Spreadsheets

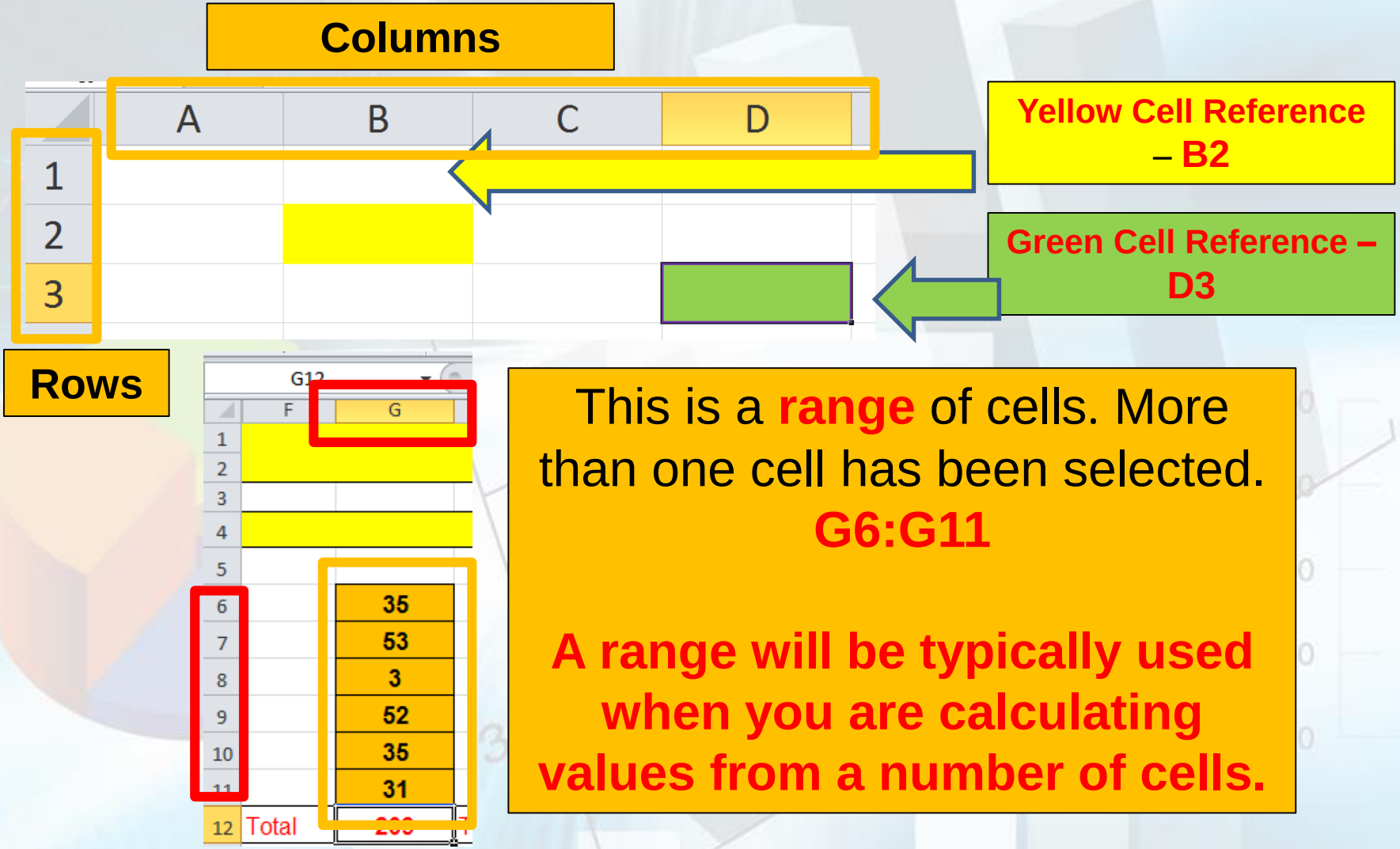
Spreadsheets Functions Recap

Functions Recap

Objectives
To understand the use of basic formatting techniques in spreadsheets.
To understand the use of formulas and functions including: • Sum, Max, Min & Average • Count • SumIF • Lookups
To understand the need to use absolute cell referencing in some calculations.

Outcomes	Time
Pupils will complete the Recap Functions Excel sheet.	

Overview – Cell Referencing



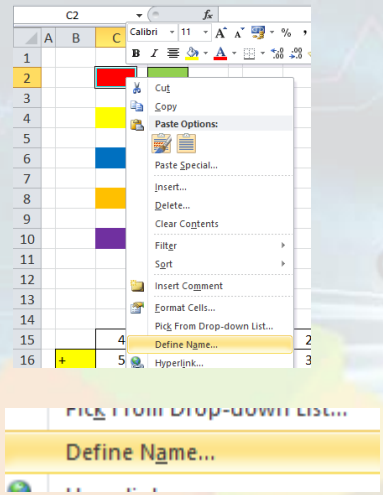
This is a **range** of cells. More than one cell has been selected.

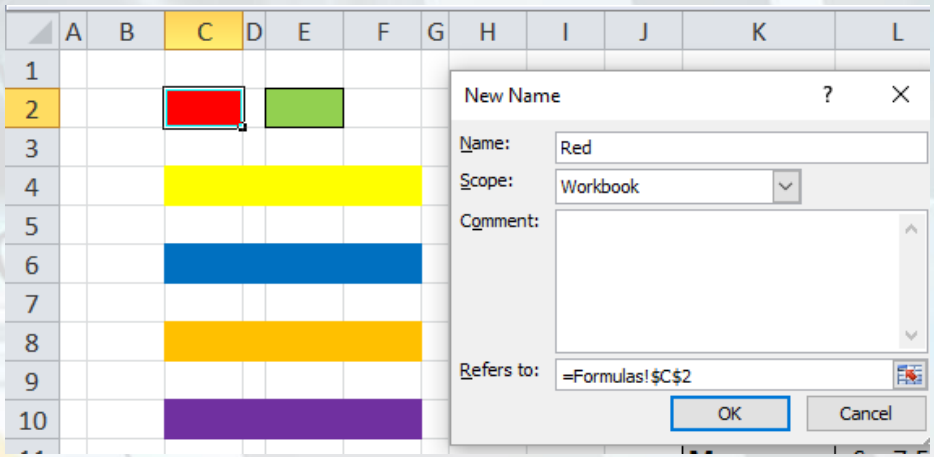
G6:G11

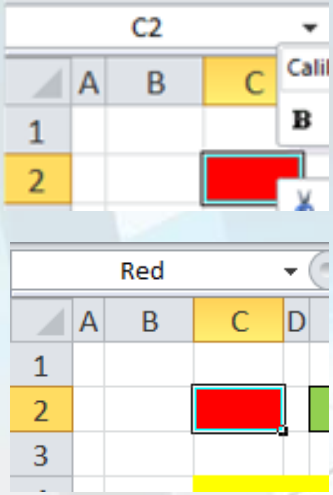
A range will be typically used when you are calculating values from a number of cells.

