Computing Services

IT Training

UNIVERSITY OF BATH

Excel 2016
Use PivotTables to summarise data

Document Information

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Contents

Course Objectives

Who this course is for...	This course is for experienced Excel users who wish to learn the most important features of PivotTables. Using a PivotTable will allow you to change a large quantity of data into more manageable sections. After a brief introduction from one of our tutors, you will work through a set of examples and exercises which allow you to learn and practice the most common features of PivotTables
What you'll need to know before beginning this course...	The course assumes you already have an excellent working knowledge of Excel. Trainees should be confident with using the Windows 10 environment and familiar with using Office 2016.
The objectives of this course…	After completing this course, you will be able to: • create a PivotTable • filter the data in a PivotTable report • switch fields around and apply formatting to a PivotTable • insert a Slicer and a Timeline filter • hide and show grand totals and subtotals in a PivotTable report • show values in a PivotTable as a percentage of total • find the difference between specific values in a PivotTable • group fields in a PivotTable • create a running total in a PivotTable • create calculated fields in a PivotTable report • create custom names for PivotTable fields • change PivotTable options • sort values in a PivotTable • create and edit a PivotChart
Nominal Duration*	1.5 hours
What you'll need to have before commencing this course...	Many of the topics in this course require you to open an existing file with data in it. These files can be downloaded from the University of Bath Computing Services IT Literacy Exercise Files drive. If you have downloaded this course through Moodle, simply download the Learner Files for this course to your desktop and extract all files from the zipped folder.
As you work through this guide…	It is strongly recommended that you close all open files, if any, prior to commencing each new chapter in this learning guide. Each chapter, where relevant, has its own set of course files and any from a previous chapter are no longer required. Note: Screen shots are examples only, they may vary depending on the computer you are logged into.

Excel 2016 PivotTables

A PivotTable displays information from a standard list or table into a table that enables you to cross-refer different aspects and easily remove/replace headings.

Basically, it can convert something like this:

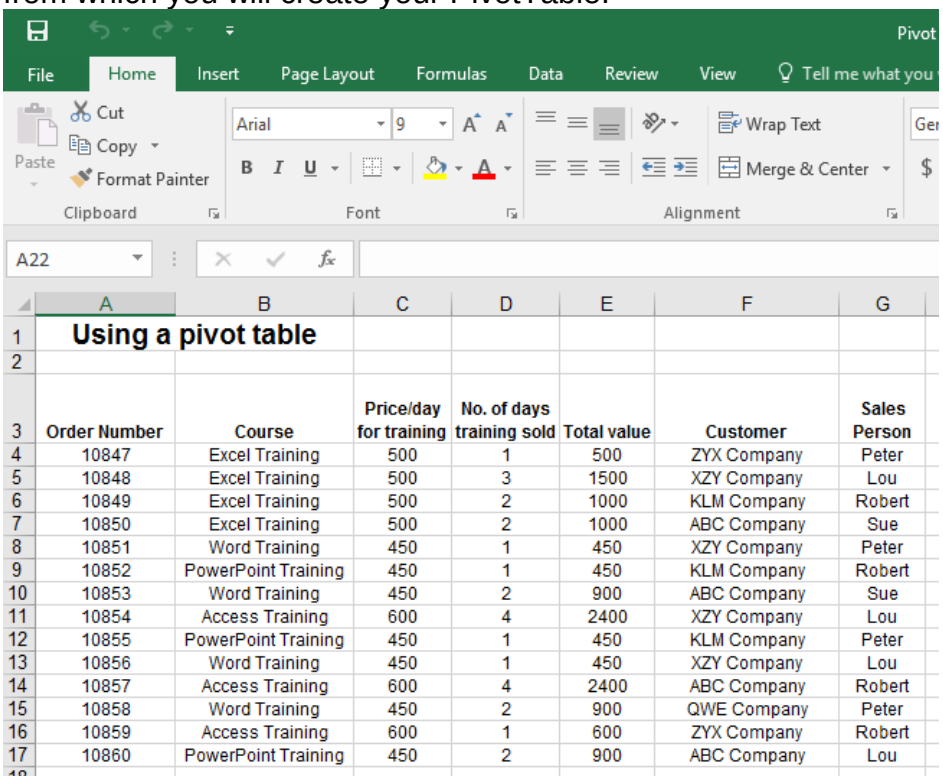
Date	Patient	First Aider	Accident	Probable Cause	Days off work	Age Grouping	Gender	Department	Location of Acc	Day of week
04/01/2016	Sue Tabul	Justin Thyme	Slip	Wet floor	1	under 26	F	Sales	Kitchen	Mon
04/01/2016	Emma Rebored	Justin Thyme	Trip	Too dark	3	under 26	F	Finance	Basement	Mon
04/01/2016	Jim Nastix	Justin Thyme	Fracture	Tripped on uneven surface	20	under 26	M	Maintenance	Car Park	Mon
05/01/2016	Stan Dandeliva	Pat Chittup	Cut	Paper	1	26-35	M	Finance	Floor 2 office	Tue
05/01/2016	Ben Dover	Pat Chittup	Slip	Wet footwear	5	26-35	M	Maintenance	Main corridor	Tue
05/01/2016	Eileen Dover	Pat Chittup	Fall	Playing with chair!	0.5	26-35	F	Sales	Floor 1 office	Tue
06/01/2016	Mark Etstall	Justin Thyme	Crush	Dropped box on toe	3	26-35	M	Sales	Floor 1 office	Wed
06/01/2016	Jo Kerr	Justin Thyme	Cut	broken glass	2	26-35	F	Finance	Floor 2 office	Wed
07/01/2016	Hans Free	Pat Chittup	Trip	Poorly lit area	2	26-35	M	Transport	Car Park	Thu
08/01/2016	Cliff Hanger	Justin Thyme	Bruise	walked into door	1	36-45	M	Stores	Stores	Fri
12/01/2016	Paige Turner	Phil Betasoon	Cut	Paper	0	under 26	F	Finance	Floor 2 office	Tue
13/01/2016	Carol Singer	Pat Chittup	Cut	Paper	4	46-55	F	Admin	Floor 2 office	Wed
18/01/2016	Penny Chew	Pat Chittup	Bruise	hit by opening door	2	46-55	F	Admin	Floor 2 office	Mon
18/01/2016	Daisy Chain	Pat Chittup	Trip	Trolley left lying around	1	Over 55	F	Finance	Main corridor	Mon
18/01/2016	Hazel Nutt	Pat Chittup	Knock	Filing cabinet left open	1	Over 55	F	Admin	Floor 2 office	Mon
18/01/2016	Fred Bear	Pat Chittup	Cut	Guilotine	2	under 26	M	Customer Care	Floor 1 office	Mon
19/01/2016	Emma Rebored	Phil Betasoon	Cut	Scissors	1	under 26	F	Finance	Floor 2 office	Tue
19/01/2016	Penny Black	Phil Betasoon	Trip	Poorly lit area	3	under 26	F	Stores	Stores	Tue
20/01/2016	Barb Dwyer	Pat Chittup	Trip	Uneven surface	0	Over 55	F	Customer Care	Car Park	Wed
21/01/2016	Duane Pipe	Justin Thyme	Crush	Trolley ran over foot	2	26-35	M	Maintenance	Main corridor	Thu
22/01/2016	Mick Kannick	Phil Betasoon	Trip	Carrying large load, couldn't see ahead	2	36-45	M	Maintenance	Car Park	Fri
26/01/2016	Justin Case	Phil Betasoon	Cut	Paper	0	36-45	M	Sales	Floor 1 office	Tue
28/01/2016	Anna Conder	Phil Betasoon	Cut	Paper	0	36-45	F	Finance	Floor 2 office	Thu
28/01/2016	Orson Kart	Phil Betasoon	Fall	off chair	2	Over 55	M	Stores	Stores	Thu
29/01/2016	Duane Pipe	Justin Thyme	Crush	left hand under box when putting it down	2	26-35	M	Maintenance	Floor 1 office	Fri
29/01/2016	Hans Free	Justin Thyme	Knock	Minor vehicle collision	3	26-35	M	Transport	Car Park	Fri
01/02/2016	Cliff Hanger	Pat Chittup	Cut	break glass alarm	3	36-45	M	Stores	Main corridor	Mon
02/02/2016	Jo Kerr	Phil Betasoon	Fall	down stairs	2	26-35	F	Finance	Main corridor	Tue
03/02/2016	Carol Singer	Justin Thyme	Cut	Filing cabinet	4	46-55	F	Admin	Floor 2 office	Wed
03/02/2016	Sue Tabul	Justin Thyme	Slip	Ice outside	1	under 26	F	Sales	Car Park	Wed
08/02/2016	Orson Kart	Phil Betasoon	Slip	Ice outside	4	Over 55	M	Stores	Car Park	Mon
08/02/2016	Hazel Nutt	Phil Betasoon	Knock	Walked into desk	1	Over 55	F	Admin	Floor 2 office	Mon
09/02/2016	Anne Teeviras	Pat Chittup	Fracture	Tripped in poorly lit area	15	under 26	F	IT Support	Basement	Tue
10/02/2016	Wayne Ingalot	Justin Thyme	Cut	craft knife	1	under 26	M	Sales	Floor 1 office	Wed

into this:

Sum of Days off work	Column Labels							
Row Labels	Basement	Car Park	Floor 1 office	Floor 2 office	Kitchen	Main corridor	Stores	Grand Total
Admin				25	6	2	3	36
Catering					2			2
Customer Care		6	2			2	3	13
Finance	3	2		15		9		29
IT Support	15	5	4					24
Maintenance		23	4	5		10		42
Sales		3	21.5		6	2		32.5
Stores		9				3	6	18
Transport		5						5
Grand Total	**18**	**53**	**31.5**	**45**	**14**	**28**	**12**	**201.5**

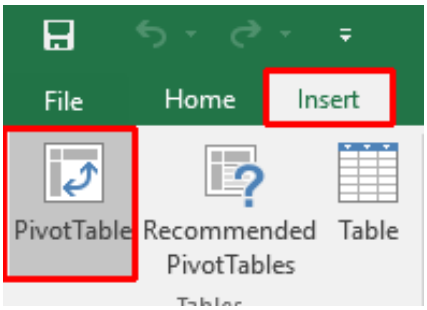
Creating and using a PivotTable

- Open a workbook called **Pivot Tables 01**. This worksheet contains the data from which you will create your PivotTable:

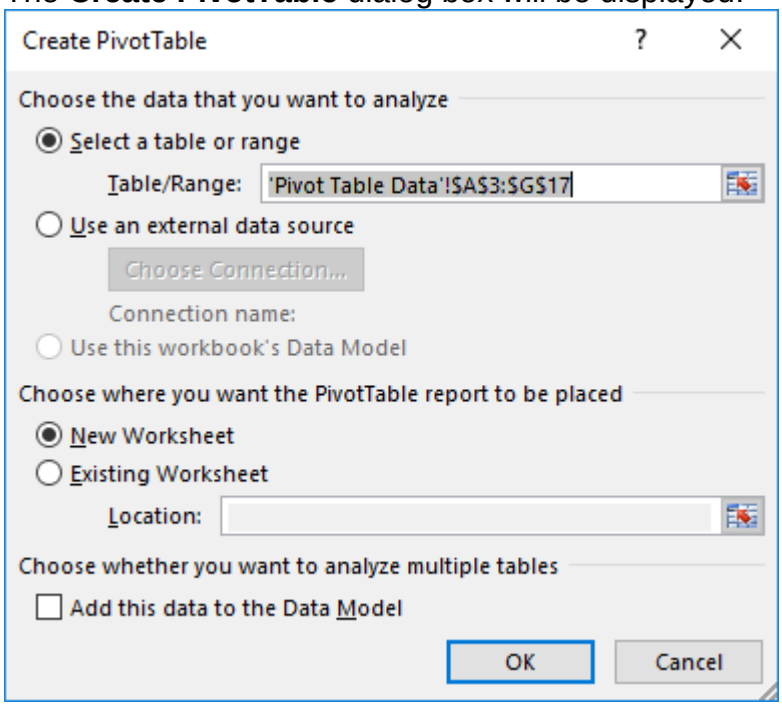


	A	B	C	D	E	F	G
1	**Using a pivot table**						
2							
3	**Order Number**	**Course**	**Price/day for training**	**No. of days training sold**	**Total value**	**Customer**	**Sales Person**
4	10847	Excel Training	500	1	500	ZYX Company	Peter
5	10848	Excel Training	500	3	1500	XZY Company	Lou
6	10849	Excel Training	500	2	1000	KLM Company	Robert
7	10850	Excel Training	500	2	1000	ABC Company	Sue
8	10851	Word Training	450	1	450	XZY Company	Peter
9	10852	PowerPoint Training	450	1	450	KLM Company	Robert
10	10853	Word Training	450	2	900	ABC Company	Sue
11	10854	Access Training	600	4	2400	XZY Company	Lou
12	10855	PowerPoint Training	450	1	450	KLM Company	Peter
13	10856	Word Training	450	1	450	XZY Company	Lou
14	10857	Access Training	600	4	2400	ABC Company	Robert
15	10858	Word Training	450	2	900	QWE Company	Peter
16	10859	Access Training	600	1	600	ZYX Company	Robert
17	10860	PowerPoint Training	450	2	900	ABC Company	Lou

