

Microsoft Excel 2010

Make the switch to Excel 2010

Overview: Switching to Excel 2010



Do you already know how to use Microsoft Excel? Are you making the switch to Excel 2010 from Excel 2003 or earlier?

About Excel

What is a Spreadsheet?

Microsoft Excel is a program that's used for creating spreadsheets.

So what is a spreadsheet?

Before personal computers were common, "spreadsheet" referred to large sheets of lined paper, which were used by people in various businesses to record facts and figures in rows and columns, and then make calculations based on the information.

What is a Spreadsheet?

When personal computers first began appearing, one of the first applications was a program released in 1979 called VisiCalc. It was used as a tool for performing spreadsheet style calculations that would have been too difficult to do on a calculator. The program quickly became so popular that people began buying personal computers for their businesses just so they could use VisiCalc.

Since then, many other spreadsheet programs have been popular over the years, such as Quattro Pro and Lotus 123. Microsoft Excel was first released in 1985 with newer versions being released every couple of years. The most recent version is (version 14).

Excel 2010



A screenshot of a VisiCalc spreadsheet window. The window title is 'C11 <L> TOTAL' and the cursor is at cell C11. The spreadsheet has four columns: A (ITEM), B (NO.), C (UNIT), and D (COST). The data is as follows:

ITEM	NO.	UNIT	COST
MUCK RAKE	4	1	55
BUIZZ CUT	1	1	101
TOFF TONER	25	4	1248
EYE SNUFF	2	4	9
SUBTOTAL			13155
9.75% TAX			1282
TOTAL			14438.16

How Do Spreadsheets Work?

Computer spreadsheets are based on their old paper formats. A spreadsheet on a computer uses rows and columns to record information such as text and numbers, such as the example below.

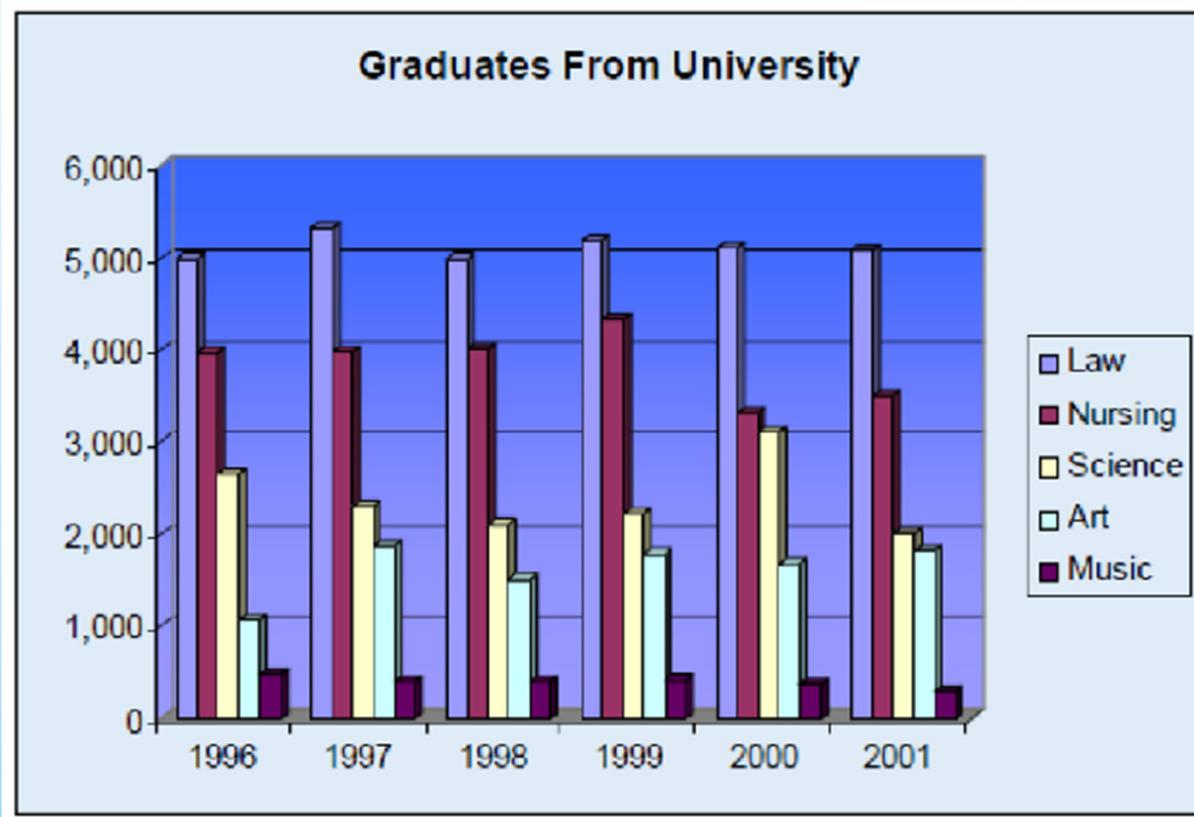
<i>Graduates from University</i>							
	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>Total</i>
Nursing	3,982	3,999	4,012	4,350	3,330	3,500	23,173
Law	5,001	5,330	4,998	5,200	5,120	5,101	30,750
Art	1,060	1,870	1,509	1,777	1,670	1,830	9,716
Science	2,646	2,300	2,100	2,222	3,100	1,998	14,366
Music	480	390	389	410	376	296	2,341
Total Graduates	13,169	13,889	13,008	13,959	13,596	12,725	80,346
Average	2,634	2,778	2,602	2,792	2,719	2,545	16,069
Minimum	480	390	389	410	376	296	2,341
Maximum	5,001	5,330	4,998	5,200	5,120	5,101	30,750

How Do Spreadsheets Work?

One major benefit of using computers for spreadsheets is that the computer can do a lot of the hard work for you. For example, in the table above, the computer could be told to automatically work out the summary amounts such as total, average, minimum and maximum.

How Do Spreadsheets Work?

A spreadsheet program can also create graphs and other types of charts, based on information in your tables. The example below shows a graph that was easily created from the table above.



How Do Spreadsheets Work?

Spreadsheets are often used for business documents such as invoices where numbers and totals are important. A program such as Excel can automatically add up totals for a document such as the invoice shown below. A document like this could be given a customer to provide details of how much money they owe to the business.

ACME Co		Invoice No. 823			
		INVOICE			
Customer		Misc			
Name	Mr J Bloggs	Date	1/07/2003		
Address	1 Hannan St	Order No.	2874098		
City	Kalgoorlie	State	WA	ZIP	6430
Phone		Rep		FOB	
Qty	Description	Unit Price	TOTAL		
2	Desks	\$ 120.00	\$ 240.00		
2	Chairs	\$ 55.00	\$ 110.00		

Spreadsheets Contents

The cells in a spreadsheet can contain 3 types of information. Excel will treat cells differently depending on the cell contents.

Text – Any names or labels that are required on the spreadsheet

Number – All numerical values including dates/times, percentages and dollar values

Formula – Formulas are written in a cell to automatically calculate an answer.

Working with Excel

The Excel Screen

Quick Access
Toolbar

Title bar

Ribbon

Formula Bar

Column and
Row Headings

Sheet tabs

Status bar

Music_Charts.xlsx - Microsoft Excel (non-commercial use)

File Home Insert Page Layout Formulas Data Review View Developer Add-Ins Acrobat

Calibri 11 A A

Clipboard Font Alignment Number Styles

General Conditional Formatting Insert Delete Format Sort & Find & Filter Select Editing

B10 Only Girl (In The World)

ARIA Charts - End Of Year Charts - Top 100 Singles 2010

Position	Title	Artist	Co.	Cat. No.
1	Love The Way You Lie	Eminem Feat. Rihanna	INR/UMA	US-UM7-10-
2	Omg	Usher Feat. will.i.am	LAF/SME	886971
3	Dynamite	Taio Cruz	ISL/UMA	2-
4	Hey, Soul Sister	Train	COL/SME	886971
5	California Gurls	Katy Perry Feat. Snoop Dogg	CAP/EMI	0-
6	Fireflies	Owl City	UMA	2-
7	Only Girl (In The World)	Rihanna	DEF/UMA	2-
8	Just The Way You Are	Bruno Mars	ELEK/WAR	US-AT2-10-
9	Toonage Dream	Katy Perry	CAP/EMI	9-
10	Dj Got Us Fallin' In Love	Usher Feat. Pitbull	LAF/SME	886971
11	Airplanes	B.o.B Feat. Hayley Williams	ATL/WAR	US-AT2-10-
12	Tik Tok	Ke\$ha	RCA/SME	886971
13	In My Head	Jason Derulo	WAR	115-WR1-09-

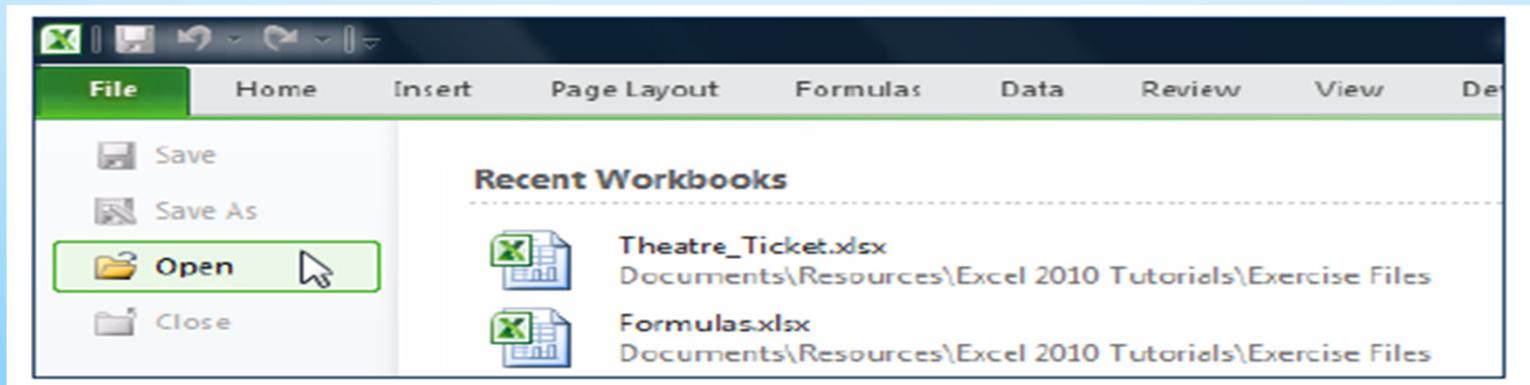
Ready 100%

Working with Excel

- * **Quick Access Toolbar** -A small bar with icons that can be used to quickly access common feature. The icons on this bar can be customized.
- * **Title Bar** -Shows the name of the application and the name of the currently open file.
- * **Ribbon** -Provides quick access to many of Excel's features.
- * **Formula Bar**-Used to edit the contents of cells on the spreadsheet .
- * **Headings** -Each column in the spreadsheet has a heading with a letter. Each row in the spreadsheet has a heading with a number.
- * **Sheet Tabs**- An Excel file can have more than one sheet. These are used for selecting different sheets.
- * **Status Bar**-Shows information based on what you are doing and provides quick access to some features.

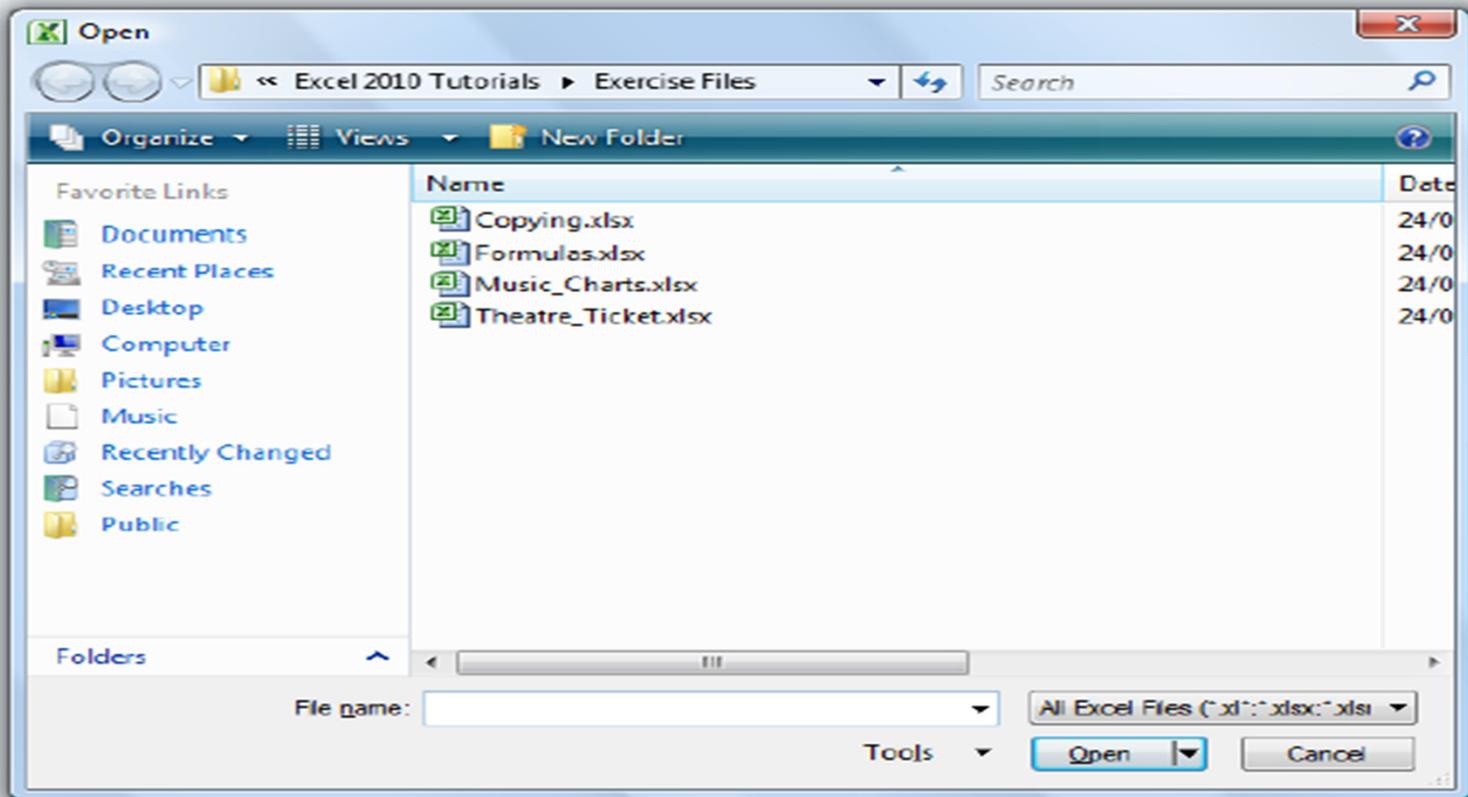
Opening an existing File

- * Opening a file in Excel is done the same way as in most other programs. Opening a file can be done in one of the following ways:
- * Hold down the [Ctrl] key on your keyboard and press [O].
- * From the ribbon, select File and then Open



Opening an existing File

- * Select the Open command using one of the above methods. You will see the file open dialog as shown below.



Components of a File

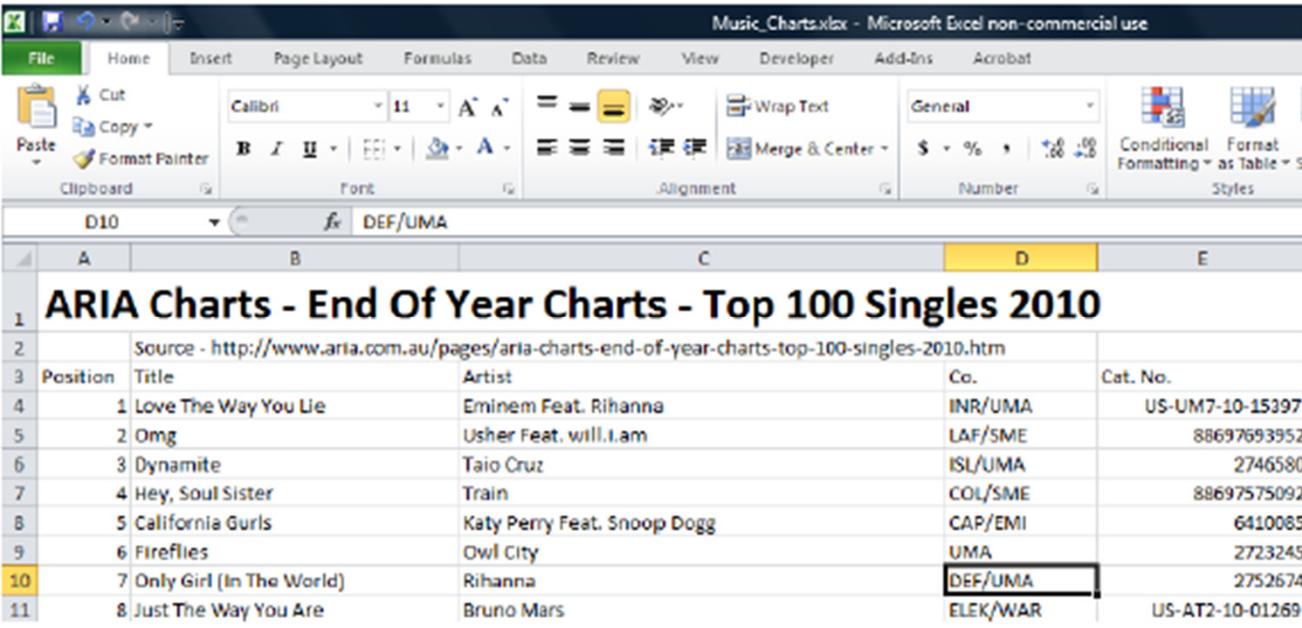
- * Each file in Excel is referred to as a Workbook. This is because each file may contain more than one spreadsheet. A new workbook will begin with three blank sheets.
- * Each sheet contains 1,048,576 rows and 16,384 columns. The rectangle areas that make up the rows and columns are referred to as cells.

Moving around a Workbook

- * Moving around the workbook can be done with the mouse, with the keyboard or with a combination of the two.

Moving Around With the Mouse

- * The sheet in front of you will be made up of numerous cells. You can select a particular cell by clicking on it with your mouse. Each cell is referred to by its column letter and then its row number.
- * For example: in the picture shown below, the cell in column D and row 10 is selected. This cell would be referred to as cell D10.



The screenshot shows the Microsoft Excel interface with the following data table:

Position	Title	Artist	Co.	Cat. No.
1	Love The Way You Lie	Eminem Feat. Rihanna	INR/UMA	US-UM7-10-15397
2	Omg	Usher Feat. will.i.am	LAF/SME	88697693952
3	Dynamite	Taio Cruz	ISL/UMA	2746580
4	Hey, Soul Sister	Train	COL/SME	88697575092
5	California Gurls	Katy Perry Feat. Snoop Dogg	CAP/EMI	6410085
6	Fireflies	Owl City	UMA	2723245
7	Only Girl (In The World)	Rihanna	DEF/UMA	2752674
8	Just The Way You Are	Bruno Mars	ELEK/WAR	US-AT2-10-01269

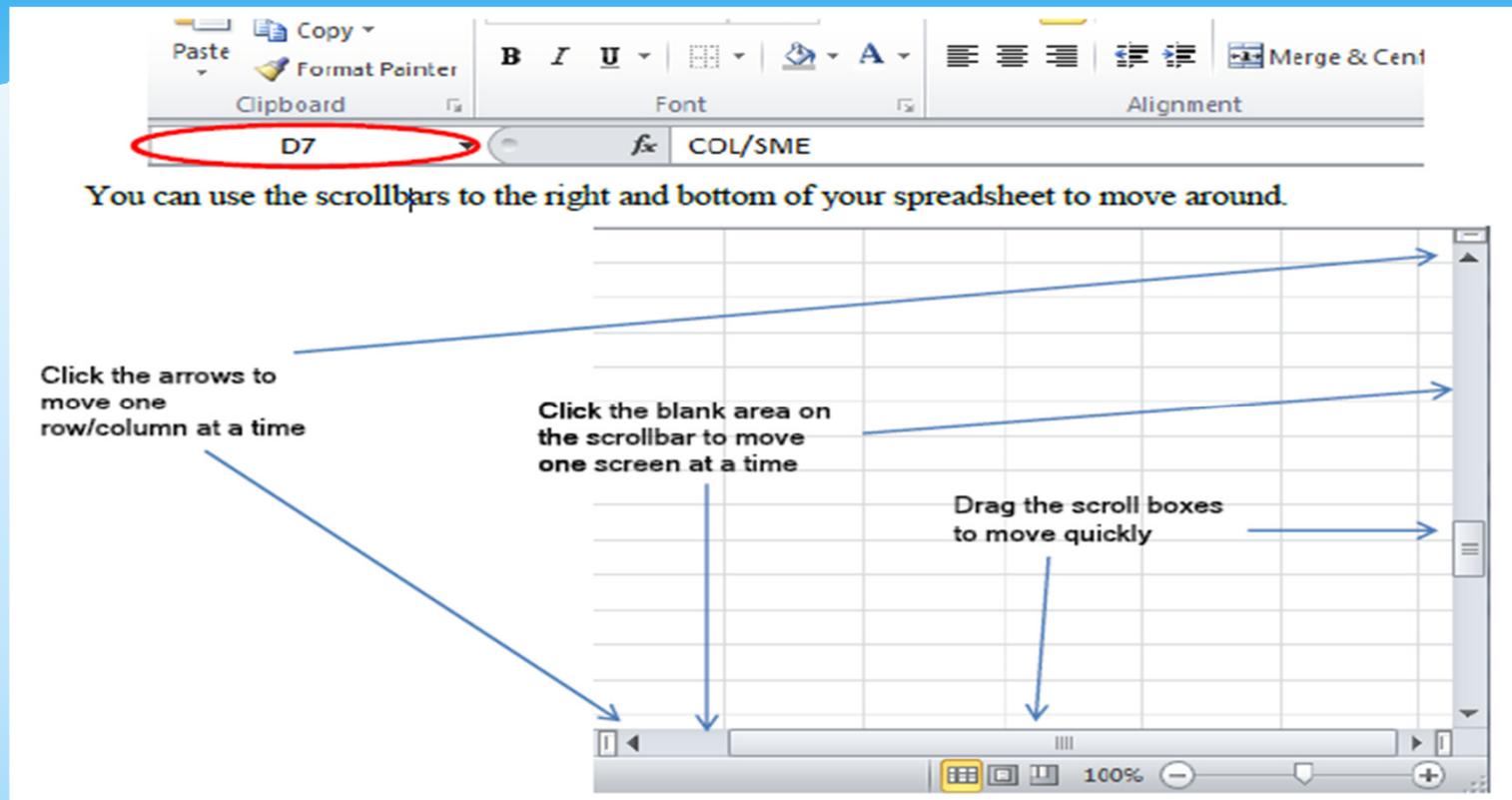
Moving Around With the Mouse

- * Click on cell C7.

