

Creating a Dashboard in Microsoft Excel



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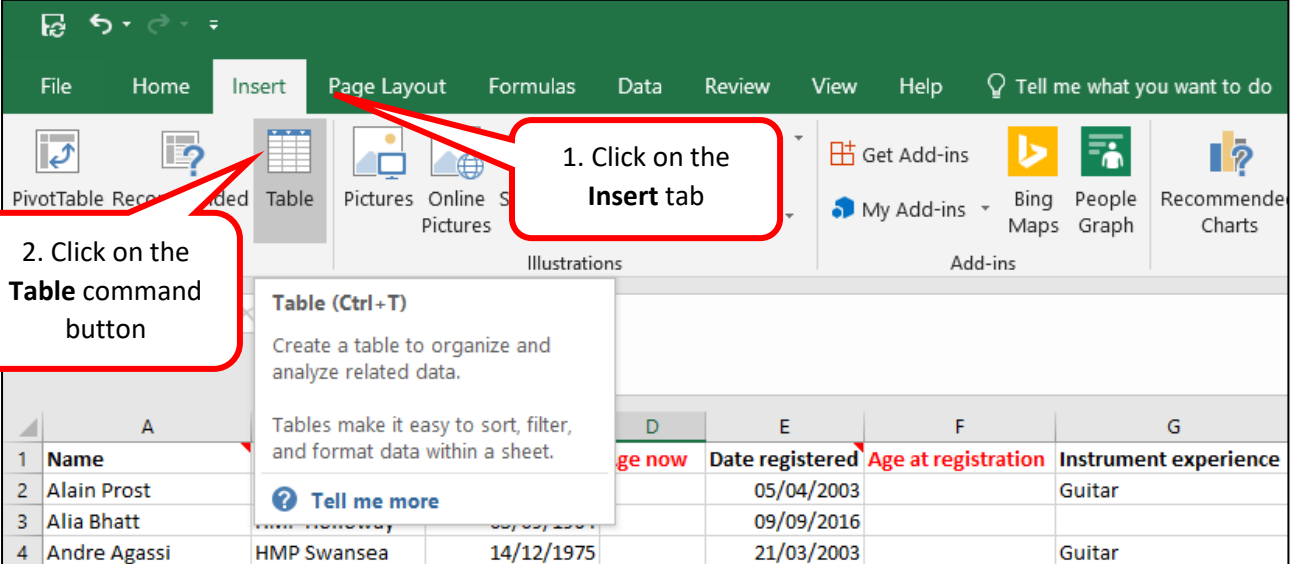


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Tables

1. Make your data into a table



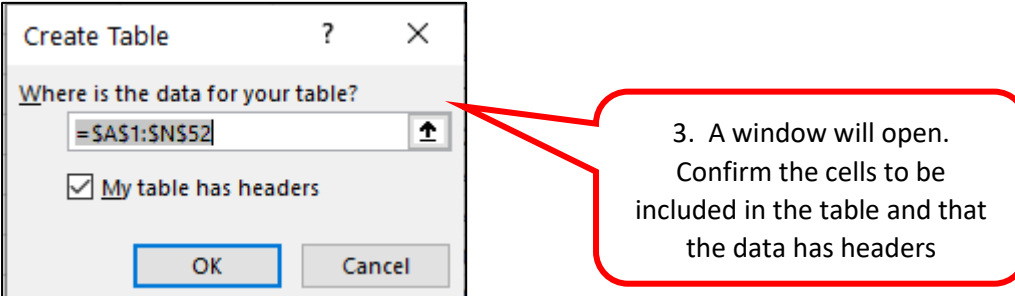
1. Click on the **Insert** tab

2. Click on the **Table** command button

Table (Ctrl+T)
Create a table to organize and analyze related data.
Tables make it easy to sort, filter, and format data within a sheet.
[Tell me more](#)

	D	E	F	G	
	Age now	Date registered	Age at registration	Instrument experience	
1		05/04/2003		Guitar	
2		09/09/2016			
3					
4	Andre Agassi	HMP Swansea	14/12/1975	21/03/2003	Guitar

