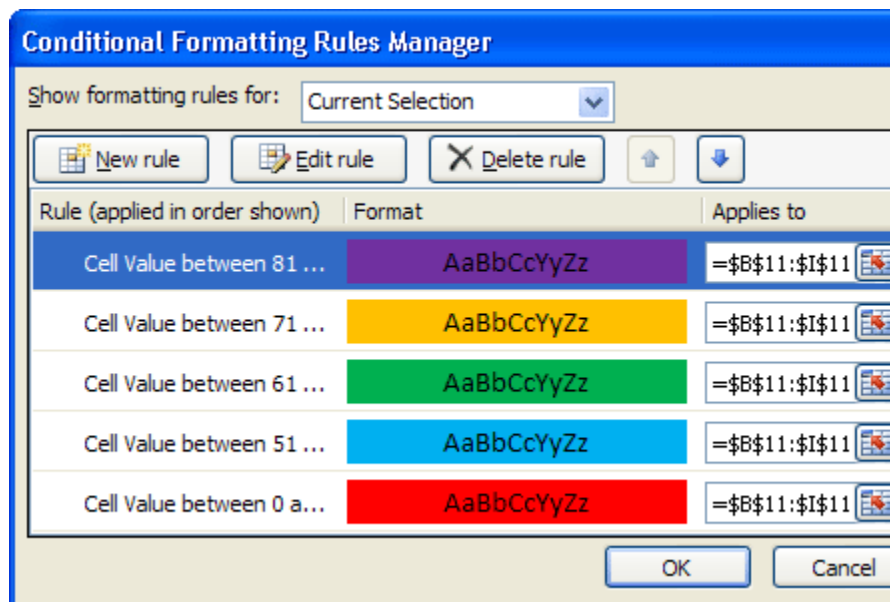
Our first rule is already there - Cell Value Between. The only thing we're adding is a new rule, similar to the one we've just set up. Click the **New Rule** button. You'll get the exact same dialogue boxes you used to set up the first rule. Set a new range - 51 to 60. Choose a colour, and keep clicking OK until you get the Conditional Formatting Rules Manager dialogue box. It should now look something like this one:



We now have to colours in our range. Do the rest of the scores, choose The scores are these, remember:

- 50 and below
- 51 to 60
- 61 to 70
- 71 to 80
- 81 and above

When you've done them all, your dialogue box should have five colours



The colours above are entirely arbitrary, and you don't have to select the The point is to have a different colour for each range of scores. But click done. Your Overall Averages will then look something like this:

	A	B	C	D	E	F	
1		Steven	Mary	Ann	Raymond	Mark	P
2	Maths	76	89	43	48	51	
3	English	55	85	78	61	47	
4	Science	65	82	39	58	52	
5	History	45	91	56	72	49	
6	Geography	51	84	54	64	47	
7	Art	43	63	49	62	39	
8	Computer Studies	63	95	45	59	41	
9	French	35	91	65	26	28	
10							
11	Overall Average	54.13	85.00	53.63	56.25	44.25	72.50
12							

Formatting your spreadsheet in this way allows you to see at a glance the spreadsheet above, it's obvious who's failing - just look for the red c

In the next part, we'll look at a useful function that counts things - COU

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CountIF in Excel 2007

Another useful function that uses Conditional Logic is CountIF. This one is straightforward. As its name suggests, it counts things! But it counts things that a condition is met. For example, keep a count of how many students have a score of 70 or above.

To get you started with this function, we'll use our [Student Grade spreadsheet](#) to count how many students have a score of 70 or above. First, add the formula to your spreadsheet:

H	I	J	K	L
Eliza	Kelly		Num of Students Above 70	
87	56			
91	73			
57	45			
78	56			
67	67			
64	63			
89	52			
92	56			
78.13	58.5			

As you can see, we've put our new label at the start of the K column.

We can now use the CountIF function to see how many of the students have a score above for a given subject.

The CountIF function looks like this:

COUNTIF(range, criteria)

The function takes two arguments (the words in the round brackets). The first argument is range, and this means the range of cells you want Excel to

Criteria means, "What do you want Excel to look for when it's counting?"

So click inside cell K2, and then click inside the formula bar at the top, following formula:

=CountIf(B2:I2, ">= 70")

The cells B2 to I2 contain the Math scores for all 8 students. It's these scores we want to count.

Press the enter key on your keyboard. Excel should give you an answer.

K2			=COUNTIF(B2:I2, ">= 70")
	A	J	K
1			Num of Students Above 70
2	Maths		4
3	English		
4	Science		

(If you're wondering where the columns B to I have gone in the image, they are hidden then for convenience sake!)

To do the rest of the scores, you can use AutoFill. You should then have a table that looks like this:

	A	J	K
1			Num of Students Above 70
2	Maths		4
3	English		5
4	Science		1
5	History		3
6	Geography		1
7	Art		1
8	Computer Studies		3
9	French		2
10			

By using CountIF, we can see at a glance which subjects students are struggling in.

Exercise

Add a new label to the L column. In the cells L2 to L9, work out how many students got below 50 for a given subject. You should get the same results as in the table below:

	A	K	L
1		Num of Students Above 70	Num of Students Below
2	Maths	4	2
3	English	5	1
4	Science	1	2
5	History	3	2
6	Geography	1	1
7	Art	1	3
8	Computer Studies	3	2
9	French	2	3
10			

In the next part, we'll look at a function similar to CountIF - SumIF.

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SumIF

Another useful function is SumIF. This function is like CountIf, except it has one more argument:

SUMIF(range, criteria, sum_range)

Range and criteria are the same as with [CountIf](#) - the range of cells to look for. The Sum_Range is like range, but it's a different range of cells. To clarify all that, here's what we'll use SumIF for. (Start with a new spreadsheet for this.)

Five people have ordered goods from us. Some have paid us, but some haven't. The five people are Elisa, Kelly, Steven, Euan, and Holly. We'll use SumIF to find out how much in total has been paid to us, and how much is still owed.

So in Column A, enter the names:

	A	B	C	D
1	Customer			
2				
3	Elisa			
4	Kelly			
5	Steven			
6	Euan			
7	Holly			
8				

In Column B enter how much each person owes:

	A	B	C	D
1	Customer	Total Goods Ordered		
2				
3	Elisa	£120.00		
4	Kelly	£134.00		
5	Steven	£123.00		
6	Euan	£145.00		
7	Holly	£156.00		
8				

In Column C, enter TRUE or FALSE values. TRUE means they have paid, FALSE means they haven't:

	A	B	C	
1	Customer	Total Goods Ordered	Has Paid	
2				
3	Elisa	£120.00	TRUE	
4	Kelly	£134.00	FALSE	
5	Steven	£123.00	FALSE	
6	Euan	£145.00	TRUE	
7	Holly	£156.00	FALSE	
8				

Add two more labels: Total Paid, and Still Owed. Your spreadsheet should look something like this one:

	A	B	C	
1	Customer	Total Goods Ordered	Has Paid	
2				
3	Elisa	£120.00	TRUE	
4	Kelly	£134.00	FALSE	
5	Steven	£123.00	FALSE	
6	Euan	£145.00	TRUE	
7	Holly	£156.00	FALSE	
8				
9				
10	Total Paid			
11	Still Owed			
12				

In cells B10 and B11, we'll use a SumIF function to work out how much paid in, and how much is still owed. Here's the SumIF function again:

SUMIF(range, criteria, sum_range)

So the range of cells that we want to check are the True and False values in column C; the criteria is whether they have paid (True); and the Sum_Range is the range of cells that we want to sum.

we want to add up (in the B column).

In cell B10, then, enter the following formula:

=SUMIF(C3:C7, TRUE, B3:B7)

When you press the enter key, Excel should give you the answer:

B10		fx =SUMIF(C3:C7, TRUE, B3:B7)	
	A	B	C
1	Customer	Total Goods Ordered	Has Paid
2			
3	Elisa	£120.00	TRUE
4	Kelly	£134.00	FALSE
5	Steven	£123.00	FALSE
6	Euan	£145.00	TRUE
7	Holly	£156.00	FALSE
8			
9			
10	Total Paid	265	
11	Still Owed		
12			

So 265 is has been paid in. But we told SumIF to first check the values C3 to C7 (range). Then we said look for a value of TRUE (criteria). Finally we wanted the values in the B column adding up, if a criteria of TRUE was (sum_range).

Exercise

Use SumIF to work out how much is still owed. Put your answer in cell

We'll leave the subject of Conditional Logic. In the next section, more to do with Excel 2007!

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How to use AutoFill in Excel 2007

Your spreadsheet from the [previous section](#) should look like this one:

	A1			fx	My Chocolate Addiction
	A	B	C	D	E
1	My Chocolate Addiction				
2					

You have a title in cell A1, but nothing else. You'll now see how to use a feature of Excell 2007, to quickly enter the days of the week. Off we go

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AutoFill

Click inside cell B3 of your spreadsheet, and type Monday, as in the im

	B3			fx	Monday
	A	B	C	D	
1	My Chocolate Addiction				
2					
3		Monday			
4					

The days of the week are going to be entered on Row 3 of our spreads B3 to cell H3. Fortunately, you don't have to type them all out. You can something call AutoFill to complete a known sequence like days of the words, Excel 2007 will do it all for us.