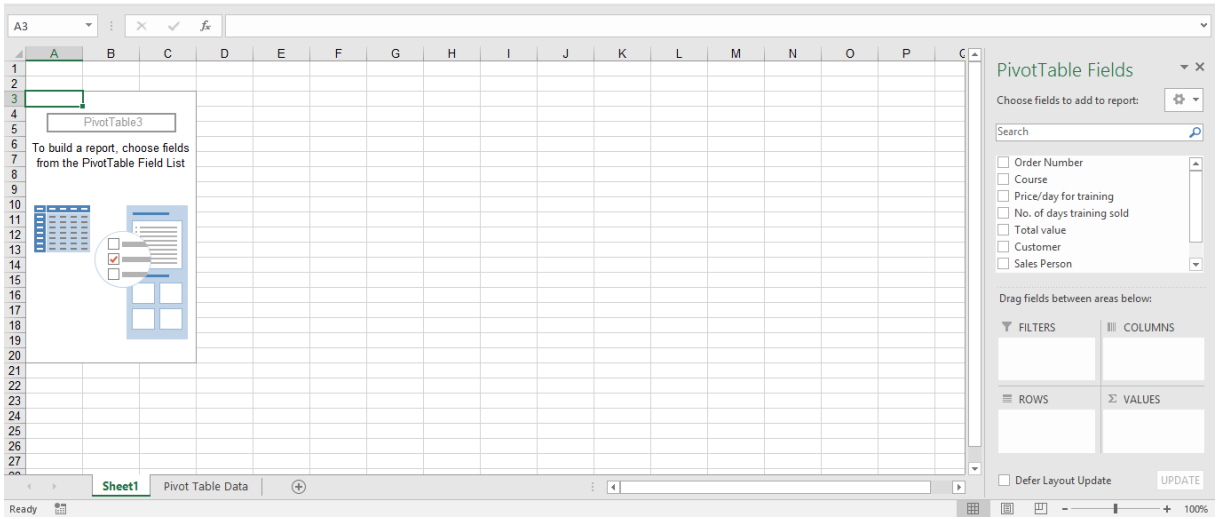
- Click anywhere within the data table.
- Click on the **Insert** tab and within the **Tables** group click on the **PivotTable** button:



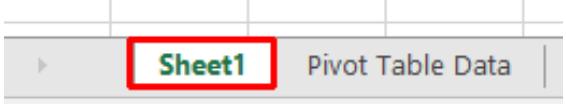
- The **Create PivotTable** dialog box will be displayed:



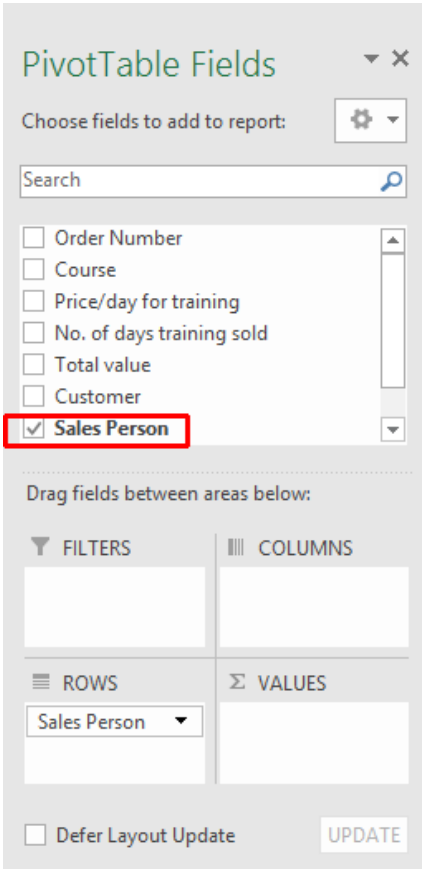
- Accept the default values displayed and click on the **OK** button. Your screen will now look like this.



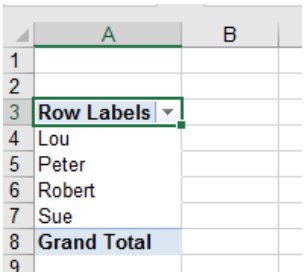
NOTE: A new worksheet has been inserted into your workbook and the default name for this worksheet is **Sheet1**:



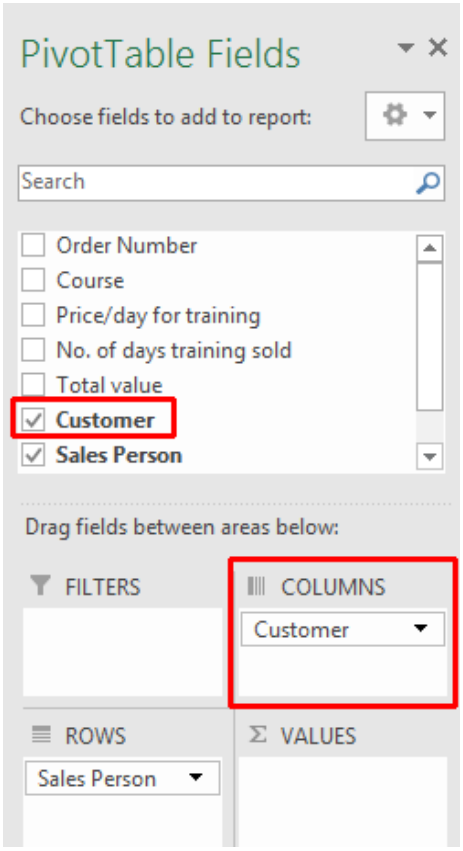
- The **PivotTable Field List** will be displayed to the right of the screen. Click on the **Sales Person** tick box:



- Your will data will now look like this.



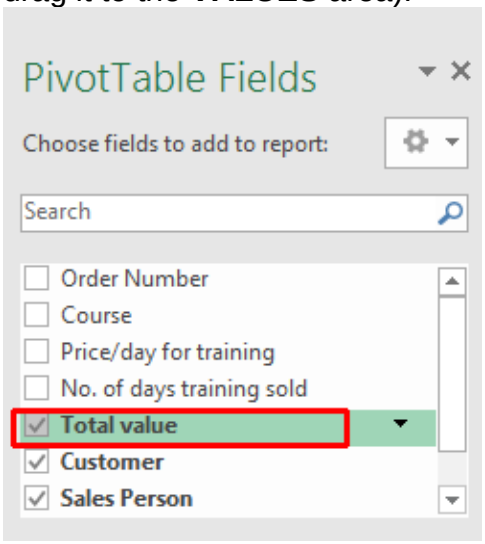
- Within the **PivotTable Field List** drag the **Customer** tick box to the **COLUMNS** area:



- Your data will now look like this.

	A	B	C	D	E	F	G
1							
2							
3		Column Labels					
4	Row Labels	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
5	Lou						
6	Peter						
7	Robert						
8	Sue						
9	Grand Total						
10							
11							

- Within the **PivotTable Field List** click on the tick box next to **Total value** (or drag it to the **VALUES** area).



- Your data will now look like this.

	A	B	C	D	E	F	G
1							
2							
3	Sum of Total value	Column Labels					
4	Row Labels	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
5	Lou	900			4350		5250
6	Peter		450	900	450	500	2300
7	Robert	2400	1450			600	4450
8	Sue	1900					1900
9	**Grand Total**	**5200**	**1900**	**900**	**4800**	**1100**	**13900**

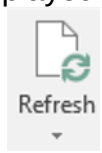
- **Note:** you can drag the fields within **Rows** and **Columns** back up to the list at the top to remove them from the pivot table or to the **Column/Row** to switch them around.
- Click on the **PivotTable Data** worksheet tab, so that your original table of data is displayed.
- Make some changes such as changing the value within cell **D4**, from **1** to **10**:

	A	B	C	D	E	F	G
1	**Using a pivot table**						
2							
3	Order Number	Course	Price/day for training	No. of days training sold	Total value	Customer	Sales Person
4	10847	Excel Training	500	10	5000	ZYX Company	Peter
5	10848	Excel Training	500	3	1500	XZY Company	Lou
6	10849	Excel Training	500	2	1000	KLM Company	Robert
7	10850	Excel Training	500	2	1000	ABC Company	Sue
8	10851	Word Training	450	1	450	XZY Company	Peter

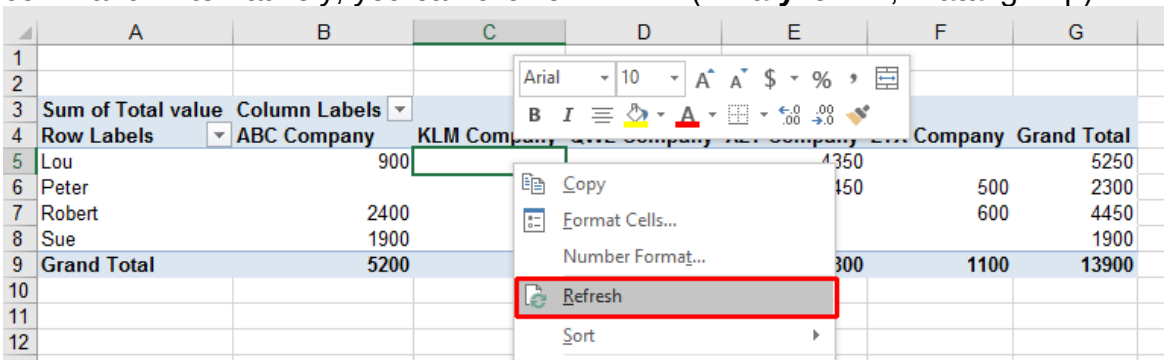
- Click on the worksheet tab containing your PivotTable, you will notice that the PivotTable has not been updated to take account of your changed data:

Sum of Total value	Column Labels					
Row Labels	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
Lou	900			4350		5250
Peter		450	900	450	500	2300
Robert	2400	1450			600	4450
Sue	1900					1900
Grand Total	**5200**	**1900**	**900**	**4800**	**1100**	**13900**

Refreshing a PivotTable

- Click within the PivotTable.
- Right click and from the pop-up menu displayed select the **Refresh** command. Alternatively, you can click on 

(‘**Analyze**’ tab, ‘**Data**’ group).



- You will see the data change:

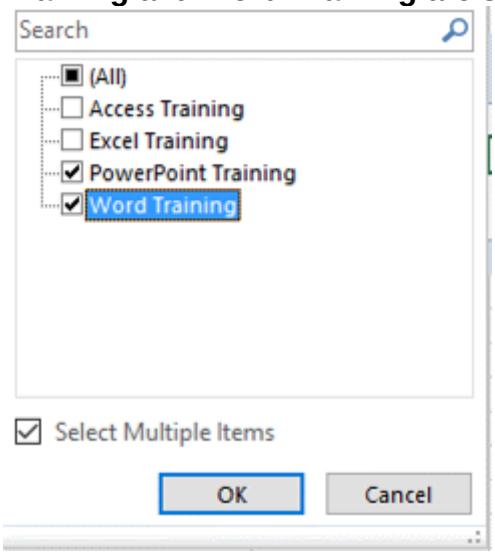
Sum of Total value	Column Labels					
Row Labels	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
Lou	900			4350		5250
Peter		450	900	450	5000	6800
Robert	2400	1450			600	4450
Sue	1900					1900
Grand Total	**5200**	**1900**	**900**	**4800**	**5600**	**18400**

Drilling Down

- If you double click on any number within a pivot table, Excel will create a new worksheet showing all of the component parts of that number.
- If you do use this option, remember that Excel creates a new worksheet every time, and remove the ones you don’t need anymore (right click on the tab and select ‘**Delete**’).