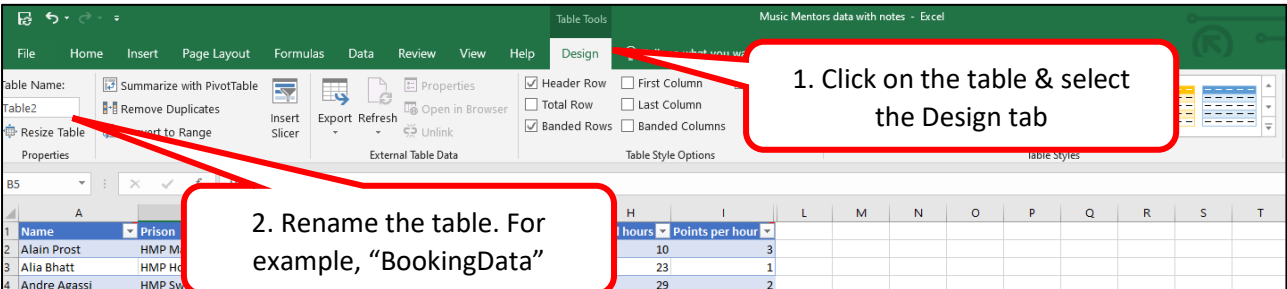
→ Alternative shortcut: Ctrl + T



3. A window will open. Confirm the cells to be included in the table and that the data has headers

2. Name the table

It is good practice to name the table as it makes life much easier later when working with formulas. Naming the formula is basically giving your data set a name which will enable you to recognise which data set you need to be working with.



1. Click on the table & select the **Design** tab

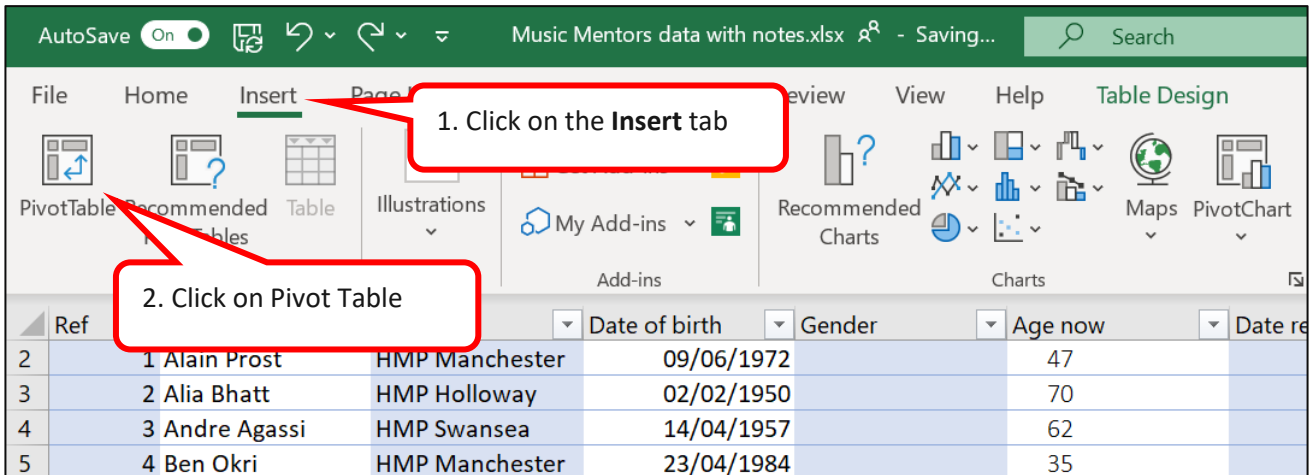
2. Rename the table. For example, "BookingData"

	H	I	L	M	N	O	P	Q	R	S	T
	Hours	Points per hour									
1	10	3									
2	23	1									
3											
4	29	2									