- Position your mouse pointer to the bottom right of the B3 cell
- The mouse pointer will change to a black cross, as in the images image on the left shows the normal white cross; the image on the black cross, tells you AutoFill is available:

	A	B	C
1	My Chocolate Addiction		
2			
3		Monday	
4			

	A	B	C
1	My Chocolate Addiction		
2			
3		Monday	
4			

- When you can see the AutoFill cursor, hold down your left mouse drag to the right
- Drag your mouse all the way to cell H3, as in the following image:

B3		fx		Monday			
	A	B	C	D	E	F	G
1	My Chocolate Addiction						
2							
3		Monday					
4							Sunday
5							

- When your cursor is in the H3 cell, let go of the left mouse button
- Excel will now complete the days of the week:

	A	B	C	D	E	F	G
1	My Chocolate Addiction						
2							
3		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4							

And that's all there is too it! AutoFill can be a handy tool to use, when y complete a known sequence like days of the week, months, and even f use AutoFill on a column of numbers, shortly. But let's crack on with ou

Now that we've got a heading for the spreadsheet, as well as the days we can enter a few chocolate bars.

- Click inside cell A4 and enter the name of a chocolate bar. You c anything you like, but we've gone for Mars Bars. In cell A5 we ch in cell A6 Bounty. In cell A7 we typed Other
- In cell A9 of you spreadsheet enter the words **Day Totals**. Leave Your spreadsheet should then look something like ours below:

	A	B	C	D	E	F	G
1	My Chocolate Addiction						
2							
3		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4	Mars Bars						
5	Twix						
6	Bounty						
7	Other						
8							
9	Day Totals						

Time to enter some numbers.

- Click inside cell B4, and enter the number 1. Press the enter key on the keyboard, and the active cell will jump down to cell B5
- In cell B5 type the number 7. Press the Enter key again to jump down to cell B6
- In cell B6 type 8
- In cell B7 type 1
- Your spreadsheet will then look like this one:

	A	B	C	D	E	F	G
1	My Chocolate Addiction						
2							
3		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4	Mars Bars	1					
5	Twix	7					
6	Bounty	8					
7	Other	1					
8							
9	Day Totals						

To complete the numbers for the rest of the week, enter the following under each heading:

Tuesday: 2, 5, 3, 2
Wednesday: 1, 3, 2, 2
Thursday: 3, 2, 3, 2
Friday: 3, 4, 4, 2
Saturday: 2, 2, 1, 1
Sunday: 5, 4, 4, 1

When you're done, your spreadsheet will look like this:

	A	B	C	D	E	F	G
1	My Chocolate Addiction						
2							
3		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4	Mars Bars	1	2	1	3	3	2
5	Twix	7	5	3	2	4	2
6	Bounty	8	3	2	3	4	1
7	Other	1	2	2	2	2	1
8							
9	Day Totals						

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Now that you have all those numbers typed out, we can move on to for learn how to add up in Excel 2007.

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How to Sort Data

Section three of this course is really all about charts. Later, you'll see how a variety of charts and chart styles with Excel. Microsoft have really revolutionized chart creation in Excel 2007. If you've ever used previous versions of the software, you'll appreciate how easy it is to produce impressive results.

First, though, we'll tackle the subject of how to sort data. The two subjects are really related, but the data going in to our charts is a good opportunity to tackle this important topic.

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Sorting Data in Excel 2007

To make a start, you need to create the spreadsheet below. You don't need the same colours as ours, but reproduce the data and the headings exactly as are in this one:

	A	B	C	D	E
1	Viewing Figures				
2					
3	BBC 1			ITV	
4		Millions			Million
5	National Lottery	6.27		Who...Millionaire	10.99
6	Ready Steady Cook	6.33		Heartbeat	10.22
7	Vicar of Dibley	6.34		Bad Girls	7.42
8	Ground Force	6.71		The Bill	6.54
9	Holby City	6.99		The Vice	6.37
10	Lenny Henry	7.03		Blind Date	6.31
11	DIY SOS	7.2		Stars in their Eyes	6.26
12	Changing Rooms	7.38		Footballer's Wives	6.17
13	Antiques Roadshow	7.68		Champions League	6.09
14	Casualty	8.82		Inspector Morse	5.81
15					

Our spreadsheet is all about the viewing figures for the two main TV ch UK. The data is a bit old (March 2 2002), but that's not important. As lo some nice information to sort, that's what matters.

The viewing figures for ITV have been sorted, from the highest first to t The BBC1 figures are still waiting to be sorted. Let's see how to do that

Descending Sort in Excel 2007

We want to sort the BBC1 viewing figures in the same way that the ITV been sorted. We'll put the highest programme first and the lowest last. a Descending Sort. If you do it the other way round, it's known as an A:

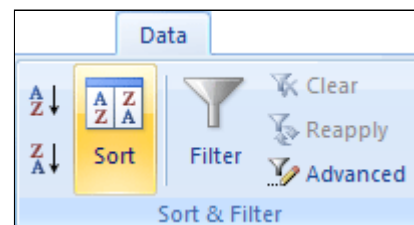
The first thing to do is to highlight the information that you want to sort. spreadsheet, highlight cells A5 to B14. The crucial thing to remember v to sort data in Excel is to include the text as well as the numbers. If you end up with a spreadsheet where the numbers don't relate to the inform could spell disaster in bigger spreadsheets!

Your highlighted spreadsheet, though, should look like this one:

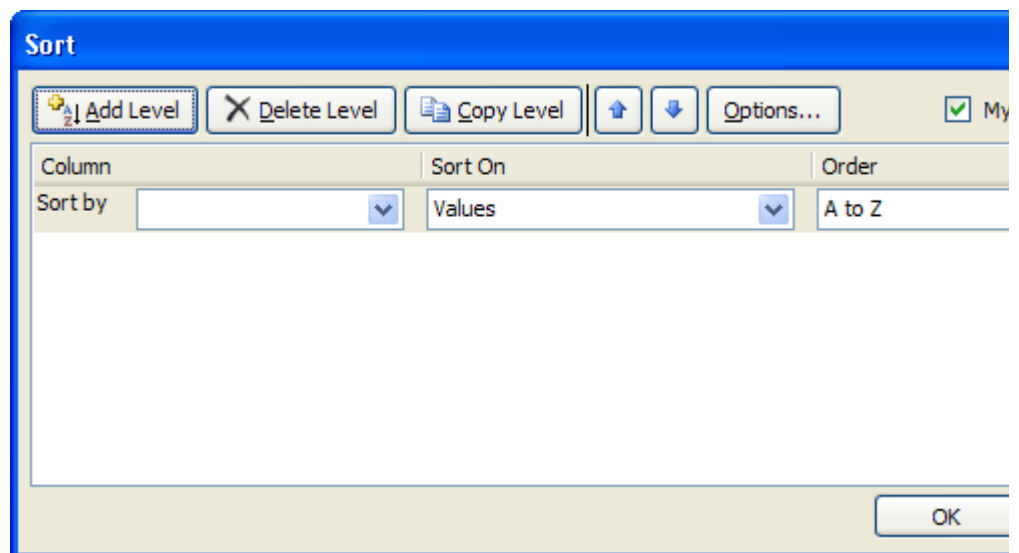
3	BBC 1	
4		Millions
5	National Lottery	6.27
6	Ready Steady Cook	6.33
7	Vicar of Dibley	6.34
8	Ground Force	6.71
9	Holby City	6.99
10	Lenny Henry	7.03
11	DIY SOS	7.2
12	Changing Rooms	7.38
13	Antiques Roadshow	7.68
14	Casualty	8.82
15		

To sort your BBC 1 viewing figures, do the following:

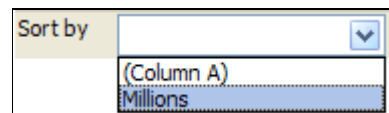
- From the Excel 2007 Ribbon at the top of the screen, click **Data**:



- From the **Sort & Filter** panel, click **Sort**
- A dialogue box appears:

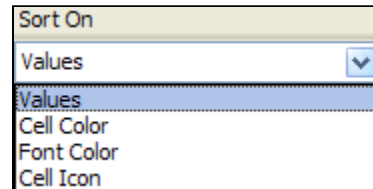


The **Sort By** drop-down list seems empty. Click the down arrow to reveal columns you selected:



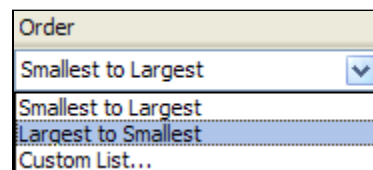
We want to sort this by the values in the Millions column. So select Millions by list.

Sort On is OK for us - it has Values. But click to see the options in the c

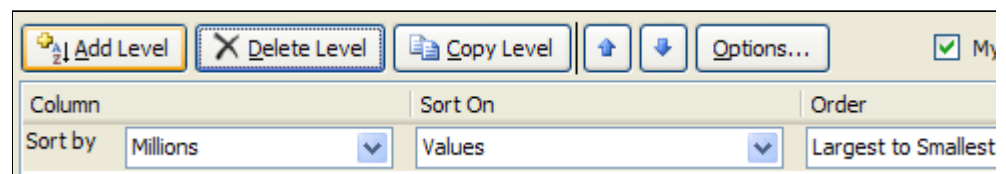


Values is the one you'll use the most. Once we have a **Sort By** and **Sort On** selected, we can then move on to the **Order**.

Click the down arrow to see the options on the Order list:



Select **Largest to Smallest**. Your Sort dialogue box should then look li



If you clicked OK, your data would be sorted. But the level buttons at the top come in handy. If two items in your data have the same numbers, then specify what to sort by next. For example, if we have two programmes with million viewers, we could specify that the names of the programmes be sorted alphabetically.

To do this, click the **Add Level** button, and you'll see some additional columns appear. You'll see the same lists as the Sort By box. If you select Colour then Descending, Excel will do an alphabetical sort if two items have the same viewing figures.