You will see that the column and row headings are both highlighted to let you know which cell you have selected.

- * Look at the area to the left of the Formula Bar. This area is taken up with the Name Box (surrounded by a red circle in the example below). Later we will use this area for naming areas of your sheet but for now, it will show the address of cell(s) that you have selected.

Moving Around With the Mouse



- * **Note** The scrollbar will change the part of the sheet that you can see. It won't change the part of the sheet you have selected.

Moving Around With The Keyboard

- * Press any of the arrow keys on your keyboard to move one cell in that direction.
- * Hold down the [Ctrl] key and press [Home]. This will move you to cell A1.
- * Press the down arrow ↓ 5 times and press the right arrow → 3 times. You should have cell D6 selected.
- * Press [Home]. This will move you to column A.
- * Hold down [Ctrl] and press the down arrow ↓ to move to the last non-empty cell in that direction
- * Hold down [Ctrl] and press the right arrow → to move to the last non-empty cell in that direction. You should now be on cell D103 (if there are no more non empty cells in that direction then it will go all the way to the bottom of the sheet)..
- * Press [Ctrl] [Home] again and then practice the additional shortcuts listed below.
 - * [Page Down] Move down one screen
 - * [Page Up] Move up one screen
 - * [Alt] [Page Down] Move right one screen
 - * [Alt] [Page Up] Move left one screen

Selecting Cells

- * When you are working in a spreadsheet, it is important to be able to select cells in the sheet. Some of the more common tasks that can be done when cells are selected are:
 - * Format cells (change colours, text sizes etc.)
 - * Copy and move cells
 - * Sort information
 - * Create a graph from the information that's selected

Like many things in Excel, selecting cells can be done with the mouse or with the keyboard.

Selecting by Dragging

- * Move your mouse so that it is positioned over cell D3
- * Click and hold down the left mouse button.
- * With the button still held down, drag the mouse to cell E10 and then release the mouse button.
- * All of the cells from D3 to E10 should now be selected. Excel refers to this group of cells as D3:E10

Creating a New Spreadsheet File

* Closing a Workbook

- * Before creating a new workbook, we'll close the previous one. You can have more than one workbook open at the same time, but too many files open at once can make your computer run slowly.
- * In the top-right corner of the Excel screen you will see 2 buttons with crosses on them. The top one will close Excel entirely. The bottom one will close the workbook you are working on but Excel will remain open.

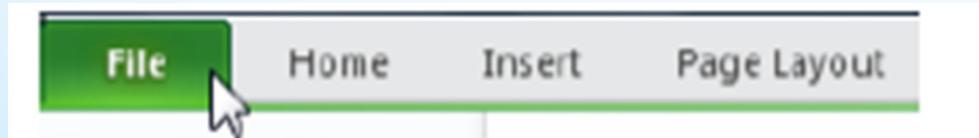


← Close the program (you can also press [Alt] [F4])

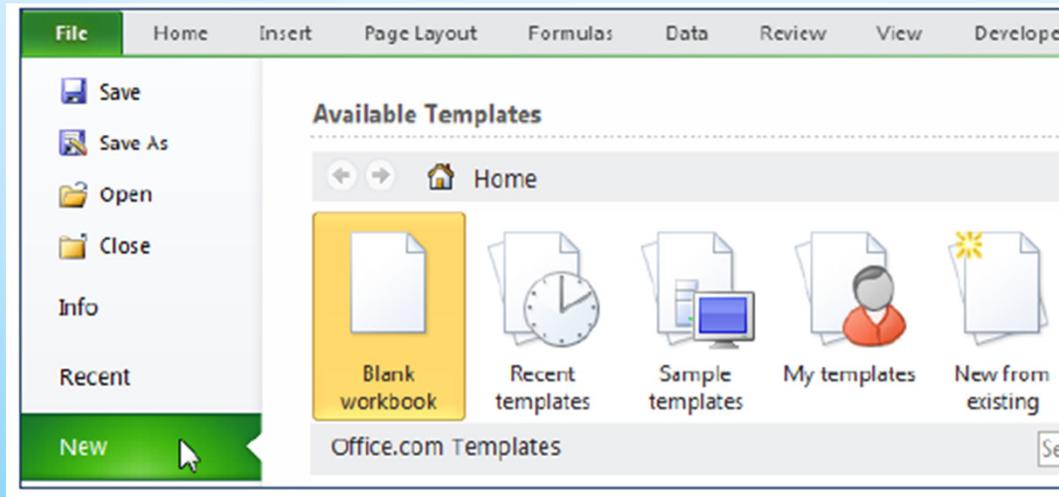
← Close the workbook (you can also press [Ctrl] [F4] or [Ctrl] [W])

Creating a new Workbook

- * Click the File tab and then select New from the menu.



- * A range of template types will appear



Creating a new Workbook

- * Make sure Blank workbook is selected and then click the Create button to the right.
- * A new blank workbook will be created.

Tip You can quickly create a new workbook by pressing [Ctrl] [N].

Saving a Workbook

- * A file can be saved using one of the methods below.
- * Click on the File tab and then click
- * Click the Save icon on the Quick Access Toolbar.



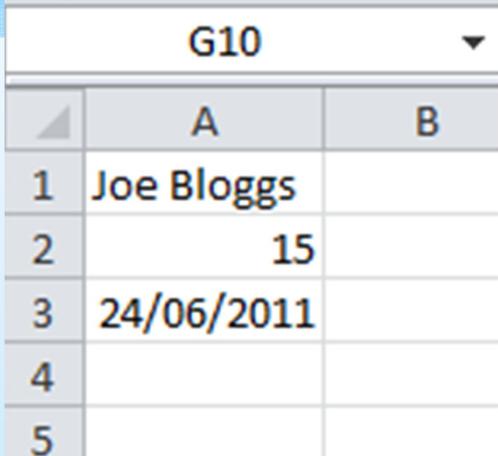
- * Press [Ctrl] [S].
- * If you haven't already saved the file, Excel will prompt you for a file name and location. If you have already saved the file, any of the above methods will simply update the saved file with any changes.
- * Use one of the above methods to choose the save command. Because it is the first time you've saved the file, you will be asked to specify a filename and a location.

Saving a Workbook

- * Call the file *Grades* and choose a suitable location to save it in. Excel will add “.xlsx” to the end of the filename. This is a file Extension and tells windows that it is a file that should be opened in Excel.
- * If you have already saved a file and want to give it a different name and / or save a copy in a different location, you can use the following methods.
- * From the File tab select  Save As
- * Press [F12]

Entering Information in to the Worksheet

- * Make sure you are in cell A1. Type your name and press [Enter].
- * On Excel's normal settings, pressing [Enter] will not only complete what you are typing in the cell, it will also move to the cell below. If cell A2 hasn't already been selected for you, then select it yourself.
- * With cell A2 still selected, type your age and press [Enter].
- * With A3 as the selected cell, hold down [Ctrl] and press [;]. This should place today's date in the cell. Press [Enter] to complete entry in that cell



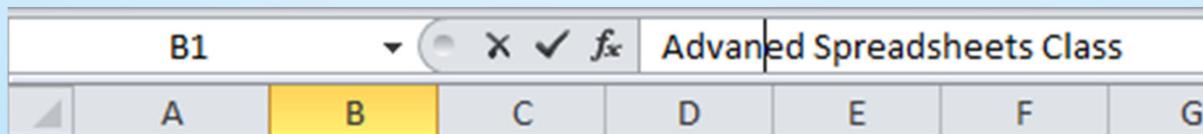
The screenshot shows a portion of an Excel worksheet. The active cell is G10. The worksheet has columns A and B, and rows 1 through 5. The data entered is as follows:

	A	B
1	Joe Bloggs	
2	15	
3	24/06/2011	
4		
5		

Tip If you press [Ctrl] [Shift] [;] the current time will be placed in the cell

Editing Cell Contents

- * Select cell B1 one and enter the following text (including the spelling error).
 - * *Advaned Spreadsheets Class*
- * To correct the mistake, we'll need to edit the cell. If you click on the cell and begin typing, all of the text in the cell will be deleted. We need to change to edit mode so we can edit part of the cell's contents. There are three ways to enter edit mode.
 - * Double-click on the cell you want to edit
 - * Press [F2] when the cell you want to edit is selected
 - * Click in the formula bar below the toolbar icons



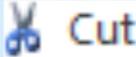
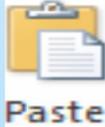
Editing Cell Contents

- * Use one of the above methods to enter Edit mode. An **x** and a ✓ will appear to the left of the formula bar.
- * Add a letter **C** to correct the spelling of the text so that it reads *Advanced Spreadsheets Class*.
- * When you have edited the cell contents, press [Enter] or click the tick to complete the changes to the cell contents. If you want to cancel making changes to the contents of a cell, you can press [Esc] or click the cross icon.

Copying and Moving

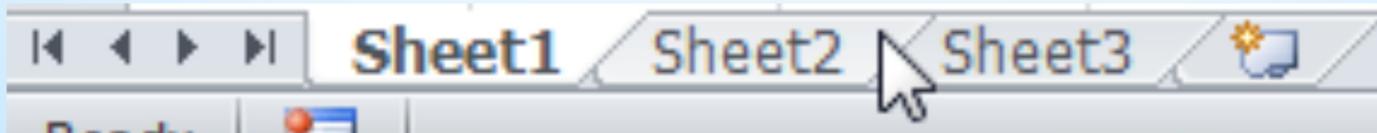
- * It's often necessary to copy and move certain parts of your spreadsheet. This can be done using any of the methods explained below.
- * **Cut, Copy & Paste**
 - * Using the standard Windows copy & paste features is one of the most common ways to copy and move information in Excel. When you use the *cut* or *copy* features in excel, the information you had selected is copied to an area of Windows known as the *clipboard*. The copy feature will leave the information in its original location so you can make a copy. The cut feature will remove it from its original location so you can move it. You can then choose where the copied, information will go by *pasting* from the clipboard.

Copying and Moving

- * To copy the selected information, you can use one of the following methods.
 - * Click the Copy icon on the Ribbon bar. 
 - * Press [Ctrl] [C]
- * To cut the selected information, you can use one of the following methods.
 - * Click the Cut icon on the Ribbon bar. 
 - * Press [Ctrl] [X].
- * To paste the selected information from the clipboard, you can use one of the following methods.
 - * Click the Paste icon on the Ribbon bar. 
 - * Press [Ctrl] [V].

Auto Fill

- * Excel has a feature called Auto fill, which enables the user to easily copy information over a large range of cells at the same time.

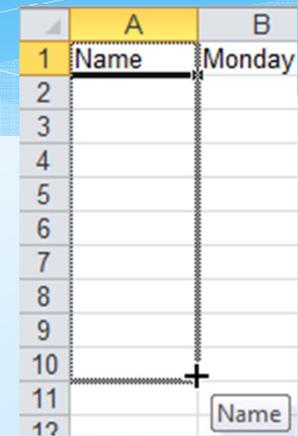


- * To change to the second sheet, press [Ctrl] [Page Down] or click the tab for sheet 2 at the bottom of the screen.

Tip : You can rename a sheet tab by double clicking on the tab, and then entering a new name

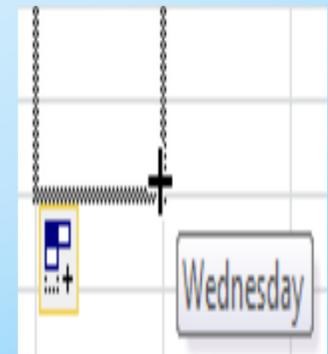
Auto Fill

- * When the cell is selected, you will see a border around the cell that is used for moving cells. In the bottom-right corner of that border, is an area referred to as the fill handle. If you move your mouse over the bottom-right corner, your mouse pointer will change to a small black cross.
- * With your mouse pointer still positioned over the fill handle, click and hold the mouse button, then drag downwards.



A screenshot of an Excel spreadsheet. The first row is highlighted in yellow. Cell A1 contains the text 'Name' and cell B1 contains 'Monday'. A dashed border surrounds the selected cell A1. A small black cross, the fill handle, is located at the bottom-right corner of this border. A mouse cursor is positioned over the fill handle. A small tooltip box with the text 'Name' is visible near the bottom-right corner of the spreadsheet.

	A	B
1	Name	Monday
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		



Auto Fill

- * The spreadsheet should now look similar to the example below

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Name	Monday	Mon	January	Jan	Quarter 1	Qtr1	Apr-11	April	1	5	February	Oct-03
2	Name	Tuesday	Tue	February	Feb	Quarter 2	Qtr2	May-11	April	2	10	April	Nov-03
3	Name	Wednesday	Wed	March	Mar	Quarter 3	Qtr3	Jun-11	April	3	15	June	Dec-03
4	Name	Thursday	Thu	April	Apr	Quarter 4	Qtr4	Jul-11	April	4	20	August	Jan-04
5	Name	Friday	Fri	May	May	Quarter 1	Qtr1	Aug-11	April	5	25	October	Feb-04
6	Name	Saturday	Sat	June	Jun	Quarter 2	Qtr2	Sep-11	April	6	30	December	Mar-04
7	Name	Sunday	Sun	July	Jul	Quarter 3	Qtr3	Oct-11	April	7	35	February	Apr-04
8	Name	Monday	Mon	August	Aug	Quarter 4	Qtr4	Nov-11	April	8	40	April	May-04
9	Name	Tuesday	Tue	September	Sep	Quarter 1	Qtr1	Dec-11	April	9	45	June	Jun-04
10	Name	Wednesday	Wed	October	Oct	Quarter 2	Qtr2	Jan-12	April	10	50	August	Jul-04
11													

Creating a table

* Enter the numbers shown below.

	A	B	C	D	E	F	
1	Joe Bloggs	Advanced Spreadsheets Class					
2	15						
3	24/06/2011						
4							
5	Student	Term 1	Term 2	Term 3	Term 4	Year Total	
6	Jean Picard	15	12	14	17		
7	John Archer	18	14	17	16		
8	James Kirk	23	22	19	21		
9	Chris Pike	8	11	7	6		
10	Jeff Sinclair	19	19	18	14		
11	Katheryn Ja	13	12	10	12		
12	Ben Cisco	16	22	20	19		
13	John Sherric	22	20	24	21		
14	Lita Alexanc	23	21	28	21		
15	Class Average						

Calculations in Excel

- * Although calculations are one of the main uses for spreadsheets, Excel can do most of the hard work for you by using a formula. When you enter a formula in to a spreadsheet cell, Excel will calculate the answer and display the answer in that cell. There are a few rules to remember when creating a spreadsheet formula.
- * A formula must always begin with an equal sign (they will also work with a + or – sign but an equal sign is preferred). As soon as you begin a cell with a = Excel will know that you are creating a formula.
- * A formula will follow the order of operations (BIMDAS). Generally if there is more than one part to a formula the calculations will work from left to right but... Any part of the formula in brackets will be calculated first. Indices will be next. Multiplication and division will be next. Addition and subtraction will be calculated last.

Calculations in Excel

B	Brackets ()
I	Indices ^
M	Multiplication *
D	Division /
A	Addition +
S	Subtraction -

- * A formula can refer to other cells in the spreadsheet using cell references.
- * If any part of the formula is referring to text, the text must be enclosed in quotation marks “ ”.
- * The cells referred to in a formula can't include the cell the answer will be in. This will cause a circular reference error.

Creating a Simple Formula

- * Create a blank workbook.
- * Click in cell A1 and enter the following.
 $=5+5$
- * Press [Enter] to complete the formula. Excel will calculate the result.

Using Cell Referencing

- * Enter the number 5 in cell B1.
- * Enter the number 10 in cell B2.
- * Enter the following formula in cell B3.
 $=b1+b2$
- * Press [Enter] to complete the formula. Excel will calculate the result.
- * Change the number in cell B2 to 12 and press [Enter]. The result of the formula will be re-calculated (if it doesn't recalculate on its own you can press [F9] to force recalculation).

Using the Mouse for Cell Referencing

Creation of a formula can be made easier by using the mouse to create cell references.

- * Enter the number 10 in cell C1.
- * Enter the number 20 in cell C2.
- * Click in cell C3 and type a = sign.
- * Click on cell C1. The reference for that cell will appear in the formula.
- * Type a + sign.
- * Click on cell C2. The reference for that cell will appear in the formula.
- * Check that the formula reads =C1+C2 and press [Enter]. Your table should look like the example below.

	A	B	C	D
1	10	5	10	
2		12	20	
3		17	30	

Tip You can make your spreadsheet show formulas instead of answers by clicking the **Formulas** tab on the ribbon and then clicking the button.

Editing a Formula

- * Select cell C3 and press [F2] to edit the formula
- * Notice that the cell references in the formula have become coloured. The cells the references refer to have a border around them that is the same colour as the reference. These coloured borders can be moved as an easy way to edit a formula.
- * Move your mouse to the edge of the blue border around cell C1.
- * Drag the border to move it to cell B1. This will change the cell reference in the formula.
- * Press [Esc] to cancel the changes to in the formula.
- * Close the workbook without saving the changes.

Use of Brackets

- * Click on cell B11 and enter the current date by pressing [Ctrl] [;] and then pressing [Enter].
- * Click on cell B12 and enter your date of birth.
- * We will create a formula in cell B13 that calculates your age by taking your date of birth away from the current date.
- * Click in cell B13 and enter the following formula.

`=B11-B12`

- * The result of the formula will show your age just as it should. Unfortunately, it's showing you your age in days instead of in years which probably isn't so useful. We can correct this if we divide the result by the number of days in a year.
 - * Edit the formula so that it looks like the one below and press [Enter].
- `=B11-B12/365`
- * This still won't give you the correct answer because Excel will calculate division before it will calculate subtraction (remember the order of operations). We need to tell Excel to calculate the subtraction first and then divide the result by 365. This is where the brackets come in.
 - * Edit the formula again to look like the one below and press [Enter].
- `=(B11-B12)/365`
- * That's more like it. The brackets tell Excel to calculate that part of the formula first.

Functions

- * Functions are a special kind of formula that can simplify complex calculations. The following exercises will demonstrate the use of functions.

Adding Several Numbers Together

- * Make sure the Formulas workbook is still open.
- * Click in cell B9.
- * Begin your formula with a = sign and then click on cell B2.
- * Type a + sign and click on cell B3.
- * Complete the formula so that it looks like the one below.
- * $=B2+B3+B4+B5+B6+B7+B8$
- * You will get the correct answer, but it's a long formula. Adding together 50 or 100 cells like this would be a tedious process.
- * Functions can be used to take the hard work out of many types of calculations in Excel. Functions all follow the same format. I.e. = sign, name of the function, information to be calculated in brackets.
- * $=NameOfFunction(information\ to\ be\ calculated)$
- * There are hundreds of functions built in to Excel and custom functions can be created. The most commonly used function is the Sum function.