Pivot Tables

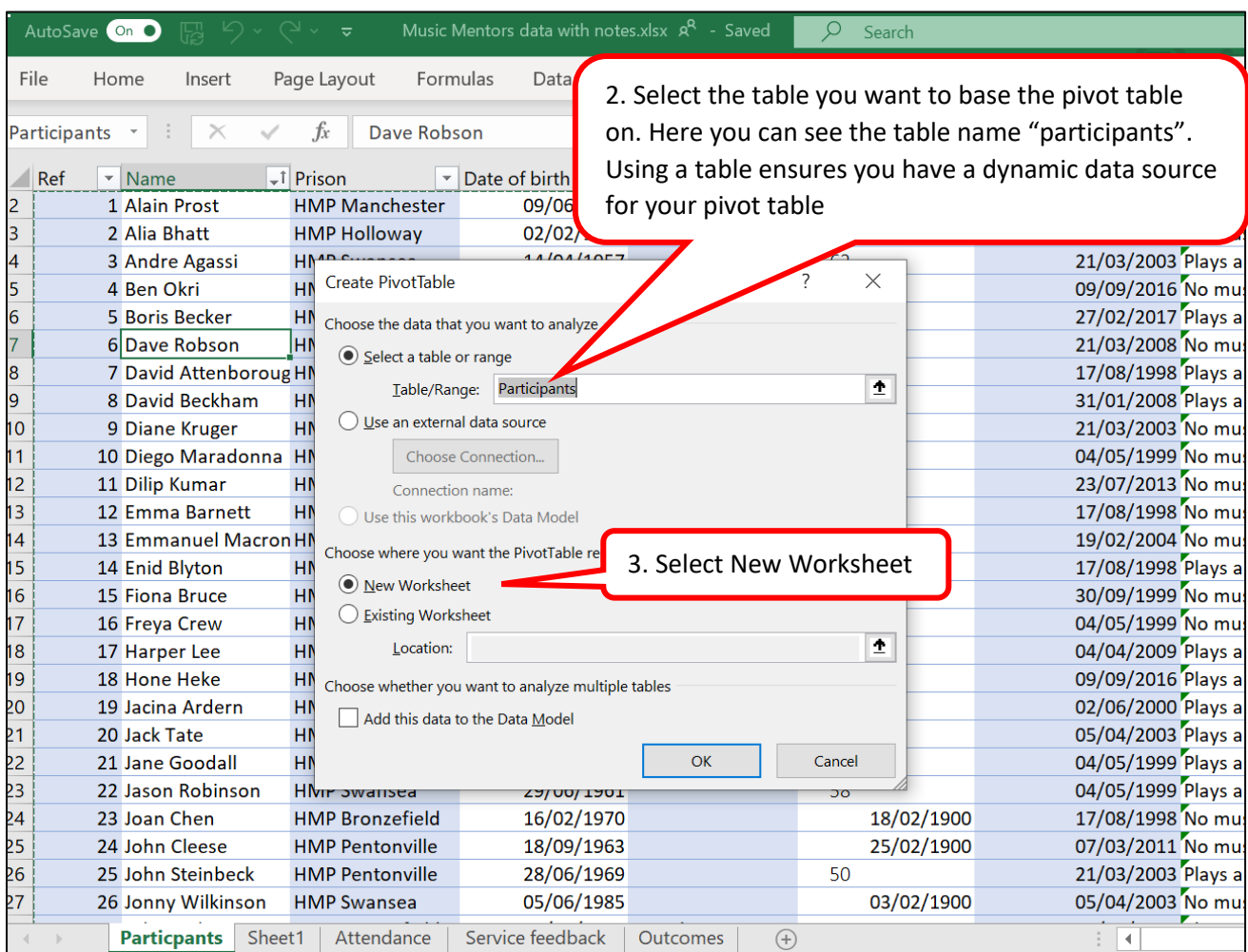
1. Creating a pivot table



1. Click on the **Insert** tab

2. Click on **Pivot Table**

Ref	Name	Prison	Date of birth	Gender	Age now	Date re
2	1 Alain Prost	HMP Manchester	09/06/1972		47	
3	2 Alia Bhatt	HMP Holloway	02/02/1950		70	
4	3 Andre Agassi	HMP Swansea	14/04/1957		62	
5	4 Ben Okri	HMP Manchester	23/04/1984		35	