Defining Cell/Range Names

Named cells >> Right Click on the Cell >> Select Define Name >> Enter New Name for Cell

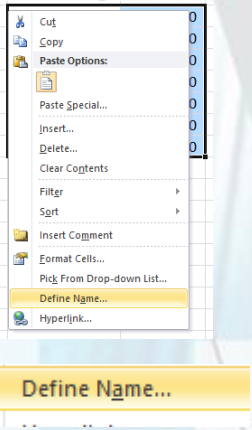


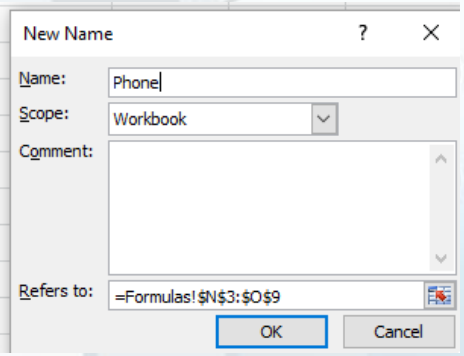




Named ranges >> Right Click on the Cell >> Select Define Name >> Enter New Name for Range

Mobile Phone	Price
Samsung s3	£ 250.00
Iphone 4	£ 300.00
Samsung s4	£ 275.00
I phone 5	£ 250.00
Galaxy Fame	£ 160.00
I Phone 5s	£ 360.00
SamsungNote 3	£ 250.00
Total	

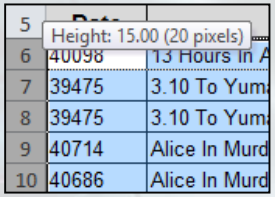


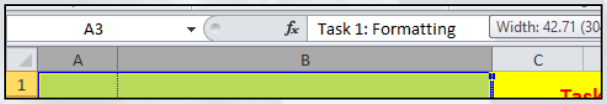


Spreadsheets Part 3

Formatting

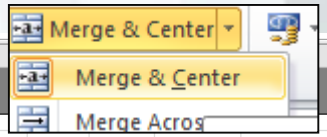
Adjusting Column and Rows

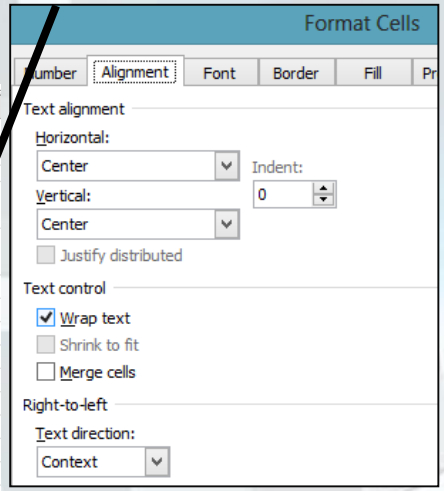




Text formatting including alignment and wrapping.

Merging Cells

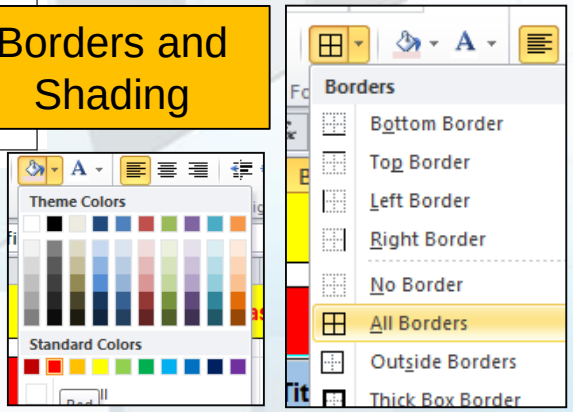




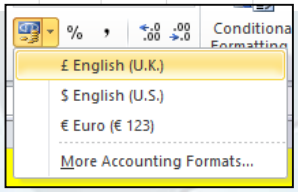
lovefilm.com

Release Date	Title	No of Disc's	Format	Cat No.	RRP	UK Cert	Irish Cert	Region Code	Genre
40098	13 Hours In A Warehouse	1	DVD	LGD94135	£ 9.99	18	tbc	2	Horror
39475	3.10 To Yuma	1	DVD	LGD93952	£ 19.99	15	tbc	2	Western
39475	3.10 To Yuma (BLU RAY)	1	Blu Ray	LGB93952	£ 24.99	15	tbc	2	Western
40714	Alice In Murderland	2	DVD	LGD94409	£ 9.99	tbc	tbc	2	Film
40686	Alice In Murderland (RENTAL)	2	RENTAL	LGDR94409	n/a	tbc	tbc	2	Film
40651	Boy In The Striped Pyjamas	2	DVD	MIRLGD94437	£ 19.99	12	12	2	Drama
40658	Boys & Girls	2	DVD	MIRLGD94438	£ 19.99	12	tbc	2	Drama
40651	Boys Are Back, The	2	DVD	MIRLGD94439	£ 19.99	12	12	2	Drama
40112	Happily N'ever After 2	1	DVD	LGD94189	£ 7.99	U	12	2	Drama
40112	Happily N'Ever After Double Pack	2	DVD	LGD94212	£ 9.99	U	tbc	2	Drama
40651	Hard Days Night	1	DVD	MIRLGD94491	£ 19.99	12	tbc	2	Music
40259	Harry Brown	1	DVD	LGD94206	£ 19.99	18	12	2	Drama
40679	Heartlands	1	DVD	MIRLGD94493	£ 19.99	12	tbc	2	Drama
40266	Imaginarium of Doctor Parnassus, The (BLU RAY)	1	BLU RAY	LGB94208	£ 24.99	12	PG	2	Adventu
40266	Imaginarium of Doctor Parnassus, The (RENTAL)	1	RENTAL	LGDR94208	n/a	12	PG	2	Adventu
40658	In the Bedroom	1	DVD	MIRLGD94501	£ 19.99	15	tbc	2	Drama
40252	Ninja (RENTAL)	1	RENTAL	LGDR94196	n/a	18	tbc	2	Action