Add Level		Delete Level		Copy Level				Options...	☒ My
Column			Sort On			Order			
Sort by		Millions	Values			Largest to Smallest			
Then by		(Column A)	Values			A to Z			

In the image above, we've added a "Then By" part, just in case there is don't have to do this, as we have no numbers that are the same. Click your data, though.

If everything went well, your sorted data should look like this:

3	BBC 1		
4		Millions	
5	Casualty	8.82	
6	Antiques Roadshow	7.68	
7	Changing Rooms	7.38	
8	DIY SOS	7.20	
9	Lenny Henry	7.03	
10	Holby City	6.99	
11	Ground Force	6.71	
12	Vicar of Dibley	6.34	
13	Ready Steady Cook	6.33	
14	National Lottery	6.27	
15			

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But that's all we need to do for the sort. You can move on to creating y in Excel 2007.

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Financial Functions

The financial function we're going to explore is called PMT(). You use it when you want to calculate things like the monthly payment amounts on a loan. For example, per month a mortgage will cost you. We'll use it to work out how much a loan will cost us. Here's what we'll do.

We've decided to take out a loan of ten thousand pounds from our friend. We're going to be paying it back over 5 years. The question is, how much per month are we going to cost us?

The PMT() Function in Excel 2007

The PMT() function expects certain values in between its two round brackets. The values that go in round brackets are known as arguments. The arguments for the PMT function are these:

PMT(rate, nper, pv, fv, type)

Only the first three are needed, and you can miss the final two out, if you want.

We'll work out our monthly loan costs with the help of the PMT() function in a new spreadsheet like the one below:

	A	B	C	D	
1	Loan Amount	10000			
2					
3	Interest Rate	Num of Payments	Present Value	Monthly Amount	Total
4					
5					

If you look at cell B1 on the spreadsheet, you'll see a figure of £10,000 amount we want to borrow. The labels on Row 3 show what else we need: the interest rate, the number of payments we'll make over the 5 years, the present value, the amount we'll have to pay back each month, and the total amount paid over 5 years. But we only need the first three for our PMT() function.

In cell A4, we'll need an interest rate. In cell B4 we'll need the number of payments. In cell C4 we'll need the Present Value of the loan. First is interest rate.

Imagine that the interest rate given to us by the bank is 24 percent per annum. For the PMT() function, we need to divide this figure by 12 (the number of months in a year):

- Click into cell A4 on your spreadsheet
- Enter the following formula:

$$= 24\% / 12$$

- Hit the enter key to see the answer appear, as in the image below

A4 fx = 24% / 12				
	A	B	C	D
1	Loan Amount	10000		
2				
3	Interest Rate	Num of Payments	Present Value	Monthly Amount
4	0.02			
5				

Now that we have an interest rate, the next thing we need for the PMT() function is the number of payments there are in total. We have to pay something back every year for 5 years. Which is a simple formula. So,

- Click into B4 on your spreadsheet and enter the following:

$$= 12 * 5$$

- Hit the enter key to see a figure of 60 as the answer.

This figure of 60 is for the second argument of the PMT() function - the number of payments.

Now that you have a figure in cell A4 (**rate**), and a figure in cell B4 (**npv**), you need one more to go - the Present Value (**pv**).

The Present Value of a loan, also known as the Principal, is what the loan is worth at present time. Since we haven't made any payments yet, this is just 10,000.

- Click into cell C4 on your spreadsheet and enter the following:

= B1

- Hit the enter key
- You'll see a figure of 10, 000 appear, and your spreadsheet should look like this:

	A	B	C	D
1	Loan Amount	10000		
2				
3	Interest Rate	Num of Payments	Present Value	Monthly Amount
4	0.02	60	10000	
5				
6				

OK, we now have all the parts for our PMT() function: a rate (A4), an n (B4), and a present value (C4). Try this:

- Click into cell D4 on your spreadsheet
- Enter the following function:

=PMT(A4, B4, C4)

Hit the enter key on your keyboard, and you'll see the monthly amount figure you should have is -£287.68. The reason there is a minus sign is because it's a debt: what you owe to the bank.

But this is what your spreadsheet should look like:

D4		=PMT(A4, B4, C4)		
	A	B	C	D
1	Loan Amount	10000		
2				
3	Interest Rate	Num of Payments	Present Value	Monthly Amount
4	0.02	60	10000	-£287.68
5				
6				

The only thing left to do is see how much this loan will cost us at the end. To do this, you need to multiply the monthly amount in cell D4 by the number of payments in cell B4. Enter your formula for this in cell E4, and your spreadsheet will look like this:

	A	B	C	D
1	Loan Amount	10000		
2				
3	Interest Rate	Num of Payments	Present Value	Monthly Amount
4	0.02	60	10000	-£287.68
5				

So a ten thousand pounds loan, at the interest rate the bank is offering to pay back just over 17 thousand pounds over 5 years.

Tweaking the Values

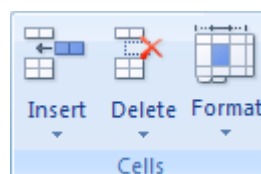
We can change the spreadsheet slightly to give us more control. For y B4, the number of payments, you entered $12 * 5$. This is 12 months multiplied by 5 years. But what if we wanted to pay the loan back over 10 years, or 15? How monthly payments then be? And will be the final cost of the loan?

Also, the interest rate seems a bit high. What if we can get a better rate

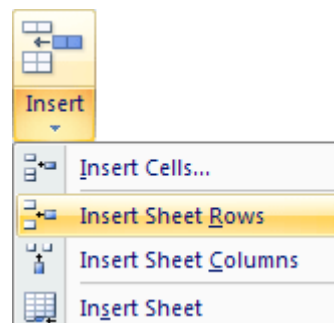
By making a few changes to our spreadsheet, we can amend these values. First we'll need two new rows.

Inserting New Rows in Excel 2007

To insert a new row, click on the **Home** menu at the top of Excel. Local and click the **Insert** item:



From the Insert menu, click on **Insert Sheet Rows**:



Excel will insert a new row for you. Do this again to get two blank rows. labels, **Num of Years** and **Interest**. Your spreadsheet sheet will then look like this:

	A	B	C	D
1	Loan Amount	10000		
2	Num of Years			
3	Interest			
4				
5	Interest Rate	Num of Payments	Present Value	Monthly Amount
6	0.02	60	10000	-£287.68
7				

Adapting the PMT Formula

We can adapt the formulas we've entered so far, in order to make them work for a different example, we'll adapt the interest rate.

To get the interest rate for cell A4, we entered a formula:

$$= 24\% / 12$$

Instead of having the interest rate in cell A4, however, we can place it in cell B3 on our new Row. We can then alter the interest rate by simply typing in a new value in cell B3. To clear all that up, try the following:

- Click inside cell B3, which is the Interest cell in the image above
- Click inside the formula bar
- Type in = 24%
- Cell B3 should now read 24.00%

To change the formula for your interest rate click inside of cell A6. Change the formula from this:

$$= 24\% / 12$$

to this:

$$= B3 / 12$$

Hit the enter key on your keyboard and nothing should change on your spreadsheet. The difference is that you can enter a new interest rate in cell B3, and this will affect the loan amounts. Try it out by typing 23% in cell B3:

B3		$\sum$	=23%		
	A	B	C	D	
1	Loan Amount	10000			
2	Num of Years				
3	Interest	23.00%			
4					
5	Interest Rate	Num of Payments	Present Value	Monthly Amount	
6	0.019166667	60	10000	-£281.90	
7					

As you can see, the interest rate has changed to a rather long figure. B Monthly Amount - it has gone down to £281.90. The total amount we have has changed, too. Play around with the interest rate in cell B3, just to get it to work.

Exercise

In cell B6 of your spreadsheet, you have the following formula:

$$= 12 * 5$$

This calculates the number of months for the loan. Change this formula so that the number of years is coming from B2. Your finished spreadsheet should look like this:

B2		$\sum$	5		
	A	B	C	D	
1	Loan Amount	10000			
2	Num of Years	5			
3	Interest	24.00%			
4					
5	Interest Rate	Num of Payments	Present Value	Monthly Amount	
6	0.02	60	10000	-£287.68	
7					

If you play around with the values in cells B1, B2 and B3 you should be able to see the new loan repayments.

In the next part, you'll see what Conditional Logic is, and how to use it in Excel. First, try this project. It's all to do with Averages, so shouldn't cause you any problems.