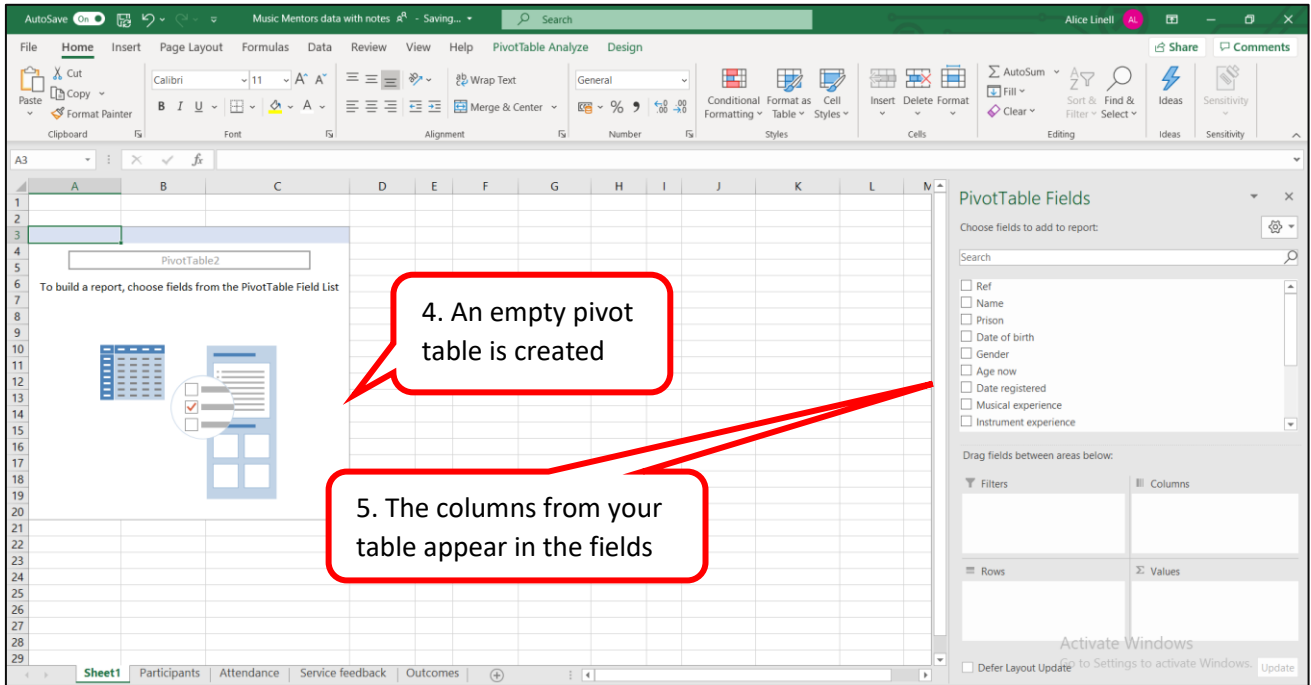


2. Select the table you want to base the pivot table on. Here you can see the table name "participants". Using a table ensures you have a dynamic data source for your pivot table