Sum Function

- * Click in cell C9.
- * Type `=sum(C2:C8)` and press [Enter].
- * This will tell Excel to add up the sum of all the cells from C2 to C8.
- * Click in cell D9.
- * Type `=sum(`
- * Select cells D2 to D8.
- * You can type the right bracket, but if you don't Excel will put it in for you. Press [Enter] to complete the function. It should look like the one below.

`=SUM(D2:D8)`

Sum Function

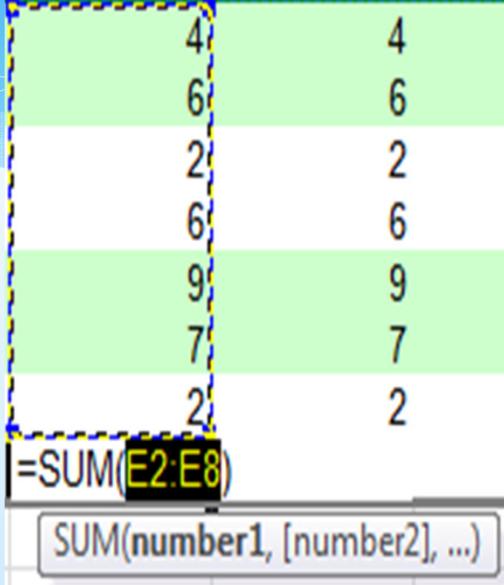
- * If you want to add together more than one group of cells, you can separate each cell range with a comma.

E.g. =SUM(C2:C8,E2:E8,G2:G8)

- * This would add cells C2 to C8 and E2 to E8 and G2 to G8

Using the AutoSum Tool

- * Since the Sum function is used so often, a special tool has been provided to make it easy to use.
- * Click in cell E9.
- * Click the AutoSum icon on the Ribbon bar (It is found on the Home and Formulas tabs).  AutoSum ▾
- * Excel will create a Sum function referring to the cells above. Excel will assume the cells above are the ones to be added together. These cells will remain selected in case you would rather select a different group of cells. If there are no numbers in the cells above, the cells to the left will be used. Otherwise the nearest group of cells will be selected.
- * Press [Enter] to confirm that the correct cells are selected and complete the function.
- * The function should look like the one below.
$$=SUM(E2:E8)$$
- * You can also use the AutoSum tool by selecting the cells to be added first.



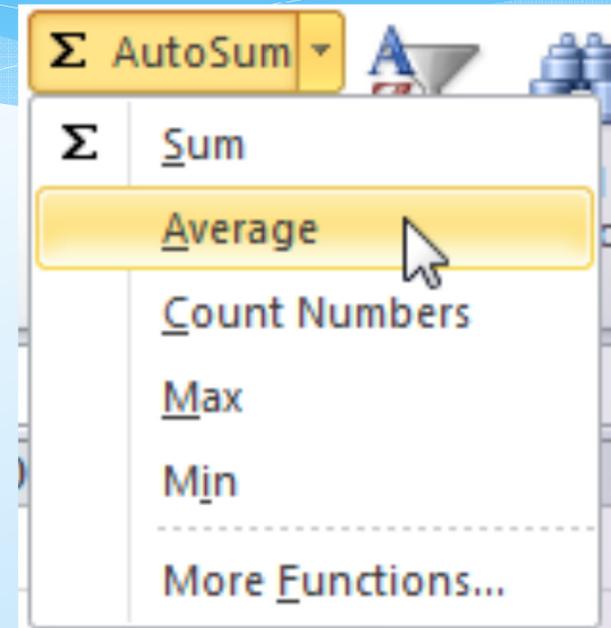
4	4
6	6
2	2
6	6
9	9
7	7
2	2

=SUM(E2:E8)

SUM(number1, [number2], ...)

Using the AutoSum Tool

- * Select cells F2 to F8.
- * Click the AutoSum icon.
- * A Sum function will be automatically created based on the cells you selected.
- * The AutoSum icon can also be used to create other common functions such as Average and Count.
- * Click in cell G9.
- * Click the arrow next to the AutoSum icon.
- * A list of common functions will be displayed.
- * Click on Average.
- * An Average function will be created in the selected cell. Notice that it is written the same as a Sum function.
- * Check that the function reads =AVERAGE(G2:G8) and press [Enter] to complete the function.
- * Save the changes to the workbook and then close it.



Using Functions in a Table

- * Open the *Grades* workbook
- * Add new labels in Column A as shown to the right.
- * Click in cell F6.
- * Click the AutoSum icon.
- * Make sure cells B6 to E6 are selected and press [Enter] to complete the function.

Term 1	Term 2	Term 3	Term 4	Year Total	
15	12	14	17	=SUM(B6:E6)	
18	14	17	16	SUM(number1, [number2], ...)	

Using Functions in a Table

- * Use the fill handle to copy the function down through to cell F16.
- * When a formula is copied to other cells, the cell references should change for each cell.
- * Click in cell B15.
- * Click the arrow next to the AutoSum icon and click on Average.
- * Make sure cells B6 to E6 are selected and press [Enter] to complete the function.
- * Use the fill handle to copy the formula across to cell F15.
- * Click in cell B16.
- * Click the arrow next to the AutoSum icon and click on Max.
- * Notice that the function has selected all of the cells above including the average cell which we don't want selected.
- * While these cells are still highlighted, select cells B6 to B14 and press [Enter]. The formula in cell B16 should be =MAX(B6:B14).
- * Use the fill handle to copy the formula across to cell F16.
- * Try completing the Lowest mark cells in row 17 yourself by using the Min function.
- * Use a Count Numbers function in cell B18 to show the number of students.
- * The completed table should look like

11	Katheryn Ja	13	12	10	12	47
12	Ben Cisco	16	22	20	19	77
13	John Sherric	22	20	24	21	87
14	Lita Alexanc	23	21	28	21	93
15	Class Avera	17.44444	17	17.44444	16.33333	68.22222
16	Highest Mar	23	22	28	21	93
17	Lowest Mar	8	11	7	6	32
18	Number of :	9	9	9	9	9

Using an If Function

- * If functions can be useful if you want an excel formula to select from 2 different answers based on criteria you specify. In our grades example, we can use an If function to say a student has passed if their mark was over 50 and fail if their mark wasn't over 50. If functions have 3 sections with a comma between each section as shown below.
- * *=If(condition to test, answer if condition is true, answer if condition is false)*

Using an If Function

- * Click in cell G5 and enter the heading *Pass/Fail*.
- * Enter the following If function.
- * `=If(F6>=50,"Pass","Fail")`
- * The first part of the formula checks to see if the number in cell F6 is greater than 50 or equal to 50. The = sign is important. If it was left out then someone who scored exactly 50 wouldn't be included.
- * The second section says that if this test condition is true, the text *Pass* will be displayed for the answer. Note that where text is used in a formula, it must be enclosed in quotation marks. The third section specifies the answer (*Fail*) if the test condition is not true.
- * When the If function has been entered, use the fill handle to copy the formula down to cell G14. There should be 7 passes and 2 fails.

Using an If Function

1	Joe Bloggs	Advanced Spreadsheets Class							
2	15								
3	24/06/2011								
4									
5	Student	Term 1	Term 2	Term 3	Term 4	Year Total	Pass/Fail		
6	Jean Picard	15	12	14	17	58	Pass		
7	John Archer	18	14	17	16	65	Pass		
8	James Kirk	23	22	19	21	85	Pass		
9	Chris Pike	8	11	7	6	32	Fail		
10	Jeff Sinclair	19	19	18	14	70	Pass		
11	Katheryn Ja	13	12	10	12	47	Fail		
12	Ben Cisco	16	22	20	19	77	Pass		
13	John Sherric	22	20	24	21	87	Pass		
14	Lita Alexanc	23	21	28	21	93	Pass		
15	Class Average	17.44444	17	17.44444	16.33333	68.22222			
16	Highest Mar	23	22	28	21	93			
17	Lowest Mar	8	11	7	6	32			
18	Number of :	9	9	9	9	9			

Absolute Cell Referencing

- * In the previous exercise, you copied formulas to different cells. As the formulas were copied, the cells referred to in each formula changed to suit the new location. This is because formulas normally use *relative* referencing.

	A	B	C
1	12	14	=A1*B1
2	13	15	=A2*B2

- * In the example above, the formula in C1 multiplies A1 by B1. When the formula is copied downward, it changes to multiplying A2 by B2. This is because Excel is not keeping track of exact cell references. It is only seeing the cells in the formula are the two cells to the left. When the formula is copied down, it is still copying the two cells to the left.

Absolute Cell Referencing

- * Relative references are fine for most formulas but sometimes there are situations where you want a formula to refer to a specific cell even when you copy the formula to another location. In these situations you need to use **absolute** references.
- * Open the *Formulas.xlsx* workbook.
- * Click in cell I2 and enter 30%.
- * Click in cell H2 and enter =G2*I2.
- * You should get the correct answer for this cell.
- * Use the fill handle to copy this formula down to cell H8.
- * All of these cells will be filled with zeros. When the formula is copied down, it will still be referring to the cell to the right of the formula, and all of the cells the formula has been copied to have nothing to the right. We will need to edit the original formula to make sure that it keeps on referring to cell I2, even when the formula is copied to other locations.
- * Click in cell H2 and press F2 to edit the formula.
- * Click on the part of the formula that refers to I2.
- * Press [F4].

Absolute Cell Referencing

- * Dollar signs will appear in the cell reference ($\$I\2). These dollar signs mean that the formula will still refer to column I and row 2 even when it is copied to another location. You can type the dollar signs yourself but the F4 shortcut will cycle between the different kinds of references.
- * I2 Relative reference – row and column references will both change.
- * $\$I2$ -Mixed reference – Column reference stays constant, row reference will change.
- * $I\$2$ -Mixed reference – Row reference stays constant, column reference will change.
- * $\$I\2 -Absolute reference – Row and column reference will both stay constant if the formula is copied to another location.
- * Make sure the formula in H2 reads $=G2*\$I\2 and press [Enter].
- * Use the fill handle to copy the formula down to cell H8. Each formula should now be still correctly referring to cell I2. Save and close the workbook

Lookup Functions

- * Lookup functions are a bit like an IF function. They allow you to create a formula that will choose from several different answers based on information in a table. We will use a vertical lookup function to create a formula which checks a student's mark and shows what their grade will be.

Vertical Lookup

- * Open the *Grades* workbook if it is not already open.
- * The first thing we will need to do is create the table that will contain the grade cut-off points.
- * Click in cell K6 and enter a zero.
- * Complete the information in cells K6 to L10 as shown to the right.
- * Click in cell H5 and enter the text Grade.
- * Click in cell H6. This is where we want the first grade to go.
- * Like an If function, a Lookup function has different parts. The sections of a lookup function are described below.

K	L
0	F
35	D
50	C
65	B
80	A

Vertical Lookup

- * Lookup value -The cell the function is checking, in this case the student mark.
- * Table array-The cells the answers are coming from - our table of grade cut-offs
- * Column index -The column in the array that the answer will come from. In our case, the function will match the student grade with a number in the first column of the array, then it will check the second column to find the matching grade, so the second column is the column index.
- * Range lookup-If the function doesn't find an exact match in the table array, putting true in this section will mean that it will use the closest match instead

Vertical Lookup

- * Enter the following formula. =VLOOKUP(
* Click on cell F6 (the cell with the first student's mark).
* Type a comma to end the first section and then select the grades cut-off table (which should be cells K6 to L10.
* Press F4 to make sure this section uses absolute references (\$K\$6:\$L\$10). When we copy the function down for the other students we want to make sure it is still correctly referring to the cells with the grade cut-off marks.
* Type another comma and then the number 2.
* Type another comma and then type true.
* Type a closing bracket and then press [Enter] to complete the formula. The completed formula
 should be =VLOOKUP(F6,\$K\$6:\$L\$10,2,TRUE).
* With cell H6 selected, move your mouse over the Fill Handle.

Vertical Lookup

- * Double click on the fill handle. The contents of the cell will be copied down until a blank cell is detected to the left. This can be a quick way of using the AutoFill function in a table.
- * If your lookup table goes horizontally instead of vertically then you can use a horizontal lookup function. It works exactly the same except that you type *Hlookup* instead of *Vlookup*.
- * Save and close the file.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Joe Bloggs	Advanced Spreadsheets Class										
2		15										
3	24/06/2011											
4												
5	Student	Term 1	Term 2	Term 3	Term 4	Year Total	Pass/Fail	Grade				
6	Jean Picard	15	12	14	17	58	Pass	C				0 F
7	John Archer	18	14	17	16	65	Pass	B				35 D
8	James Kirk	23	22	19	21	85	Pass	A				50 C
9	Chris Pike	8	11	7	6	32	Fail	F				65 B
10	Jeff Sinclair	19	19	18	14	70	Pass	B				80 A
11	Katheryn Ja	13	12	10	12	47	Fail	D				
12	Ben Cisco	16	22	20	19	77	Pass	B				
13	John Sherric	22	20	24	21	87	Pass	A				
14	Lita Alexanc	23	21	28	21	93	Pass	A				
15	Class Average	17.44444	17	17.44444	16.33333	68.22222						
16	Highest Mar	23	22	28	21	93						
17	Lowest Mar	8	11	7	6	32						
18	Number of	9	9	9	9	9						

Formatting a Spreadsheet

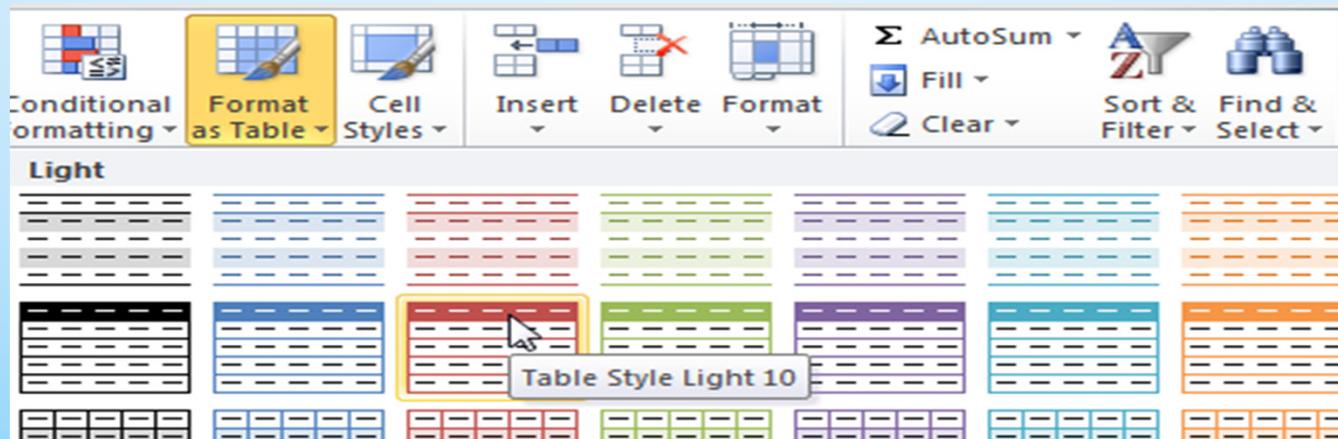
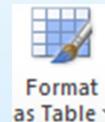
- * Formatting a spreadsheet means changing the way it looks to make it neater and more attractive. Formatting changes can include modifying number styles, text size and colours. Many people format their spreadsheet as they go but a lot of time and effort can be saved by waiting until the sheet is relatively complete before worrying about the formatting. This is because it is a lot easier to format a sheet once it already has a good amount of content.
- * Formatting a spreadsheet can be done in a number of different ways:
 - * Using AutoFormat
 - * Using ribbon icons and shortcuts
 - * Using the format cells dialog box
- * The later methods take more time and effort but allow for far greater control over the end result.

Using AutoFormat

- * Excel's AutoFormat feature allows you to choose from a number of different table formats and then apply the formatting settings to a range of cells you specify. When you apply an AutoFormat, it will replace any existing formatting on the selected cells. You can add your own formatting afterwards though.

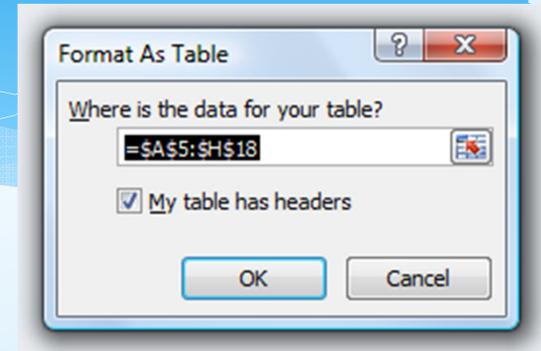
Using AutoFormat on a Table

- * Open your *Grades* workbook if it is not still open.
- * Select the cell range A5:H18. This should be the range of cells which contains the student results.
- * Make sure the Home tab is selected on the Ribbon and then click Format as Table.



Using AutoFormat on a Table

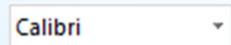
- * Click on one of the table formats in the list. A dialog box like the following will appear
- * Check that the cell references are correct. Also make sure that the My table has headers options is selected.
- * Click OK. Excel will format the headings differently from the other cells in the table to make them stand out. It will also add a small arrow next to each one which can be used for sorting and filtering (more on that latter). Depending on the format chosen, Excel might also assume that rows and columns with formulas are totals and format them differently.
- * Try some other table formats on your selection.



Formatting Using Shortcuts

- * Many of the most commonly used formatting options can be selected from the Home tab of the ribbon or by using keyboard shortcuts.
- * Below is a list of the icons available in the ribbon along with a description of each.

Formatting Using Shortcuts



* Change the font face for the selected cells. E.g. Arial or Comic Sans MS



* Change the text size in the selected cells



* Turns **Bold** formatting on and off in the selected cells [Ctrl] [B]



* Turns *Italic* formatting on and off in the selected cells [Ctrl] [I]



* Turns Underline formatting on and off in the selected cells [Ctrl] [U]



* Aligns the contents of each of the selected cells to the left



* Aligns the contents of each of the selected cells to the centre

Formatting Using Shortcuts



- * Aligns the contents of each of the selected cells to the right



- * Merges the selected cells and aligns the contents to the centre



- * Formats the selected cells with the currency style (\$#,###.##)



- * Formats the selected cells with the percent style (##%)



- * Formats the selected cells with the comma style (#,###.##)



- * Increases the number of decimal places



- * Decreases the number of decimal places

Formatting Using Shortcuts



* Decreases indent for the selected cells



* Increases indent for the selected cells



* Change the border style around the selected cells

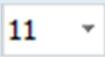


* Change the background colour of the selected cells



* Change the colour of text in the selected cells

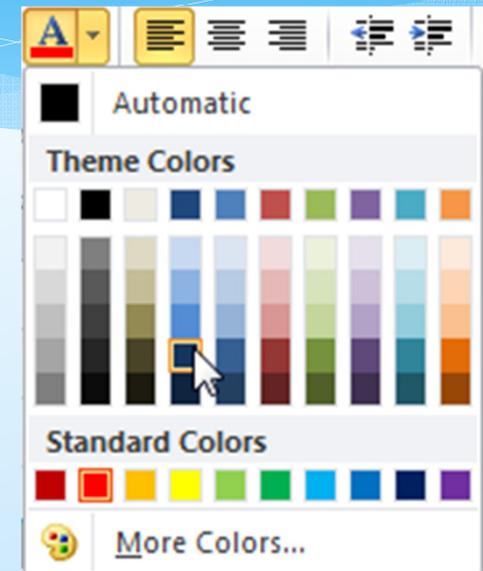
Formatting Text in Individual Cells

- * Select cells A1:A3.
- * Click the Bold formatting icon or press [Ctrl] [B].
- * Note that clicking it again turns the bold formatting off.
- * Click the arrow to the right of the Font Size box .
A list of font (text) sizes will appear as shown to the right 
- * Click 12. You can also type a number directly in the box and press [Enter] if the size you want is not listed.

Note Font heights are measured in points. 72 points equals one inch

Formatting Text in Individual Cells

- * Click the left align icon.
- * Click the arrow to the right of the font select box. A list of fonts will appear.
- * Click Comic Sans MS in the list to choose this font. You can also type the font name in the selection box and press [Enter]. When the list of fonts is showing, you can press a letter to move to the first font name starting with that letter. They are mostly in alphabetical order, though recently used fonts appear at the top of the list.
- * Click the arrow next to the Font Colour icon . A list of available font colours will appear as shown to the right.
- * From the list of colours, choose a colour and click it. You will notice that the line on the bottom of the icon will turn to the colour you just selected. You can choose that colour again by clicking on the icon itself instead of clicking the arrow next to the icon.
- * Click the arrow next to the Font Colour icon again.



Note All of the formatting shortcuts we have used are identical to the ones found in Microsoft Word and many other programs.