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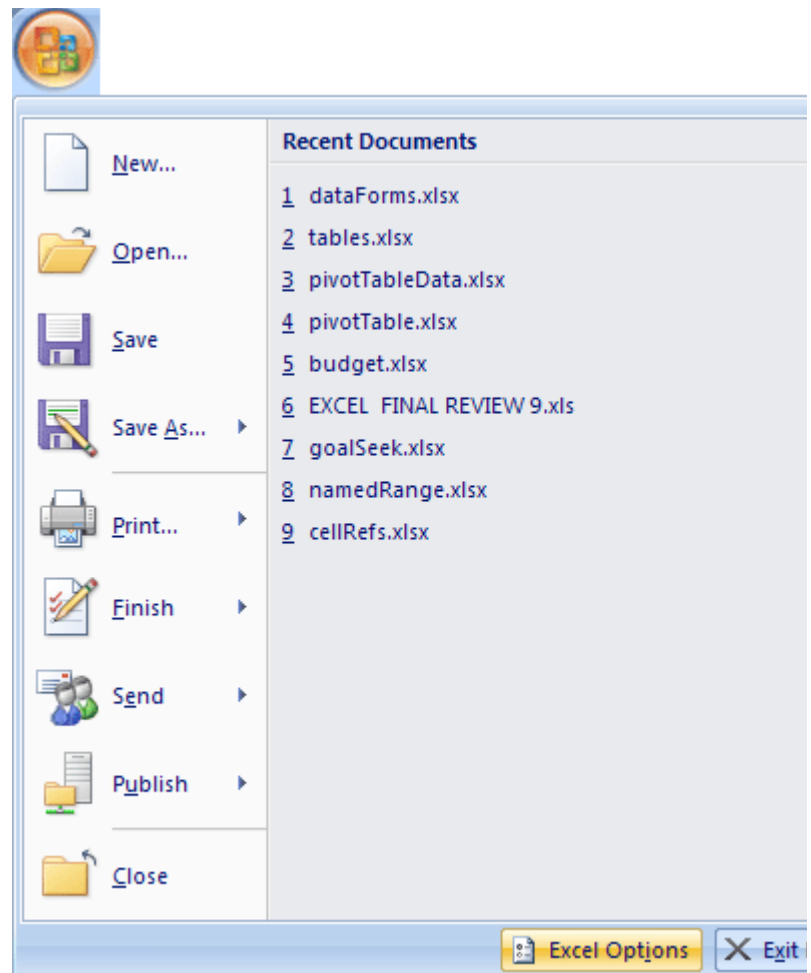
The Quick Access Toolbar in Excel 2007

If you look at the very top of the Excel 2007 screen, you'll see what's called the Quick Access Toolbar. The default will look similar to this:

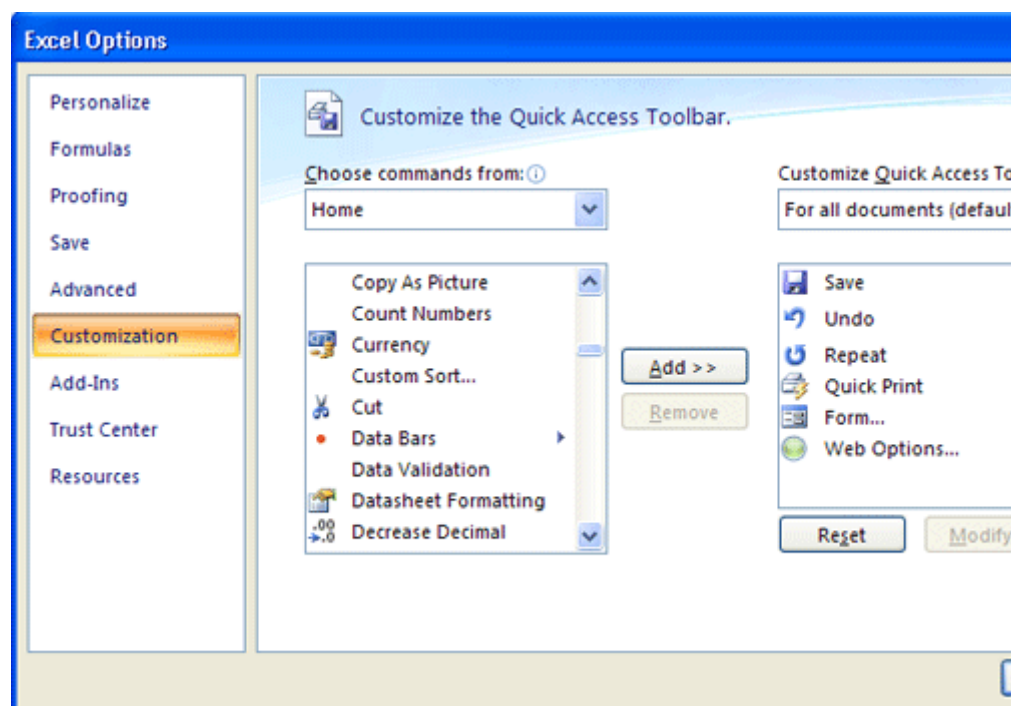


The floppy disk icon is for quick saving, then you have an Undo, and Redo followed by a printer. You can add your own items to the Quick Access Toolbar. In the next part, you'll see what a Data Form is. However, Data Forms are no longer on the Ribbon, but have now been tucked away. So we'll add the Data Forms to the Quick Access Toolbar.

To find **Data Forms**, click on the **File** button in the top left of Excel. From the File menu, click on **Excel options** at the bottom:

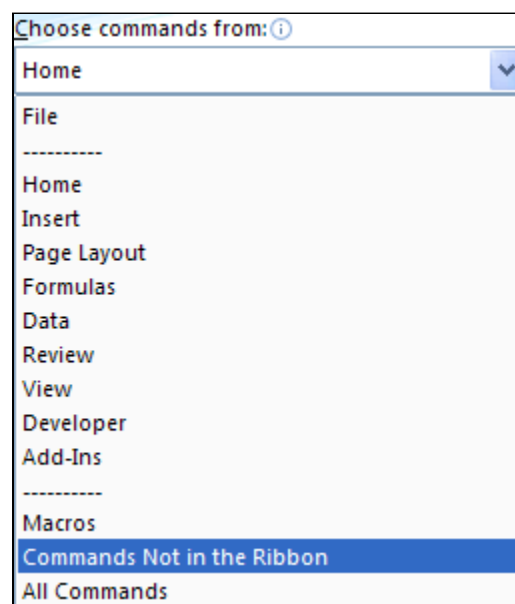


When you click the Excel Options button, you'll see this dialogue box p

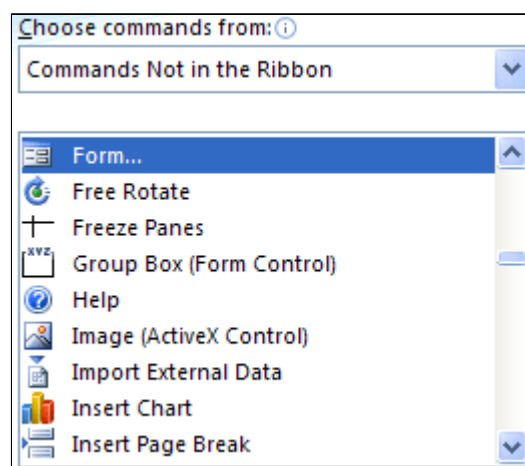


Click the **Customization** button on the left. The idea is that you can place a button on the Quick Access toolbar at the top of Excel 2007. You pick one from the list on the right, then click the **Add** button in the middle.

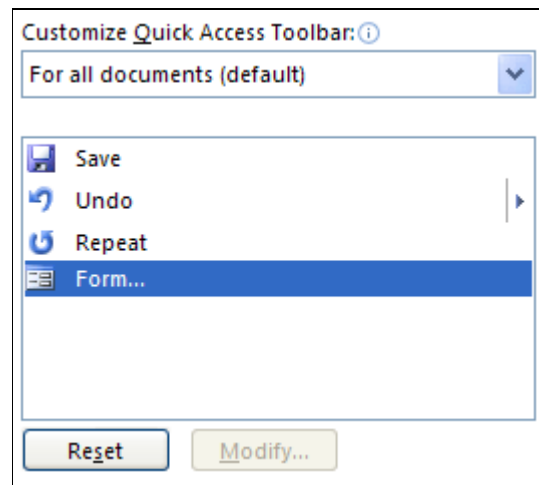
To add the Data Form option to the Quick Access Toolbar, click the dropdown arrow on the right of the list box it says **Choose Commands From**. You should see this (we've chopped the image below):



Click on **Commands Not in the Ribbon**. The list box will change:

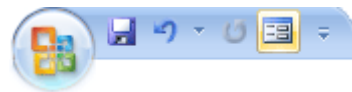


From the **Commands Not in the Ribbon** list, select **Form**. Now click the **Add** button in the middle. The list box on the right will then look something like this one:



Explore the other items you can add to the Quick Access Toolbar. You favourite in there somewhere!

When you click OK on the Excel Options dialogue box, you'll be returned to the Quick Access toolbar, and you should see your new item:



The Data Form item is highlighted, in the image above. We'll be using the 'Form' part.

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Data Forms in Excel 2007

If your spreadsheet is too big to manage, and you constantly have to scroll forward just to enter data, then a Data Form could make your life easier. If a Data Form is, we'll construct a simple spreadsheet. You need to [add Form icon to your Quick Access toolbar](#), before beginning this lesson.

But a Data Form is just a way to quickly enter data into a cell. It is used when a spreadsheet is too big for the screen. To get a clearer idea of what a Data Form is, let's look at this.

- Enter **January** in Cell A1 of a new spreadsheet
- AutoFill the rest of the months to **December**
- Now, highlight the columns A1 to L1 (click on the letter A and drag to the letter L)
- On the **Home** menu from Excel 2007, locate the **Cells** panel
- On the Cells panel, click the **Format** item
- From the Format menu, click Width



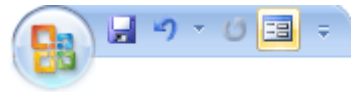
- Enter a value of say 20 for the Column Width, and click OK
- Some of your months should disappear from the spreadsheet

The problem is, if you have to enter data under each month, you'd have to scroll across to complete the row. And then scroll back again to start a new row. If you're doing this, we'll create a Data Form. You then enter data in the form to enter data in a row on your spreadsheet. No more scrolling back and forth!

Type any number you like in cell A2, under January. Then type a number in cell B2, under February.

for February. Now highlight the columns A to L again. This is so that Excel knows which are the column headings and which is the data.

Click the Form item you have just added to the Quick Access toolbar:



You should then see this:

A screenshot of the Excel Form dialog box for 'Sheet1'. The dialog has a title bar with a question mark and a close button. It contains a list of months from January to December, each with a text input field. The 'January' field contains the number '12' and the 'February' field contains the number '3'. To the right of the list is a vertical scrollbar. On the far right, there are several buttons: 'New', 'Delete', 'Restore', 'Find Prev', 'Find Next', 'Criteria', and 'Close'. The '1 of 1' text is also visible in the top right corner of the dialog area.