3. Select **New Worksheet**

Ref	Name	Prison	Date of birth	Gender	Age now	Date re
2	1 Alain Prost	HMP Manchester	09/06/1972		47	
3	2 Alia Bhatt	HMP Holloway	02/02/1950		70	
4	3 Andre Agassi	HMP Swansea	14/04/1957		62	
5	4 Ben Okri	HMP Manchester	23/04/1984		35	
6	5 Boris Becker	HMP Swansea	11/02/1969		53	
7	6 Dave Robson	HMP Swansea	21/03/2003		19	Plays a
8	7 David Attenboroug	HMP Swansea	09/09/1916		108	No mu
9	8 David Beckham	HMP Swansea	27/02/1975		48	Plays a
10	9 Diane Kruger	HMP Swansea	21/03/2008		15	No mu
11	10 Diego Maradona	HMP Swansea	17/08/1998		25	Plays a
12	11 Dilip Kumar	HMP Swansea	31/01/2008		16	Plays a
13	12 Emma Barnett	HMP Swansea	21/03/2003		20	No mu
14	13 Emmanuel Macron	HMP Swansea	04/05/1999		24	No mu
15	14 Enid Blyton	HMP Swansea	23/07/2013		10	No mu
16	15 Fiona Bruce	HMP Swansea	17/08/1998		25	No mu
17	16 Freya Crew	HMP Swansea	19/02/2004		19	No mu
18	17 Harper Lee	HMP Swansea	17/08/1998		25	Plays a
19	18 Hone Heke	HMP Swansea	30/09/1999		24	No mu
20	19 Jacina Ardern	HMP Swansea	04/05/1999		24	No mu
21	20 Jack Tate	HMP Swansea	04/04/2009		14	Plays a
22	21 Jane Goodall	HMP Swansea	09/09/2016		7	Plays a
23	22 Jason Robinson	HMP Swansea	02/06/2000		23	Plays a
24	23 Joan Chen	HMP Swansea	05/04/2003		21	Plays a
25	24 John Cleese	HMP Swansea	04/05/1999		24	Plays a
26	25 John Steinbeck	HMP Swansea	04/05/1999		24	Plays a
27	26 Jonny Wilkinson	HMP Swansea	04/05/1999		24	Plays a





4. An empty pivot table is created

5. The columns from your table appear in the fields

PivotTable Fields

Choose fields to add to report:

Search

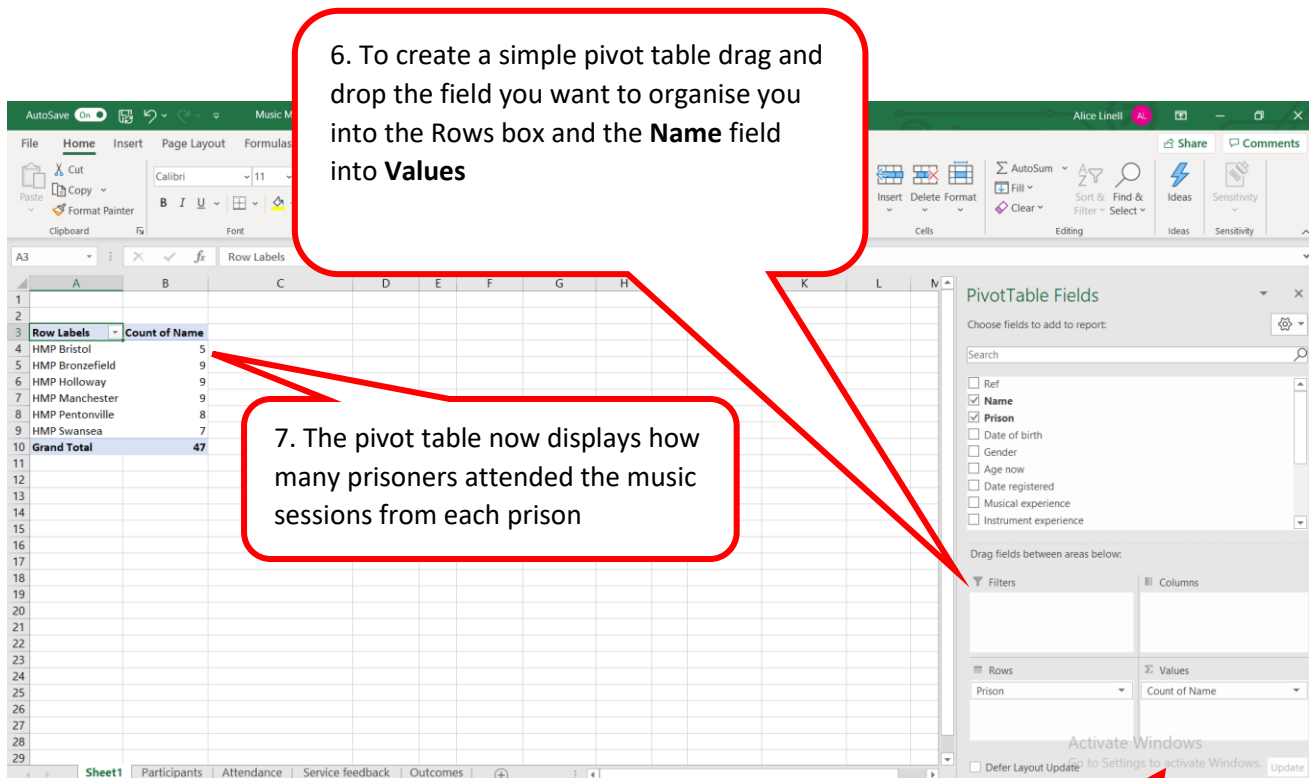
Ref
 Name
 Prison
 Date of birth
 Gender
 Age now
 Date registered
 Musical experience
 Instrument experience

