Is this the end of Pivot Tables?

ALTERNATIVE FUNCTIONS TO ANALYSE AND WORK WITH DATA

John Tennent

Content

- The problem with Pivot Tables
- Array Formulae
- New functions that can replicate Pivot Tables
- Advanced Conditional Formatting
- =Groupby – all done by one function

Turn This

Employees

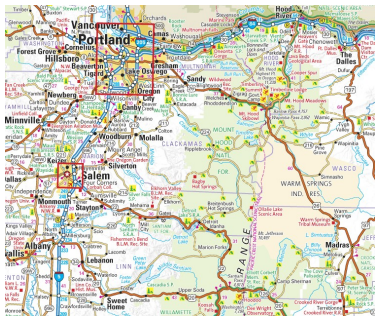
First name	Second name	Department	DOB	Start emloyment	Salary
Jema	Aguiling	Customer	23/08/1985	22/11/2011	38,200
Nasib	Ahsan	HR	21/03/1975	02/12/1990	24,400
Joey	Brown	Sales	30/04/2001	14/08/1992	21,000
Henry	Chan	Sales	02/09/1967	27/12/2005	24,400
David	Coles	Customer	04/06/1967	15/11/2011	32,200
Jeremy	Curtis	Finance	16/11/2014	06/03/1990	35,200
Sonya	Edwards	Sales	12/04/2015	11/12/1997	29,000
Pat	Godfrey	IT	14/06/2018	15/07/2004	26,200
James	Goodband	Sales	28/12/1983	12/12/2017	36,600
Marc	Hearn	IT	18/11/1986	28/08/1997	23,000
Kuma	Heish	Finance	01/07/1987	20/01/1992	38,600
Connie	Li	IT	02/01/2010	02/02/2007	23,000
Sarah	Lowe	Finance	05/08/1971	10/08/2016	33,400
Shona	McDonald	ITS	26/10/1998	18/10/2010	21,400
Frank	Meadon	Entry	25/03/1969	15/01/2007	37,800
Aden	Peel	IT	13/10/2001	19/07/1996	34,800
Gaurav	Reza	Sales	18/08/2014	28/05/2004	35,200
Olivia	Richards	Customer	21/06/1984	20/06/2004	21,200
Neil	Russell	Finance	06/06/1972	28/02/2003	35,800
Paul	Simmons	Sales	02/04/1980	31/12/1991	34,800
Ema	Sulivan	IT	01/01/2019	26/02/2002	39,600
Yumi	Tan	HR	02/11/1964	17/05/2004	26,800
Liz	Turnbull	Customer	28/06/1998	22/03/2018	35,400
Ann	Wells	HR	14/04/2002	09/02/2012	33,000
Mari	Winston	Sales	09/11/1970	19/11/2010	30,600
Brian	Woodall	HR	10/09/2001	07/03/2017	23,200
David	Yap	Sales	25/09/2007	09/11/1991	22,200
Aya	Young	Sales	03/01/1987	09/05/2014	35,400

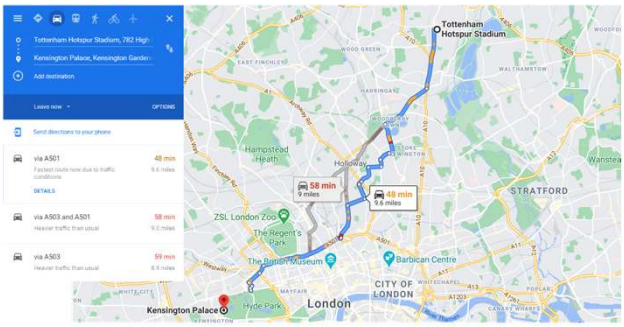
Into This

Department	People	Total salary	Average salary
Customer	4	127,000	31,750
Finance	5	180,800	36,160
HR	4	107,400	26,850
IT	6	168,000	28,000
Sales	9	269,200	29,911
Total	**28**	**852,400**	**30,443**