All the Columns in the spreadsheet are now showing. Enter numbers for months. To start a new row in your spreadsheet, you just click the New button on the right.

In the next part, you'll see how to add drop down lists to an Excel 2007

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Drop Down Lists in Excel 2007

If you have to type the same data into cells all the time, then adding a drop down list to your spreadsheet could be the answer. In Excel 2007, this comes under the heading of Data Validation.

In the example below, we have a class of students on a drop down list. To click a cell in the A column to see this same list of students. You'll see that now. Here's a picture of your finished spreadsheet:

	A	B	C	D	E
1	Student	Subject	Grade		Comments
2	Euan	Maths	D		
3	Mary	Maths	A		
4					
5	Steven				
6	Kelly				
7	Elisa				
8	Joseph				
9	Euan				
10	Mary				
	Holly				
	Paul				

In the image above, we can simply select a student from the drop down list without typing! We can also do the same for the Subject and Grade.

So, create the following headings in a new spreadsheet:

Cell A1 Student
Cell B1 Subject
Cell C1 Grade
Cell E1 Comments

We now need some data to go in our lists. So, type the same data as in below. It doesn't need to go in the same columns as ours. But don't type A, B, C or E:

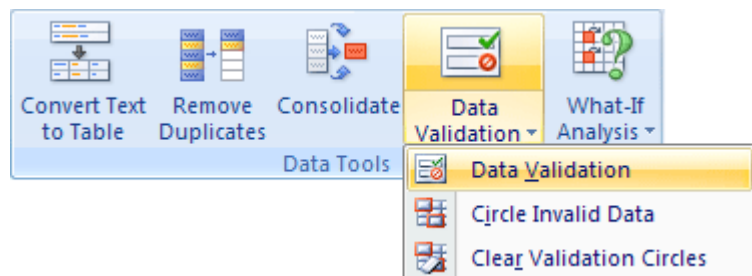
E	F	G	H	I
Comments				
	Steven	Maths	A	
	Kelly	English	B	
	Elisa	History	C	
	Joseph	Geography	D	
	Euan	Art	E	
	Mary	Science	F	
	Holly	Computers		
	Paul	French		

The data in Columns F, G and H above will be going in to our list.

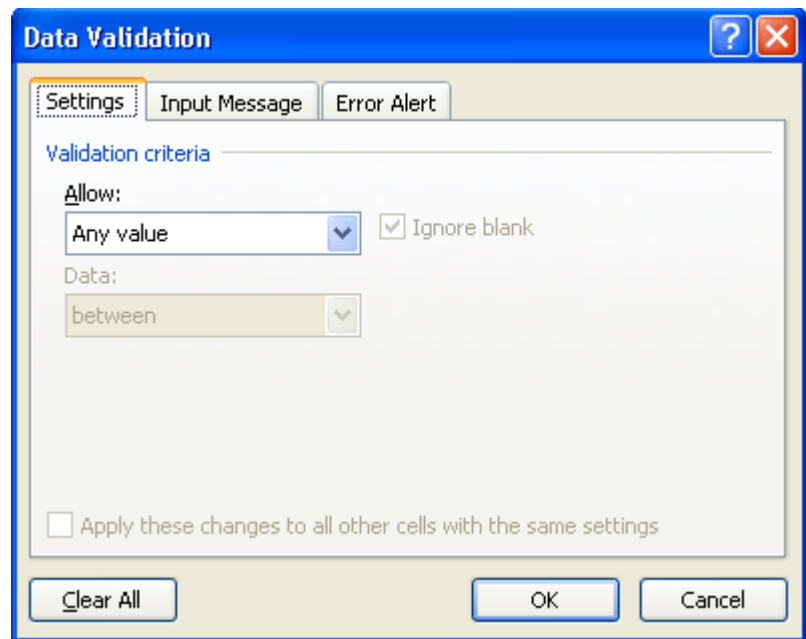
Now click on Column A to highlight that entire column:

A1	A	B	C	D
	Student	Subject	Grade	
1				
2				
3				
4				
5				
6				
7				
8				

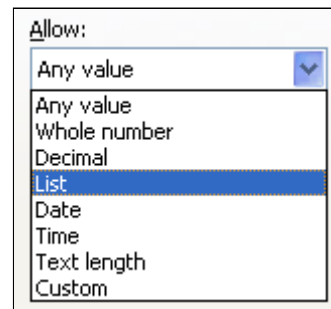
With Column A highlighted, click on **Data** from the Excel 2007 menu bar. In the Data menu, locate the **Data Tools** panel. On the Data Tools panel, click **Validation** item. Select **Data Validation** from the menu:



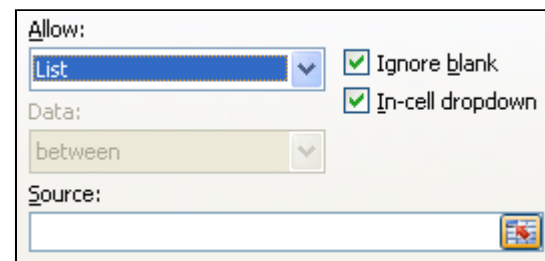
When you click Data Validation, you'll see the following dialogue box appear:



To create a drop down list, click the down arrow just to the right of "Allow" on the **Settings** tab:

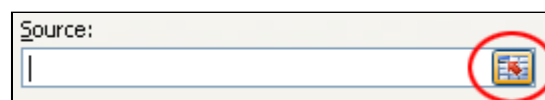


Select **List** from the drop down menu, and you'll see a new area appear



Source means which data you want to go in your list. You can either put cell references here, or let Excel do it for you.

To let Excel handle the job, click the icon to the right of the Source text



When you click this icon, the Data Validation dialogue box will shrink:

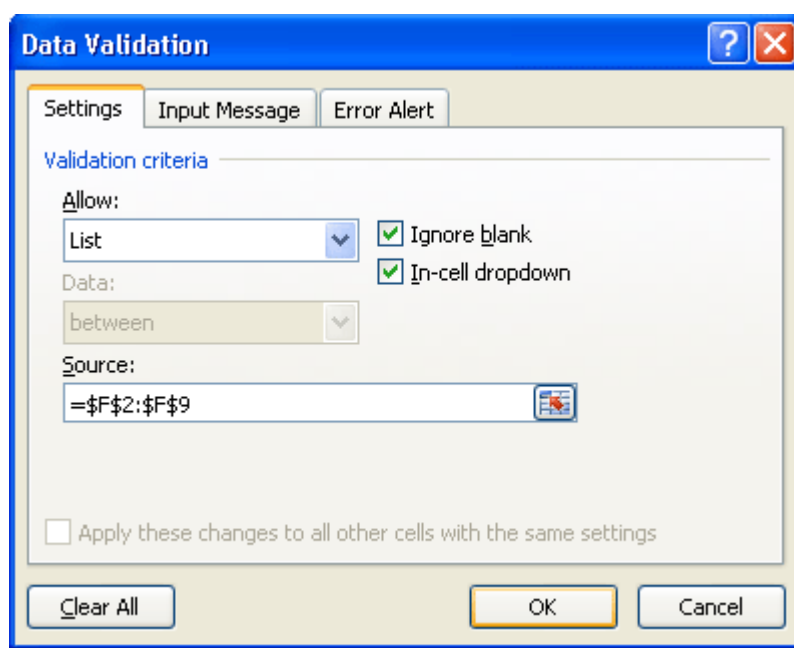


Now select the cells on your spreadsheet that you want in your list. For Students:

E	F	G	H	I
Comments				
	Steven	Maths	A	
	Kelly	English	B	
	Elisa	History	C	
	Joseph	Geography	D	
	Euan	Art	E	
	Mary	Science	F	
	Holly	Computers		
	Paul	French		

A small, collapsed Data Validation dialog box. It has a blue title bar with the text "Data Validation" and a question mark icon. Below the title bar is a text box containing the formula "=\$F\$2:\$F\$9".

Once you have selected your data, click the same icon on the Data Val dialogue box. You'll then be returned to the full size one, with your cell filled in for you:



Click OK, and you'll see the A column with a drop down list in cell A1:

	A1		f _x	Student
	A	B	C	
1	Student	Subject	Grade	
2				
3				
4				
5				

However, you don't want a drop down list for your A1 column heading. click inside of cell A1. Click the **Data Validation** item on the **Data Tool** to bring up the dialogue box. From the Allow list, select Any Value:

Allow:

List ☐ Ignore blank ☒
 Any value ☒ In-cell dropdown ☐
 Whole number
 Decimal
 List
 Date
 Time
 Text length
 Custom

Click OK on the Data Validation dialogue box, and your drop down list i be gone.

The rest of the column will still have drop down lists, though. Try it out. cell A2, and you'll see a down-pointing arrow:

	A2		f _x	
	A	B	C	
1	Student	Subject	Grade	
2				
3				
4				
5				

Click the arrow to see your list:

	A2		
	A	B	C
1	Student	Subject	Grade
2			
3	Steven		
4	Kelly		
5	Elisa		
6	Joseph		
7	Euan		
8	Mary		
9	Holly		
10	Paul		

Select an item on your list to enter that name in the cell. Click any other column and you'll see the same list.

Adding a drop down list to your cell can save you a lot of time. And it means typing errors won't creep in to your work.