Drag fields between areas below:

Filters Columns

Rows Values

Activate Windows
Go to Settings to activate Windows. Update



6. To create a simple pivot table drag and drop the field you want to organise you into the Rows box and the **Name** field into **Values**

7. The pivot table now displays how many prisoners attended the music sessions from each prison

PivotTable Fields

Choose fields to add to report:

Search

Ref
 Name
 Prison
 Date of birth
 Gender
 Age now
 Date registered
 Musical experience
 Instrument experience

Drag fields between areas below:

Filters Columns

Rows Values

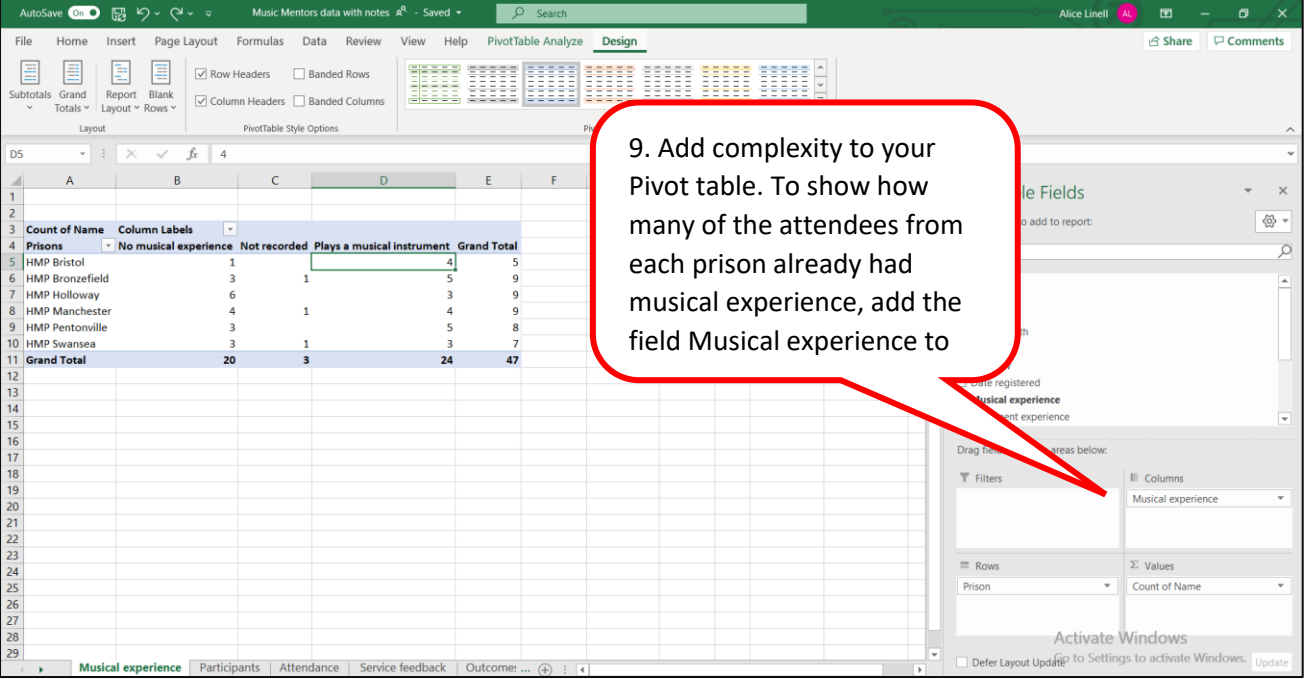
Prison Count of Name

Activate Windows
Go to Settings to activate Windows. Update

Row Labels	Count of Name
HMP Bristol	5
HMP Bronzefield	9
HMP Holloway	9
HMP Manchester	9
HMP Pentonville	8
HMP Swansea	7
Grand Total	47