Borders and Shading

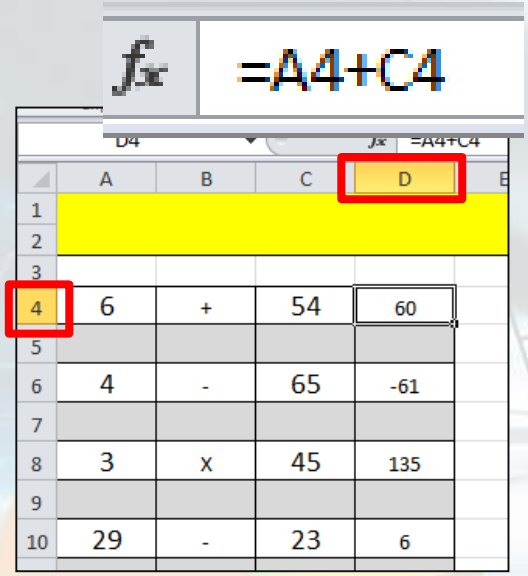


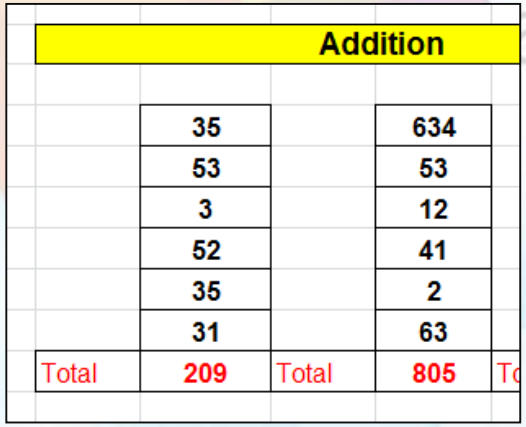
Currency



http://www.yahmad.co.uk/

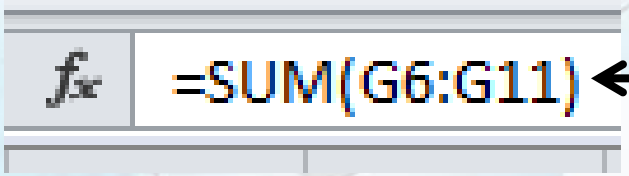
Formulas Part 1





- **Formulas** always begin with a **equal sign =**
- Refer to the cell reference (A4) before you write your formula.
- You can create simple formulas to add, multiply, subtract and divide.
- Even if you update the numbers in the cell the formula will automatically work out the new value.

- To find the total for a range of cells you would use the **Sum Function**.



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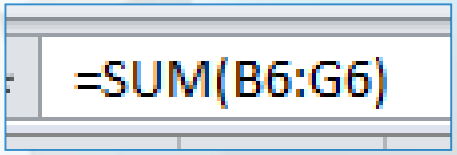
Simple Functions

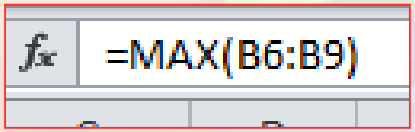
Cell Range for Total, Max &Min (Jan Sales).

Cell Range for Total & Average (Monthly Sales).

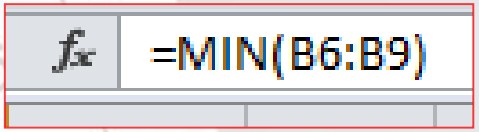
	January	Febuary	March	April	May	June	Total	Average
Iphone 6	15	15	15	40	15	15	115	19.167
Samsung s5	18	18	18	18	18	18	108	18
Sony Xperia	5	5	5	5	5	5	30	5
Other	6	2	30	4	1	10	53	8.8333
Total:	44	40						
Max:	18	18						
Min	5	2						



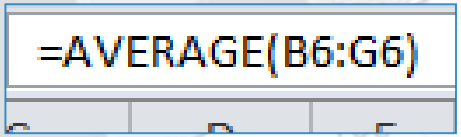
The **=Sum Function** will calculate the **total (Sum)** of the numbers in the **range**.



The **=Max Function** will find the **highest** number in the **range**.



The **=Min Function** will find the **lowest** number in the **range**.



The **=Sum Function** will calculate the **total (Sum)** of the numbers in the **range**.

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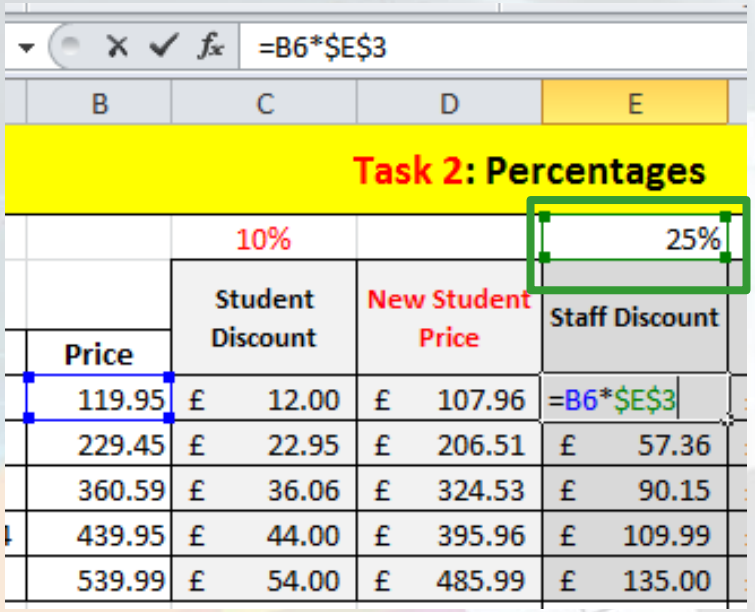
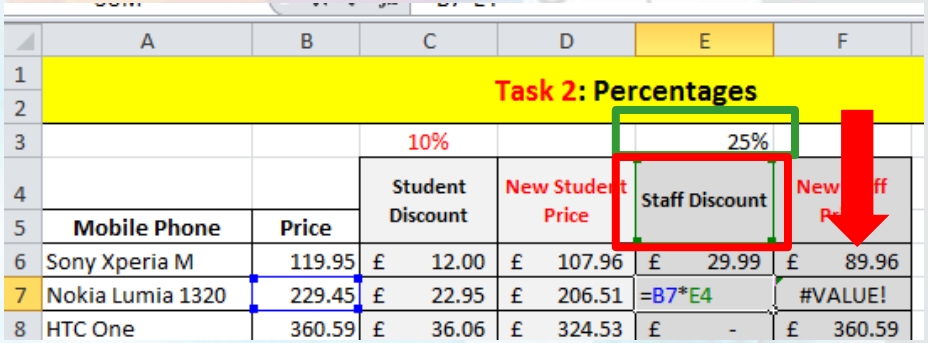
Absolute Cell Referencing



When you use **AutoFill** to **duplicate a formula** into the cells **below** then you must use **absolute cell referencing** if you want the cells to be **referencing** to **one particular cell**.