Filtering and sorting data within a PivotTable

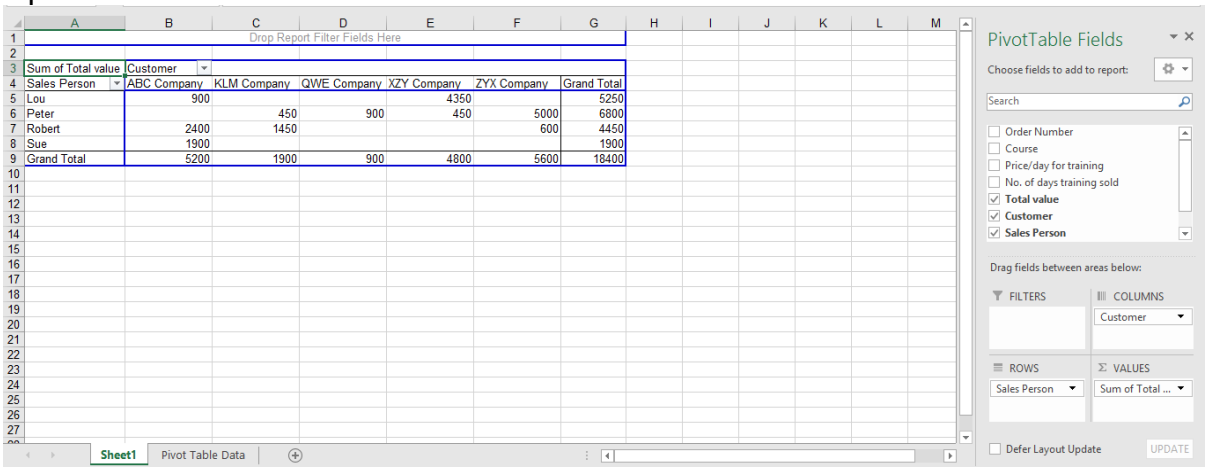
- In the right-hand frame, drag **Course** to the **FILTERS** area (to see **Course** appear in cell A1 and **(All)** appear in B1).
- Click on the drop-down arrow by **(All)** in B1 and select **Excel Training** then **OK** to just see the Excel training info. Change it to **Access Training**.
- Click on the filter symbol that has replaced the drop-down arrow, place a tick by '**Select Multiple Items**' then place/remove ticks so just **PowerPoint Training** and **Word Training** are selected, then click on **OK**:



- Change the selection back to **All**. Save your changes and close the workbook.

You can also filter and sort on the row and column headings.

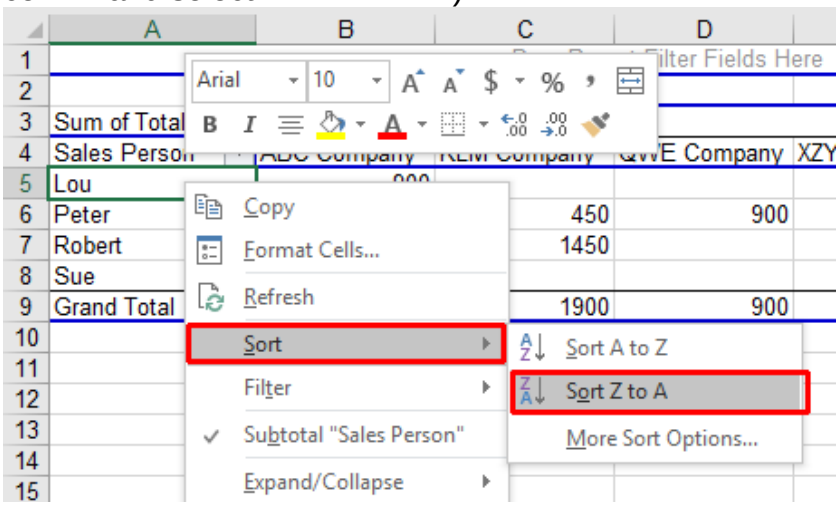
- Open the workbook called **Pivot Tables 02**:



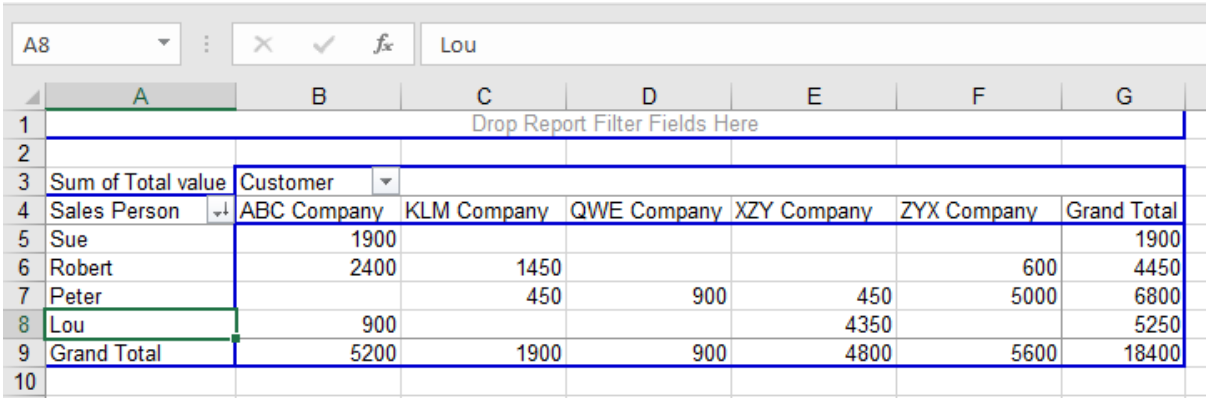
You can see that the names of the sales persons are listed in alphabetical order.

- To reverse the sort order of the sales person names, first click on one of the **Sales Persons** names within the data.

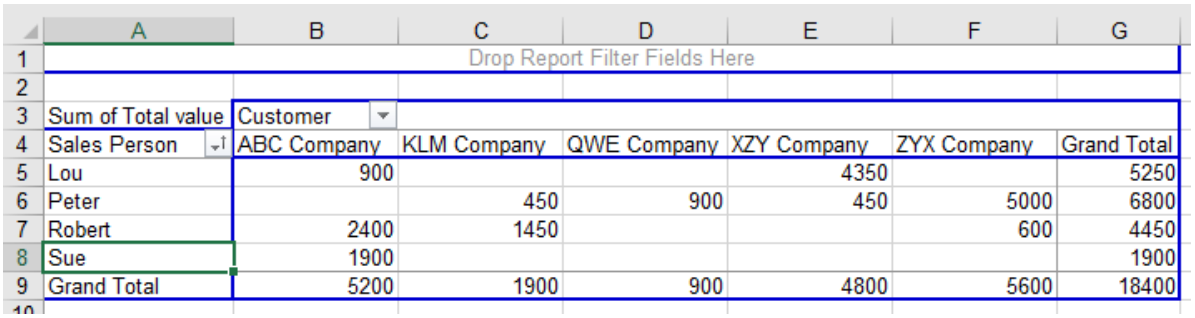
- Right click over one of the sales names and from the pop-up menu displayed click on the **Sort** command. From the sub-menu displayed click on the **Sort Z to A** (alternatively, you could click on the drop-down arrow by the heading in cell A4 and select Sort Z to A):



- The sorted data will look like this.

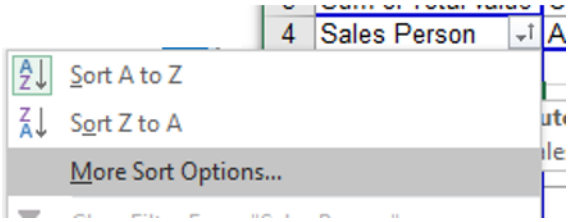


- To restore the sort order back to alphabetical **A to Z** order repeat the process and select **A to Z** as the sort order.

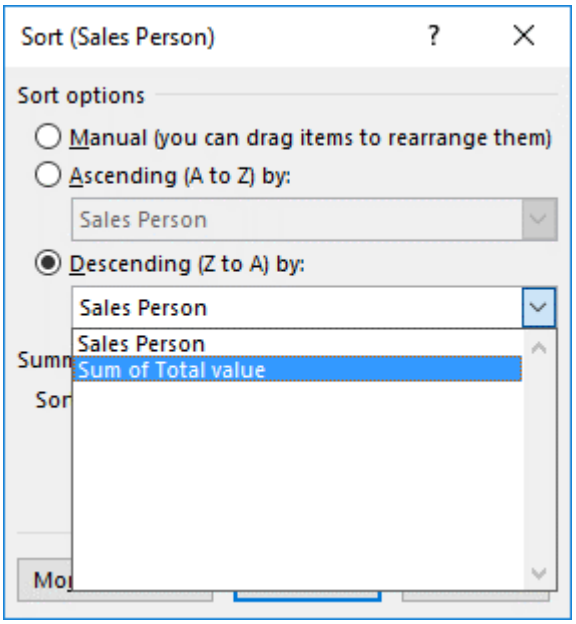


You can also sort by the number in the ‘Grand Total’ column:

- Click on the button in cell A4 and select **More Sort Options…**



- Select **Descending** then click on the drop-down arrow and select **Sum of Total value**:



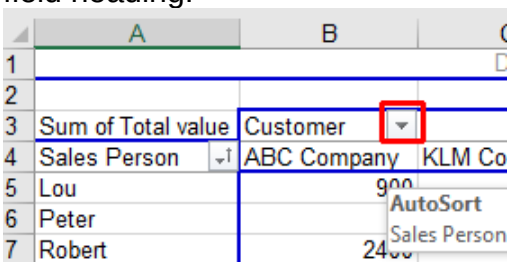
- Click on **OK** to see the order change from highest seller to lowest:

3	Sum of Total value	Customer					
4	Sales Person	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
5	Peter		450	900	450	5000	6800
6	Lou	900			4350		5250
7	Robert	2400	1450			600	4450
8	Sue	1900					1900
9	Grand Total	5200	1900	900	4800	5600	18400

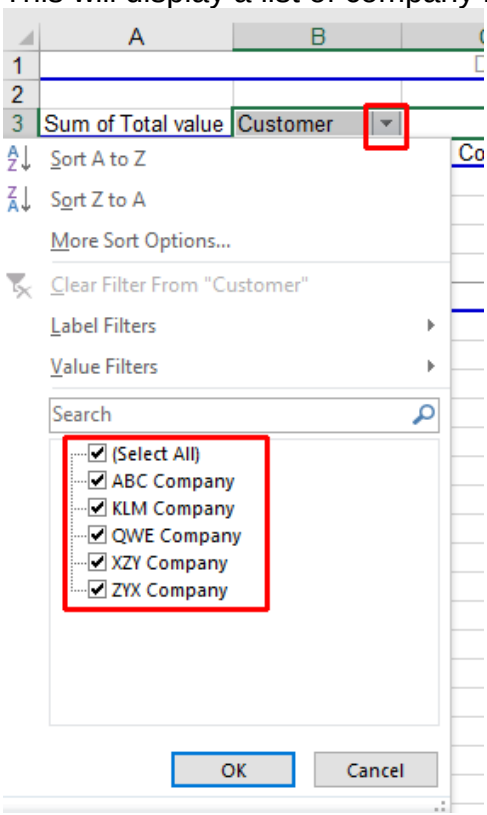
- If you wish, return to alphabetical A to Z order, as already mentioned.

You can apply filters to the PivotTable to control which records are displayed.

- Click on the **drop-down arrow** displayed to the right of the **Customer** column field heading:

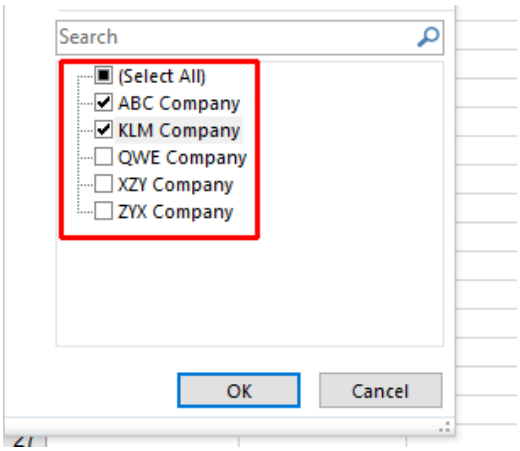


- This will display a list of company names:



- At present all the customers are selected and therefore shown on the PivotTable.

- Clear the selection boxes so that only **ABC Company** and **KLM Company** are selected:



- Click on the **OK** button and the filtered PivotTable will be displayed:

	A	B	C	D
1	Drop Report Filter Fields Here			
2				
3	Sum of Total value	Customer		
4	Sales Person	ABC Company	KLM Company	Grand Total
5	Lou	900		900
6	Peter		450	450
7	Robert	2400	1450	3850
8	Sue	1900		1900
9	Grand Total	5200	1900	7100

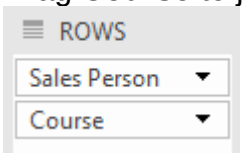
- Only sales for **ABC Company** and **KLM Company** are displayed, the other customers have been filtered out of the PivotTable.

- Save your changes and keep the workbook open.

Compound Fields

Simple PivotTables have only one field in each of the column and row labels. However, you can use more than one field in either or both of the column and row labels to provide a more complex/detailed analysis of the data. Any second/third, etc. field in a list becomes a **sub-group** of the field above it in the area.

- Drag **Course** to just below **Sales Person** in the **ROWS** area:



- Your PivotTable now displays the compound fields:

	A	B	C	D	E
1	Drop Report Filter Fields Here				
2					
3	Sum of Total value		Customer		
4	Sales Person	Course	ABC Company	KLM Company	Grand Total
5	Robert	Access Training	2400		2400
6		Excel Training		1000	1000
7		PowerPoint Training		450	450
8	Robert Total		2400	1450	3850
9	Sue	Excel Training	1000		1000
10		Word Training	900		900
11	Sue Total		1900		1900
12	Lou	PowerPoint Training	900		900
13	Lou Total		900		900
14	Peter	PowerPoint Training		450	450
15	Peter Total			450	450
16	Grand Total		5200	1900	7100

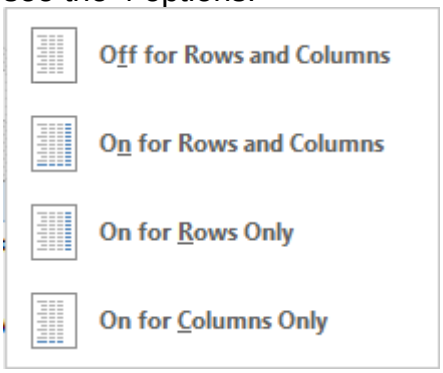
- Remove the Customer filter by clicking on the button in cell C3 and selecting **All**. Keep the file open for the next part.