3 ways to get the same result

Pivot Table – Its about as advanced as a road atlas…



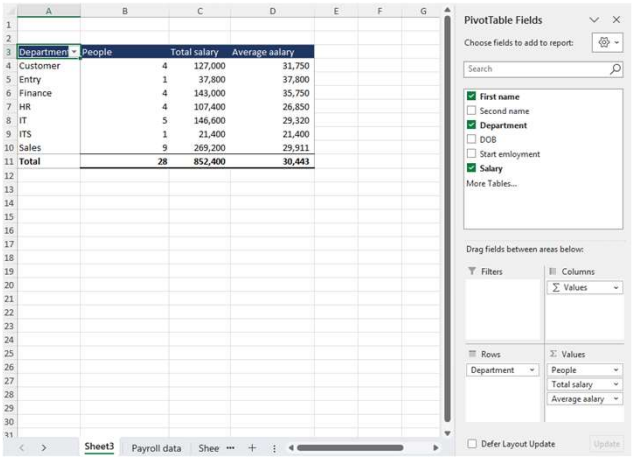


Both can provide a solution – Only one updates automatically

Pivot Table

Highlight data (including headers) and on insert menu click Pivot Table

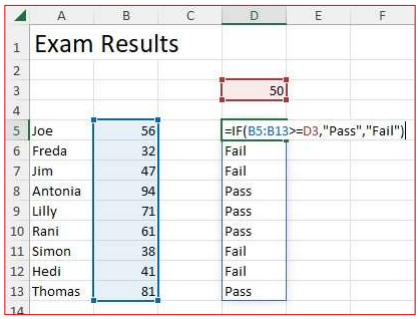
- Drags department into Rows
- Drag other attributes into Values
- Reformat as required….



Department	People	Total salary	Average aalary
Customer	4	127,000	31,750
Entry	1	37,800	37,800
Finance	4	143,000	35,750
HR	4	107,400	26,850
IT	5	146,600	29,320
ITS	1	21,400	21,400
Sales	9	269,200	29,911
Total	28	852,400	30,443

Array Formula

Instead of doing one formula and copying it over a range. Do one formula that covers the range.



	A	B	C	D	E	F
1	Exam Results					
2						
3				50		
4						
5	Joe	56		=IF(B5:B13>=D3,"Pass","Fail")		
6	Freda	32		Fail		
7	Jim	47		Fail		
8	Antonia	94		Pass		
9	Lilly	71		Pass		
10	Rani	61		Pass		
11	Simon	38		Fail		
12	Hedi	41		Fail		
13	Thomas	81		Pass		
14						

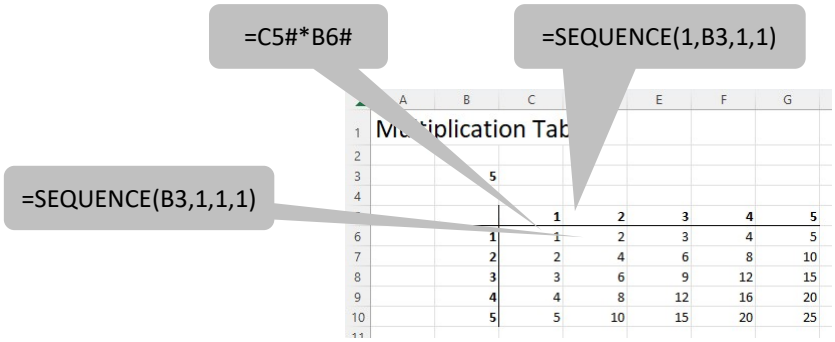
Array Formula

With only two formulas split the data into a column for USA and a column for EUR.

	A	B	C	D	E	F
1	Sales Invoices					
2						
3				**USA**	**EUR**	
4	USA	7,586.16		7,586.16	-	
5	USA	2,334.58		2,334.58	-	
6	USA	2,759.71		2,759.71	-	
7	USA	2,689.28		2,689.28	-	
8	EUR	1,191.32		-	1,191.32	
9	USA	9,807.04		9,807.04	-	
10	USA	5,219.06		5,219.06	-	
11	EUR	4,565.84		-	4,565.84	
12	USA	4,846.61		4,846.61	-	
13	EUR	5,088.69		-	5,088.69	
14	EUR	2,409.39		-	2,409.39	
15	USA	7,323.56		7,323.56	-	
16	EUR	1,261.98		-	1,261.98	
17	USA	6,324.34		6,324.34	-	
18	EUR	1,779.07		-	1,779.07	
19	USA	7,538.13		7,538.13	-	
20	EUR	2,187.82		-	2,187.82	
21	EUR	8,170.66		-	8,170.66	