Absolute cell referencing will **lock** in a particular cell. To absolute cell reference you must insert a **dollar sign before Letter and number of the cell.**

=B6*E3



In the example to the left if you do not use **absolute cell referencing** on the **25%** then the Price will be multiplied against the content in **E4.**

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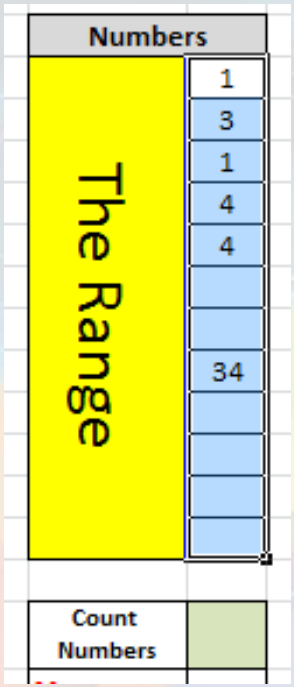
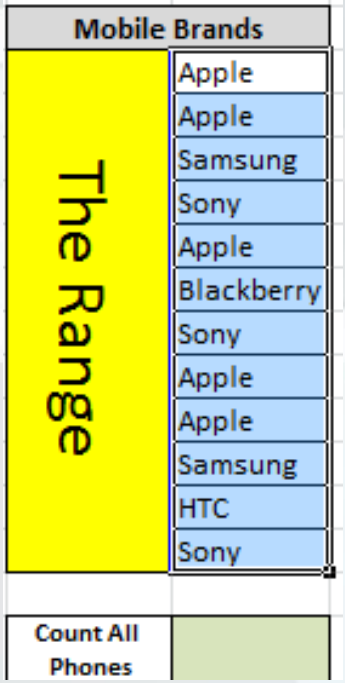
Count Functions

=Count and CountA



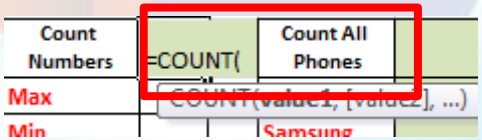
=Count(Range)

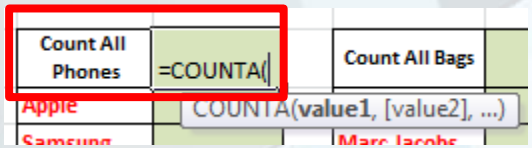
This function will count the cells within the range that contain only numbers.



=CountA(Range)

This function will count all the cells within the range that are not empty.





The count function will only Count the cells.
Do not get confused with Sum.

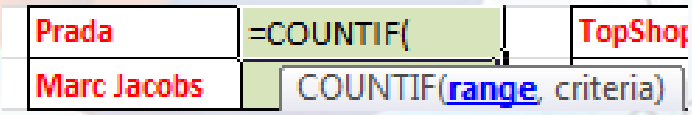
Count Functions

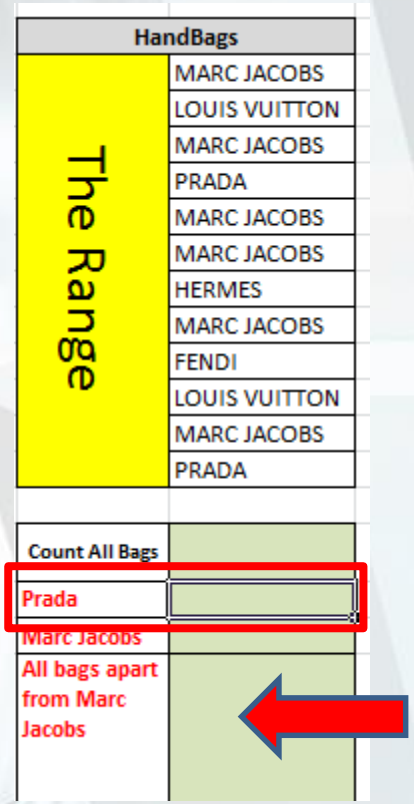
Count IF

=Countif(Range,Criteria)

This function will count the cells which contains a specific criteria from the range

Example: We need to count the Prada bags from the range.





Some times you may have to count all cells apart from a certain criteria.

In this example you we want to count all the brands apart from Marc Jacobs

=countif(Range, "<>Marc Jacobs")

=Countif(Range,"Prada") or =Countif(Range,"I19")

Not: =Countif(Range,"<>criteria")

Sum IF Functions

Sum IF

	Books	Shop	Price	Student Discount	Student Discount Valu	Final Price inc discount
4	Diary of a Wimpy Kid:	Virgin	5.50	Yes	£ 0.5	£ 4.95
5	Harry Potter and the Sorcerer's Stor	Amazon	6.00	no	£ -	£ 6.00
6	The Heroes of Olympus	Virgin	4.50	Yes	£ 0.4	£ 4.05
7	The Hunger Games	Amazon	5.50	No	£ -	£ 5.50
8	The Maze Runner	HMV	6.50	Yes	£ 0.6	£ 5.85
9	The Book with No Pictures	Virgin	3.50	Yes	£ 0.3	£ 3.15
10	Mockingjay	Amazon	5.00	No	£ -	£ 5.00
11						
12	Count All Books	7			Total	
13	Sales from Virgin	3			Highest	
14	Sales from Amazon	0			Lowest	
15	Not HMV	6			Average	
16						
17	Sumif (Final Price)					
18	Sumup total Virgin Sales	=SUMIF(B4:B10,"virgin",F4:F10)				
19	Sumup total Amazon Sales					

Range: The criteria is "virgin". Look at the table and highlight the range of cells which includes "Virgin".

Criteria: You can either reference to a cell or write the criteria in quotation marks.

SumRange: This will sum up only the criteria values from the sum range.