Formatting Text in Individual Cells

- * When your formatting is complete, the cells should look similar to the example below.

	A	B	C	D	E	F	G	H
1	Joe Bloggs	Advanced Spreadsheets Class						
2	15							
3	24/06/2011							
4								
5	Student ▼	Term 1 ▼	Term 2 ▼	Term 3 ▼	Term 4 ▼	Year Total ▼	Pass/Fail ▼	Grade ▼
6	Jean Picard	15	12	14	17	58	Pass	C
7	John Archer	18	14	17	16	65	Pass	B
8	James Kirk	23	22	19	21	85	Pass	A

Basic Number Formatting

- * It is often important to change the way numbers are presented in a spreadsheet. For example, you might want a number that looks like.

3845

- * To appear as

\$3,845.00

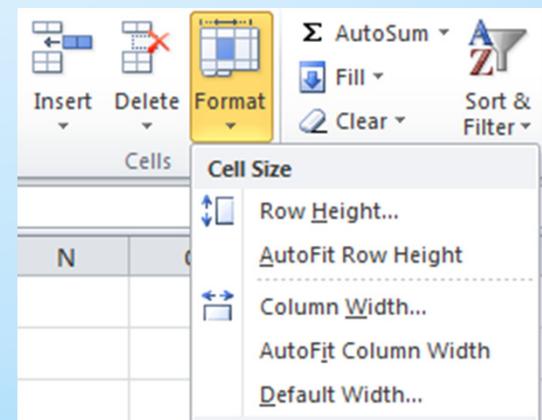
- * In Excel it is not necessary to type things such as dollar signs yourself since the formatting options can place them in for you. Formatting options can easily be changed later as well.
- * Select the cells that have the grades for the students. These should be cells B6:F18. Some of the AutoFormats chosen before may have formatted these numbers as dollar amounts which is not appropriate in this instance.
- * Click the Comma formatting icon.
- * Click the Decrease Decimals icon twice. The numbers should now be back to normal with no decimal places. Now we will format the main heading so that it becomes centred across several cells.
- * Select cells B1:H1.
- * Click the icon.  Merge & Center
- * The selected cells will now be merged in to one with the contents centre aligned.

Column Widths and Row Heights

- * Column widths and Row heights can be adjusted by going to the menu and selecting Format, Column, Width or Format, Row Height. It is usually easier, however, to do it using the mouse as demonstrated in the following exercise.

Adjusting Height and Width

- * Select a cell anywhere within column A.
- * On the Ribbon, click the Format icon in the Cells group to display the cell format menu. The first options in the list are options for adjusting row and column height. Many of these options are also available if you right click on a row or column header button but there are also some quick ways to adjust column width and row height.



Adjusting Height and Width

- * Move your mouse pointer so that it is between the column A and B headings. Your mouse pointer will change to a double arrow shape.
- * Click your mouse button and drag to the right. A caption will appear telling you how wide the column will be.
- * Keep on dragging until the column width reaches 15.00 (110 pixels).
- * You can also resize a column so that it will automatically fit the contents of the column.
- * Move your mouse pointer so that it is between the column A and B headings again.
- * Double-click to automatically fit the column width to the contents of the column
- * Select column B through to column F by dragging across the column headings.
- * Follow the steps 3 – 5 in this exercise to change the width of any of the selected columns to 9.29 (70 pixels). All of the selected columns will become the same width.
- * If you use the AutoFit method, then each column will resize to fit its contents. This could mean that each column would end up a different size.

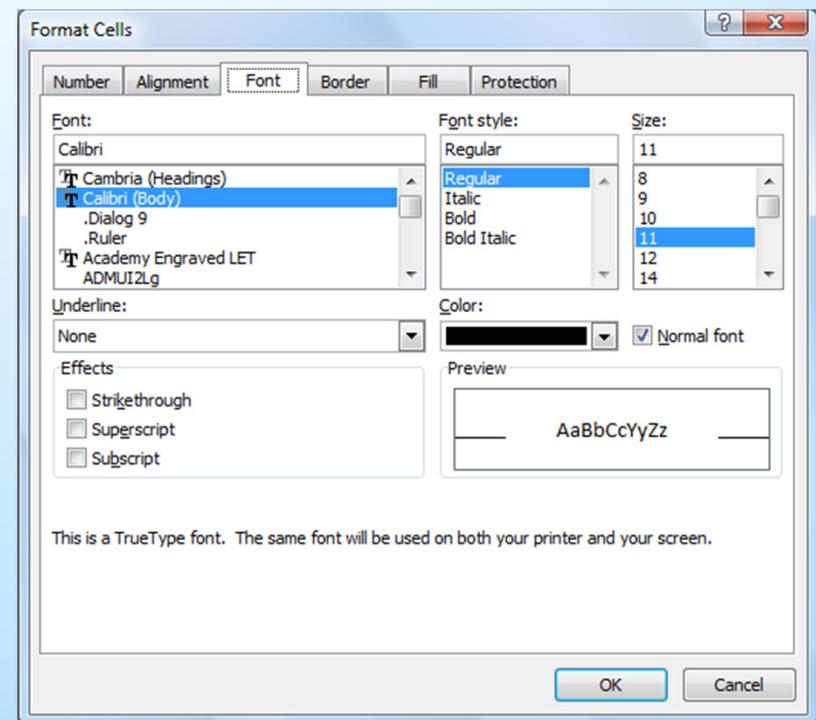


Adjusting Height and Width

Student	Term 1	Term 2	Term 3	Term 4	Year Tot	Pass/Fail	Grade
Jean Picard	15	12	14	17	58	Pass	C
John Archer	18	14	17	16	65	Pass	B
James Kirk	23	22	19	21	85	Pass	A
Chris Pike	8	11	7	6	32	Fail	F
Jeff Sinclair	19	19	18	14	70	Pass	B
Katheryn Janeway	13	12	10	12	47	Fail	D
Ben Cisco	16	22	20	19	77	Pass	B
John Sherridan	22	20	24	21	87	Pass	A
Lita Alexander	23	21	28	21	93	Pass	A
Class Average	17	17	17	16	68		
Highest Mark	23	22	28	21	93		
Lowest Mark	8	11	7	6	32		
Number of Students	9	9	9	9	9		

Advanced Formatting Options

- * Many additional formatting options are not shown as icons in the Ribbon. These additional options can be found in the Format Cells dialog as shown below. There are six tabs along the top of the dialog box which allow you to go to different categories for formatting.

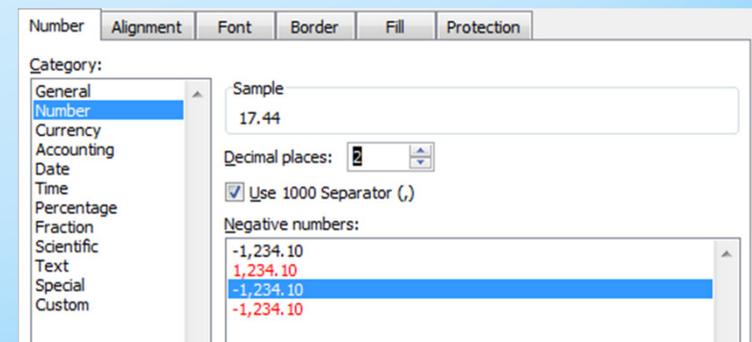


Number Formats

- * Numbers, dollar amounts, percentages, dates and times are all treated by Excel as numerical values. As far as Excel is concerned, they are all numbers. The only difference is the way they are displayed through formatting. In an earlier exercise, we used icons on the toolbar so change the number format of the main cells in the table. The toolbar icons only give a few format choices. The Formatting options however, give numerous number formatting options and even allow you to create your own custom number formats.

Changing Number Formats

- * Select the cells with the table averages (B15:F15).
- * Access the Format Cells dialog box by using one of the following methods.
- * Click the small button in the bottom right corner of the Number group on the Ribbon (there are also similar buttons in the Font and Alignment groups – these will take you to different tabs in the same Format Cells dialog box).
- * Right-click on the selected cells and choose → Format Cells
- * Press [Ctrl] [1] to open the Format Cells dialog box.
- * Make sure the Number tab is selected.
- * From the list of Categories on the left choose Number.
- * Set the number of Decimal Places to 2. Note that a sample of the selected number format appears at the top.
- * Click OK to confirm the change.



Changing Date Formats

- * Select cell A3.
- * Access the Format Cells options as shown in the previous exercise.
- * Choose Date for the number category.
- * Select a date format which includes the name of the month rather than the number of the month.
- * Click Ok when done.

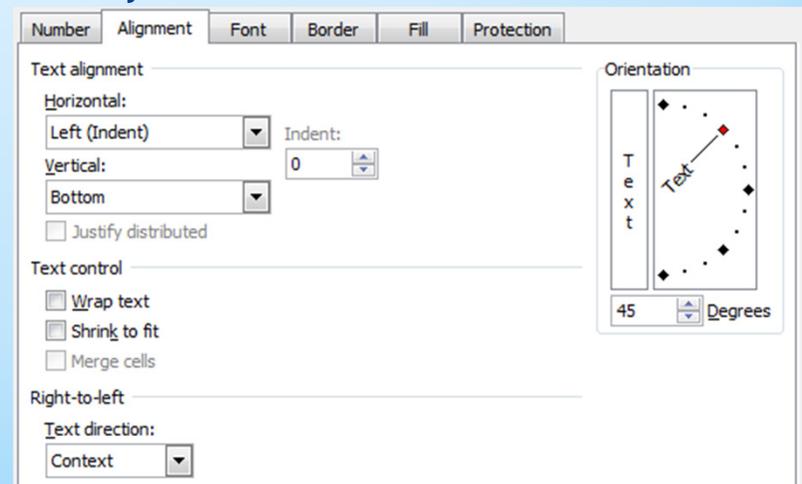


The screenshot shows a portion of an Excel spreadsheet. The column header is 'A' and the row headers are '1', '2', '3', and '4'. Cell A1 contains 'Joe Bloggs', cell A2 contains '15', and cell A3 contains '24 June 2011'. Cell A3 is highlighted with a thick black border, indicating it is the active cell.

	A
1	Joe Bloggs
2	15
3	24 June 2011
4	

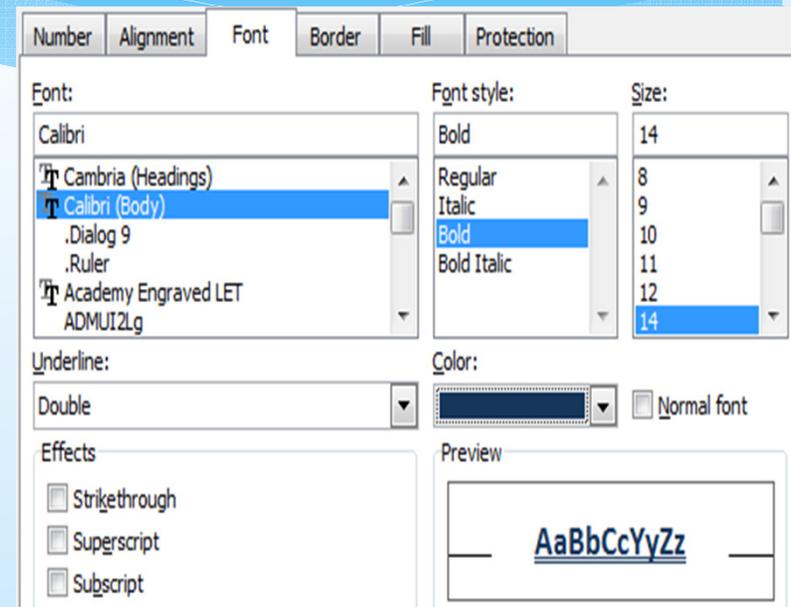
Aligning Text

- * Select the cells B5:H5.
- * Access the Format Cells options.
- * Change the Horizontal alignment to *Left (Indent)*.
- * Change the Orientation to *45 Degrees* (this can be set by entering the number in the degrees box shown or by dragging the text line above it to the angle you want).
- * Click Ok to confirm the settings.
- * Select cell B1 (this cell should contain your heading in the merged cells).
- * Access the Format Cells options.
- * Notice that the Merge Cells option is turned on and the Horizontal alignment is set to *center* because we used the Merge and Center icon earlier. Click Cancel to leave these options as they are.



Font Options

- * Select cell B1.
- * Access the Format Cells options.
- * Select the Font tab.
- * Select the following options as shown to the right:
 - * Font Style Bold
 - * Size 14
 - * Underline Double
 - * Colour Dark Blue
- * Click OK to confirm the changes.

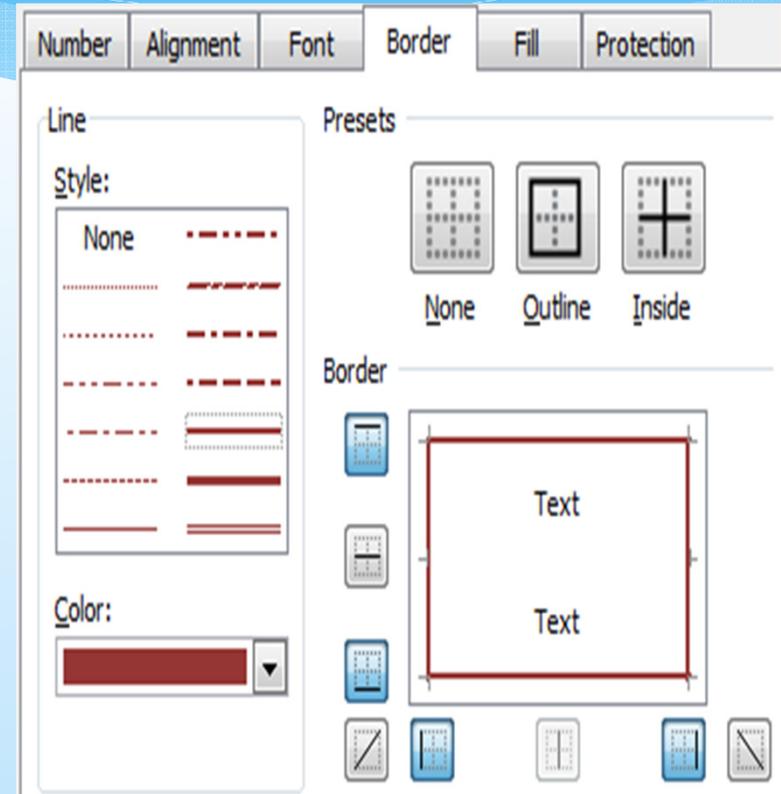


Borders and Shading

- * In addition to using the borders icon, there are two other ways to format the borders of selected cells.

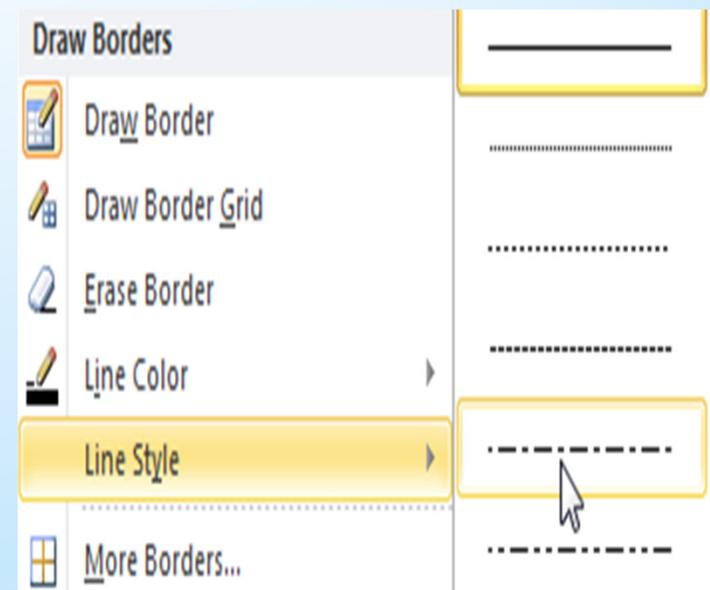
Format Borders Using the Cell Format Options

- * Select cells A1:A3 (the ones with your name, age and date of birth).
- * Access the Format Cells options and click the Border tab.
- * Select a line Style from the options on the left.
- * Choose a line Color from below the line styles.
- * The rest of the options allow you to specify which cell borders will have lines. Click the Outline button to place borders around the outer edge of the selected cells.
- * Click Ok to confirm the options.



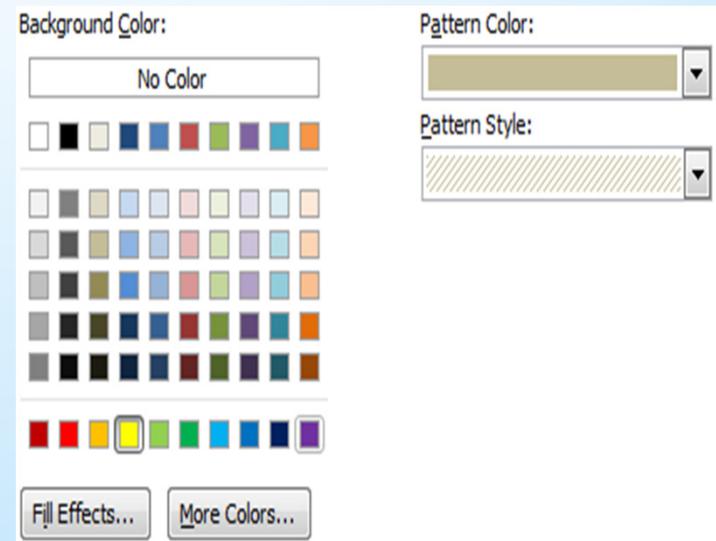
Drawing Borders

- * Another easy way to format borders is by drawing them using the Border drawing tools.
- * Click the arrow next to the Borders icon.
- * At the bottom of the list of border styles, click the Draw Border option.
- * Before drawing a border you can select a Line Style and Line Color from the Borders menu. Select a line style and then choose a red colour for your border.
- * Now that the line style has been chosen, drag around the cell range K6:L10 to create a border around those cells.
- * Now draw a vertical line down the middle of those cells so that they look like the example to the right.
- * When you are finished, you can select the Draw Border option again from the menu to turn it off or you can simply press the [Esc] key.



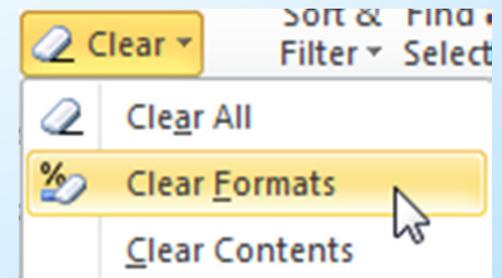
Editing Border Patterns

- * Select the cells that you have been drawing borders around (K6:L10).
- * Access the Format Cells options and click the Fill tab.
- * Click the Patten Style drop-down list .
- * When the list of pattern appears, click the diagonal stripe pattern.
- * Select a light tan for the Pattern Color.
- * From the list of colours under Background Color click yellow.
- * Click OK to confirm the choices. The cells should now have a striped pattern like the example to the right



Removing Formatting

- * Click on a blank cell in your spreadsheet.
- * Click the Fill Colour icon to change the background colour of that cell.
- * Make sure that cell is still selected and press [Del].
- * Pressing delete will remove the contents of a cell but won't affect the formatting in that cell. If you want to remove formatting, such as the background colour in this cell, you need to use a different method.
- * From the Ribbon click the CLEAR icon. A list of options will appear.
- * Select the Clear Formats option.
- * All formatting will now be removed from that cell.
- * Save the changes to your *Grades* worksheet



Spreadsheet

	A	B	C	D	E	F	G	H	I	J	K	L
1	Joe Bloggs	<u>Advanced Spreadsheets Class</u>										
2	15											
3	24 June 2011											
4												
5	Student	Term 1	Term 2	Term 3	Term 4	Year Total	Pass/Fail	Grade				
6	Jean Picard	15	12	14	17	58	Pass	C			0	F
7	John Archer	18	14	17	16	65	Pass	B			35	D
8	James Kirk	23	22	19	21	85	Pass	A			50	C
9	Chris Pike	8	11	7	6	32	Fail	F			65	B
10	Jeff Sinclair	19	19	18	14	70	Pass	B			80	A
11	Katheryn Janeway	13	12	10	12	47	Fail	D				
12	Ben Cisco	16	22	20	19	77	Pass	B				
13	John Sherridan	22	20	24	21	87	Pass	A				
14	Lita Alexander	23	21	28	21	93	Pass	A				
15	Class Average	17.44	17.00	17.44	16.33	68.22						
16	Highest Mark	23	22	28	21	93						
17	Lowest Mark	8	11	7	6	32						
18	Number of Students	9	9	9	9	9						

Custom Number Formats

- * If the built in number formats aren't quite right for your needs, you can create your own custom number formats. The examples below demonstrate how this can be done.
- * Select the cell with the date (A3).
- * Display the Format Cells dialog ([Ctrl] [1]) and select the Number tab.
- * From the Category list select Custom. The custom format that is currently in use will be displayed under Type. A list of other pre-set custom formats will be shown underneath.