Exercise

Add drop down list to the B and C columns. The B column should contain Subjects, and the C column a list of Grades. Make sure that the cells B and C don't contain drop down lists. When you're finished, the Subject column should look like this:

	B4		
	A	B	C
1	Student	Subject	Grade
2	Euan	Maths	D
3	Mary	Maths	A
4	Holly	French	
5		Maths	
6		English	
7		History	
8		Geography	
9		Art	
10		Science	
11		Computers	
12		French	

And the Grade column should look like this:

	C4		<i>fx</i>
	A	B	C
1	Student	Subject	Grade
2	Euan	Maths	D
3	Mary	Maths	A
4	Holly	French	
5			
6			
7			
8			
9			

- A
- B
- C
- D
- E
- F

In the next part, you'll see how to add an error message to an Excel 20 spreadsheet.

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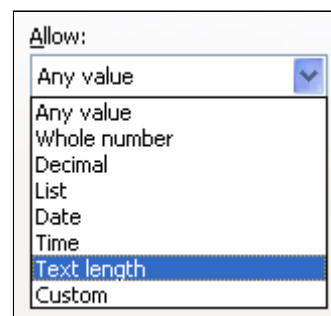
How to add an error message to an Excel Spreadsheet

In [the previous part](#), you saw how to add drop down lists to your Excel spreadsheets. In this part, we'll display an error message for our users. already done so, you need to do the previous tutorial first.

Data Validation - restricting what data can go in a cell

You can also restrict what goes in to a cell on your spreadsheet, and display an error message for your users. We'll do this with our Comments column. If users enter too much text, we'll let them know by displaying a suitable error box. Try the following:

- Highlight the E column on your spreadsheet (the Comments column)
- From the **Data Tools** panel, click **Data Validation** to bring up the Data Validation task pane
- From the **Allow** list, select Text length:



When you select Text Length from the list, you'll see three new areas appear in the task pane:

Allow:
Text length ▼ ☒ Ignore blank

Data:
between ▼

Minimum:
[Empty field] [Error icon]

Maximum:
[Empty field] [Error icon]

What we're trying to do is to restrict the amount of text a user can input cell on the Comments column. We'll restrict the text to between 0 and 25 characters.

The first of the new areas (Data) is exactly what we want - **Between**. For the minimum textbox, just type a 0 (zero) in there. For the maximum box, the dialogue box should then look like this:

Allow:
Text length ▼ ☒ Ignore blank

Data:
between ▼

Minimum:
0 [Error icon]

Maximum:
25 [Error icon]

To add an error message, click the **Error Alert** tab at the top of the Data Validation dialogue box:

Settings Input Message **Error Alert**

☒ Show error alert after invalid data is entered

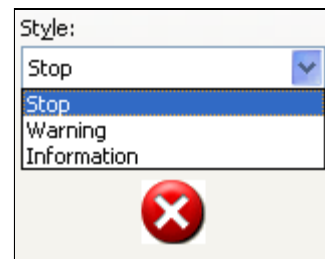
When user enters invalid data, show this error alert:

Style: Stop ▼ Title: [Empty field]

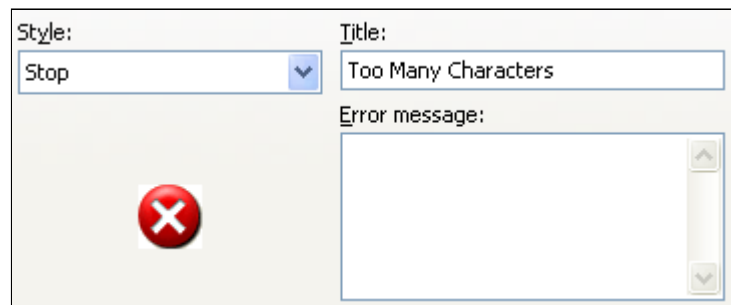
Error message: [Empty text area]

Make sure there is a tick in the box for "Show error alert after invalid data is entered".

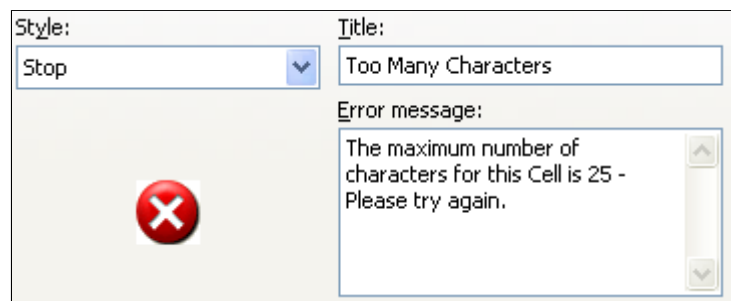
You have three different Styles to choose from for your error message. Click on the 'Error Alert' tab to see them:



In the **Title** textbox, type some text for the title of your error message.

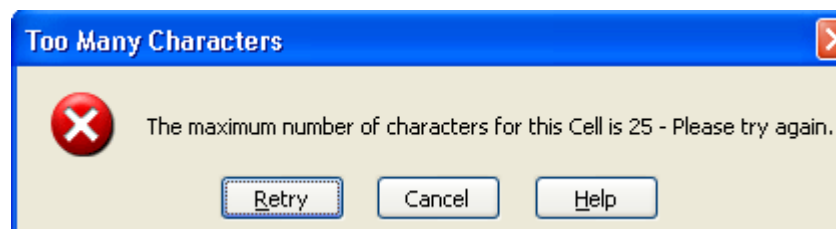


Now click inside the error message field and type some text for the message of your error message. This will tell the user what he or she did wrong:



Click OK on the Data Validation dialogue box when you're done.

To test out your new error message, click inside any cell in your Comm Type a message longer than 25 characters. Press the enter key on you and you should see your error message appear:

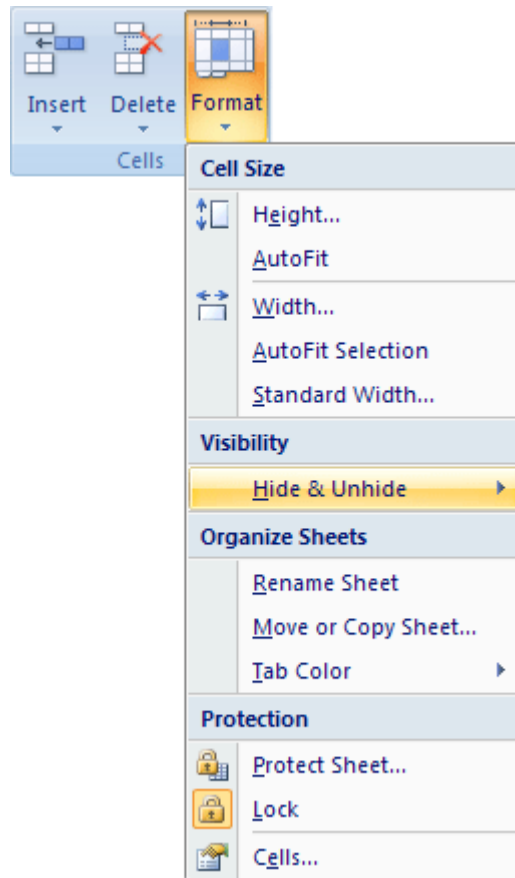


As you can see, the user is prompted to Retry or Cancel. But our title (Too Many Characters) is at the top, our Stop symbol is to the left, and our Error message is displaying nicely!

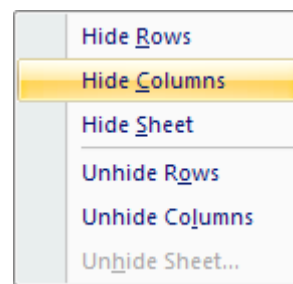
Hiding Spreadsheet Data in Excel 2007

The data that went in to our lists doesn't need to be on show for all to see. We can hide this text quite easily.

- Highlight the columns with your data in it (F, G and H for us)
- Click on the **Home** menu from the top of Excel 2007
- Locate the **Cells** panel
- On the Cells panel, click on **Format**. You'll see the following menu



Move your mouse down to **Hide & Unhide** and you'll see a Sub Menu :



Click on Hide Columns from the Sub menu. Excel will hide the columns



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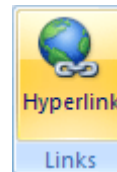
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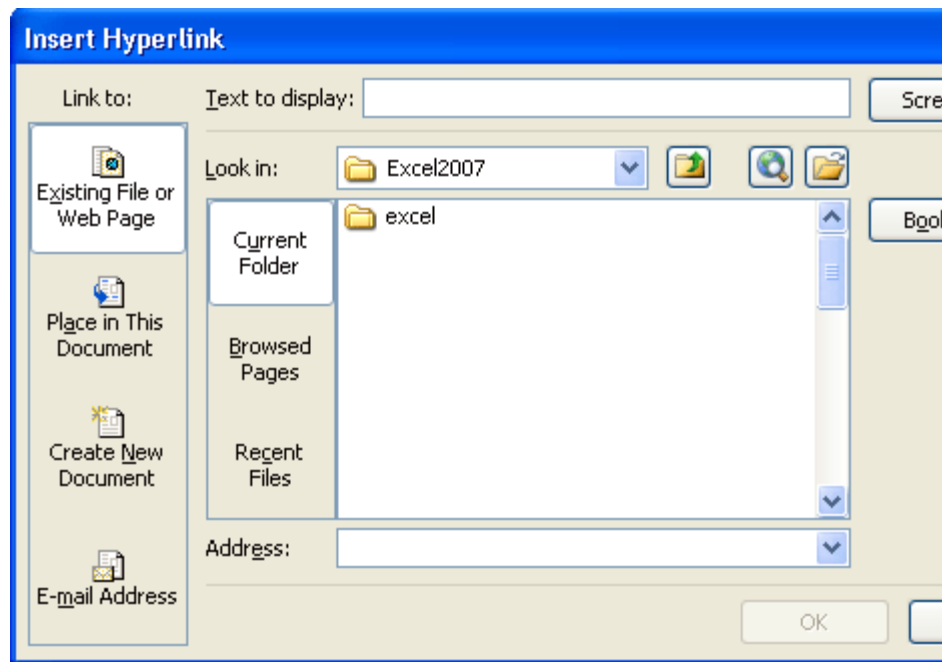
How to Insert Hyperlinks in Excel 2007

You can place Hyperlinks in the cells on your spreadsheet. To quickly go to a different worksheet or workbook, you would simply click the link. We'll see how to do that now.