Criteria

=SUMIF(B4:B10,"virgin",F4:F10)

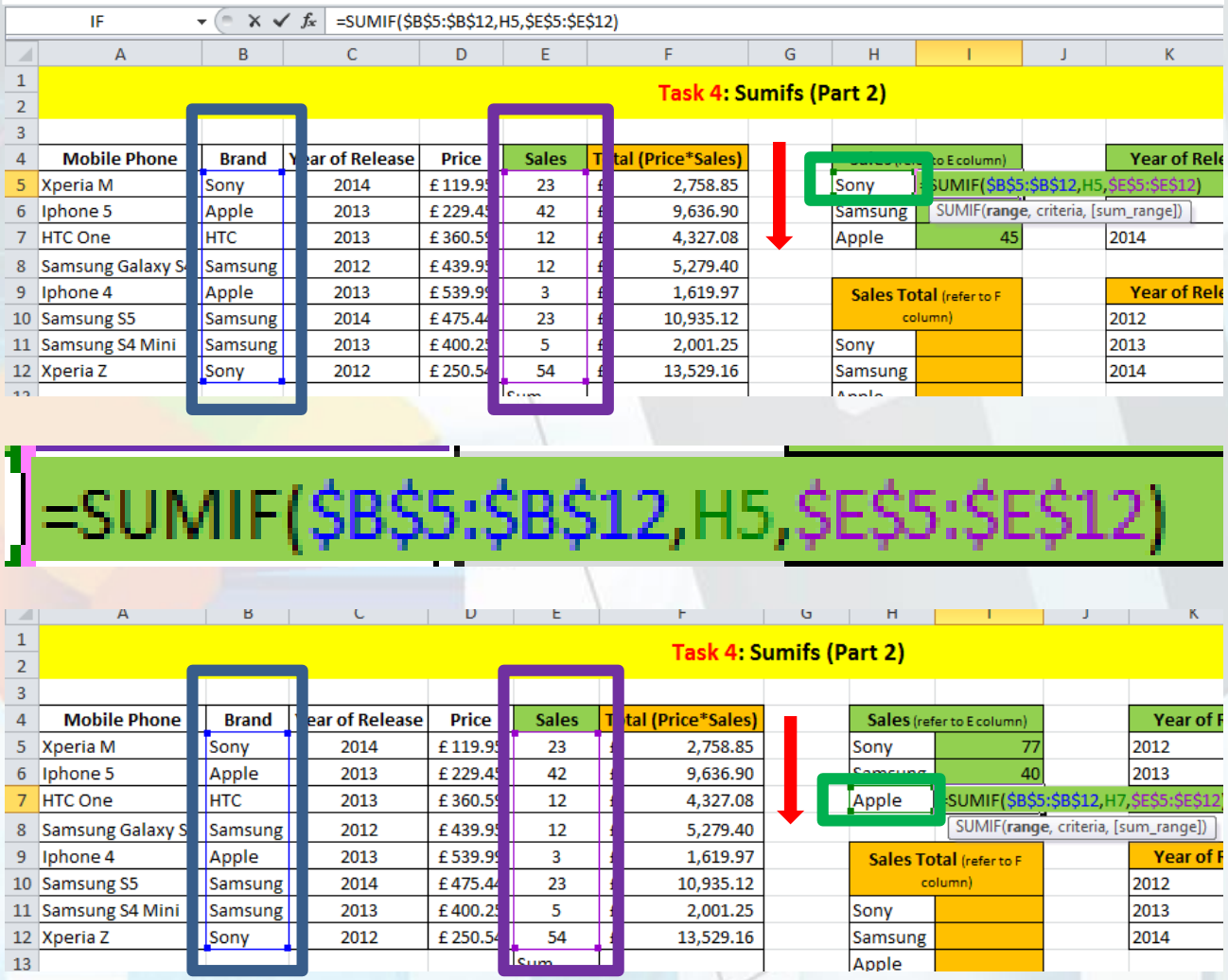
Range

Sum_Range

A sumif will only sum (add) up from a specific criteria (condition) from the sum_range.

Sum IF Functions

Sum IF with Absolute and Relative Cell Referencing



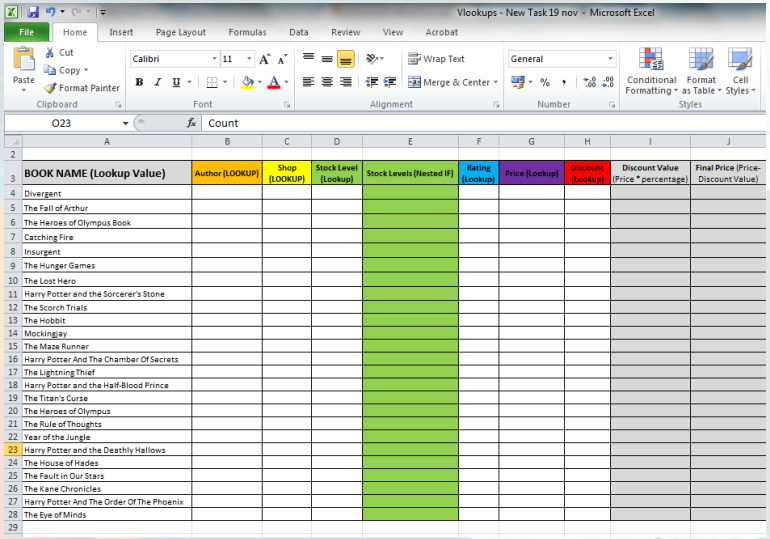
The **Range** and the **Sum Range** have **absolute cell referencing**.

When the formula is replicated the absolute cell referenced cells will stay the same and will not move position.

H5 is **relative cell referencing**. It will move down when the formula is replicated.

VLookup

Using VLOOKUP is similar to looking up a person's name in a telephone book to get a telephone number. VLOOKUP looks at a value in one column, and finds its corresponding value on the same row in another column.