Totals, Percentages and Differences

Hiding/showing grand totals and subtotals

Normally, PivotTables will appear with grand totals displayed at the end of the rows and columns. These can be switched off if required.

- Click to remove the tick next to **Course** in the right-hand frame, then click on the **PivotTable Tools: Design** tab, then click on the "**Grand Totals**" button to see the 4 options:

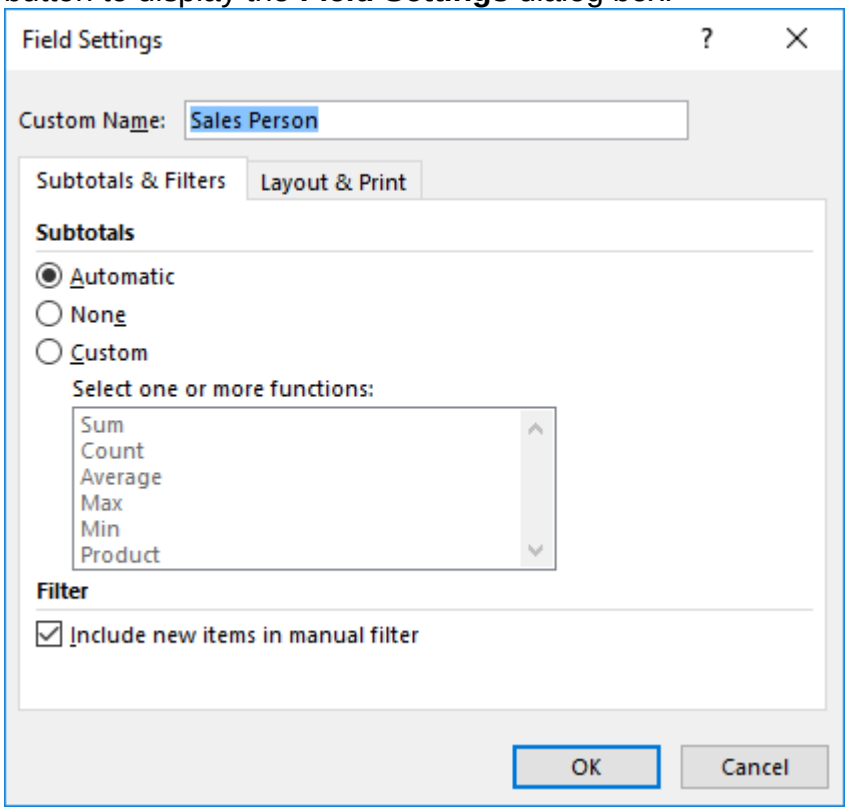


- Select **Off for Rows and Columns** to turn the grand totals off for rows and columns
- Repeat the above steps and select **On for Rows Only** to display the grand totals for rows only
- Repeat the process to show both grand totals again.

When you create compound fields (as just mentioned), Excel automatically displays subtotals at the end of each field value, both column and row. Again, you can switch these off if you don't want them.

- Drag **Course** back down to just below **Sales Person** in the **ROWS** area.

- Select cell A**5** in the PivotTable (the first of the row main headings).
- Click on the '**PivotTable Tools: Analyze**' tab, then click on the Field Settings button to display the **Field Settings** dialog box:



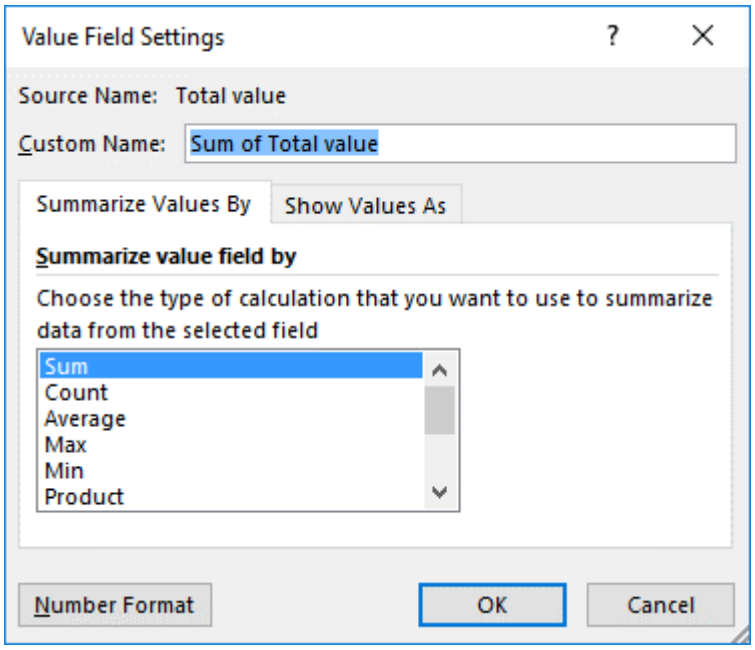
- Make sure you've got the **Subtotals & Filters** tab selected and click on **None** in the **Subtotals** area, then click on "**OK**".
- Put them back by clicking on one of the sales person names (if necessary), clicking on Field Settings, selecting **Automatic** and clicking on **OK**.

Percentages

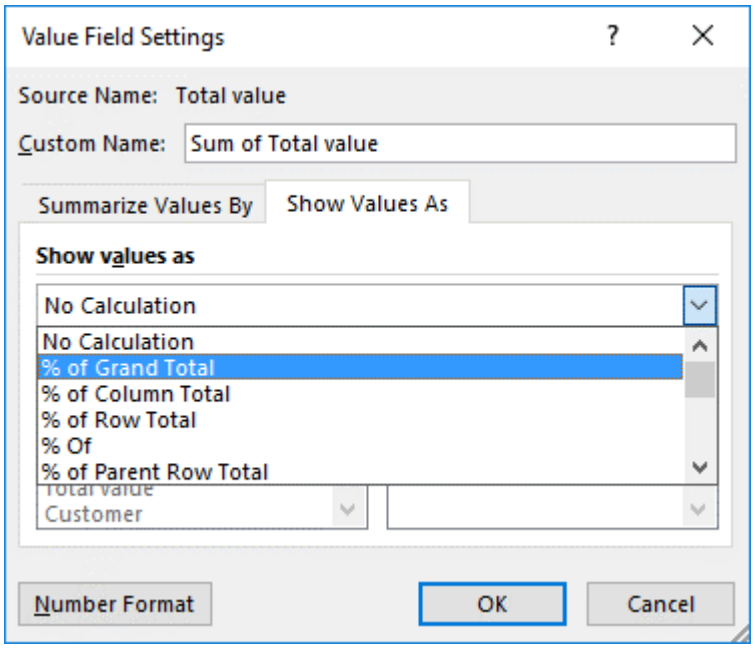
To assist in further analysis of the data it is possible to have the PivotTable report show the percentage of each value against the row total, the column total, and even the grand total, should you require it, e.g. for comparative purposes.

- Click anywhere within the numbers area of the PivotTable (e.g. **C5**).
- Click on the **PivotTable Tools: Analyze** tab and the 

button to see this window:



- Click on the '**Show Values As**' tab, click on the drop-down arrow by '**No Calculation**' and select '**% of Grand Total**':



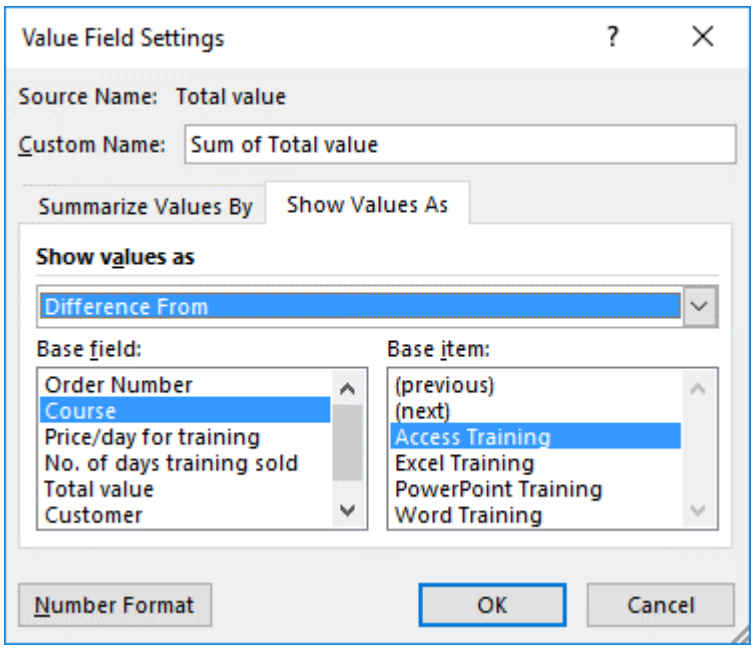
- Click on "**OK**" to see the result.

- Repeat the process to change it to the percentage of column total and then the percentage of the row total. Then change it back to **No Calculation**.

Differences

If you want to compare field values from columns in a table you can use the **Difference From** option. In our case study you will use the **Difference From** option to compare the other companies with ABC.

- First, remove the Sales Person from the PivotTable (either by clicking to remove its tick or dragging it away from **ROWS**).
- Click on the '**PivotTable Tools**', '**Analyze**' tab, if it's not already selected, the Field Settings button again and select the **Show Values As** tab again.
- Click on the drop-down arrow by '**No Calculation**' again, then scroll down the list a bit and select **Difference From**:



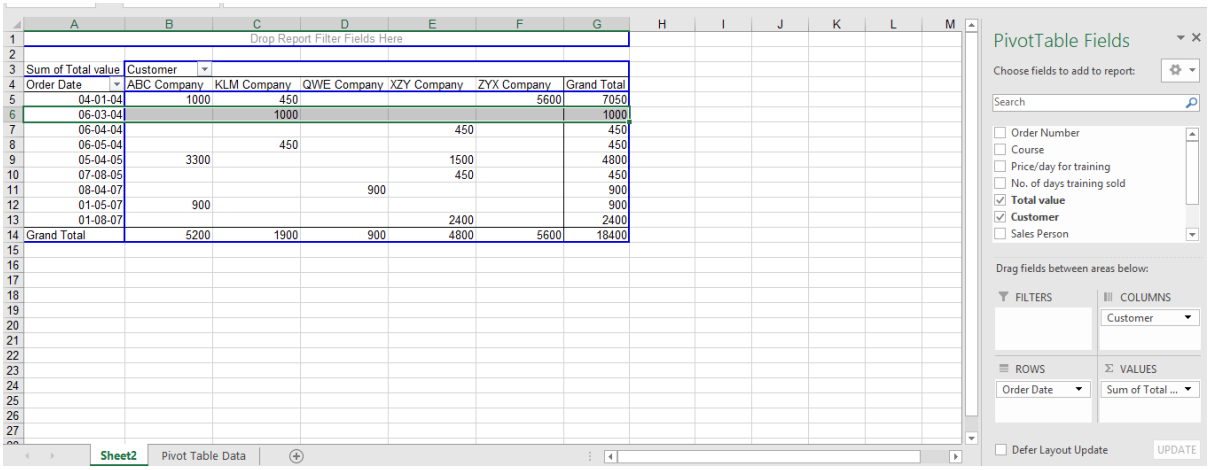
- Click on '**Customer**' in **Base field** and **ABC Company** in base item.
- Click on "**OK**" to see how the other companies compare with ABC Company:

Sum of Total value	Customer					
Course	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
Access Training		-2400	-2400	0	-1800	
Excel Training		0	-1000	500	4000	
PowerPoint Training		0	-900	-900	-900	
Word Training		-900	0	0	-900	
Grand Total		-3300	-4300	-400	400	

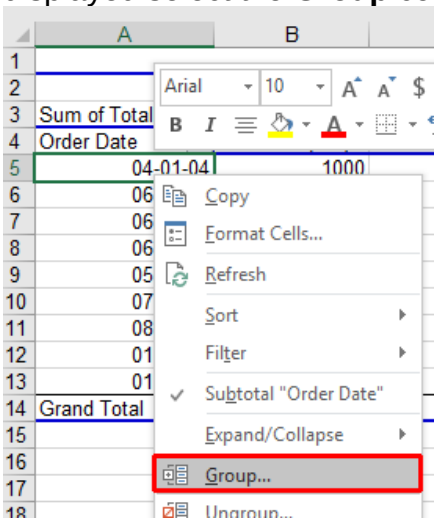
- Use the above process to change it back to **No Calculation**. Save and close the file.