Array Formula

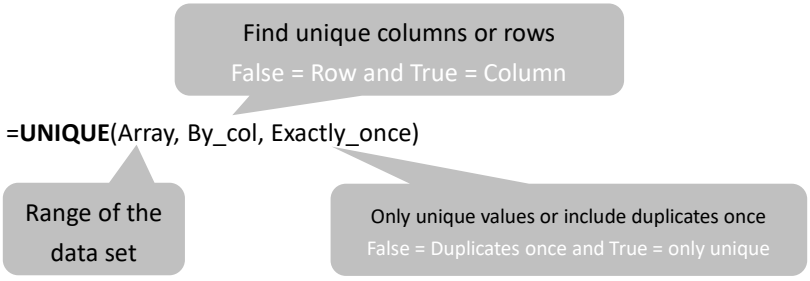
Reference a spilled array with #



	A	B	C	D	E	F	G
1	Mu		iplication Tab				
2							
3		5					
4							
5			1	2	3	4	5
6		1	1	2	3	4	5
7		2	2	4	6	8	10
8		3	3	6	9	12	15
9		4	4	8	12	16	20
10		5	5	10	15	20	25

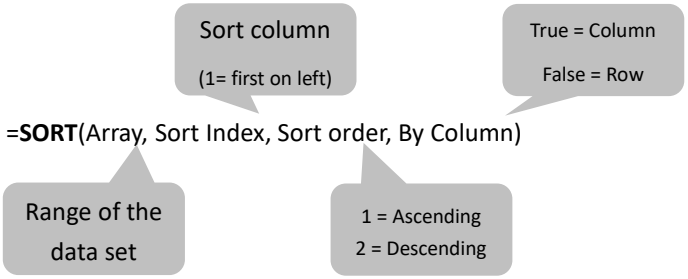
Unique

A function that ***Spills*** from an anchor formulae in top left and is a ***live*** update as data changes



Sort

Also a function that ***spills*** from an anchor formulae in top left and is a ***live*** update as data changes



Analysing Summarised Data

To count the number of items that meet one or more criteria

=COUNTIF (Range, Criteria)

=COUNTIFS (Criteria rage 1, Criteria 1, Criteria range 2, Criteria 2….)

To add up the total of items that meet one or more criteria

=SUMIF(Range, Criteria, [Sum Range])

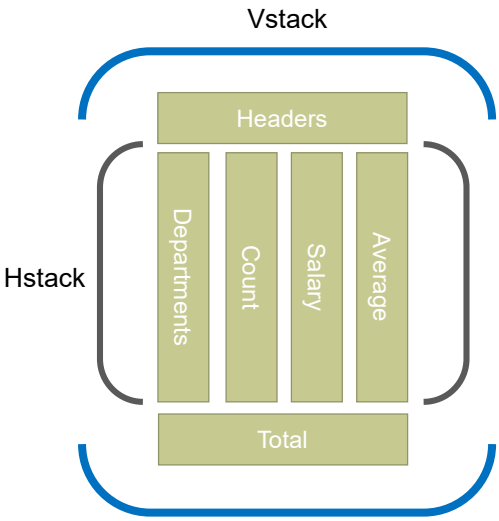
=SUMIFS(Sum Range, Criteria rage 1, Criteria 1, Criteria range 2, Criteria 2….)

Analysing Summarised Data

Joining Arrays of data together

=HSTACK – Join blocks horizontally

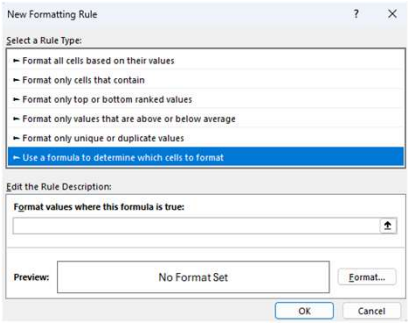
=VSTACK – Join blocks vertically



Using Conditional Formatting

Performs an **IF** test

=$U19="Total"



On this range

=GROUPBY – Pivot Tables as a single function

A pivot table in a formula

=GROUPBY(row fields, values, function, headers, totals, sort order, filter array, field relationship)

Row fields = the array that determines the grouping

Values = column or array that will be aggregated

Function = function as a word – SUM, AVERAGE, COUNT….

Field Headers = whether headers are in the data and should be outputted

Totals = for dimensional data of two or more columns – whether sub totals are to be added

Sort order = ascending or descending

Filter array = multi dimensional sorting by previous fields or independent

Some Other Array Functions

=CHOOSECOLS (array, col1, col2, col3,…) – To extract columns from a data block

=CHOOSEROWS (array, row1, row2,row3,…) – To extract rows from a data block

=TAKE(array, rows) **–** To extract top left from a data block

=DROP(array, row from) – To extract bottom right from a data block

Questions

icaew.com