	A	B	C	D	E	F	G	H	I	J
2										
3	BOOK NAME (Lookup Value)	Author (LOOKUP)	Shop (LOOKUP)	Stock Level (Lookup)	Stock Levels (Nested IF)	Rating (Lookup)	Price (Lookup)	Discount (Lookup)	Discount Value (Price * percentage)	Final Price (Price-Discount Value)
4	Divergent									
5	The Fall of Arthur									
6	The Heroes of Olympus Book									
7	Catching Fire									
8	Insurgent									
9	The Hunger Games									
10	The Lost Hero									
11	Harry Potter and the Sorcerer's Stone									
12	The Scorch Trials									
13	The Hobbit									
14	Mockingjay									
15	The Maze Runner									
16	Harry Potter And The Chamber Of Secrets									
17	The Lightning Thief									
18	Harry Potter and the Half-Blood Prince									
19	The Titan's Curse									
20	The Heroes of Olympus									
21	The Rule of Thoughts									
22	Year of the Jungle									
23	Harry Potter and the Deathly Hallows									
24	The House of Hades									
25	The Fault in Our Stars									
26	The Kane Chronicles									
27	Harry Potter And The Order Of The Phoenix									
28	The Eye of Minds									
29										

	A	B	C	D	E	F	G
1	BOOK NAME (Lookup Value)	Author	Shop	Stock Level	Rating	Price	Discount
2	Catching Fire	Suzanne Collins	Amazon	5	5*	£ 4.00	10%
3	The Fall of Arthur	J. R. R. Tolkien	Powell's Books	4	5*	£ 6.00	5%
4	Harry Potter And The Goblet Of Fire	J. K. Rowling	Virgin	0	4*	£ 4.00	7%
5	Insurgent	Veronica Roth	Powell's Books	15	3*	£ 5.00	5%
6	The Hunger Games	Suzanne Collins	Amazon	0	5*	£ 4.00	5%
7	The Heroes of Olympus	Rick Riordan	Powell's Books	12	5*	£ 4.00	10%
8	Harry Potter and the Sorcerer's Stone	J. K. Rowling	Books A Million	0	4*	£ 4.00	7%
9	Allegiant	Veronica Roth	Amazon	4	5*	£ 6.00	5%
10	The Fault in Our Stars	John Green	Amazon	0	3*	£ 4.00	5%
11	Mockingjay	Suzanne Collins	abebooks	3	5*	£ 4.00	7%
12	The Scorch Trials	James Dashner	abebooks	0	5*	£ 4.00	5%
13	Harry Potter And The Chamber Of Secrets	J. K. Rowling	Virgin	0	4*	£ 6.00	5%
14	The Lightning Thief	Rick Riordan	Amazon	4	5*	£ 4.00	10%
15	The Maze Runner	James Dashner	abebooks	11	4*	£ 4.00	7%
16	Looking for Alaska	John Green	Amazon	0	3*	£ 6.00	5%
17	The Last Olympian	Rick Riordan	Virgin	8	5*	£ 5.00	5%
18	The Rule of Thoughts	James Dashner	Powell's Books	0	5*	£ 6.00	7%
19	The Titan's Curse	Rick Riordan	abebooks	3	5*	£ 4.00	5%
20	Harry Potter and the Deathly Hallows	J. K. Rowling	Amazon	6	5*	£ 4.00	7%
21	Gregor The Overlander	Suzanne Collins	Amazon	5	5*	£ 4.00	10%
22	Divergent	Veronica Roth	abebooks	15	5*	£ 6.00	7%
23	The Lost Hero	Rick Riordan	Amazon	0	4*	£ 4.00	5%
24	The Death Cure	James Dashner	Amazon	4	5*	£ 6.00	5%
25	Harry Potter and the Half-Blood Prince	J. K. Rowling	Amazon	0	4*	£ 4.00	10%
26	Year of the Jungle	Suzanne Collins	Amazon	3	5*	£ 6.00	7%
27	The Hobbit	J. R. R. Tolkien	Powell's Books	14	3*	£ 4.00	5%
28	The Heroes of Olympus Book	Rick Riordan	Virgin	2	5*	£ 4.00	5%
29	Harry Potter And The Order Of The Phoenix	J. K. Rowling	Amazon	12	5*	£ 4.00	5%
30	The Eye of Minds	James Dashner	Amazon	2	5*	£ 6.00	10%
31	Harry Potter and the Prisoner of Azkaban	J. K. Rowling	Amazon	0	4*	£ 4.00	5%

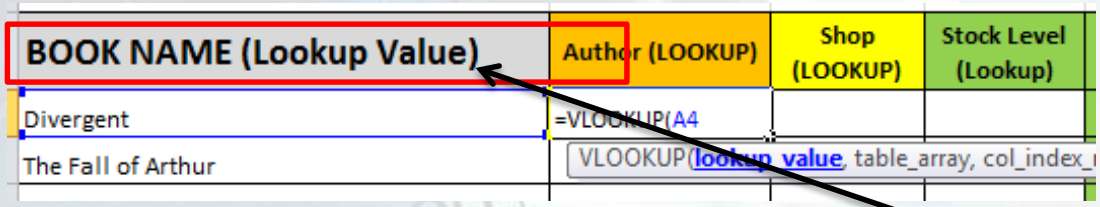
Task 1 | Task 1 - LOOKUP Table | Task 2 | Task 3 | Task 4

Table_Array or lookup table

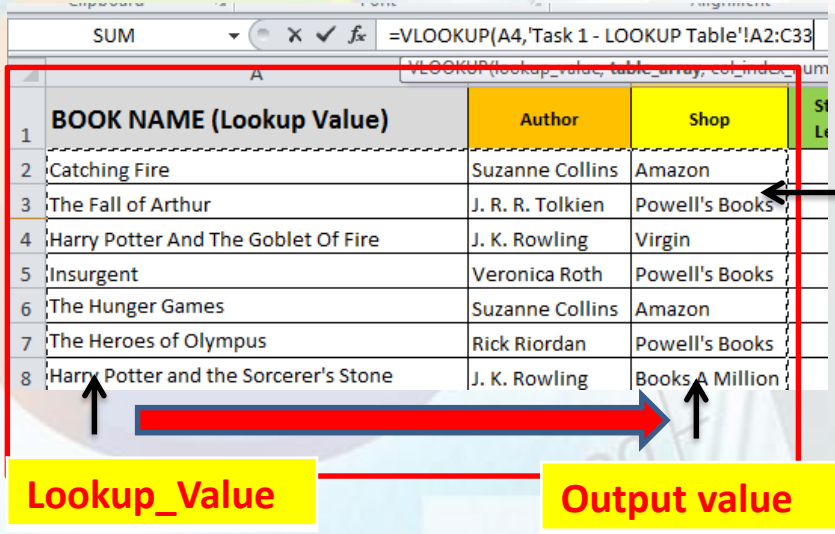
We need to use a lookup function to find the corresponding data from the lookup table for each book title .

VLookup

1. Lookup_Value



2. Table_Array



1) Select the **lookup value**. The **lookup value** will appear also in the **lookup table (table_array)**.