Type:
[\$-C09]d mmmm yyyy;@|

Custom Number Formats

- * The format code might not seem to make a lot of sense but the following pointers will help. Also, a sample will show above the Type box to let you know what numbers will look like with that format.
- * Make sure you have clicked in the Type box and press [F1]. This is the shortcut key for Excel's help. Since you are currently in a custom number format, Excel's help will automatically suggest help topics related to custom number formats.
- * Click Create or delete a custom number format to go to that help topic.
- * This help topic provides plenty of information about creating custom number formats, including explanations of all the symbols you can use in a custom format.
- * Click the Close icon to close help (you know how to get to it if you need it later).
- * Edit the custom format code so that it looks like *ddd d mmmm yy*. The table below gives a brief explanation of what some of the symbols mean (there are plenty of others in Excel's help).
- * Test some of them to create your own custom date format, using the Sample to see how your formats look. Look at some of the formats in the custom format list for examples.

Sample
Fri 24 June 11
Type:
ddd d mmmm yy
d-mmm-yy
d-mmm
mmm-yy
h:mm AM/PM
h:mm:ss AM/PM

Creating Charts

- * Once a table has set up, the information in the table can easily be turned in to one of several different chart types. These include:
 - * Column and bar graphs
 - * Line graphs
 - * Pie charts

Creating a chart in Excel involves following the steps below:

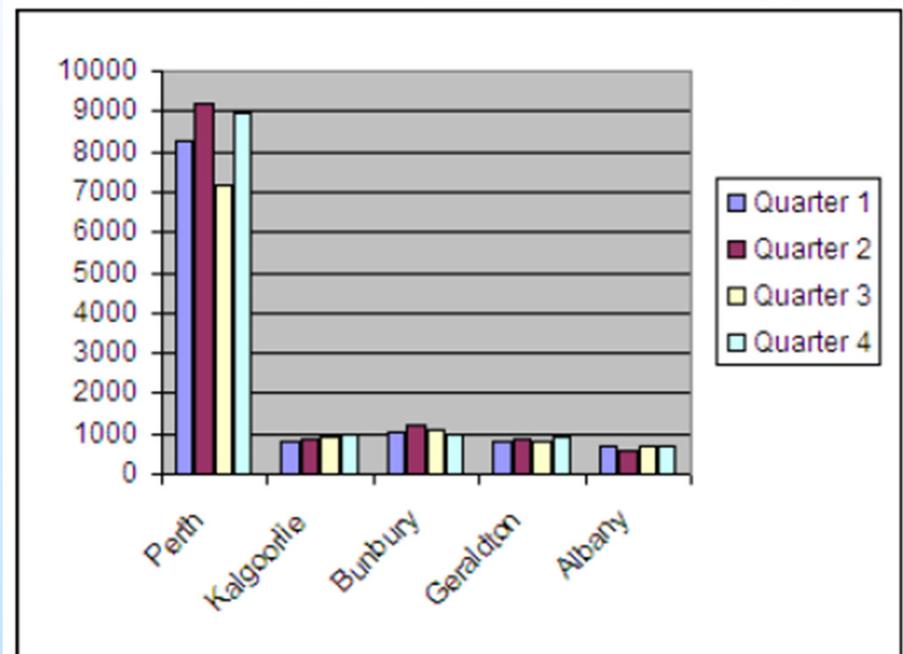
- * Select the data to be included in the chart.
- * The selection should include table headings. Excel can use headings as labels on the chart.
- * The selection generally should not include totals.
- * Begin the chart wizard which will prompt you for details about the chart.
- * Customise the completed chart.
- * The example below shows the kind of information that should be selected before creating a chart, along with a sample of the kind of chart that might be created from the selected data.

Example

Branch	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year Total
Perth	8274	9203	7182	8982	33641
Kalgoorlie	781	859	928	981	3549
Bunbury	1029	1203	1102	991	4325
Geraldton	819	849	817	928	3413
Albany	671	571	718	691	2651
Total	11574	12685	10747	12573	47579

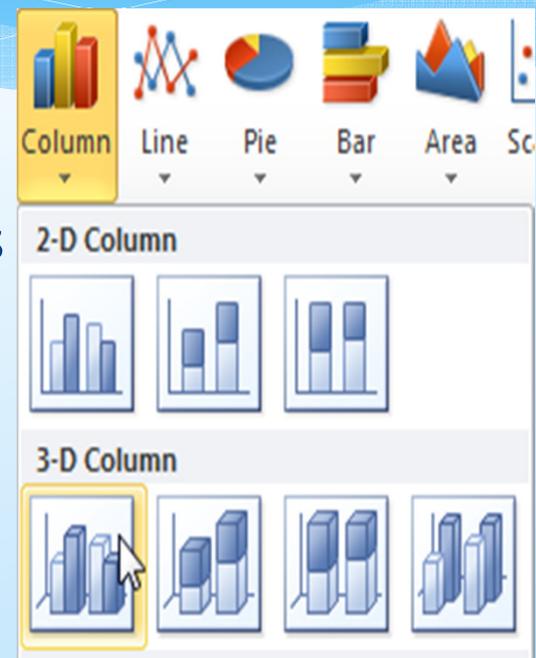
Include in selection

Don't include in selection



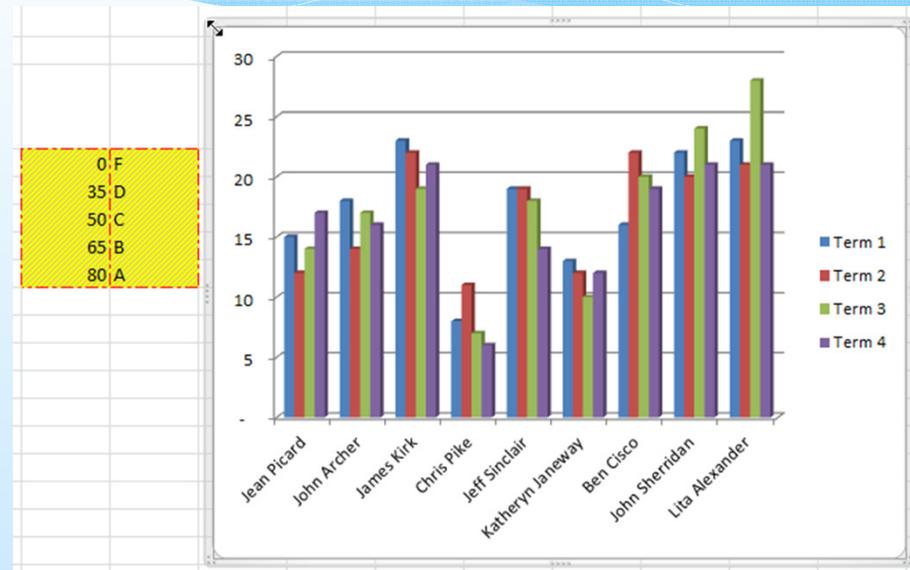
Creating a Column Graph

- * Open the *Grades* file that you have been working on previously. We will create a graph to show the results for the students each term.
- * Select the cells A5:E14. Note that this includes headings but no totals.
- * Select the Insert tab on the Ribbon.
- * Click the Column Graph icon.
- * From the list of chart types choose the first 3-D Column option
- * A column chart will appear on your sheet. When you move your mouse over the chart, your mouse will change shape depending on what part of the chart it is over.



Creating a Column Graph

- * Move your mouse over the edge of the chart or a section of the chart where your mouse changes to the move shape. 
- * Drag your chart to the right of the cells in column K and L.
- * Move your mouse to the edge of the chart and drag to make it larger.



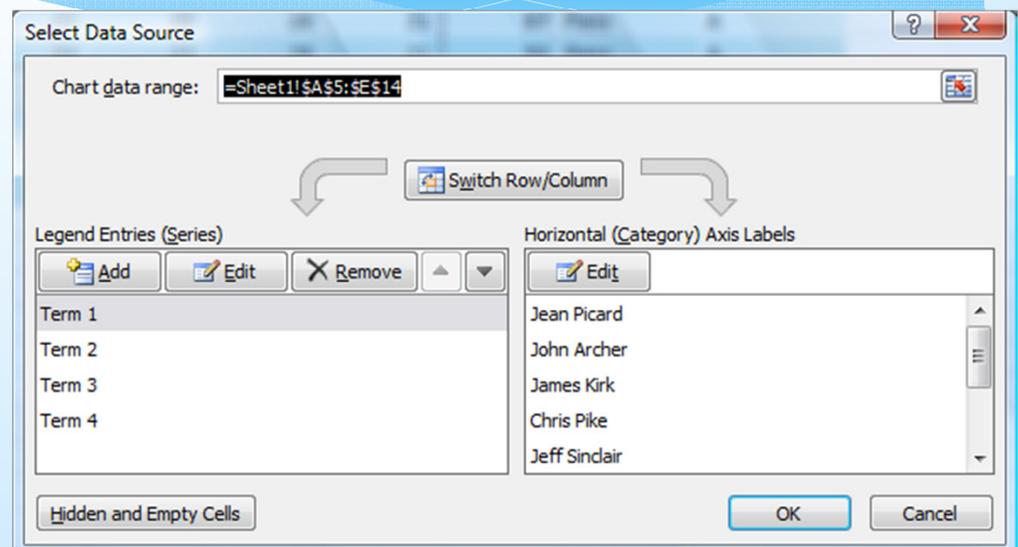
Changing Chart Data

- * Make sure the chart is selected.
- * Look at the table the chart information is taken from. You will notice blue borders around the cells the data is from and different coloured borders around the cells the chart labels are taken from (the table headings).

Student	Term 1	Term 2	Term 3	Term 4
Jean Picard	15	12	14	17
John Archer	18	14	17	16
James Kirk	23	22	19	21
Chris Pike	8	11	7	6
Jeff Sinclair	19	19	18	14
Katheryn Janeway	13	12	10	12
Ben Cisco	16	22	20	19
John Sherridan	22	20	24	21
Lita Alexander	23	21	28	21

Changing Chart Data

- * Drag the bottom corner of the blue border upward so that last student is no longer included in the selection. The chart will automatically update to remove that student.
- * Drag the border corner back down again so that the student is included once again.
- * Some changes to chart data can't be made easily by shifting the coloured borders. If that is the case, then there are other ways of doing it.
- * From the Chart Tools select the Design tab.
- * Click the Select Data icon
- * Check the data in the dialog box and click Cancel to close



Modifying a Chart's Format

- * When a chart has been created, you can customise almost anything about the way the chart looks. When a chart is selected, the Chart Tools tabs will appear on the ribbon.
- * These tabs contain icons that can be used to modify the chart in several ways. Most parts of a chart can be selected and formatted individually as well.
- * Select the Layout tab under Chart Tools.
- * Click the Chart Title icon.
- * From the list that appears select Centered Overlay Title. A title will appear on your chart.

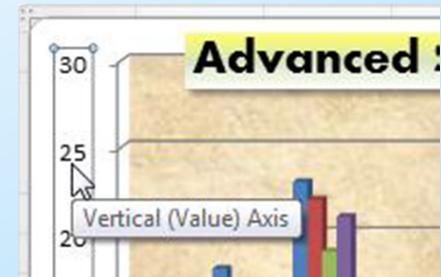
Modifying a Chart's Format

- * Edit the title text so it says *Advanced Spreadsheets Class*.
- * You can use the Home tab to format the font of the title in the normal ways (bold, font size etc). You can also use the Format tab under Chart Tools to format the whole title box with fancy borders, background fills and other formatting options. Experiment with the formatting options to format your title similar to the example below.
- * Anything on your chart can be formatted if you select it first.
- * Click on the chart background and make sure the Design tab is still selected.
- * Try clicking on some of the chart colour schemes.
- * Double-click the chart background. The Format Wall options will appear.



Modifying a Chart's Format

- * From the Fill options choose Picture or texture fill. Texture options will appear below.
- * Click the option and then choose a texture you think will suit your chart background.
- * Click Close when done.
- * Double click the Vertical Axis as shown.
- * You can change the Axis data as per your needs.



Changing Chart Type

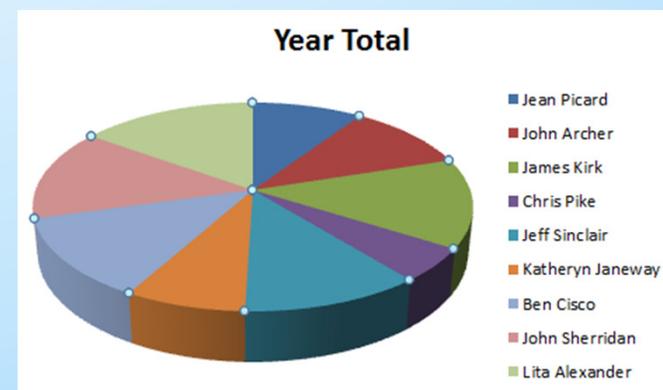
- * Make sure the Design tab is selected under Chart Tools.
- * Click the Change Chart Type icon.
- * Select the last 3-D Column type and then click OK to see how the chart will look with that layout.
- * Using the same option, try changing the chart to a Line chart layout.

Creating a Pie Chart

- * One of the differences between a pie chart and a normal chart is that a pie chart will only show data for one series at a time. In the following exercise, we'll create a pie chart from the year's data.
- * We need to begin by selecting the names of the students (to be used as labels) and the data itself.
- * Select the cells with the student names including the student heading (A5:A14). Since we need to select more than one group of cells we'll need to use the [Ctrl] key.
- * Hold down [Ctrl] and select the cells with the year data (F5:F14)
- * A5:A14 and F5:F14 should now be selected.
- * Click the Insert tab on the ribbon.
- * Click the Pie chart icon.
- * Choose the Pie in 3-D option.
- * Move the pie chart so that it is below your table.
- * Click on a pie piece. All the pieces will be selected.

Creating a Pie Chart

- * Click a second time on one of the pieces. That piece alone will now be selected.
- * Use the format options to change the fill colour for that selected piece. The legend next to the chart will update to reflect the change in colour.
- * Drag the selected piece away from the centre of the chart. This allows you to emphasize a certain slice of the chart.



Working with Lists

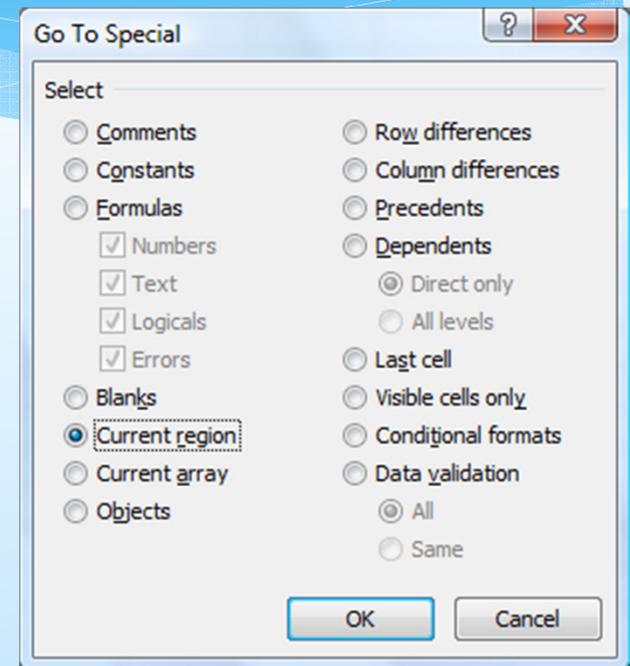
- * Excel has a lot of features that make it perfect for working with large lists and manipulating columns of data. Using Excel you can sort lists, filter lists and subtotal lists. You can also import lists from other sources and have the information converted in to Excel rows and columns.

Selecting Lists

- * Any area containing no blank rows or columns will be recognised by Excel as a list. When you want to manipulate a list, Excel will assume that the list continues until a blank row or column is found. For that reason it is usually not necessary to select an entire list. It is normally sufficient to select a single cell and let Excel determine the boundaries of the list, since it will usually find the whole list fine - as long as the list contains no blank rows or columns. In fact, you are usually better off if you don't try to manually select the list since you may accidentally miss some of it.

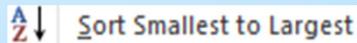
Selecting a Region

- * Open your *Grades* file.
- * Click on a cell anywhere inside the main table (for example D10).
- * Because there are no blank rows or columns within this table, Excel will recognise it as being one region.
- * Make sure you have the Home tab showing on the Ribbon bar.
- * Click the Find & Select icon (it is on the far right end).
- * When the menu appears select Go To Special.
- * Have a look at the different options that are available (you may find some of them useful later).
- * Select the Current region option and click OK. The whole table should now be selected.
- * When you are working with lists, Excel will automatically select the surrounding region in a similar way.



Tip When you need to select a region you can also use the keyboard shortcut – [Ctrl][*] (or [Ctrl][Shift][8]). Try it now!

Manipulating Lists

- * Excel will assume that the first row in the list contains column headings and will not move them during the sorting process.
- * The first step in sorting the list is to click on a cell inside the column we want to sort by
- * Click the Sort & Filter icon at the right end of the Ribbon.
- * A list will appear letting you choose how to sort the list. Click on the Sort A to Z option to sort the list in alphabetical order, using the currently selected column.
- * Click the icon again and this time, select the Sort Z to A option to sort the list in the opposite order.
- * Click in the Position column (column A).
- * Click the Sort & Filter icon and then select  so that the list will once again be sorted by position from top to bottom.

Sorting a list using the sort options

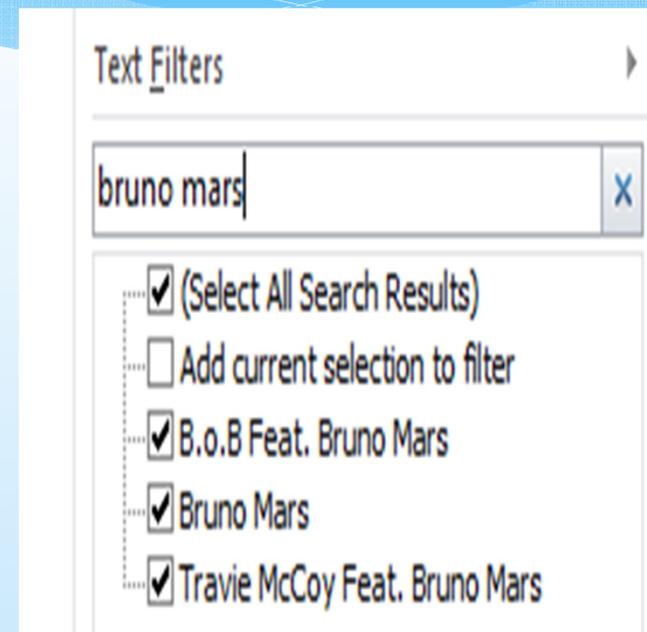
- * Excel provides additional options for sorting a list that aren't available on the Ribbon.
- * Click anywhere inside the list.
- * Click the Sort & Filter icon and then select  Custom Sort...
- * Click the Sort & Filter icon and then select
- * Make sure the My Data has headers option is selected.
- * We will add a second sorting level.
- * Click the Add Level button.
- * Click OK to complete the sort.

Filtering a List

- * Filtering a list allows you to temporarily hide rows in the list so that only certain information will be visible when the list is viewed or printed.
- * Like sorting, when filtering a list, Excel will automatically select a region so it is only necessary to select a single cell within the list.
 - * Select a cell inside your list.
 - * Click the Sort & Filter icon.
 - * When the list appears, click
- * Some arrows will appear next to each column heading. These arrows can be used to filter the list. Earlier when you were working with your Grades spreadsheet, you may have noticed filter arrows appear automatically when you applied a table AutoFormat.