Automatically grouping data in a PivotTable and renaming groups

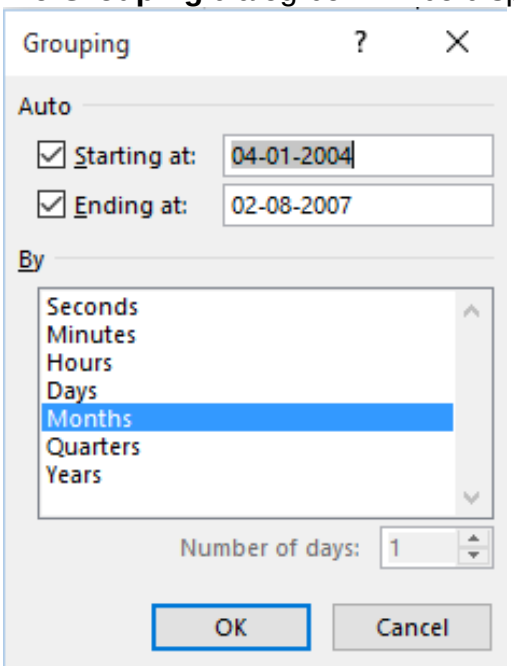
- Open the workbook called **Pivot Tables Grouping**.



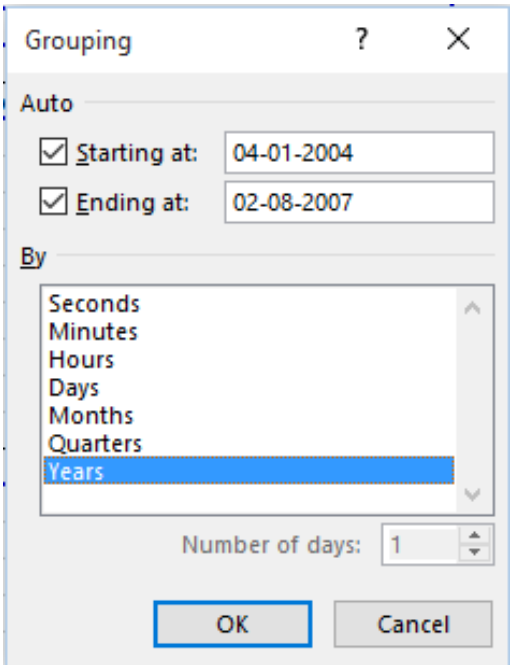
- In this example we are going to automatically group the **dates** in the PivotTable by **year**.
- Right click over one of the cells containing a date and from the pop-up menu displayed select the **Group** command.



- The **Grouping** dialog box will be displayed:



- Click on **Months** to de-select it & then click on **Years**. The **Grouping** dialog box should now look like this:



- Click on the **OK** button to close the **Grouping** dialog box and apply the automatic grouping.

	A	B	C	D	E	F	G
1	Drop Report Filter Fields Here						
2							
3	Sum of Total value	Customer					
4	Order Date	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
5	2004	1000	1900		450	5600	8950
6	2005	3300			1950		5250
7	2007	900		900	2400		4200
8	Grand Total	5200	1900	900	4800	5600	18400

- As you can see, orders have now been grouped by year.

- You can rename any of the automatically created groups. To rename the **2007 group** click on the cell containing the group name (in this case cell **A7**) and type in a new name for the group, use the name **Final Year**, and press **Enter**:

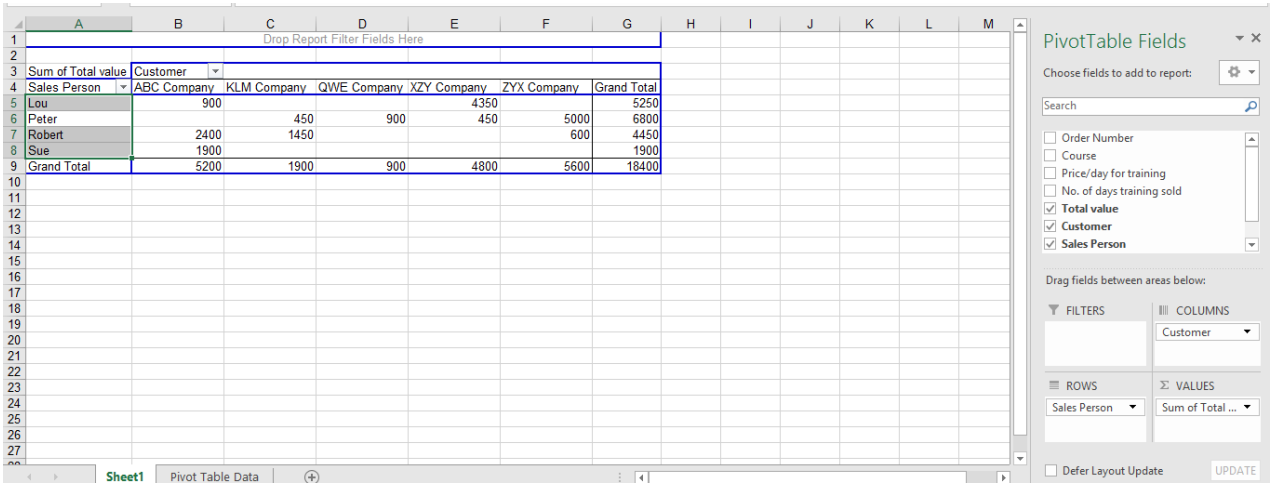
A7 | Final Year

	A	B	C	D	E	F	G
1	Drop Report Filter Fields Here						
2							
3	Sum of Total value	Customer					
4	Order Date	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
5	2004	1000	1900		450	5600	8950
6	2005	3300			1950		5250
7	Final Year	900		900	2400		4200
8	Grand Total	5200	1900	900	4800	5600	18400

- If you wish to ungroup it, right click on one of the years and select **Ungroup**.
- Save your changes and close the workbook.

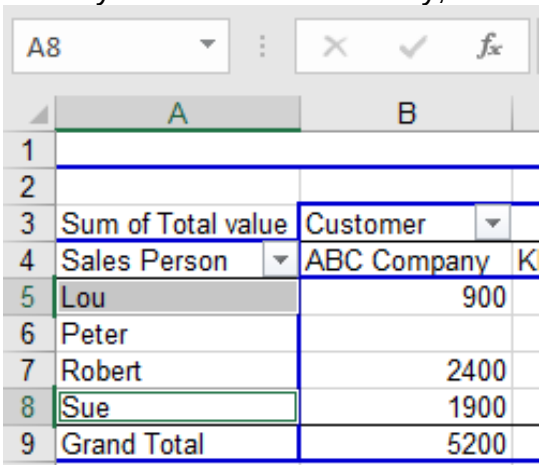
Manually grouping data in a PivotTable and renaming groups

- Open a workbook called **Pivot Tables 03**:



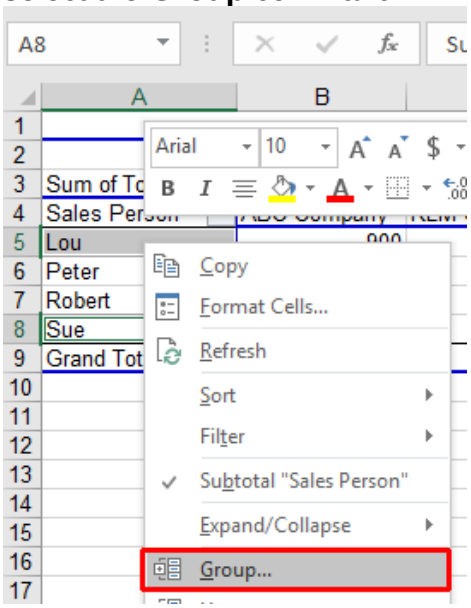
- **Lou** and **Sue** are working together as a team, and we want to group their sales together.

- First, we need to click on cell **A5** (the cell containing the text **Lou**).
- Hold down the **Ctrl** key and click on cell **A8** (the cell containing the text **Sue**).
- When you release the **Ctrl** key, both cells should remain selected:

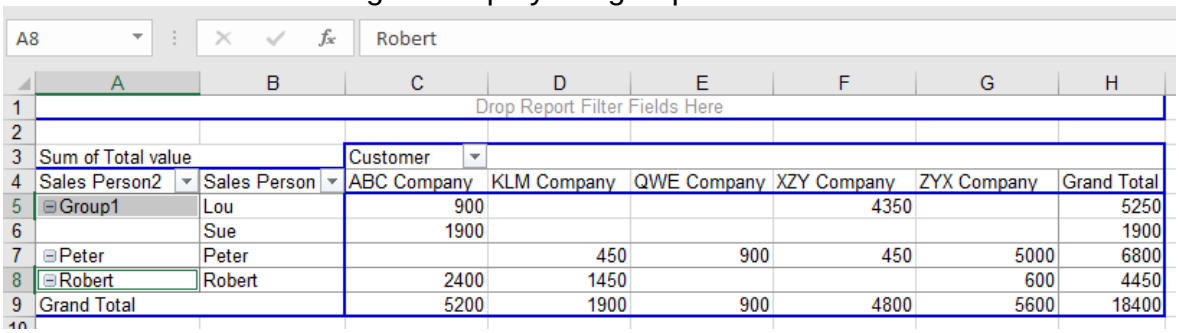


	A	B
1		
2		
3	Sum of Total value	Customer
4	Sales Person	ABC Company
5	Lou	900
6	Peter	
7	Robert	2400
8	Sue	1900
9	Grand Total	5200

- Right click over one of the selected cells and from the pop-up menu displayed select the **Group** command:



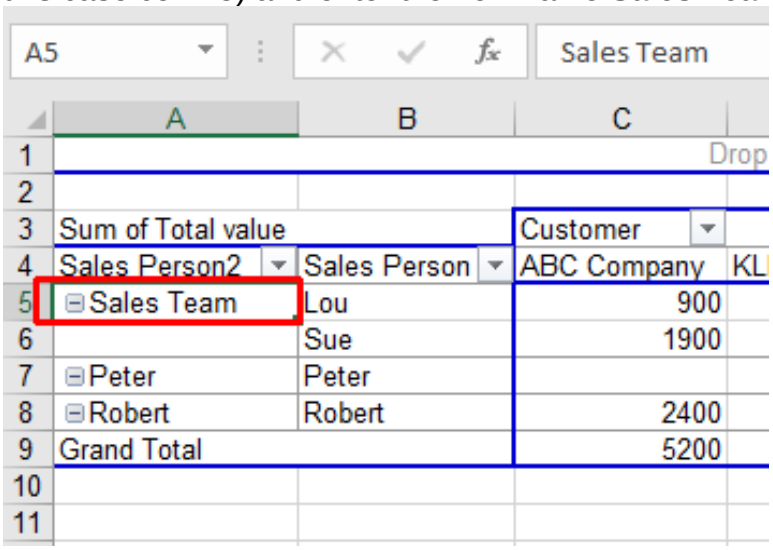
- The screen will then change to display the grouped results:



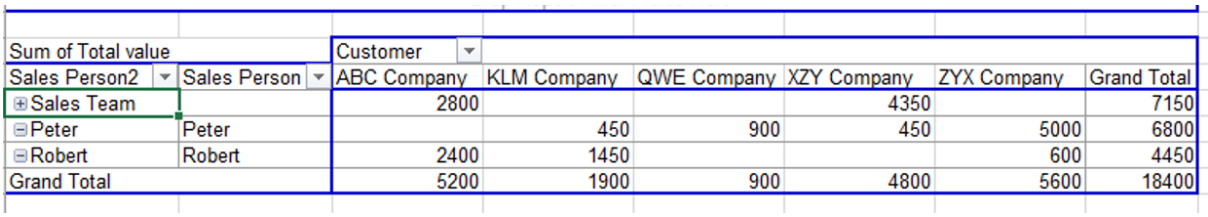
	A	B	C	D	E	F	G	H
1	Drop Report Filter Fields Here							
2								
3	Sum of Total value		Customer					
4	Sales Person2	Sales Person	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
5	Group1	Lou	900			4350		5250
6		Sue	1900					1900
7	Peter	Peter		450	900	450	5000	6800
8	Robert	Robert	2400	1450			600	4450
9	Grand Total		5200	1900	900	4800	5600	18400

- In this case the group has automatically given the name of **Group1**. To change the name of the group click on the cell containing the group name (in

this case cell **A5**) and enter the new name **Sales Team** for the group:



Click on the **–** sign to the left of **Sales Team** to combine their numbers into 1 row:



Sum of Total value		Customer					
Sales Person2	Sales Person	ABC Company	KLM Company	QWE Company	XZY Company	ZYX Company	Grand Total
⊞Sales Team		2800			4350		7150
⊟Peter	Peter		450	900	450	5000	6800
⊟Robert	Robert	2400	1450			600	4450
Grand Total		5200	1900	900	4800	5600	18400

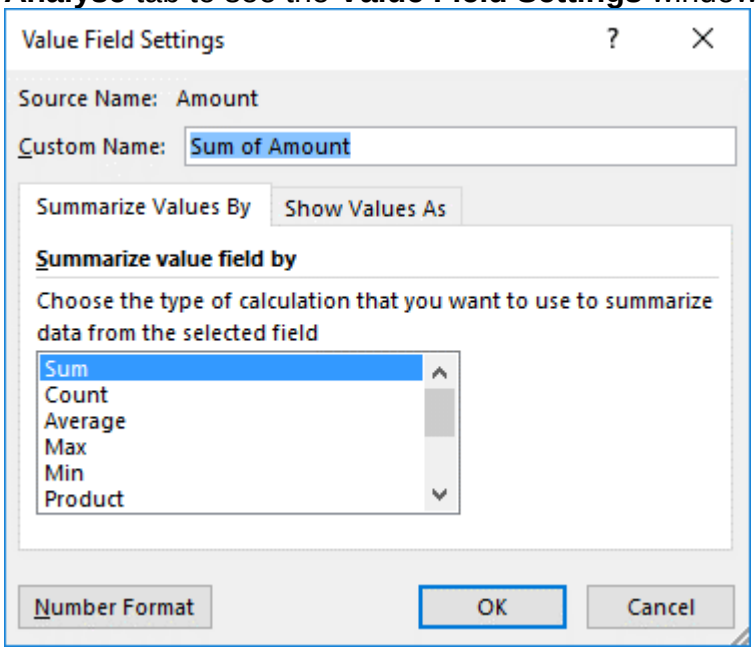
- Save your changes and close the workbook.