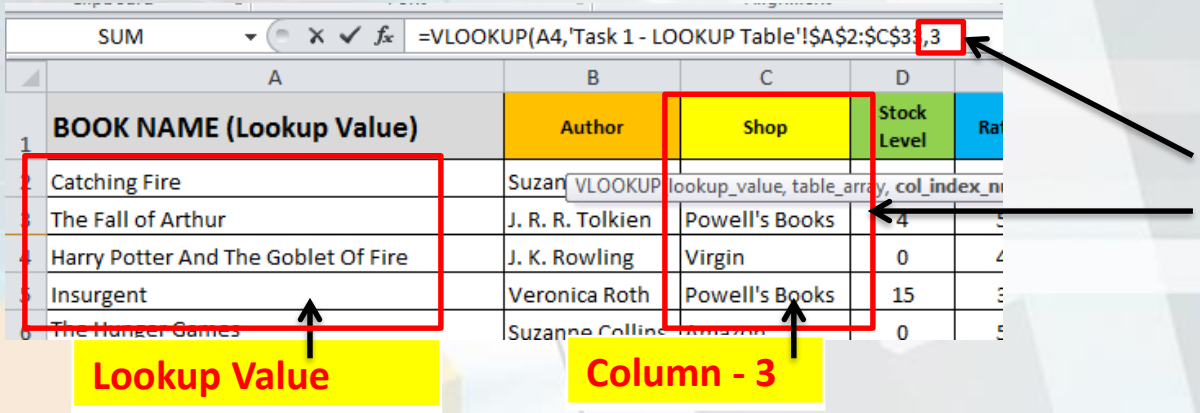
2) Select the **lookup table (table_array)**. This may be in the same sheet, next tab or another excel file. Select the **lookup value** and then the **output value**.

Make sure you **absolute cell reference** the **table_arrray.**

Tip: If the table array is on an external sheet then it will automatically Absolute Cell Reference the table.

VLookup

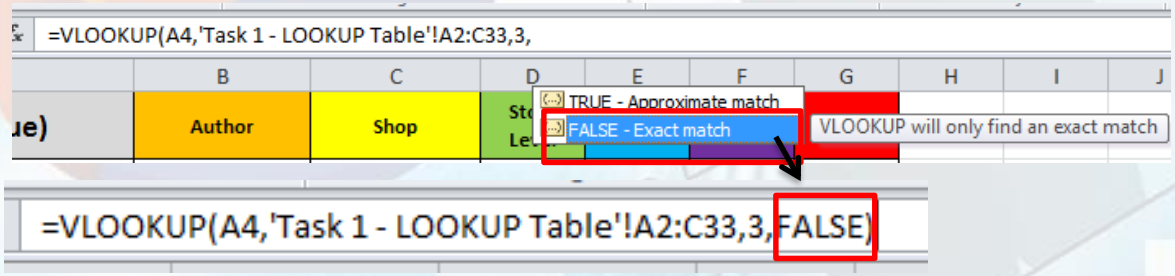
3. col_Index_num



3) Select the column in the table for the output value.

In this example the shop is in the third column of the selected table so therefore you would write 3.

4. Range_Lookup



4) You need to select false which is an exact match. This means the Vlookup will only find an exact match for the output value.

Remember to close the brackets.

VLookup

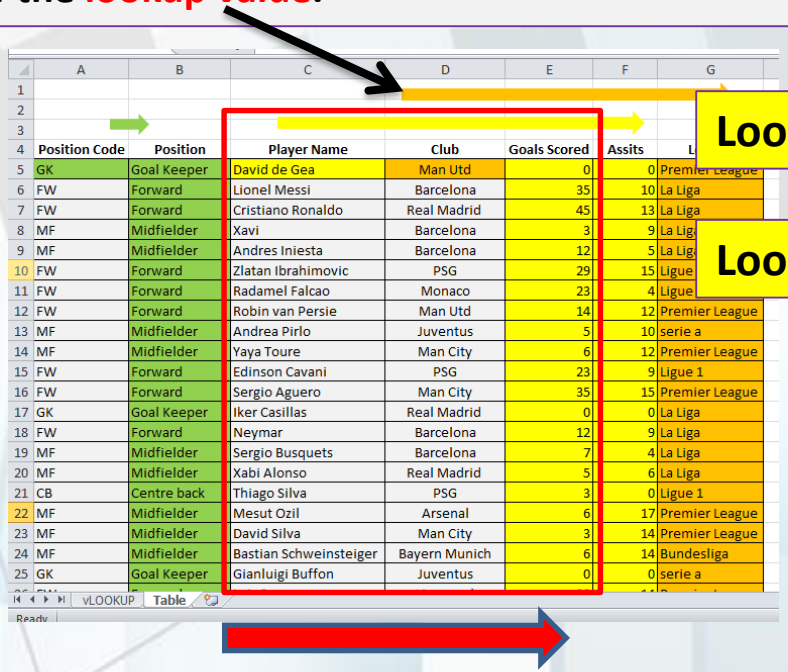
Look up a Output Value from a Table Arrray

Tip: When you are looking at the table array you must start from the cell you are looking up. In this Example:

Lookup Value – Player Name (C5)
Lookup Output – Goals Scored (E5)

The output value will always be right of the lookup value.

Player Name	Club	Goals Scored
David de Gea	Man Utd	
Sergio Busquets	Barcelona	
Manuel Neuer	Bayern Munich	
David Silva	Man City	
Zlatan Ibrahimovic	PSG	
Xabi Alonso	Real Madrid	
Yaya Toure	Man City	
Mesut Ozil	Arsenal	
Gerard Pique	Barcelona	
Radamel Falcao	Monaco	
Franck Ribery	Bayern Munich	
Sergio Ramos	Real Madrid	