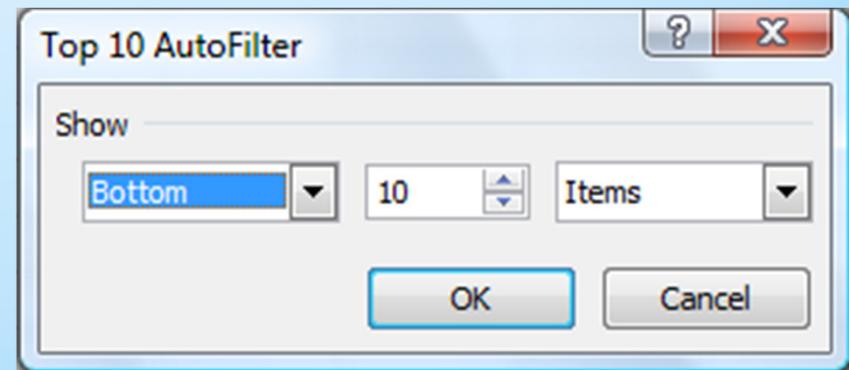
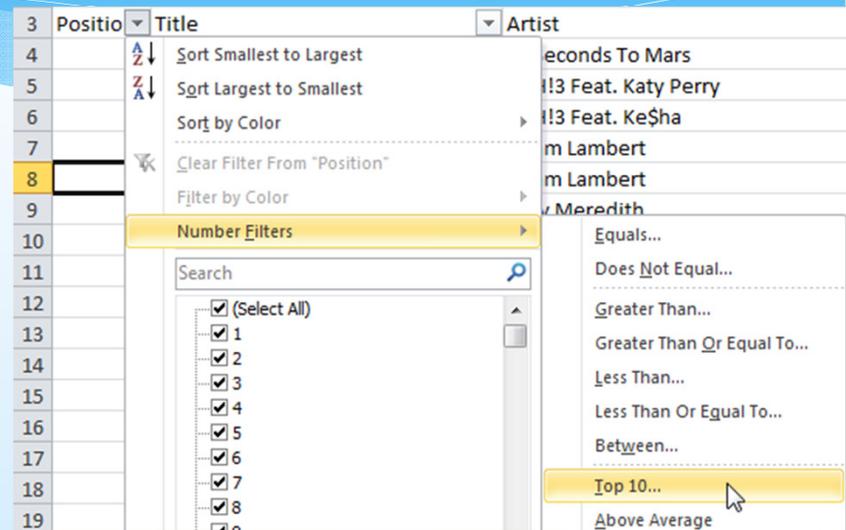
Filtering a List

- * Click the arrow to the right of the Artist heading. A list of sort options, followed by a list of the artists will appear.
- * **Note** Filtering more than one column at a time will reduce the number of results you will get.
- * Type *Bruno Mars* in the Text Filters box. The list below will decrease to only show artists that include what you've typed.
- * Click OK to apply the filter. The table will now only show rows where the Artist includes *Bruno Mars*. All other rows will be hidden.
- * Click the arrow next to Artist again.
- * From the list select  Clear Filter From "Artist". The full list will be displayed again



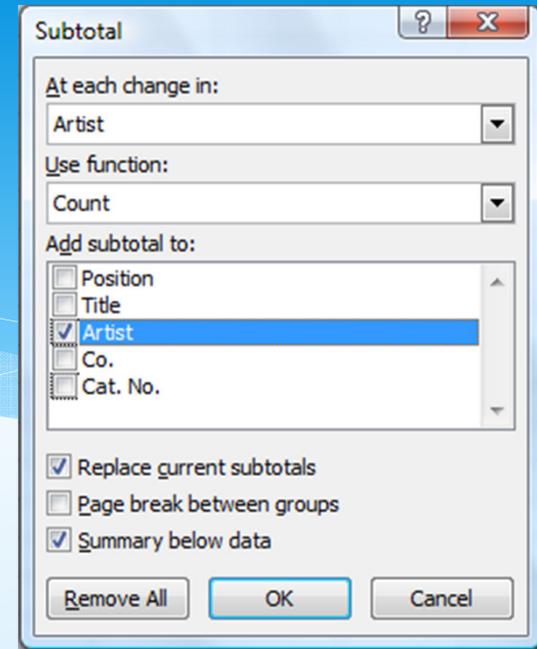
Filtering a List

- * Click the arrow next to Position.
- * Select Number Filters and then select Top 10 as shown below. If we left the options set to top 10 we would have the highest numbers. I.e. 91 to 100. We actually want the lowest numbers.
- * Change the Top option to Bottom as shown below.
- * Click OK to complete the filter. Note that although it is only showing the 10 songs that have the lowest position number, they will still be sorted in whatever order you last sorted in.
- * Select the Data tab from the Ribbon.
- * Click the Filter icon. The filter and the arrows next to the column headings will be removed.



Subtotals

- * Excel can automatically create totals and subtotals for information in your list. This is best done if the list is already sorted by the column you want it grouped by. E.g. in our music charts table, we will use subtotals to count the number of songs for each artist so make sure your list is still sorted in order of artist.
- * Click anywhere within the list. Remember Excel can automatically select the boundaries of the region if you select a single cell within the region.
- * Make sure the list is still sorted in order of artist.
- * Select the Data tab from the Ribbon.
- * Click the Subtotal icon
- * Change At each change in to Artist.
- * Leave Count for Use function.
- * Make sure Artist is the only column ticked under Add subtotal to.
- * Click OK to add the subtotals.



	A	B	C	D	E
1	ARIA Charts - End Of Year Charts - Top 100 Singles 2010				
2					
3	Position	Title	Artist	Co.	Cat. No.
4	85	Closer To The Edge	30 Seconds To Mars	VIR/EMI	US-VI2-09-00433
5		30 Seconds To Mars Count		1	
6	83	Starstrukk	3OH!3 Feat. Katy Perry	ATL/WAR	US-AT2-09-02549
7		3OH!3 Feat. Katy Perry Count		1	
8	76	My First Kiss	3OH!3 Feat. Ke\$ha	ATL/WAR	US-AT2-10-00648
9		3OH!3 Feat. Ke\$ha Count		1	
10	36	If I Had You	Adam Lambert	RCA/SME	88697746492
11	40	Whataya Want From Me	Adam Lambert	RCA/SME	88697657192
12		Adam Lambert Count		2	
13	92	Lying	Amy Meredith	SME	88697722802

Subtotals

- * In addition to adding subtotals, the rows have also been grouped by artist. When grouping levels have been added to a spreadsheet, you will see grouping selector buttons added to the left of the sheet. This sheet has three grouping levels as shown by the three numbers.
- * Click the number 2 button. The list will be filtered so you see the subtotals without the individual songs.
- * Click the number 1 button and you will only see the grand total.
- * Click the number 3 button and you will see all records and totals.
- * Next to each subtotal you will also see a – sign (shown to the right).
- * Click on a – sign and the songs next to it will be hidden with only the subtotal remaining.
- * The – sign will become a + sign.
- * Click the + sign to show the songs again.
- * When you no longer want the subtotals you can remove them from the subtotals options.
- * Click the Subtotal icon on the Ribbon.
- * Click the Remove All button.

	A	B	C
1	ARIA Charts - End Of Year Charts - Top 100 Singles		
2			
3	Position	Title	Artist
5		30 Seconds To Mars Count	1
7		3OH!3 Feat. Katy Perry Count	1
9		3OH!3 Feat. Ke\$ha Count	1
12		Adam Lambert Count	2
14		Amy Meredith Count	1

92		Katy Perry Feat. Snoop Dogg Count	
93	41	Blah Blah Blah	Ke\$ha
94	45	Take It Off	Ke\$ha
95	12	Tik Tok	Ke\$ha
96	25	We R Who We R	Ke\$ha
97	51	Your Love Is My Drug	Ke\$ha
98		Ke\$ha Count	
99	65	I Made It (Cash Money Heroes)	Kevin Rudolf
100		Kevin Rudolf Feat. Birdman, Jay Sean Count	
101	50	Alejandro	Lady Gaga
102	26	Bad Romance	Lady Gaga
103		Lady Gaga Count	

Co.
Cat. No.

Replace current subtotals

Page break between groups

Summary below data

Remove All OK Cancel

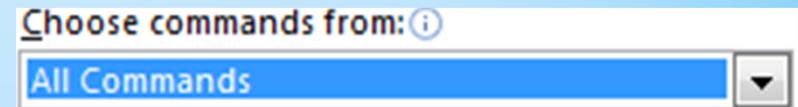
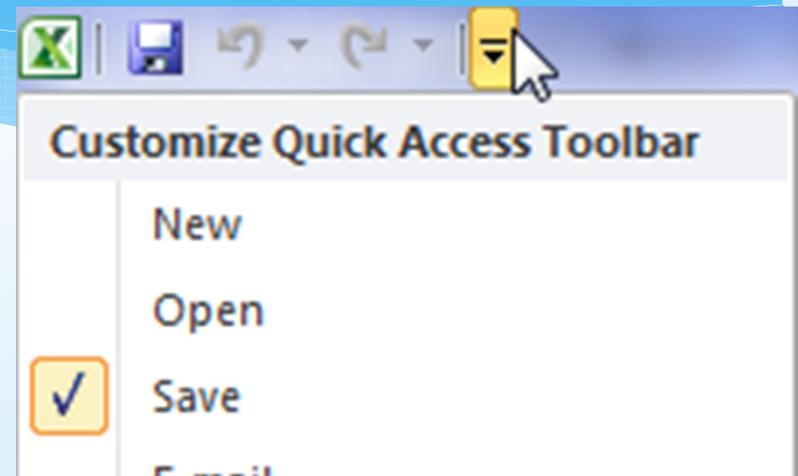
Using a form for data entry

- * Creating and editing a list involves a lot of typing. Some people are quite comfortable working with large amounts of information in a list layout. Others, however, find it a lot easier to work with the information with the help of a form. Excel can automatically create a data entry form based on the column headings in the list. This can be useful if you are editing a table with a large number of columns, as this can be a little easier to manage in a form.

Note As with many functions to do with lists, it is important to ensure there are no blank rows or columns in your list when using a data entry form.

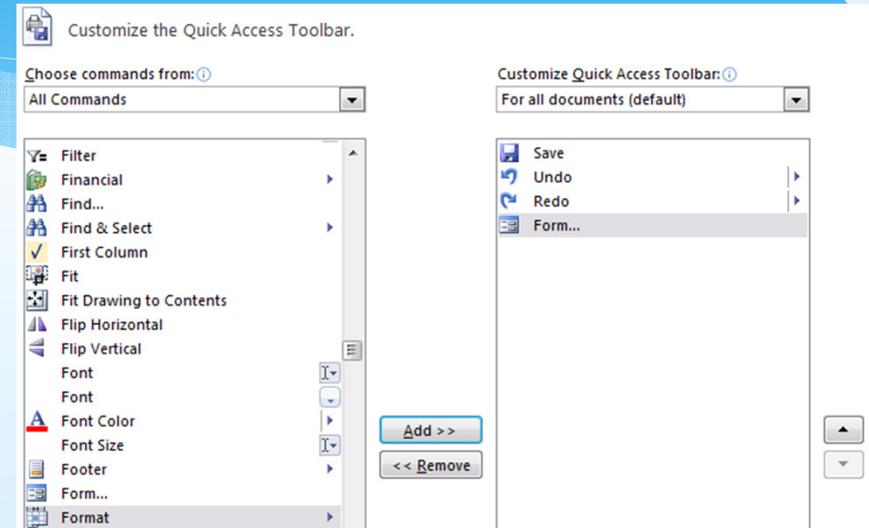
Using a form for data entry

- * The Excel ribbon bar does not contain an icon to display a data entry form, but you can easily add on to your quick access toolbar.
- * Click the arrow at the end of the Quick Access Toolbar (in the top left of the Excel window). A list of common commands will appear. Each of these can be added or removed from the quick access bar by turning them on or off.
- * Select More Commands from the bottom of the list.
- * Under Choose commands from, select *All Commands*.



Using a form for data entry

- * A list of Excel's commands will appear in the list. Select in the list.  **Form...**
- * Click Add to add the form button to the quick access bar.
- * Click OK to close the Options dialog.
- * A Form icon should now appear on the Quick Access Toolbar.
- * Select a cell somewhere within the list and click the Form icon.



Using a form for data entry

- * A form appears that allows you to view the information from the list one record at a time. To move to the next record, click Find Next, press your ↓ key or click the on the scrollbar. You can also press the [Page Down] key to move 10 records at a time. To move to the previous record, click Find Prev, press your ↑ key or click the on the scrollbar. You can also press the [Page Up] key to move 10 records at a time.
- * Move through the records to find the song *Airplanes* by *B.o.B Feat. Hayley Williams*.
- * Change the artist name to *B.O.B. Featuring Hayley Williams*.
- * Click on Close and this change will be made on the sheet.
- * Click on the Form icon again.
- * Click Criteria. This allows you to use filters within the form.
- * In the Artist field, type *David*.
- * Browse through the records. Only songs by artists with *David* in the name will show.
- * Click Criteria again.
- * Click Clear to clear the criteria.
- * Browse through the records and they will all be showing again.
- * Click New.
- * Add the details for a new song (you can make it up).
- * Click Close and the song will be added to the bottom of the list, using the formatting from the list.
- * Save and close the file.

Working with Sheets

- * Files in Microsoft Excel are referred to as Workbooks. This is because they can contain more than one sheet. The number of sheets a workbook can contain is only limited by your computer's memory. Having several sheets in a workbook makes it possible to have several similar tables with different data. For example a business wanting to keep track of sales data could have a sheet for each month of the year and then create a thirteenth sheet that adds up the totals from each month. Having the tables on separate sheets is a lot neater and easier to work with than having several tables all cluttering up the same sheet.

Working with Sheets

- * **Grouping Sheets**-Grouping sheets allows you to edit several similar sheets at once.
- * **Linking Sheets** -Create formulas that connect data from two or more sheets.
- * **Sheet Protection-Creating Extra Sheets** Restrict your worksheet so that only certain parts may be modified.

Creating Extra Sheets

- * Make sure Excel is open with a blank workbook ([Ctrl] [N] for a blank workbook). By default a new workbook will contain 3 sheets.
- * The first sheet in the workbook should be selected.
- * Click the New Worksheet icon next to the last sheet tab (or press [Shift] [F11]). A new worksheet (probably titled Sheet4) will be added to the workbook.
- * Right click on any sheet tab and select Insert. An Insert Dialog will appear
- * Make sure Worksheet is selected and click OK. Another new worksheet will be added.
- * Use either of the above methods to create a 6th worksheet.

Renaming Sheets

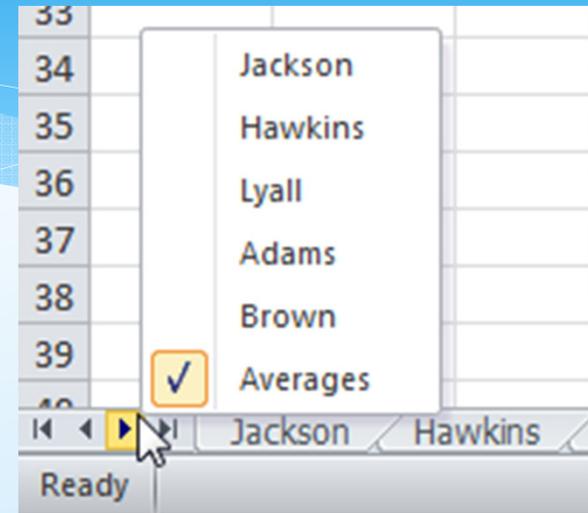
- * Make sure the first sheet is selected (it doesn't matter what number is on it or which order the numbers are in).
- * Right-click on the name of the sheet and select Rename from the shortcut menu.
- * The name of the sheet will be highlighted so it can be changed.
- * Type *Jackson* for the name of the sheet and then press [Enter] or click away from the tab.
- * Double-click on the second sheet tab and enter *Hawkins* as the name.
- * Rename the rest of the sheets so they appear as shown below.

Tip If you want to change the number of sheets that are created with a new workbook, select Tools, Options and then select the General tab. You can then set the number of sheets a new workbook will have



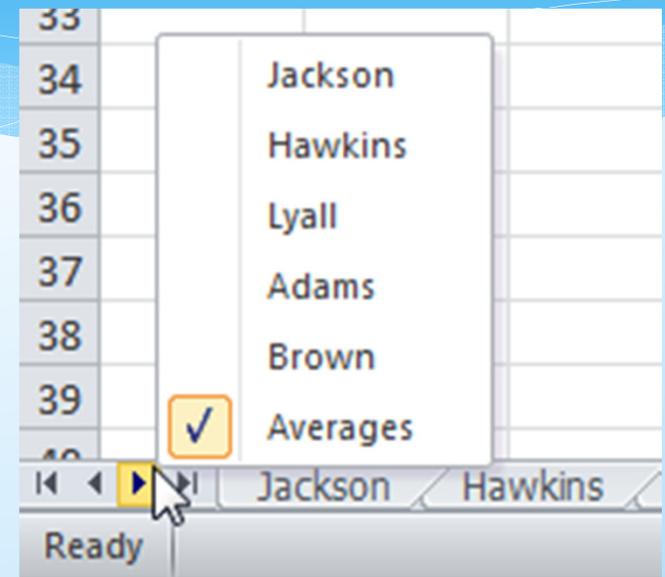
Navigating Sheets

- * In the current workbook, there is only a small number of sheet tabs. On a workbook with more sheets, the tabs may not all fit in the bottom area of the screen. When that is the case, you can use the sheet navigation buttons to view the tabs that won't fit. These are located to the left of the sheet tabs
 - * Moves the sheet tabs all the way to the left until the first one is visible.
 - * Moves the sheet tabs to the left one at a time.
 - * Moves the sheet tabs to the right one at a time.
 - * Moves the sheet tabs all the way to the right until the last one is visible.



Navigating Sheets

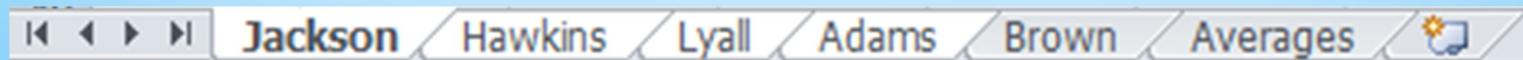
- * You can also navigate through worksheets in other ways.
- * Right-click on the sheet navigation buttons to the left of the sheet tabs. A list of sheet names will appear. Click on one of the sheet names to move to that sheet. When there are too many sheet tabs to fit along the bottom, this can be a quick way to select sheets.
- * If the workbook has too many sheets to list, there may be a More Sheets option at the bottom of the list.
- * Hold down the [Ctrl] key and press [Page Down] to move down one sheet at a time.
- * Hold down the [Ctrl] key and press [Page Up] to move up one sheet at a time.



Grouping Sheets

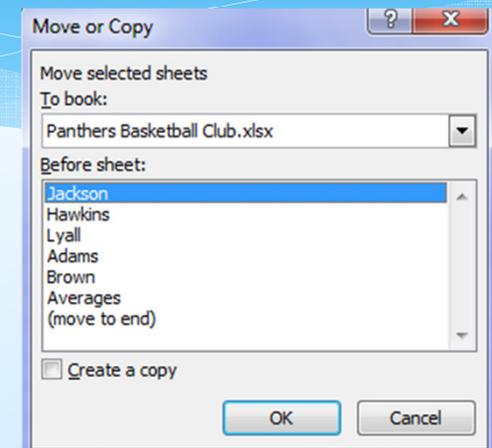
- * Click on the first sheet tab to select it.
- * Hold down the [Shift] key and click on the fourth sheet to select it. All of the sheets in between will become selected.
- * Whenever more than one sheet is selected, the word [Group] will appear next to the filename in the title bar to indicate that you are working in group mode. You can also use the [Ctrl] key to select or deselect sheets.
- * Hold down [Ctrl] and click on the last sheet to select it.
- * Hold down [Ctrl] and click on one of the already selected sheets to deselect it.
- * Click on an unselected sheet without holding down any key to select that sheet alone and deselect all others.
- * Right click on any sheet tab and choose Select All Sheets to group all sheets.
- * Right click on any sheet tab and choose Ungroup Sheets so that only one sheet is selected.

Note When you have more than one sheet grouped, changes you make to cells in one of those sheets will affect all of them. Grouping sheets allows you to edit several sheets at once we will do in a moment



Moving and Copying Sheets

- * You can copy existing sheets or change their order in a couple of ways.
- * Right click on a sheet tab and then select *Move or Copy*. A dialog like the one below will appear.
- * This allows you to move sheets within the current workbook or to another workbook. You can tick the option at the bottom to copy instead of moving. In most cases it is quicker and easier to copy and move sheets using your mouse.
- * Hold down the [Ctrl] key and drag to the right. A + sign will appear next to your mouse pointer indicating that you are making a copy instead of moving the sheet.
- * Release you mouse button to create a copy of the sheet in that position.
- * Right click on the extra sheet tab and select Delete.



Note Deleting a sheet cannot be undone.