Creating Running Totals

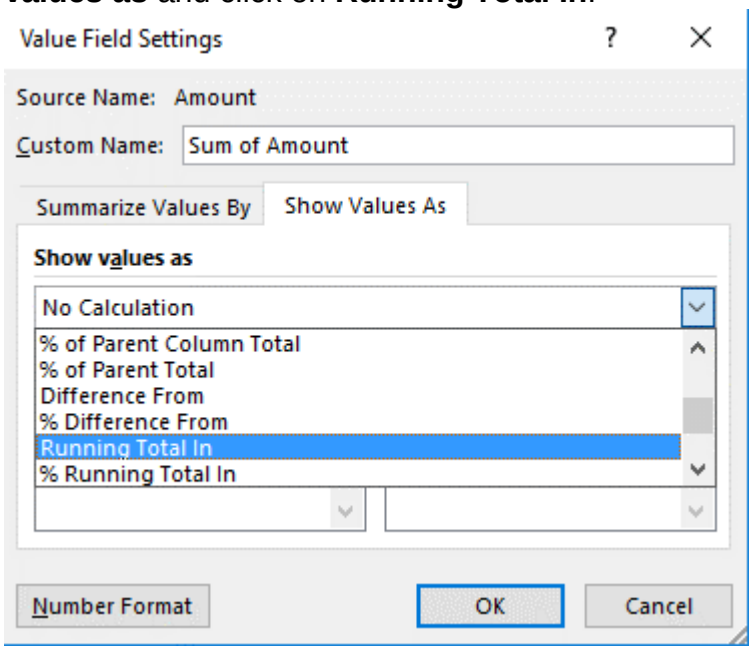
Running totals are a useful analysis tool within PivotTable reports. Running totals are cumulatively summed together and provide a path as to how the grand total is ultimately derived.

- Open the file **Petty Cash Receipts**.

- Click in any of the value cells, then on Field Settings in the **PivotTable Tools: Analyse** tab to see the **Value Field Settings** window:



- Click on the **Show Values As** tab then click on the drop arrow for **Show values as** and click on **Running Total In**:



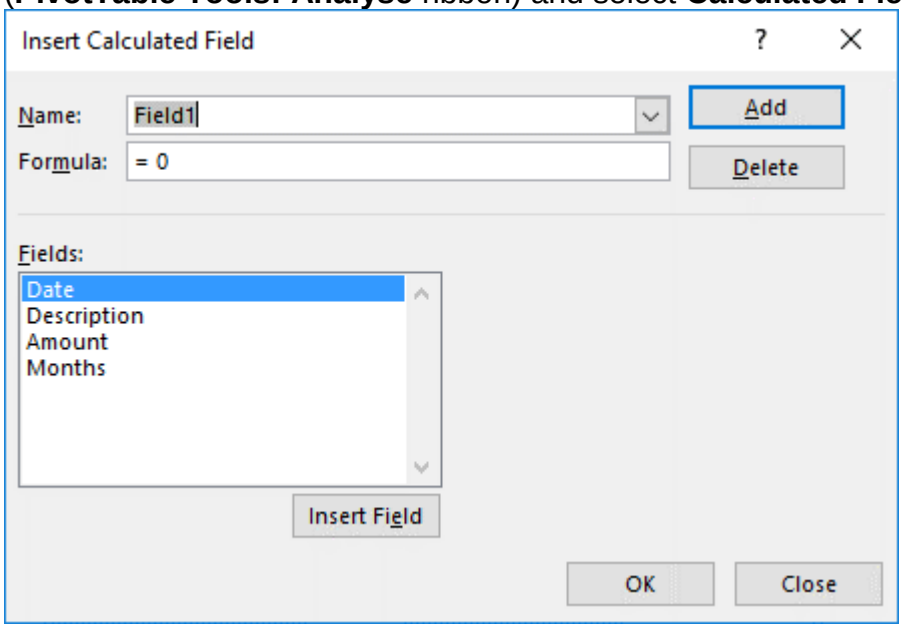
- Check **Months** is selected in **Base field** and click on **OK**. Each month's figure now includes the value in the above cell (so there's no need for Grand Totals).
- Repeat the process, changing the **Base Field** to **Description**. The values now increment as you work along the table.
- Click on Field Settings, click on the **Show Values As** tab and change it back to **No Calculation**.

Calculated Fields

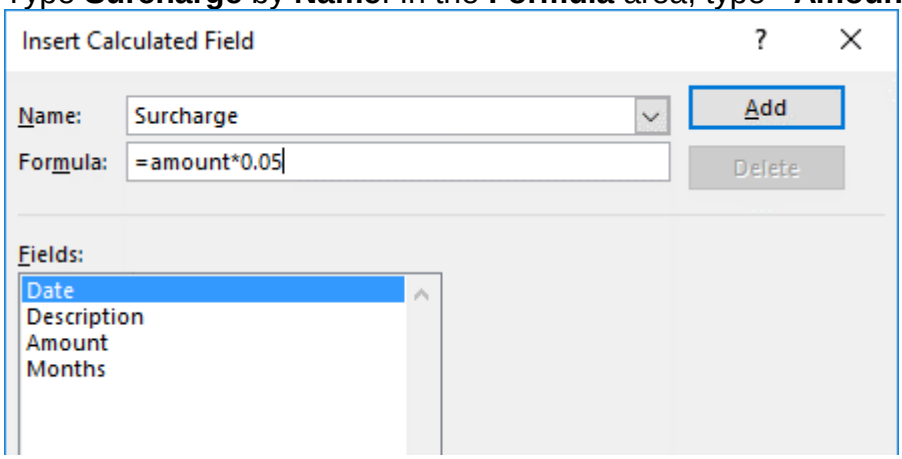
The fields that appear in a PivotTable are normally the column headings in the data list. You can also create calculated fields from the column headings in the data list (e.g. if you place a 5% surcharge on top of the *Amount* value, you could create a new field called *Surcharge* to calculate 5% of the *Amount* field).

- Continue using the previous file (or reopen **Pivot Tables Running Totals**).
- Click on one of the months in column A, then click on the 

button (**PivotTable Tools: Analyse** ribbon) and select **Calculated Field**:



- Type **Surcharge** by **Name**. In the **Formula** area, type **=Amount*0.05**:



- Click on **OK** to see the surcharge next to each item (and, on the right, a total surcharge):

Stamps		Stationery		Tea		Total Sum of Amount	Total Sum of Surcharge
Sum of Amount	Sum of Surcharge	Sum of Amount	Sum of Surcharge	Sum of Amount	Sum of Surcharge		
60.98	£3.05	69.41	£3.47	28.89	£1.44	345.6	£17.28
37.89	£1.89	20.69	£1.03		£0.00	323.03	£16.15
104.18	£5.21		£0.00	33.56	£1.68	347.03	£17.35
78.98	£3.95		£0.00	14.47	£0.72	246.08	£12.30
35.16	£1.76	62.7	£3.14	15.59	£0.78	365.25	£18.26
74.63	£3.73	17.53	£0.88		£0.00	155.32	£7.77
391.82	**£19.59**	**170.33**	**£8.52**	**92.51**	**£4.63**	**1782.31**	**£89.12**

- Save your changes and close the file.

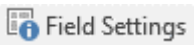
Formatting a PivotTable

You can use the options on the 'PivotTable Tools': 'Design' ribbon to (for example) format a PivotTable to make it look smarter/easier to understand and/or change numbers to currency format.

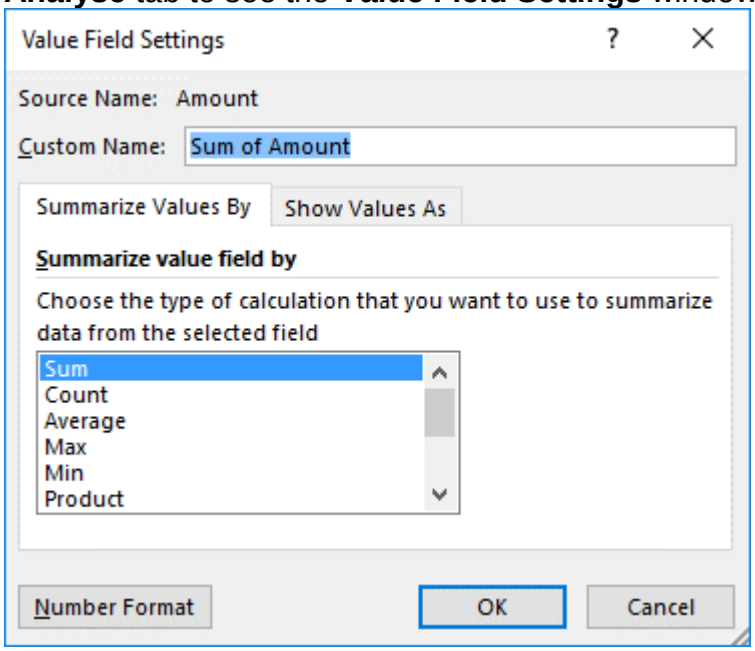
Changing the look of the table

- Open the file **Pivot Tables 01**. Click on the '**PivotTable Tools**': '**Design**' tab and click to place a tick by **Banded Rows** to coloured bands appear. Click to place a tick by **Banded Columns** then remove the tick by **Banded Rows**. Remove the tick by **Banded Columns**, then hover over some of the **PivotTable Styles** and select your preferred option.

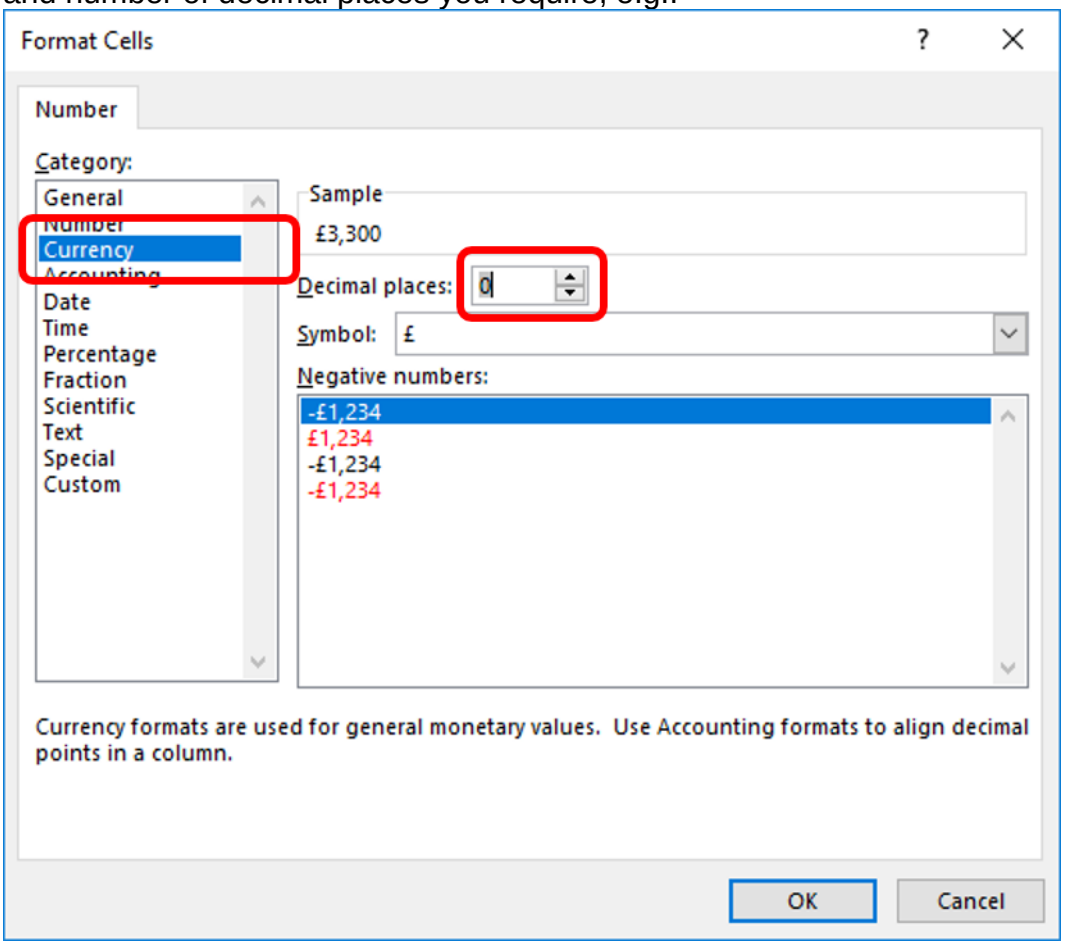
Changing the format of the values

- Click on any of the values, click on 

in the **PivotTable Tools: Analyse** tab to see the **Value Field Settings** window:



- Click on **Number Format** at the bottom-left of the window and select the style and number of decimal places you require, e.g.:



- Alternatively, you can right click on one of the values and select **Number Format** to see the above window.
- Select **Currency**, check the symbol is set to £, set the number of decimal places you require and click on **OK**.