- Click inside of cell A1 of a new spreadsheet
- From the Excel 2007 menu bar, click the **Insert** menu
- From the Insert menu, locate the **Links** panel
- Click on **Hyperlink**:

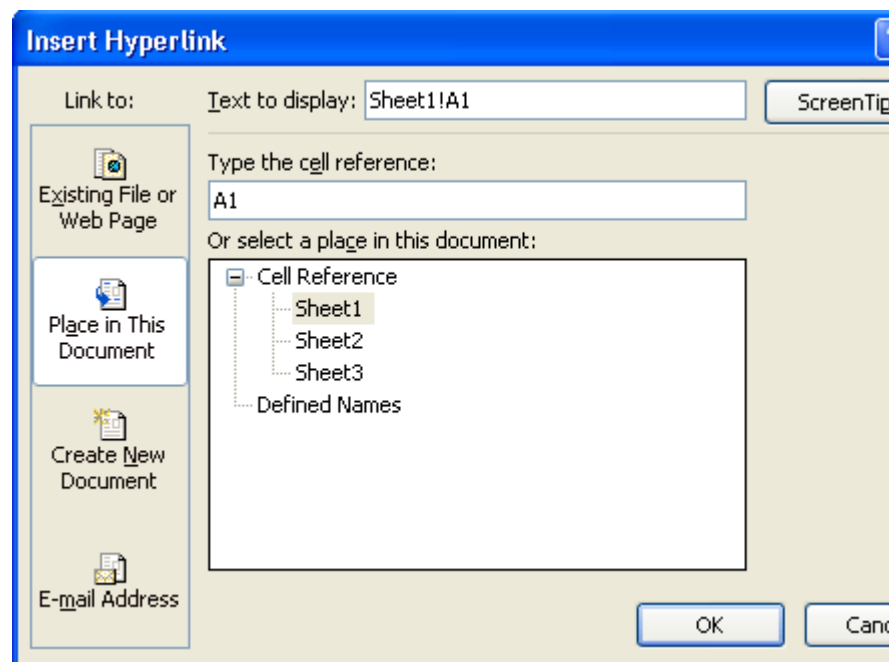


When you click the Hyperlink item, you'll see the following dialogue box



We're going to create a link to another worksheet in this same spreadsheet under **Link to** on the left, click on "Place in This Document".

When you click **Place in This Document**, the dialogue box changes to

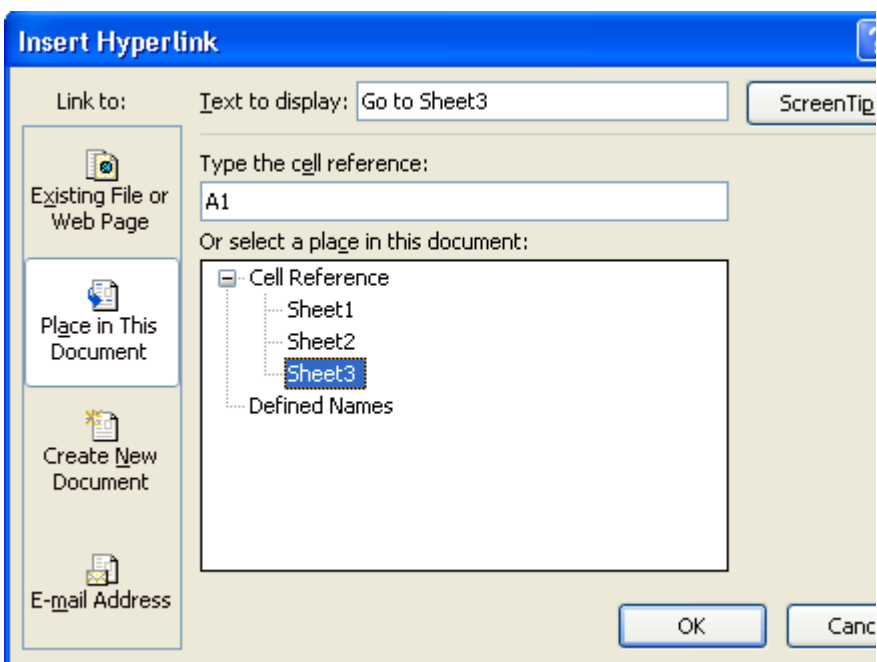


We'll try linking to Sheet3 on our spreadsheet. When the link is clicked we want to jump to a specific cell on Sheet3.

- Under "Or select a place in this document, click on Sheet3"
- Type some text in the Text to display box at the top. This is the text of the hyperlink, as it will display in the cell

- Click the Screen Tip button at the top, and type some text for what is over the link

Your dialogue box will then look something like this one:



Click OK when you're done, and you'll see cell A1 on your spreadsheet

	A	B	C
1	Go to Sheet3		
2			
3			
4			
5			

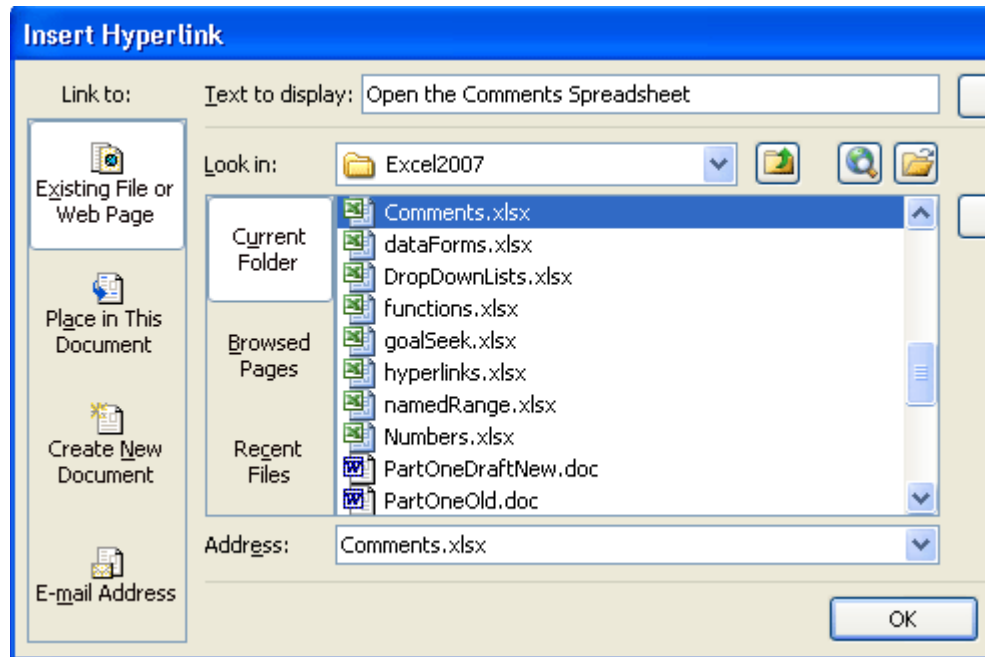
Hold your mouse over the link and you should see your Screen Tip:

	A	B	C
1	Go to Sheet3		
2			
3			
4			
5			

Try to click on your link, and you might find that nothing happens! To use a hyperlink, you have to click the link and hold your mouse down for a second. Let go of the left mouse button and you should jump to Sheet 3.

If you want to open up an existing spreadsheet, instead of jumping to a sheet in the current one, click the Hyperlink item on the Links panel to bring up

box again.



- Under Link to on the left, select Existing File or Web Page
- Navigate to the location of your spreadsheet from the Look in are
- Select the spreadsheet to open
- Type some text, and a Screen tip
- Then click OK

When you click your new link, the spreadsheet file you selected will open.

But we'll leave this brief introduction to the subject of Web Integration in Excel. There's a whole lot more you can do in this area: Upload your spreadsheet to the web, instead of downloading like we did; save your spreadsheet as a web page; create a spreadsheet that others can interact with, email your spreadsheet, and a whole lot more besides. In fact, a whole book could be written on the subject.

In the next part, we'll take a look at Object Linking and Embedding in Excel.

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Object Linking and Embedding

Object Linking and Embedding (or OLE for short) is a technique used to link data from one programme into another. We'll create a simple spreadsheet to demonstrate this process, and place it in to Word 2007. When the Excel spreadsheet is updated, we will see the Word version update itself as well.

If you don't want the data to update in Word, for example, it's called Embedding. If you do want the data to update, it's called Linking. We're going to do Linking. For this exercise, you need Word 2007 as well as Excel 2007.

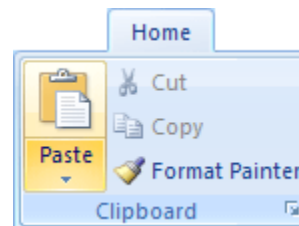
First, create the simple spreadsheet below, and enter the formula shown in the formula bar.