Linking Sheets

- * When you have more than one sheet, it is possible to create a formula that will link several sheets together. With our workbook we will create a table that displays averages based on information in the other 5 sheets. We could do exactly the same thing using any other calculations such as sum or count.
- * Create a table like the one below on the *Averages* sheet
- * This sheet has no *Player Name* and *Position* row. Click in the cell for player height (cell B3).
- * Begin creating an average function by entering `=AVERAGE(`
- * Remember that you can use the AutoSum icon on the ribbon to create average functions as well if you don't feel like typing it.
- * You can use the mouse to select cells in other sheets for your formula to refer to, the same as you would for cells on the same sheet.
- * Click on the *Jackson* sheet tab. The formula will add the sheet name followed by an exclamation mark to indicate a sheet reference. `=AVERAGE(Jackson!)`.
- * Click the Height cell for *Jackson*. The formula should now show `=AVERAGE(Jackson!B5`
- * Type a comma to indicate that we will be adding an extra cell to our average function.
- * Click the *Hawkins* sheet tab and then select the height cell for Hawkins.
- * Add the height cells for each of the other sheets until the formula looks like the one below and press [Enter] to complete the formula. Don't forget to place a comma after you click on each cell before trying to click on the next one.
- * `=AVERAGE(Jackson!B5, Hawkins!B5, Adams!B5, Lyall!B5, Brown!B5)`
- * The average of all of those cells will now be displayed. Although each of the cells referred to are on separate sheets, we can still take advantage of relative referencing to copy the formula so that it creates averages for the rest of the statistics.
- * With the average cell selected, move your mouse over the fill handle. Double click on the fill handle to copy the formula down to the end of the table.

Linking Sheets

- * You can also link to other Excel workbooks. The example below shows how a formula linking to another workbook might appear
- * File name. If the file is not saved in the same folder the full path may be needed. E.g.
[C:\Files\Functions.xls]
- * =[Functions.xls]Functions!\$C\$9

Worksheet Protection

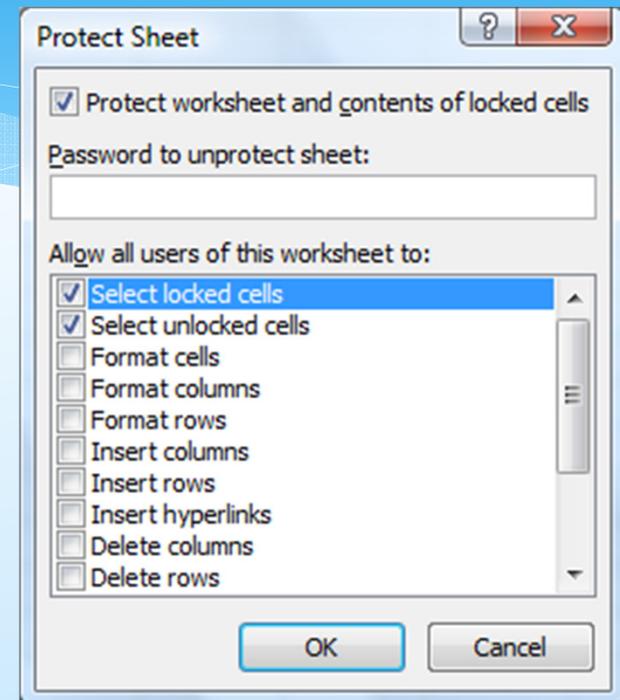
- * A worksheet can be protected so that only certain cells can be edited. Protecting a workbook involves a couple of steps. By default, all cells in a sheet are locked but sheets protection is not turned on. First of all you need to specify which cells will be unlocked (available for editing). Then you can enable sheet protection. Additionally, you can select the hidden option for cells so that any formula used to create the data in that cell will not be visible.
- * Group all 5 of the player sheets using any method shown earlier.
- * Select all of the cells that you want users of the sheet to be able to edit.
- * Display the Format Cells dialog using one of the following methods
- * From the Home tab on the Ribbon, click the Format icon, then click
- * From the Home tab, click the icon in the bottom corner of the Font, Alignment or Number group.
- * Press [Ctrl][1].
- * Click on the Protection tab.
- * Click the Locked checkbox to clear it so that these cells will be unlocked.
- * Click OK. All cells are locked by default but sheet protection is not enabled by default. When sheet protection is enabled, only the cells that are not locked can be edited.

Note If you enable the hidden option, the contents of the cell will be visible on the sheet, but not in the formula bar. This means that the results of a formula will be seen on the sheet but it will not be possible to see the formula itself while sheet protection is turned on.

Worksheet Protection

Before you can enable sheet protection you will need to ungroup the sheets, since you can only protect one sheet at a time.

- * Ungroup the sheets and make sure one of the player sheets is still selected.
- * From the Review tab on the Ribbon click the Protect Sheet icon.
- * The Protect Sheet options allow you to enter a password. If you provide a password here, then the sheet can't be unprotected without using that same password. You can leave it blank if you want to allow protection to be turned off without a password. The other options provide control over what can and can't be modified when the sheet is protected.
- * Enter a password if you want to use one or leave it blank, then click OK to turn on the sheet protection.
- * Try to change one of the cells you unlocked. You'll be able to change it as normal.
- * Try to change one of the other cells and a message like the one below will appear.
- * Click OK to close the message.
- * Protect the other player sheets and save the file.
- * Worksheet passwords can be up to 255 characters and they are case sensitive. **Don't forget your password** if you use one.



Advanced Skills

- * Excel contains numerous tools that are intended to meet a wide range of requirements. Some of the more specialized tools are useful to only certain types of people while others have value for more general excel users.

Naming Cells

- * In a large spreadsheet, cell referencing and selection may be simplified by making use of names. You can assign a unique name to an individual cell or to a range of cells. This can make it quicker and easier to refer to the cells in charts and functions. Additionally, functions that make use of names are easier to read. For instance, a formula that says =B4-B5 doesn't make as much sense as a formula that says =Sales-Expenses.

Creating Cell Names

- * Create a new workbook in Excel and create a table like the one below.

	A	B
1	Terry's Monthly Budget	
2	For the month of March	
3	Date	
4		
5	Income	
6	Full time job	3160
7	Part time job	460
8	Total Income	
9		
10	Expenses	
11	New TV	850
12	Rent	510
13	Car loan repayments	450
14	Groceries	350
15	Petrol	140
16	Health insurance	120
17	Eating out	100
18	Going out on weekends	100
19	Phone bills	90
20	Electricity bills	80
21	Health club membership	78
22	Internet	65
23	Other insurance	50
24	DVD rentals	20
25	Gas bills	10
26	Total Expenses	
27		
28	Savings	

Creating Cell Names

- * Save the file as *Budget*.
- * Click on Cell A3 which will have the current date.
- * Click in the Names box which is to the left of the formula bar. Currently it will display the reference of the currently selected cell.
- * Click on the *Date* name. Excel will automatically go to, and select that named cell, even if you were on a different sheet.

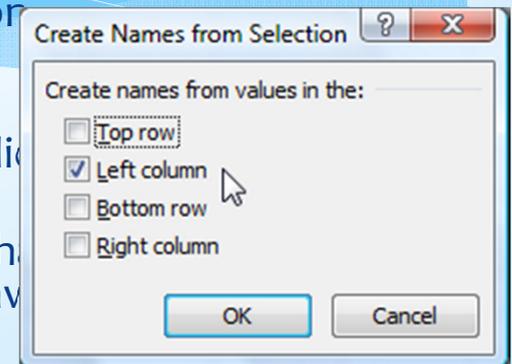
Note Whenever you select a cell or range of cells that is named, the name will appear in the names box instead of the cell reference

Creating Cell Names

- * Select the cell range B6:B7 which should contain the cells with the income amounts.
- * Click in the Names box, type *Income* and press [Enter].
- * Select the cell range B11:B20 which should contain the expense figures.
- * Click in the Names box, type *Expenses* and press [Enter].
- * Test the new named ranges by selecting them from the names dropdown list. Each range should become selected when you select its range.
- * Click in cell D8. This cell will contain the formula to calculate total income.
- * Enter the formula =*Sum(Income)*
- * Excel will make use of the range name to add up all of the cells in that range.
- * Click in cell B26 which will contain the total expenses.
- * Click on the Autosum icon.
- * When the Autosum tool completes the function, it will use the range name you have created instead of the less meaningful cell references.
- * Press [Enter] to complete the function.
- * Save the changes to the workbook.

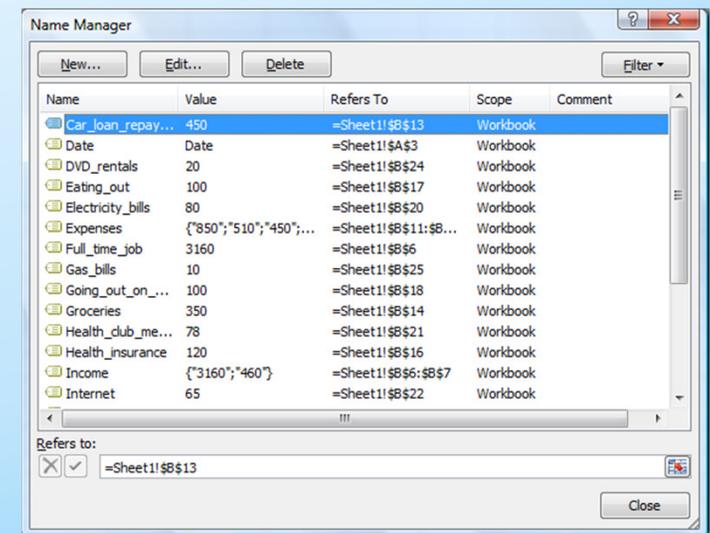
Creating Names Automatically

- * If you have a lot of cells you want to name, it is possible to have the names automatically created for you from table headings/labels.
- * Select A6:B8. These cells contain the income labels and amounts.
- * From the Formulas tab on the Ribbon click the Create from Selection icon
- * We want the data cells to be named based on the cells in the left column so make sure the Left column option is selected and then click OK.
- * Click in cell B6, B7 or B8. Look in the Names box to see the names that have been created. Notice that names with more than one word have been created using an underscore. E.g. cell B8 will now have the name *Total_Income*. This is because names cannot contain spaces. Names must also begin with a letter.
- * Select the cell range B11:B26. This should contain the expenses data and labels.
- * Click – Create from Selection
- * Click OK to define names for these cells.



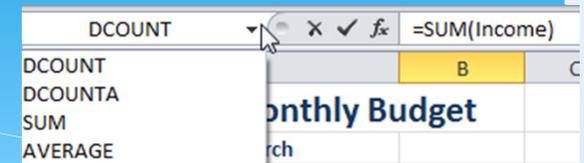
Creating Names Automatically

- * We can view, modify or delete the names that have already been created by using the Name Manager options.
- * Make sure the Formulas tab is still selected and click the Name Manager icon.
- * This dialog lists all the names in the current workbook. From here you can delete names and modify the cells that a name refers to.
- * Scroll through the list to see information about each of the names.
- * Click Close to close the dialog without making any changes.



Pasting Names

- * When you are creating a formula you can use names as you have already seen. If your workbook has a lot of names, however, then it may be difficult to type a particular name from memory. You can't select names from the names box since when you are editing a formula; the names box changes in to a list of commonly used functions as shown to the right. Instead you can insert a name in to a formula.
- * Click in cell B23. This is where we will calculate the savings in the budget.
- * Type an equals sign = to begin a formula.
- * From the Formulas tab click– Use In formula . Notice that many of the other ribbon options are not available while you are editing a cell. A list of names you can use in your formula will appear.
- * From the list select *Total_Income* and click OK. The name will be inserted in to the formula.
- * Type a minus sign. –
- * Click – Use in Formula
- * Select *Total_Expenses* from the list and click OK.
- * The formula should appear as =Total_Income-Total_Expenses
- * Press [Enter] to complete the formula.



Cell Comments

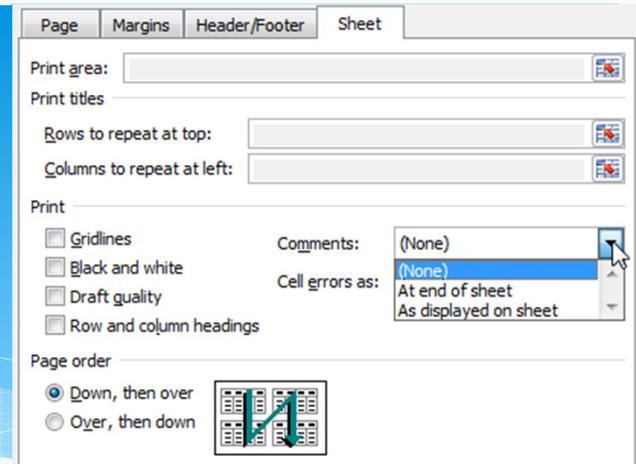
- * Cell comments can be used to guide a person who is using your spreadsheet. They can contain tips, and other information that may be helpful. They are indicated by a small red triangle in the corner of the cell. When the mouse is moved over the cell, the note will appear for the user. Comments can be formatted to match the look of the rest of the spreadsheet.
- * Select cell with the Electricity amount.
- * From the Review tab on the Ribbon click New Comment (You can also right click on the cell and select). A comment will appear next to the cell with your name on it. The name is taken from the one that was entered when Excel was installed
- * Enter the text, “*This bill is paid every second month*” as shown below in the comment.
- * Click outside the comment to finish editing it. A red mark is visible in the top right corner of cell B20.
- * Move your mouse over the cell to view the comment.

Cell Comments

- * Click the Edit Comment icon on the ribbon (you can also right click on the cell and select – Edit Comment
- * Right click on the border of the comment and select . It is important to make sure your mouse is over the comment's border, otherwise you will only be able to format font options.
- * Use the Format options to change the background colour of the comment under the Colors and Lines tab.
- * Make any other formatting changes you like and then click OK to close the options.
- * Save the changes to the file.

Cell Comments

- * Click the File tab on the Ribbon and then click Print.
- * From the bottom of the Print options select Page Setup.
- * On the Sheet tab you will find a Comments option. This allows you to choose whether or not comments will appear when you print your sheet.



Conditional Formatting

- * Make sure the Home tab is selected and click Conditional Formatting.
- * First we'll test out some of the Bars, scales and icon sets.
- * Select the Data Bars option from the list.
- * Move your mouse over some of the data bar options and your spreadsheet will show a preview of how that option looks.
- * Select the Color Scales option.
- * Move your mouse over some of the colour scales options to see how they would look.
- * Select the Icon Sets option.
- * Move your mouse over some of the icon sets options to see how they would look.

Conditional Formatting

- * In addition to the built in conditional format sets, you can create your own conditional format rules.
- * With the expenses cells still selected, click Conditional Formatting and then select – New Rule
- * Under Select a Rule Type, make sure it is set to *Format only cells that contain*.
- * Change the Edit the Rule Description so that it appears as follows.
 - * Click the button. Format options will appear.
 - * Select a dark blue text colour and click OK to return to the Formatting rule options.
 - * Click OK again to complete the new formatting rule. Since your cells already had dark blue text you might not notice a difference until we add additional rules.
- * Add three more rules. One to format values from 100 to 399 with green text. Another to format values from 50 to 99 with orange text. Another for format values below 50 with red text.
- * Each of the cells should now be formatted according to their value.
- * Try changing the values in some of the cells to see the formatting change.
- * Save the changes to the file.

Freezing Panes

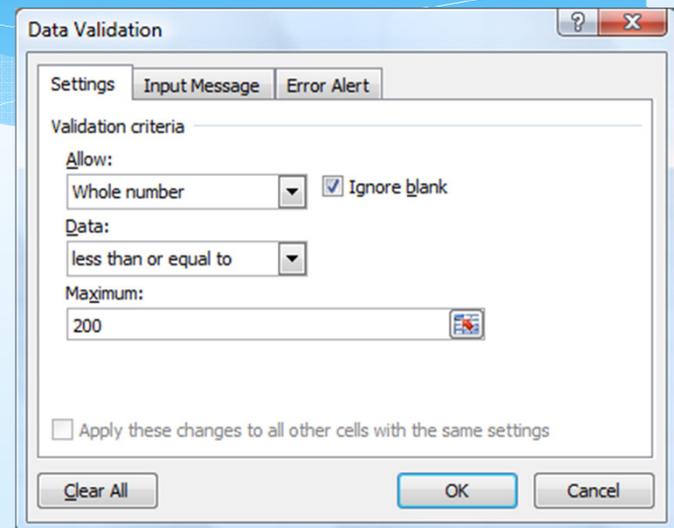
- * When you have a long table, you might want to keep the headings visible when you scroll downward. This is possible with the Freeze Panes option.
- * When you choose the Freeze Panes option, Excel will freeze any cells to the top and left of your current selection so that they don't scroll. If you only want to freeze the top rows then make sure the cell you select is in the first column so that there is nothing to the left to freeze.
- * Click in the first cell under the headings. (A4)
- * Select the View tab.
- * Click the Freeze Panes icon and then select Freeze Panes.
- * A thin line will appear above the cell you have selected.
- * Scroll down the sheet and anything above the line will be frozen in place.
- * Click the Freeze Panes icon again and select Unfreeze Panes

Data Validation

- * If you are creating an Excel spreadsheet that will be used by other people it is important to make it as easy to use as possible, especially if the eventual users will be people who are not skilled at using Excel. Reducing the possibility of errors can make a workbook easier to use and this is where Excel's data validation feature can be useful. Data Validation can be used in the following ways.
 - * Restrict the data that can be entered in to certain cells.
 - * Provide a list of accepted values to assist in data entry.
 - * Provide prompts to assist a user in data entry.
 - * Produce meaningful error messages when incorrect data has been added.

Adding Data Validation Rules

- * Select cell B9. This cell contains the duration of the show in minutes. Since none of the shows go for longer than 200 minutes, we can put in a validation rule which restricts the data that can be entered.
- * Select the Data tab on the Ribbon.
- * Click the Data Validation icon (if you click the top part of the icon you won't need to select from the menu of options and will go straight to data validation). A dialog box like the one below will appear.
- * Change Allow to *Whole Number*. This will restrict the cell so that only whole numbers with no decimals can be entered.
- * Change Data to less than or equal to.
- * When the Maximum box appears, enter 200 in the box to set that as the upper limit. In addition to entering a number in this box you can also select a cell in your workbook which has a suitable value. The options should now look like the example above.



Adding Data Validation Rules

The Input Message tab allows us to enter a popup prompt that will appear when the cell is selected. Since the cell already has a comment, we'll leave the Input message for this cell blank.

- * Click the Error Alert tab.
- * In this tab we can create a custom error message that will appear if the user enters a value not allowed under the Validation Criteria. In this case, the error message will appear if a number greater than 200 is entered, so we can create an error message appropriate for that situation.
- * The Style options determine the type of error message that will appear. For instance, a *Stop* style error message will prevent the entry of invalid data while the other types are only warnings.
- * Make sure the Style is set to *Stop*.
- * In the Title enter *Invalid Duration*.
- * For the Error Message type, “This cell must contain a number of minutes no greater than 200”. The options should look like the example below.
- * Click OK to complete the validation rule.
- * Type a number greater than 200 in the cell and press [Enter]. Your error message will appear.

Note We have only created a validation rule for a single cell. If you have several cells that are all going to contain similar data, you can select them all so that you can create a validation rule for them all at the same time.

Create Data Validation Lists

- * Select cell C11. This cell should contain the ticket type.
- * Click the Data Validation icon and make sure the Settings tab is showing.
- * Change the Allow option to *List*.
- * The Source box will appear. This allows us to provide a list of numbers or labels that will be accepted. Anything entered that doesn't match something in our list will produce an error. We can either type in each of the entries separated by a comma or select a range of cells which has an appropriate value in each cell. Since we already have a suitable range of cells being used in the Vlookup function, we can also use it for a data validation list.
- * Make sure your cursor is in the source box and make sure you can see the *Ticket Types* table in cells E28:F31 (you can still scroll down when the Data Validation options are showing). If you can't see it, you can click the icon to the right of the source box to temporarily hide the dialog box.
- * Select cells E28:E31. The cell references will appear in the source box. If you hid the Data Validation Dialog in the previous step, click the icon to display it again.

Creating Custom Date and Time Formats

- * Select the date in cell B7.
- * Select Press [Ctrl] [1] shortcut.
- * Make sure the Number tab is selected.
- * Select *Custom* from the Category list.
- * Under Type, delete whatever is currently in there. The list below that contains several existing custom formats and will also keep any that you create so they can be reused later.
- * Enter the custom date code
- * Click OK to apply the custom format. The date in the cell will now take on the new format.
- * Select B8, the time cell.
- * Create the following custom time format for that cell.
- * The format should make the time in the cell look like-7:30 PM

Type:
dd mmm yy

Type:
h:mm am/pm

Creating Custom Number Formats

- * Remember that when you create a custom number format, it is possible to create four different formats at once. One for positive numbers, one for negative numbers, one for zero values and another for text values. Each section in the format is separated by a semi colon.
- * According to Excel's online help, if you specify only two sections, the first is used for positive numbers and zeros, and the second is used for negative numbers. If you specify only one section, it is used for all numbers. If you skip a section, include the ending semicolon for that section. E.g.

```
Format for positive numbers | Format for zeros  
#,###.00_); [Red] (#,###.00); 0.00; "sales "@  
Format for negative numbers | Format for text
```

Creating Custom Number Formats

- * As you saw in the date and time formats, several symbols can be used in number formats to represent certain types of formats. Additionally, there are a couple of other guidelines to remember.
 - * Any text that is to appear as part of the format needs to be enclosed in quotation marks.
 - * Any colours that will be included as part of the format need to be enclosed in square brackets. []
- * Select B9, the cell with the show's duration.
- * Create the following custom format. -- 0 "Minutes"
- * The contents of the cell should now show a number (at least one digit) followed by the word Minutes. E.g. 120 Minutes
- * Select B11, the ticket type amount cell.
- * Create the following custom currency format-- \$0
- * Select cell B14, the ticket price cell and

Creating Custom Number Formats

- * enter the following custom format. - `$#,##0.00;[red]"Error";"0"`
- * This format will result in positive numbers having a dollar sign with two decimal places. For negative numbers, the text *Error* will appear in red (since the total shouldn't result in a negative number). If the value of the cell is zero a 0 will appear.
- * Change the number of tickets in B13 to test the format for the ticket total
- * Save your workbook and try these custom formats on a blank worksheet and enter data in to the cells to test the formats.