Slicers and Timelines

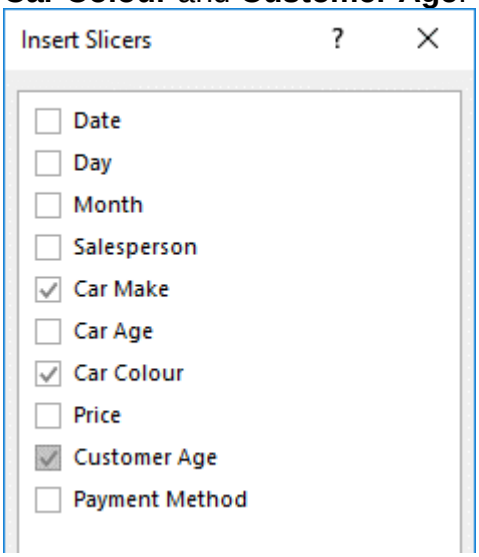
Slicers

Slicers are clever filters that can be quickly applied and removed to provide an extra dimension when cross-referencing within your PivotTable.

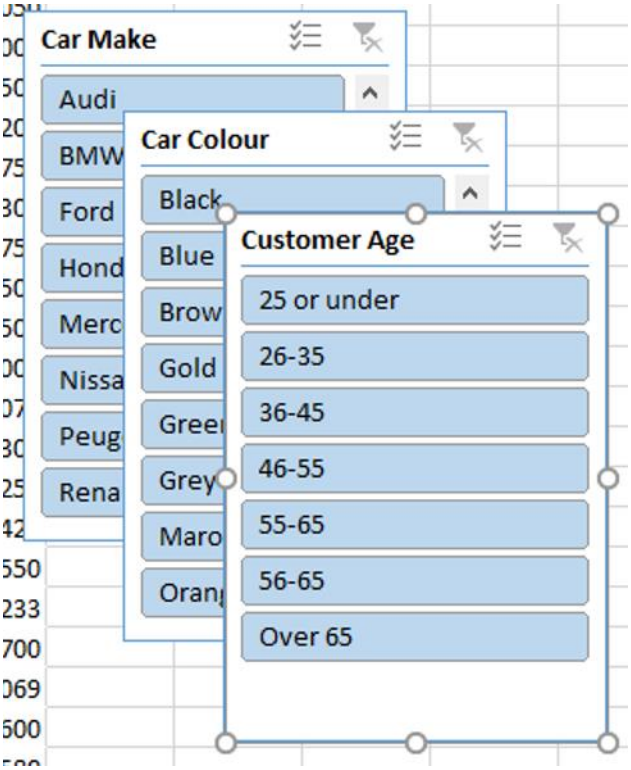
- Open the file **Slicers**
- Click on 

(**PivotTable Tools: Analyze** ribbon – if you can't see the ribbon, click somewhere within the PivotTable)and place ticks by **Car Make**,

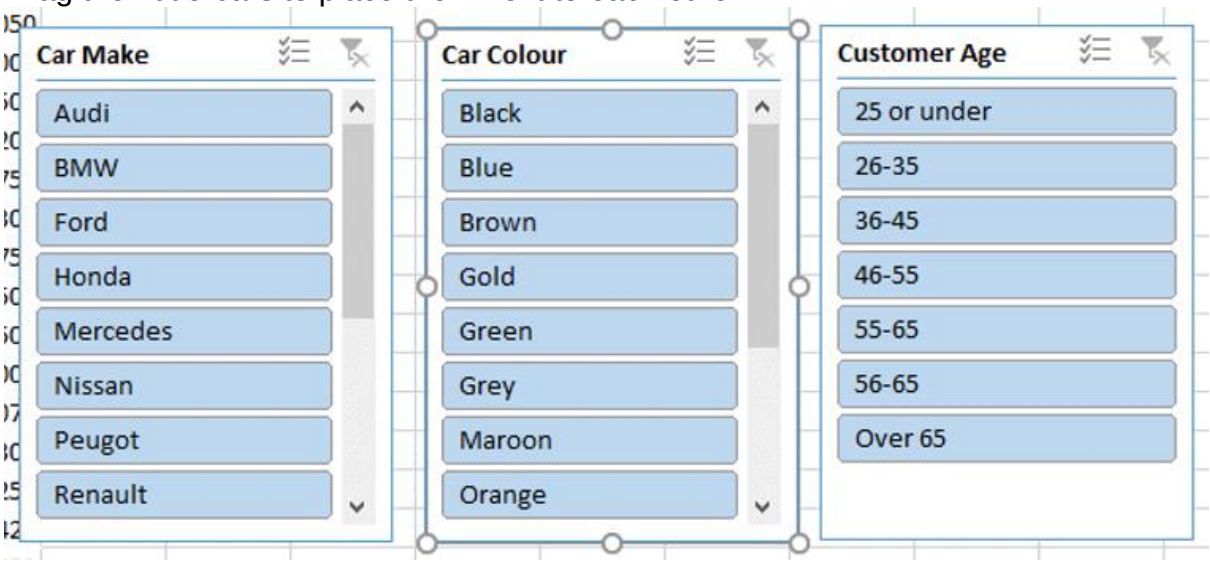
Car Colour and **Customer Age**:



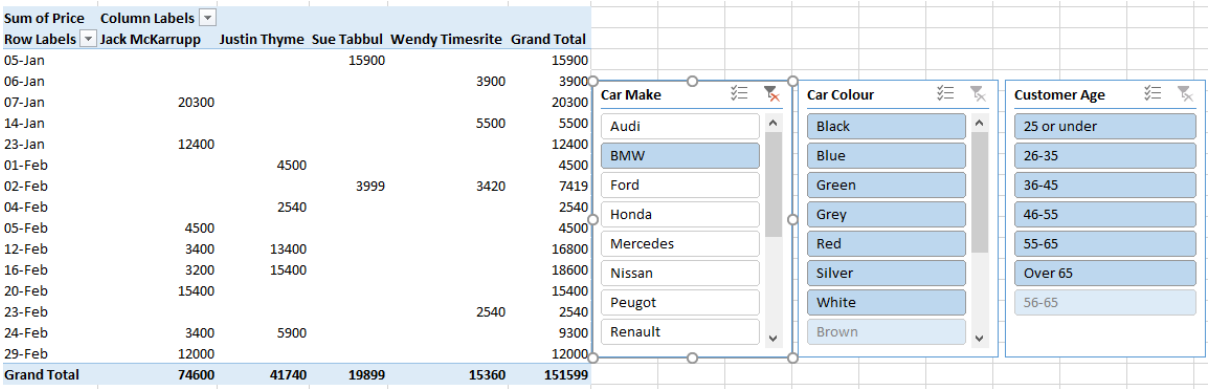
- Click on **OK** to see 3 slicers:



- Drag their title bars to place them next to each other:



- Click on **BMW** in the **Car Make** slicer to filter out everything else in your PivotTable (notice that some of the filters in the others slicers are now greyed out (no-one between 56 & 65 has bought one, etc.):



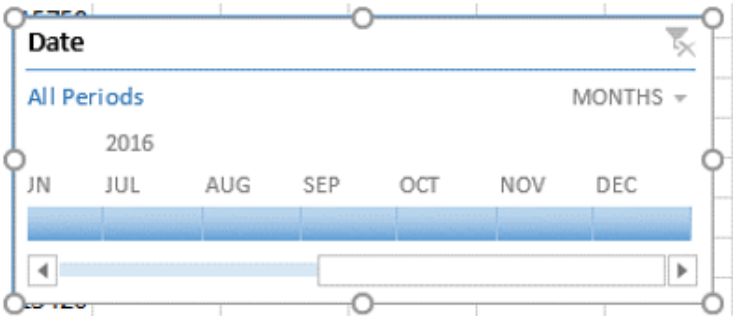
Sum of Price	Column Labels				
Row Labels	Jack McKarrupp	Justin Thyme	Sue Tabbul	Wendy Timesrite	Grand Total
05-Jan			15900		15900
06-Jan				3900	3900
07-Jan	20300				20300
14-Jan				5500	5500
23-Jan	12400				12400
01-Feb		4500			4500
02-Feb			3999	3420	7419
04-Feb		2540			2540
05-Feb	4500				4500
12-Feb	3400	13400			16800
16-Feb	3200	15400			18600
20-Feb	15400				15400
23-Feb				2540	2540
24-Feb	3400	5900			9300
29-Feb	12000				12000
Grand Total	74600	41740	19899	15360	151599

- Click on **Black** in the **Car Colour** slicer to see just the black BMWs sold (and one of the sales people disappear from row 4).
- Click on **Mercedes** in **Car Make** to switch from BMW to Mercedes.
- Hold down the **Ctrl** key and click on **BMW** and **Silver** to add to the selection.
- Click on the  button at the top-right of each slicer to clear the filters.
- Click on **25 or under**, hold down the **Shift** key and click on **36-45** to only show customers 45 and under. Clear the filter.
- Try a couple of your own combinations, then clear the filters.
- Notice that the right hand frame isn't visible – it will be if you click within the actual PivotTable.
- To remove the slicers, just click on the title bar for each one and press the **Delete** key or right click and select '**Remove…**'.

Timeline

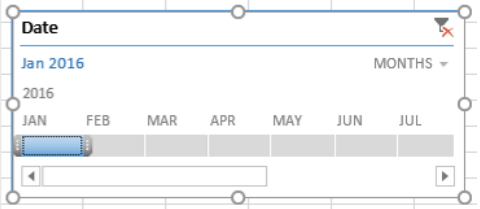
- Click on the 

button (**PivotTable Tools: Analyze** ribbon – if you can't see the ribbon, click somewhere within the PivotTable), place a tick by **Date** and click on **OK**.



- Scroll to the left and click on the bar under **JAN**:

Sum of Price	Column Labels				
Row Labels	Jack McKarrupp	Justin Thyme	Sue Tabbul	Wendy Timesrite	Grand Total
04-Jan		3500			3500
05-Jan			15900		15900
06-Jan				16400	16400
07-Jan	36250				36250
08-Jan		15600			15600
11-Jan			2050		2050
13-Jan				11000	11000
14-Jan				5500	5500
15-Jan	2300	3900			6200
16-Jan			6750		6750
18-Jan			12300		12300
19-Jan	3500			12250	15750
20-Jan		8500			8500
21-Jan			500		500
22-Jan				15000	15000
23-Jan	12400	5670			18070
26-Jan			18900	12400	31300
27-Jan	6250				6250
28-Jan		15420			15420
29-Jan			12550		12550
30-Jan	4800	4533		3900	13233
Grand Total	65500	57123	68950	76450	268023



- Click on the bar under **FEB**, then **MAR** (it will be empty – there are no March dates).
- Click on  to see everything again. Right click on the timeline's title bar and select **Remove Timeline**.
- Close the file, saving changes.