	E3					$=E1 * 12$
	A	B	C	D	E	
1	Click Inside Cell E1 and enter a number					
2						
3	Your Number Multiplied by 12 is:					0
4						
5						

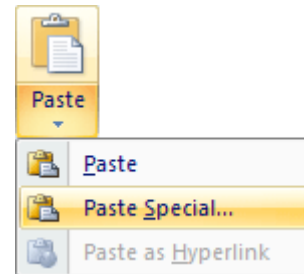
When you enter a number in cell E1, the answer is placed in cell E3 (don't forget to click on the formula bar).

With your spreadsheet created, highlight the cells A1 to E3. Click on the **Copy** button in Excel 2007. On the **Clipboard** panel, click on **Copy**.

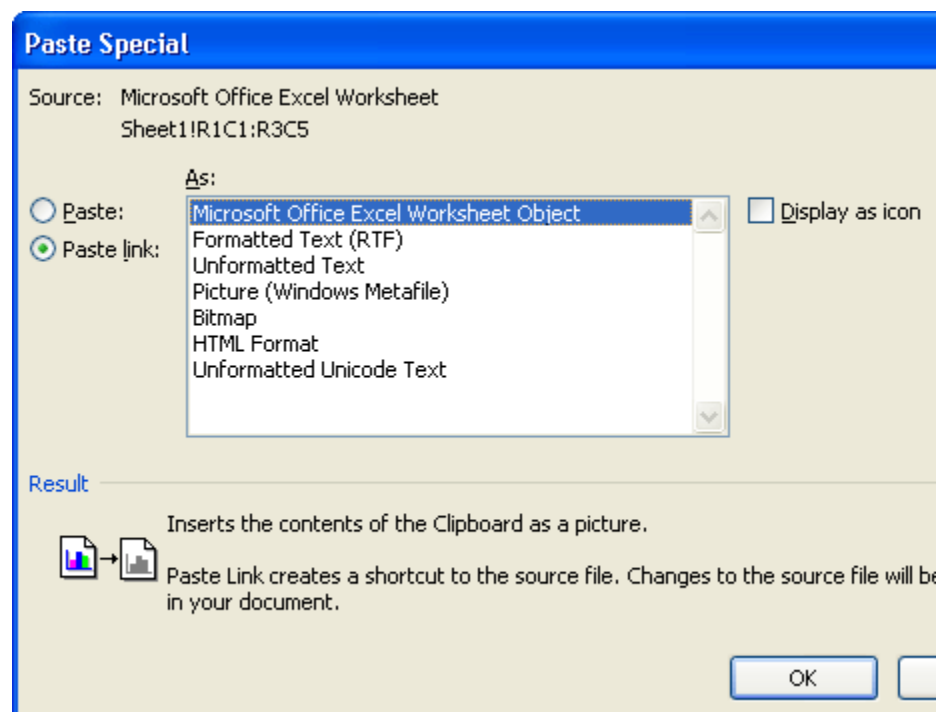
Now switch to Word 2007. On the **Home** menu in Word 2007, locate the **Paste** button on the **Clipboard** panel, and the **Paste** item:



Click on Paste. From the Paste menu, select **Paste Special**:

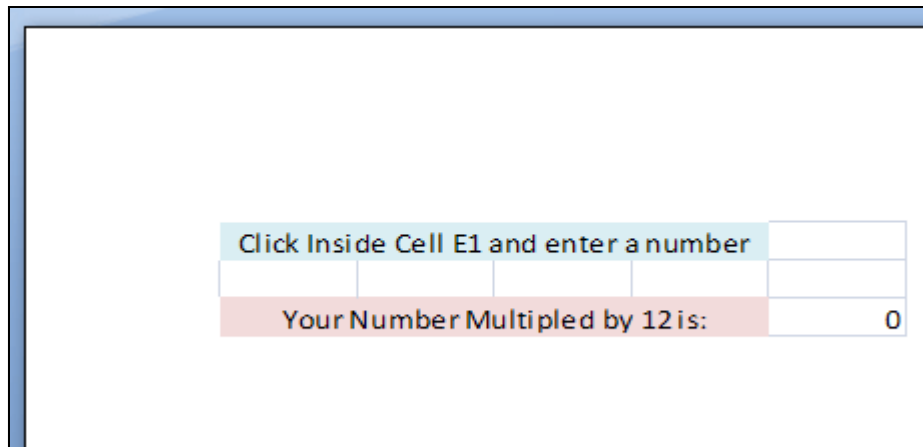


When you click on Paste Special, you'll see the following dialogue box



Select Microsoft Office Excel Worksheet Object from the dialogue box. On the right hand side, select Paste Link. Click OK.

When you click OK, Word 2007 will insert the spreadsheet from Excel:

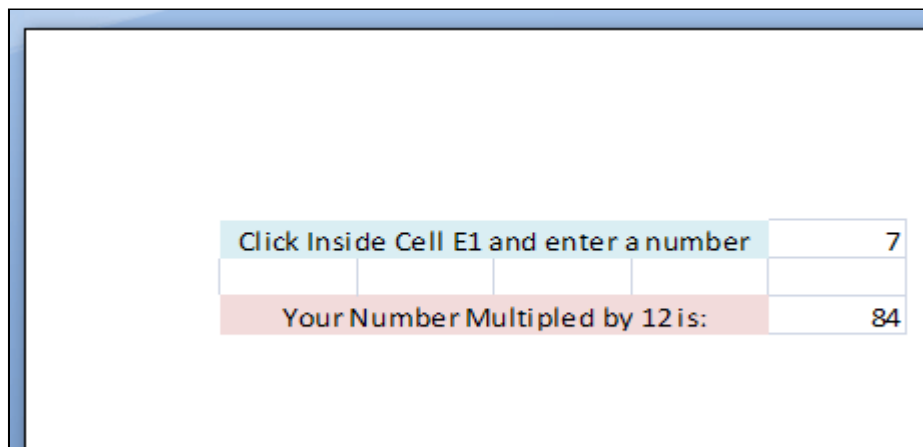


It's even retained the cell formatting!

To check that it really does update in Word 2007, switch back to Excel. Cell E1 and enter the number 7. Press the Enter key on your keyboard should have the same answer as in the image below:

	A	B	C	D	E
1	Click Inside Cell E1 and enter a number				7
2					
3	Your Number Multiplied by 12 is:				84
4					
5					

Now switch back to Word 2007, and you should see that it too has the



Word 2007 has successfully linked the data from Excel 2007! If you do updates, you would choose **Paste** from the Paste Special dialogue box Paste Link.

You can link or embed things like Charts or Pivot Tables into Word 2007 and it can come in really useful.

In the next part, you'll see how to reference formulas and data on other

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Microsoft Excel 2007

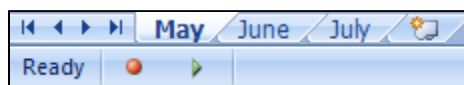
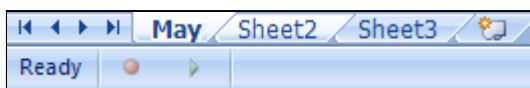
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How to reference formulas and data on different worksheets

You don't have to have all your data on one worksheet. In fact, it's common to create lots of worksheets in the same workbook. In this lesson, you'll learn how to reference a formula that is on a different worksheet. This comes in handy for example, you have 12 worksheets, one for each month of the year. You can then create another worksheet that holds things like totals for the entire year.

- Open up Excel 2007 (If it's already open, close the project you're working on and open a new blank workbook.)
- Locate Sheet1, Sheet2, and Sheet3 at the bottom of Excel
- Rename these to May, June, July (Right click, and select **Rename** menu)



Click on the **May** sheet, and enter the same data as in the following image:

B1		fx		1250
	A	B	C	
1	May Sales	£1,250		
2				
3				

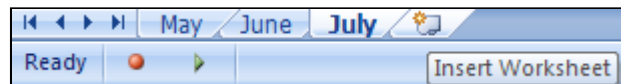
Click on the June sheet and enter the following:

H9			
	A	B	C
1	June Sales	£2,472	
2			
3			

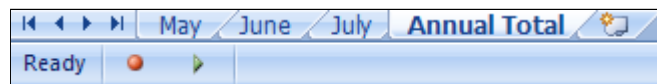
Then click on the July sheet and enter the following:

H14			
	A	B	C
1	July Sales	£4,187	
2			
3			

We now need to create a new worksheet. So click on the New Worksheet button at the bottom of Excel 2007 (the one to the right of July in the image below):



This will be called Sheet4 by default. Rename it to Annual Total, and you will look like this at the bottom:



We're now going to add up the figures on the May, June and July worksheets and put the answer on the Annual Total worksheet.

Add a label to your Annual Total worksheet:

B1			
	A	B	C
1	Yearly Total		
2			
3			

Then click inside cell B1.

To reference data on another worksheet, you use the exclamation mark (!). This is commonly called a 'Bang'.

So enter this in cell B1 of your Annual Total worksheet:

=May!B1

So we start with an equals sign (=), and then type the Name of the worksheet we want to reference (May). After the exclamation mark (bang), we have the cell we want to reference (B1). If you just type B1 by itself, Excel would assume you meant the current worksheet.

When you press the enter key, you should see this on your Annual Total worksheet:

	B1		
	A	B	C
1	Yearly Total	£1,250	
2			
3			

This is the same figure as the one on your May worksheet. To add up all the worksheets, just reference them in the same manner:

=May!B1 + June!B1 + July!B1

So click inside cell B1 of your Annual Total worksheet and replace your formula with the one above. Press the enter key and you should see the answer:

	B1			
	A	B	C	D
1	Yearly Total	£7,909		
2				
3				

So when you want to include figures or formula from other worksheets, include the name of the worksheet followed by a bang

In the next part, you'll see how to spruce up an Excel 2007 spreadsheet with objects.

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