	A	B	C	D	E	F	G
4	Position Code	Position	Player Name	Club	Goals Scored	Assits	L
5	GK	Goal Keeper	David de Gea	Man Utd	0	0	Premier League
6	FW	Forward	Lionel Messi	Barcelona	35	10	La Liga
7	FW	Forward	Cristiano Ronaldo	Real Madrid	45	13	La Liga
8	MF	Midfielder	Xavi	Barcelona	3	9	La Liga
9	MF	Midfielder	Andres Iniesta	Barcelona	12	5	La Liga
10	FW	Forward	Zlatan Ibrahimovic	PSG	29	15	Ligue
11	FW	Forward	Radamel Falcao	Monaco	23	4	Ligue
12	FW	Forward	Robin van Persie	Man Utd	14	12	Premier League
13	MF	Midfielder	Andrea Pirlo	Juventus	5	10	serie a
14	MF	Midfielder	Yaya Toure	Man City	6	12	Premier League
15	FW	Forward	Edinson Cavani	PSG	23	9	Ligue 1
16	FW	Forward	Sergio Aguero	Man City	35	15	Premier League
17	GK	Goal Keeper	Iker Casillas	Real Madrid	0	0	La Liga
18	FW	Forward	Neymar	Barcelona	12	9	La Liga
19	MF	Midfielder	Sergio Busquets	Barcelona	7	4	La Liga
20	MF	Midfielder	Xabi Alonso	Real Madrid	5	6	La Liga
21	CB	Centre back	Thiago Silva	PSG	3	0	Ligue 1
22	MF	Midfielder	Mesut Ozil	Arsenal	6	17	Premier League
23	MF	Midfielder	David Silva	Man City	3	14	Premier League
24	MF	Midfielder	Bastian Schweinsteiger	Bayern Munich	6	14	Bundesliga
25	GK	Goal Keeper	Gianluigi Buffon	Juventus	0	0	serie a

VLookup

Approximate Lookup

Lookup Value

Code	DVD Name	Genre
A00555	Rush Hour	Action
D00888	The Hobbit	Adventure
C00555	Pride & Prejudice	Drama
C00555	Titanic	Drama
A00555	THOR	Action
A00555	Iron Man	Action
C00555	Life Of Pi	Drama
A00555	The host	Action
B00222	Sinister	Horror
B00222	The Ring	Horror
D00888	The hunger games	Adventure
B00222	The Conjuring	Horror

Table Array

A	Action
B	Horror
C	Drama
D	Adventure

Lookup Value

Pupil Name	Percentage	Grade
Mohammed	96	A*
Abdulla	67	C
Yousef	54	D
John	70	B
Khalid	55	D
Rashid	86	A
Hammad	82	A
Ahmed	25	U
Hatem	55	D
Majed	38	F
Hassan	99	A*
Ronaldo	81	A

Table Array

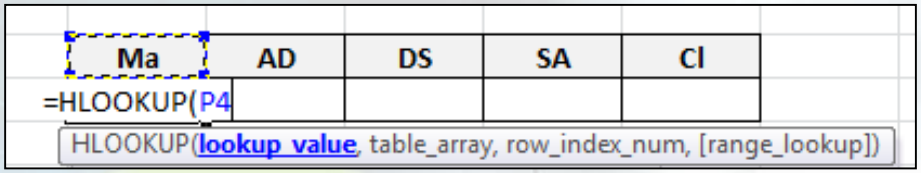
20	U
30	F
40	E
50	D
60	C
70	B
80	A
90	A*

When the lookup value **does not have an exact match** in the **table array** then you have to use an **approximate match**. With the **grades example if the percentage (%) is 90 or more** than the grade will be **A***.

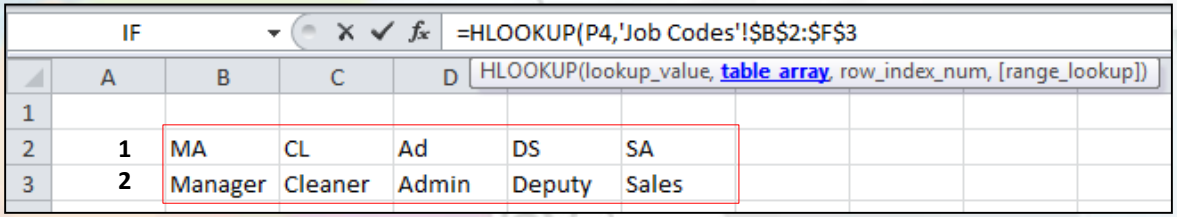
HLookup

HLOOKUP works horizontally. You will be required to select the row rather than a column for a VLOOKUP.

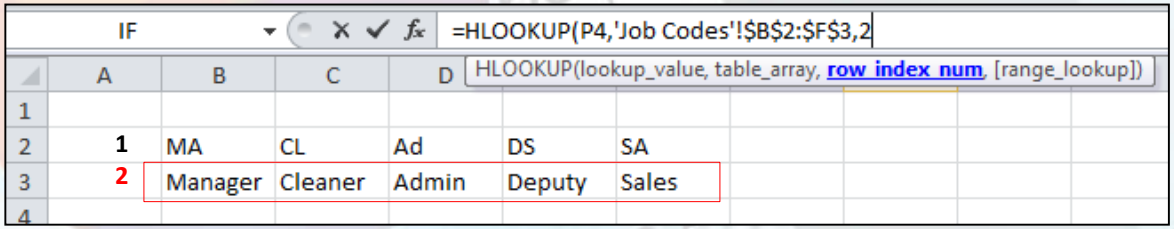
Ma	AD	DS	SA	Cl
Manager	Admin	Deputy	Sales	Cleaner



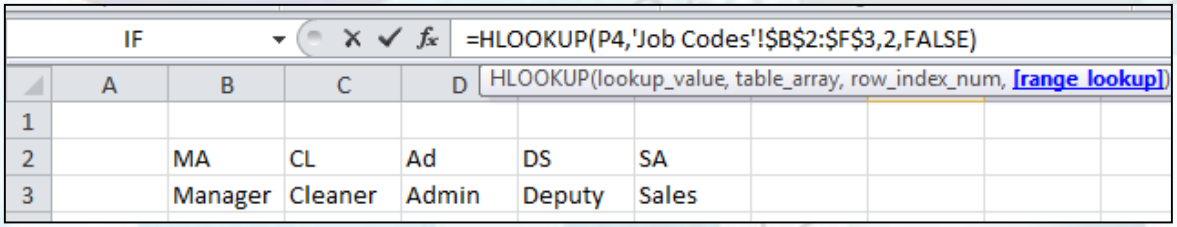
1) Select the lookup value.



2) Select the Table Array and absolute cell reference if required.



3) Select the Row to find the output data. In this case the data is in Row 2.



4) You need to select Approximate or exact match.

Plenary – Refer to the Lesson Objectives

Objectives

To understand the use of basic formatting techniques in spreadsheets.

To understand the use of formulas and functions including:

- Sum, Max, Min & Average
- Count
- SumIF
- Lookups

To understand the need to use absolute cell referencing in some calculations.

Plenary Task (Q&A)

1. What is the main advantage of using functions in completing this task on a spreadsheet.