Pivot Charts

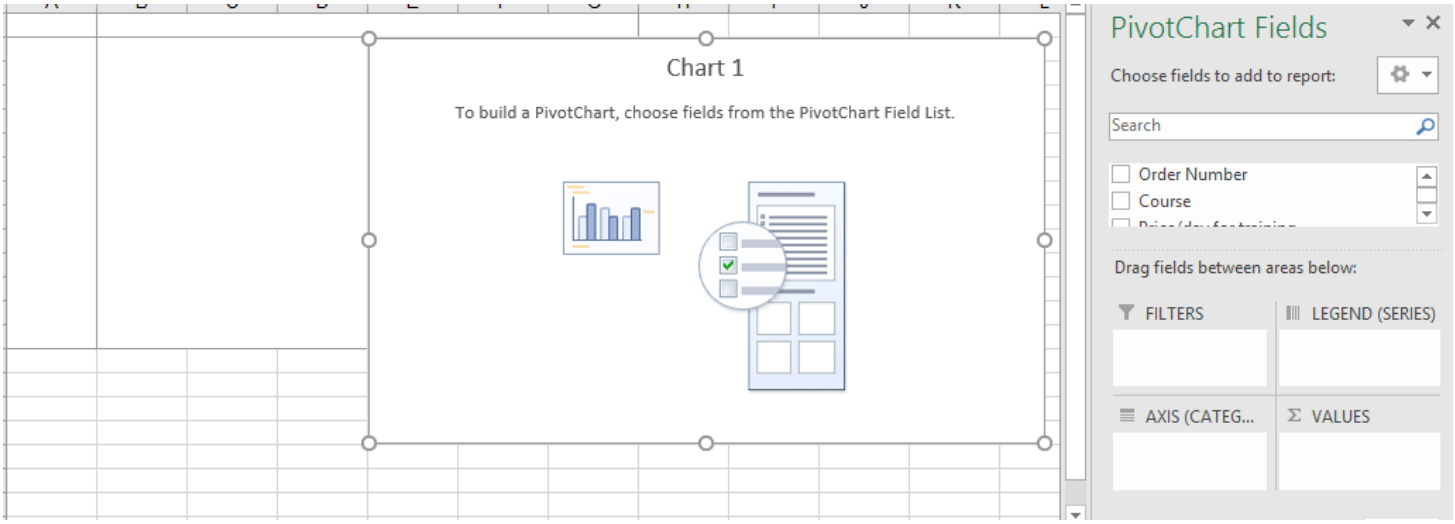
Pivot charts analyse the data in a similar way to PivotTables, but they also enable you to present the summarised data graphically in a chart of your choice.

The mechanics of creating and manipulating a pivot chart are basically the same (but using the term **AXIS** instead of **ROWS** and **LEGEND** instead of **COLUMNS**.

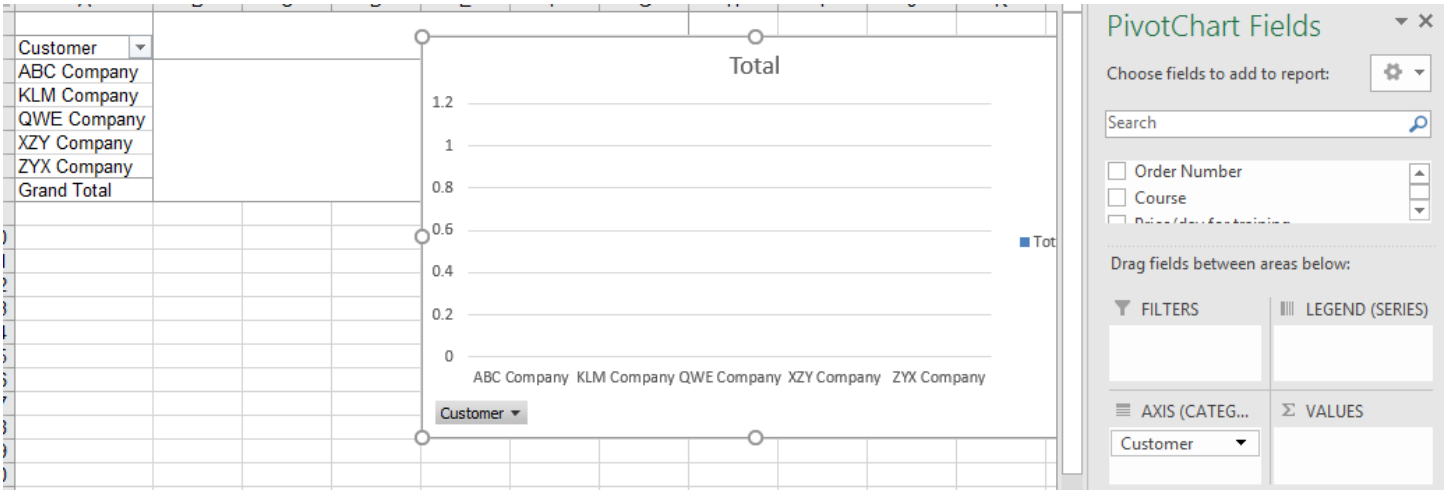
- Open file **PivotTables 02**, select the **Pivot Table Data** worksheet and click within the table.

- Click on the top part of the 

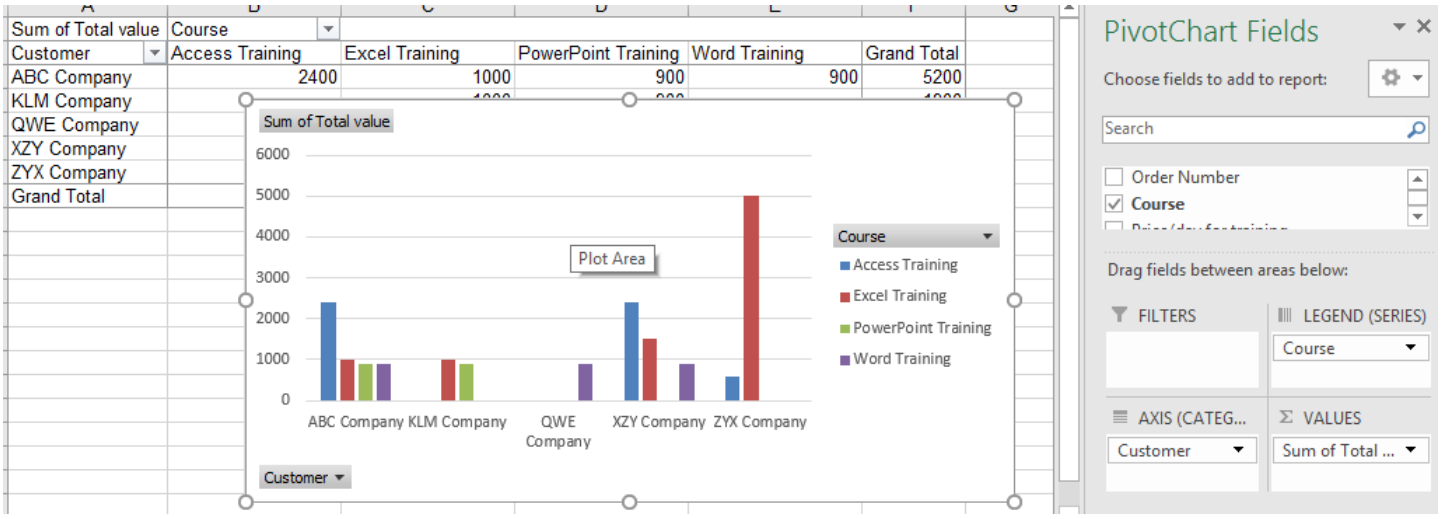
button ('**Insert**' tab, **Charts** group – if you click on the drop-down arrow part, click on **PivotChart**), check/correct the selected range and click on "**OK**" to see a blank PivotChart:

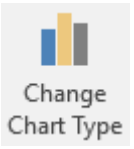


- Place a tick by **Customer** to put them into the **AXIS** area:

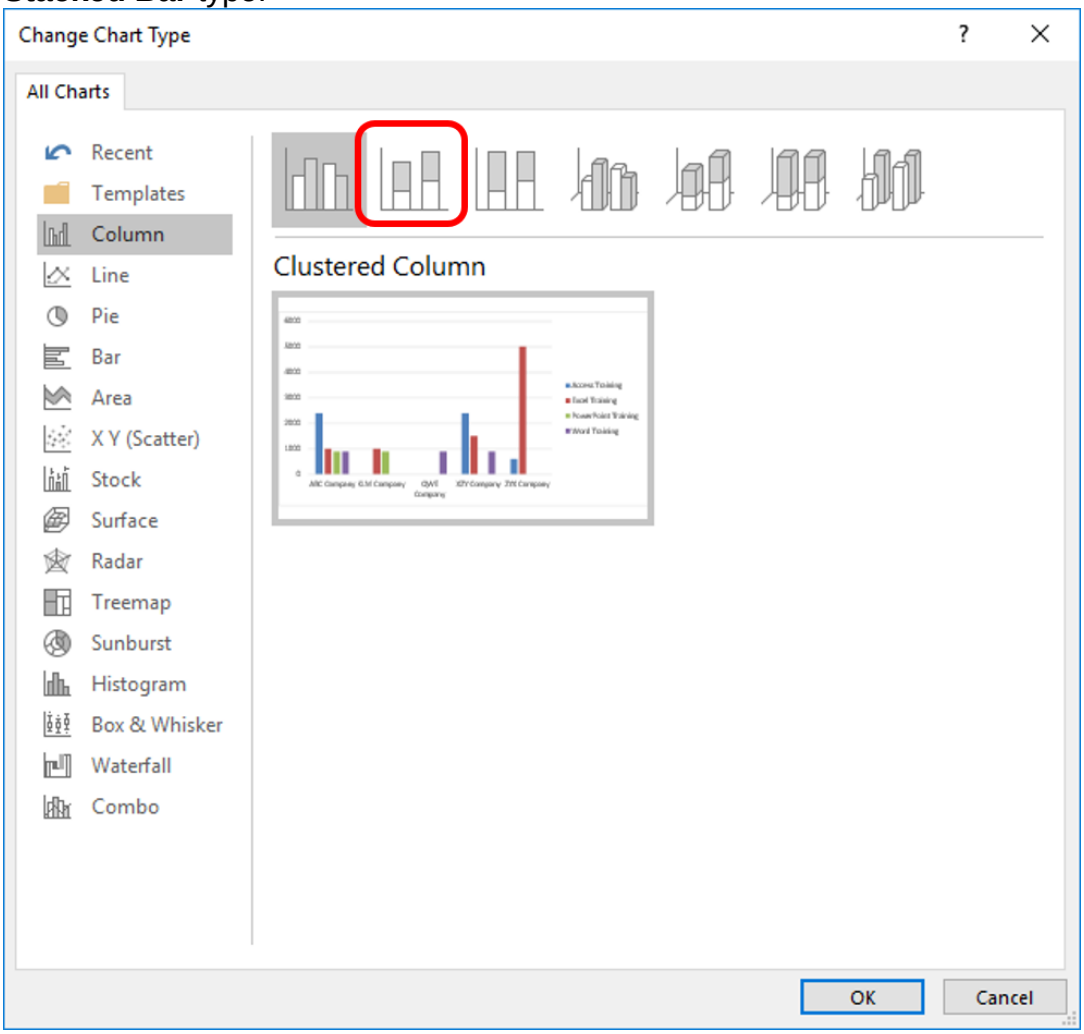


- Drag **Course** to **LEGEND** and **Total value** to **VALUES** to complete the chart:

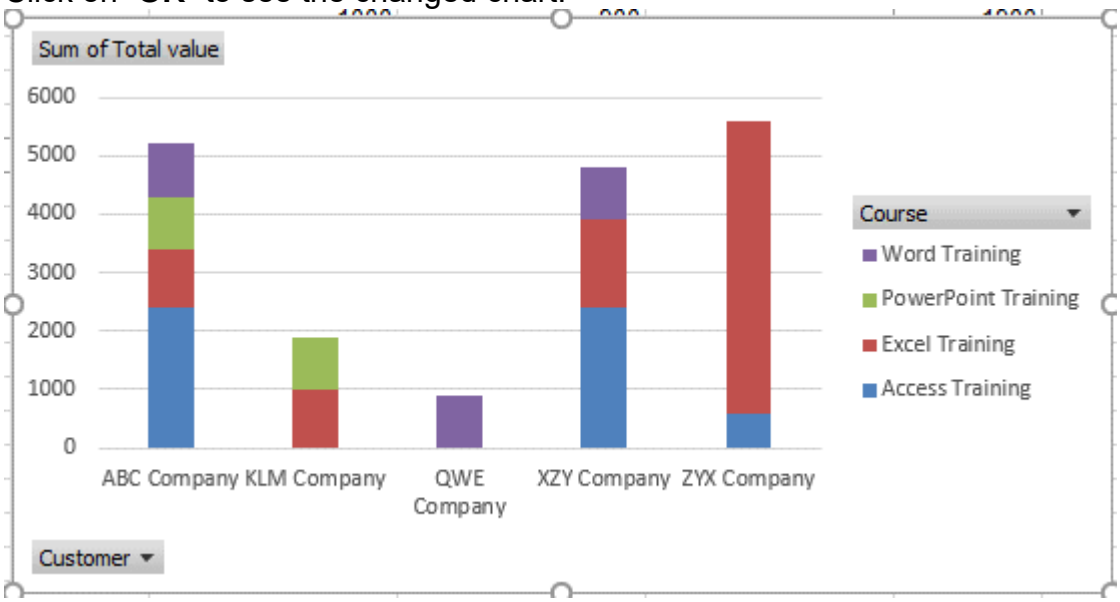


- Select the **PivotChart Tools**, **Design** tab, click on 

and select the **Stacked Bar** type:



- Click on “**OK**” to see the changed chart:



- Put the **Sales Person** into the **AXIS** area and take the **Customer** out.

Make any other changes that you wish then close the file, saving your changes.