Creating Custom Number Formats

Format	Suggested test data
"Remaining balance is" \$#,##0.00	Any number
h:mm AM/PM "-" dd mmmm yyyy	now() -- function to calculate current date/time
\$0.00;[red]\$0.00;"Zero";[green]@"	+ and – numbers, 0, text
\$* #,##0.00 " Debit";[Red]\$* (#,##0.00)" Credit"	+ and – numbers
"You owe" o "dollars"	Any number

How to Add the Developer Tab in the Ribbon

- * The Developer Tab is mainly used for working with Macros. Using the Developer tab, you can create, run and edit Macros. In addition to this, the developer Tab can also be used for working with XML sheets and From Controls. By default, the Developer tab will not be shown in the Ribbon of any Office application and this becomes difficult when you want to work with Macros and Xml Sheets without the developer tab. below is a tutorial that will tell you how to add the Developer tab into the Ribbon of the Excel 2010 Application.

How to Add the Developer Tab in the Ribbon

- * Click on 'File' tab and then on 'Options' tab.
- * In "Excel Options" window that appears on the screen, click on the 'Customize Ribbon' tab.
- * Now, under 'Customize the Ribbon' box, use the drop down arrow to find the 'Main Tabs' and under the Main Tabs, select the check box that is against the 'Developer' option.
- * Finally click on the 'OK' button in Excel Options window.

So, this is how you can make the Excel application show the Developer tab in the Ribbon.

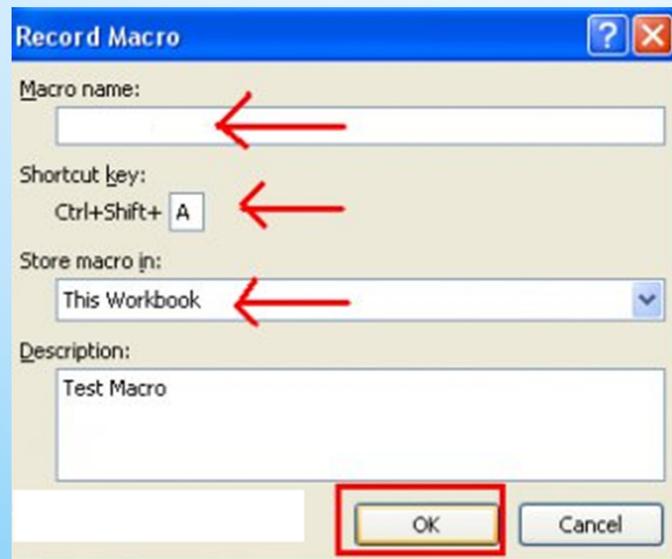
Creating a Macro

- * Firstly, insert the “Developer” tab in the ribbon of the Excel Application.
- * Now, on the “Developer” tab, under the ‘Code’ category, click on the ‘Record Macro’ icon.



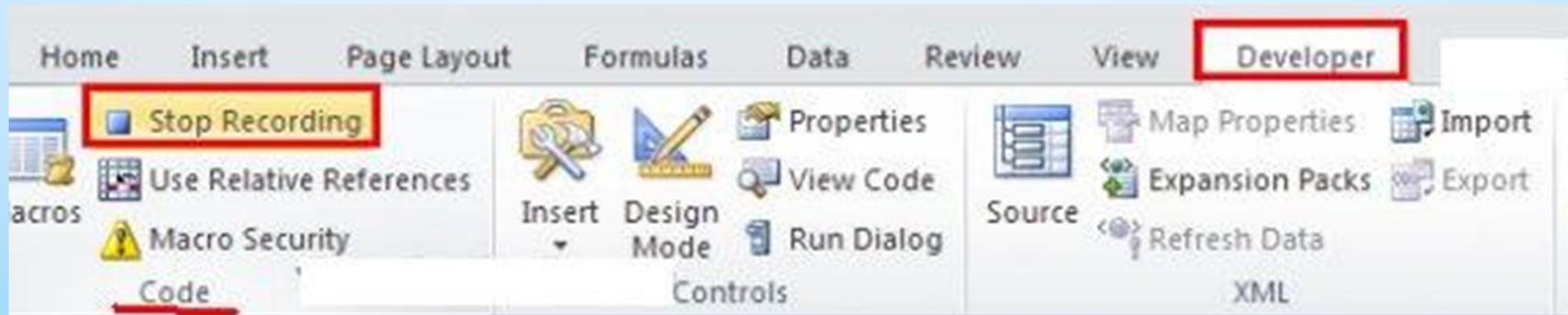
Creating a Macro

- * A 'Record Macro' dialogue box appears on the screen. In this dialogue box, give a name for the Macro, specify a short cut key to run the macro later, location where you want store the macro and a brief description about the macro and finally click on the 'OK' button.



Creating a Macro

- * Now, do the necessary tasks that you want on the Excel sheet and the tasks that you perform will be recorded by the Macro
- * Once you are finished with performing all the tasks, click on the 'Stop Recording' icon that you find on the 'Developer' tab under the 'Code' category



Run a Macro

- * To Run a Macro that you created above, click on the 'Macros' icon that you find on the 'Developer' tab under the 'Code' category.
- * Now a 'Macro' dialogue box appears on the screen which contains a list of Macros in it.
- * Select the Macro that you created from the List and click on the 'Run' tab.
- * Now the Macro will be run in the worksheet. You can have the Macro run in any worksheet of the Workbook.
- * You can also run the created Macro by using the Shortcut key that you specified while creating the Macro.

About User Defined Functions

- * Excel provides the user with a large collection of ready-made functions, more than enough to satisfy the average user. Many more can be added by installing the various add-ins that are available.
- * Most calculations can be achieved with what is provided, but it isn't long before you find yourself wishing that there was a function that did a particular job, and you can't find anything suitable in the list. You need a UDF.
- * A UDF (User Defined Function) is simply a function that you create yourself with VBA. UDFs are often called "Custom Functions". A UDF can remain in a code module attached to a workbook, in which case it will always be available when that workbook is open. Alternatively you can create your own add-in containing one or more functions that you can install into Excel just like a commercial add-in.
- * UDFs can be accessed by code modules too. Often UDFs are created by developers to work solely within the code of a VBA procedure and the user is never aware of their existence.

A Function to Calculate the Area of a Rectangle

- * Suppose you need a function to calculate the area of a rectangle. You look through Excel's collection of functions, but there isn't one suitable. This is the calculation to be done:
 - * $AREA = LENGTH \times WIDTH$
- * Open a new workbook and then open the Visual Basic Editor (**Developer > Source** or **ALT+F11**).

A Function to Calculate the Area of a Rectangle

- * You will need a module in which to write your function so choose **Insert > Module**. Into the empty module type: *Function Area* and press **ENTER**. The Visual Basic Editor completes the line for you and adds an *End Function* line as if you were creating a subroutine.

Function Area()

End Function

A Function to Calculate the Area of a Rectangle

- * *Place your cursor between the brackets after "Area". If you ever wondered what the brackets are for, you are about to find out! We are going to specify the "arguments" that our function will take (an argument is a piece of information needed to do the calculation). Type Length as double, Width as double and click in the empty line underneath. Note that as you type, a scroll box pops-up listing all the things appropriate to what you are typing.*

A Function to Calculate the Area of a Rectangle

- * This feature is called **Auto List Members**. If it doesn't appear either it is switched off (turn it on at **Tools > Options > Editor**) or you might have made a typing error earlier. It is a very useful check on your syntax. Find the item you need and double-click it to insert it into your code. You can ignore it and just type if you want. Your code now looks like this...

Function Area(Length As Double, Width As Double)

End Function

A Function to Calculate the Area of a Rectangle

- * Declaring the data type of the arguments is not obligatory but makes sense. You could have typed Length, Width and left it as that, but warning Excel what data type to expect helps your code run more quickly and picks up errors in input. The double data type refers to number (which can be very large) and allows fractions.
- * Now for the calculation itself. In the empty line first press the **TAB** key to indent your code (making it easier to read) and type Area = Length * Width. Here's the completed code...

```
Function Area(Length As Double, Width As Double)  
    Area = Length * Width  
End Function
```

A Function to Calculate the Area of a Rectangle

- * You can test your function right away. Switch to the Excel window and enter figures for Length and Width in separate cells. In a third cell enter your function as if it were one of the built-in ones. In this example cell A1 contains the length (17) and cell B1 the width (6.5). In C1 I typed =area(A1,B1) and the new function calculated the area (110.5)...

A Function to Calculate the Area of a Rectangle

- * Sometimes, a function's arguments can be optional. In this example we could make the **Width** argument optional. Supposing the rectangle happens to be a square with Length and Width equal. To save the user having to enter two arguments we could let them enter just the Length and have the function use that value twice (i.e. multiply Length x Length). So the function knows when it can do this we must include an **IF Statement** to help it decide.

A Function to Calculate the Area of a Rectangle

* Change the code so that it looks like this...

```
Function Area(Length As Double, Optional Width As Variant)
    If IsMissing(Width) Then
        Area = Length * Length
    Else
        Area = Length * Width
    End If
End Function
```

Note that the data type for Width has been changed to Variant to allow for null values. The function now allows the user to enter just one argument e.g. =area(A1). The IF Statement in the function checks to see if the Width argument has been supplied and calculates accordingly...

A Function to Calculate Fuel Consumption

- * The calculation is the number of miles the car has travelled since the last fill-up divided by the number of gallons of fuel used...
- * $MPG = (MILES\ THIS\ FILL - MILES\ LAST\ FILL) / GALLONS\ OF\ FUEL$
- * but because the fuel comes in litres and there are 4.546 litres in a gallon..
- * $MPG = (MILES\ THIS\ FILL - MILES\ LAST\ FILL) / LITRES\ OF\ FUEL \times 4.546$

Delete duplicate items in a single list

- * The following sample macro searches a single list in the range A1:A100 and deletes all duplicate items in the list. This macro requires that you do not have empty cells in the list range. If your list does contain empty cells, sort the data in ascending order so that the empty cells are all at the end of your list.

```

Sub DelDups_OneList()
Dim iListCount As Integer
Dim iCtr As Integer

' Turn off screen updating to speed up macro.
Application.ScreenUpdating = False
' Get count of records to search through.
iListCount = Sheets("Sheet1").Range("A1:A100").Rows.Count
Sheets("Sheet1").Range("A1").Select
' Loop until end of records.
Do Until ActiveCell = ""
' Loop through records.
For iCtr = 1 To iListCount
' Don't compare against yourself.
' To specify a different column, change 1 to the column number.
If ActiveCell.Row <> Sheets("Sheet1").Cells(iCtr, 1).Row Then
' Do comparison of next record.
If ActiveCell.Value = Sheets("Sheet1").Cells(iCtr, 1).Value Then
' If match is true then delete row.
Sheets("Sheet1").Cells(iCtr, 1).Delete xlShiftUp
' Increment counter to account for deleted row.
iCtr = iCtr + 1
End If
End If
Next iCtr
' Go to next record.
ActiveCell.Offset(1, 0).Select
Loop
Application.ScreenUpdating = True
MsgBox "Done!"
End Sub

```

Compare two lists and delete duplicate items

- * The following sample macro compares one (master) list against another list, and deletes duplicate items in the second list that are also in the master list. The first list is on Sheet1 in the range A1:A10. The second list is on Sheet2 in the range A1:A100. To use the macro, select either sheet, and then run the macro.

```

* Sub DelDups_TwoLists()
* Dim iListCount As Integer
* Dim iCtr As Integer

* ' Turn off screen updating to speed up macro.
* Application.ScreenUpdating = False

* ' Get count of records to search through (list that will be deleted).
* iListCount = Sheets("sheet2").Range("A1:A100").Rows.Count

* ' Loop through the "master" list.
* For Each x In Sheets("Sheet1").Range("A1:A100")
* ' Loop through all records in the second list.
* For iCtr = 1 To iListCount
* ' Do comparison of next record.
* ' To specify a different column, change 1 to the column number.
* If x.Value = Sheets("Sheet2").Cells(iCtr, 1).Value Then
* ' If match is true then delete row.
* Sheets("Sheet2").Cells(iCtr, 1).Delete xlShiftUp
* ' Increment counter to account for deleted row.
* iCtr = iCtr + 1
* End If
* Next iCtr
* Next
* Application.ScreenUpdating = True
* MsgBox "Done!"
* End Sub

```

Pivot Table

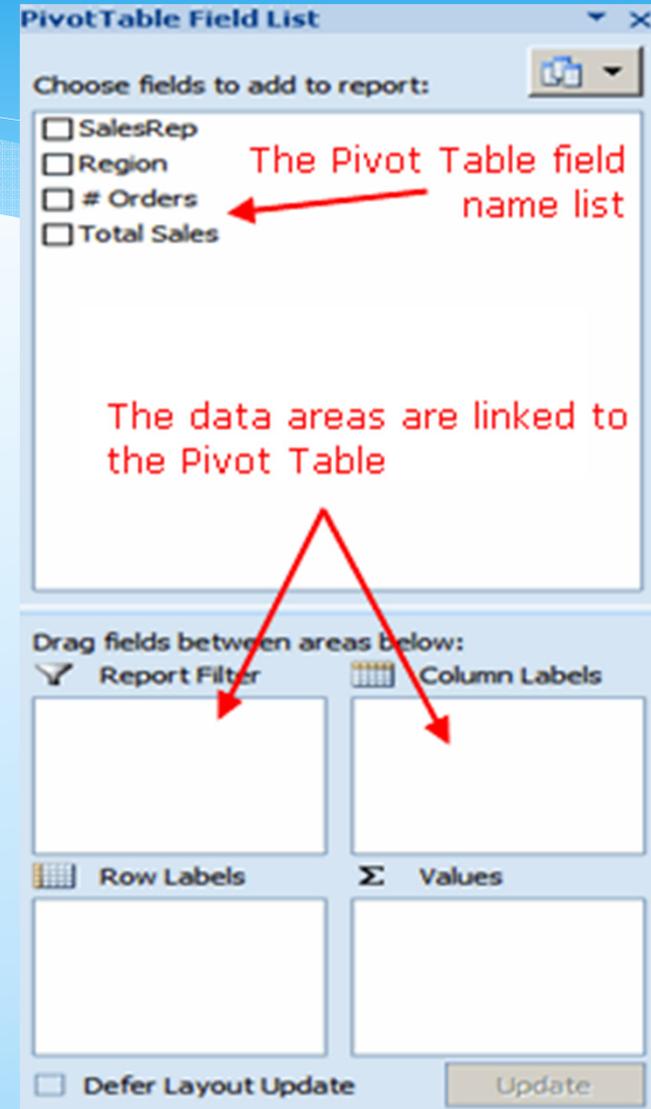
- * An Excel pivot table is a versatile reporting tool that makes it easy to extract information from a large table of data without the use of formulas.
- * A pivot table is extremely user friendly in that by moving, or pivoting, fields of data from one location to another using *drag and drop* we can look at the same data in a number of different ways.

Pivot Table

	A	B	C	D
1	Cookie Sales by Region			
2	SalesRep	Region	# Orders	Total Sales
3	Bill	West	217	\$41,107
4	Frank	West	268	\$72,707
5	Harry	North	224	\$41,676
6	Janet	North	286	\$87,858
7	Joe	South	226	\$45,606
8	Martha	East	228	\$49,017
9	Mary	West	234	\$57,967
10	Ralph	East	267	\$70,702
11	Sam	East	279	\$77,738
12	Tom	South	261	\$69,496

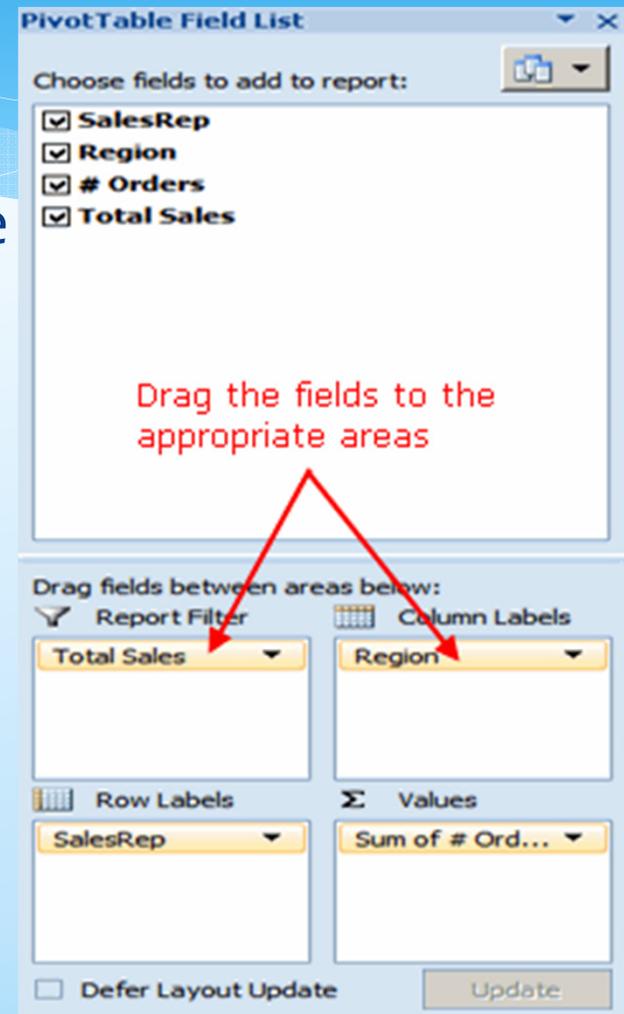
Pivot Table

- * Drag select cells A2 to D12 to highlight them.
- * Click on the Insert tab of the ribbon.
- * Click on the down arrow at the bottom of Pivot Table button to open the drop down list.
- * Click on *Pivot Table* in the list to open the *Create Pivot Table* dialog box.
- * By pre-selecting the data range A2 to F12, the Table/Range line in the dialog box should be filled in for us.
- * Choose *Existing Worksheet* for the location of the pivot table.
- * Click on the *Location* line in the dialog box.
- * Click on cell D16 in the worksheet to enter that cell reference into the location line.
- * Click OK.



Pivot Table

- * A blank pivot table should appear on the worksheet with the top left corner of the pivot table in cell D16.
- * The *Pivot Table Field List* panel should open on the right hand side of the Excel window.
- * At the top of the *Pivot Table Field List* panel are the field names (column headings) from our data table. The data areas at the bottom of the panel are linked to the pivot table.



Pivot Table

- * You have to select the field names which are available two choices when it comes to adding data to the Pivot Table:
 - * Drag the field names from the *Pivot Table Field List* panel and drop them on the Pivot Table in the worksheet.
 - * Drag the field names to the bottom of the *Pivot Table Field List* panel and drop them in the data areas.
- * The data areas in the *Pivot Table Field List* panel are linked to corresponding areas of the pivot table. As you add the field names to the data areas, your data is added to the pivot table.

Shortcuts

* Home	Move to column A in a sheet
* Ctrl Home	Move to cell A1 in a sheet
* Ctrl and arrow	Move to the last non blank cell in that direction
* Page Down	Move one screen down
* Page Up	Move one screen up
* Alt Page Down	Move one screen to the right
* Alt Page Up	Move one screen to the left
* Ctrl A	Select all the non-blank cells in the sheet
* Ctrl Spacebar	Select a whole column
* Alt F4	Close Excel
* Ctrl F4 or Ctrl W	Close the current file
* Ctrl N	Create a new workbook
* Ctrl O	Open a workbook
* Ctrl S	Save the current workbook
* F12	Save the current workbook with a different name/location
* Ctrl F6	Switch between open workbooks
* Ctrl ;	Enter the current date
* Ctrl Shift ;	Enter the current time
* F2	Edit the currently selected cell
* Ctrl C	Copy selected cells
* Ctrl X	Cut selected cells
* Ctrl V	Paste cells that have been cut or copied
* Home	Move to column A in a sheet
* F9	Recalculate formulas
* F4	Change between absolute, relative or mixed references in a formula
* Ctrl 1	Open the Format Cells dialog
* F1	Display Excel help
*	