8. As the name field is text the pivot table assumes you want to **Count** the number of records in the Name



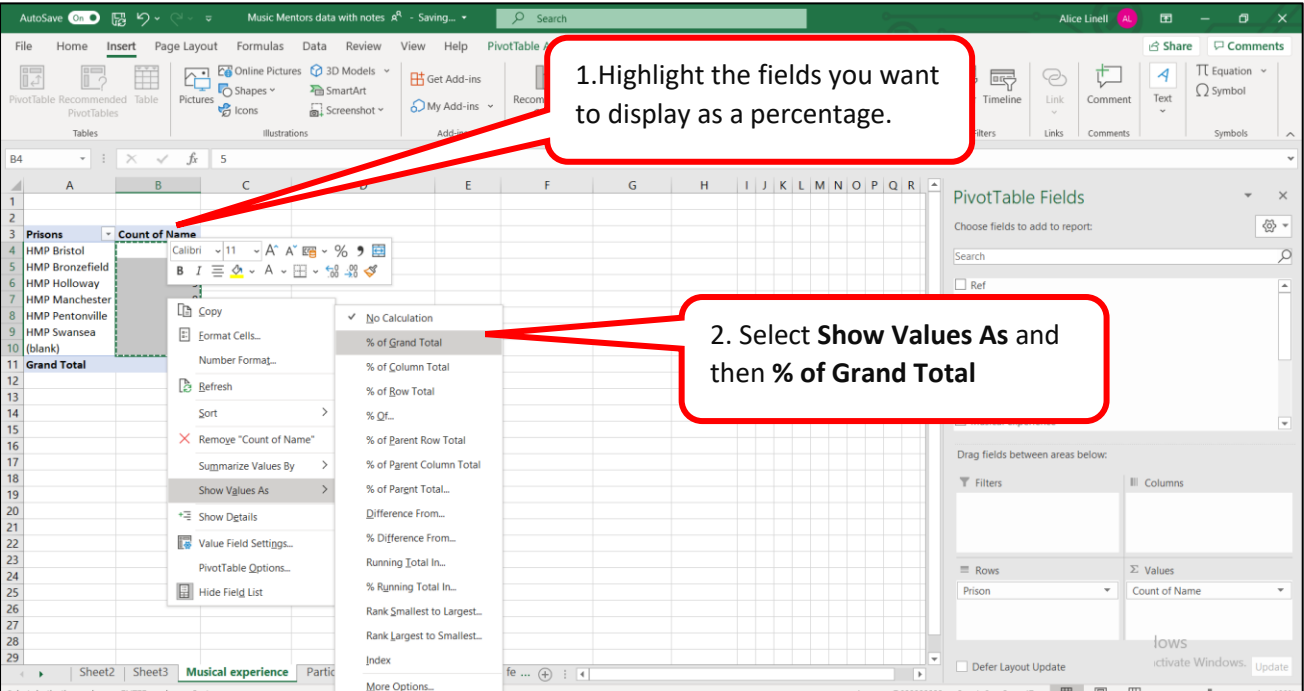


9. Add complexity to your Pivot table. To show how many of the attendees from each prison already had musical experience, add the field Musical experience to

Prisons	No musical experience	Not recorded	Plays a musical instrument	Grand Total
HMP Bristol	1		4	5
HMP Bronzefield	3	1		9
HMP Holloway	6		3	9
HMP Manchester	4	1		9
HMP Pentonville	3		5	8
HMP Swansea	3	1	3	7
Grand Total	20	3	24	47

2. Field values

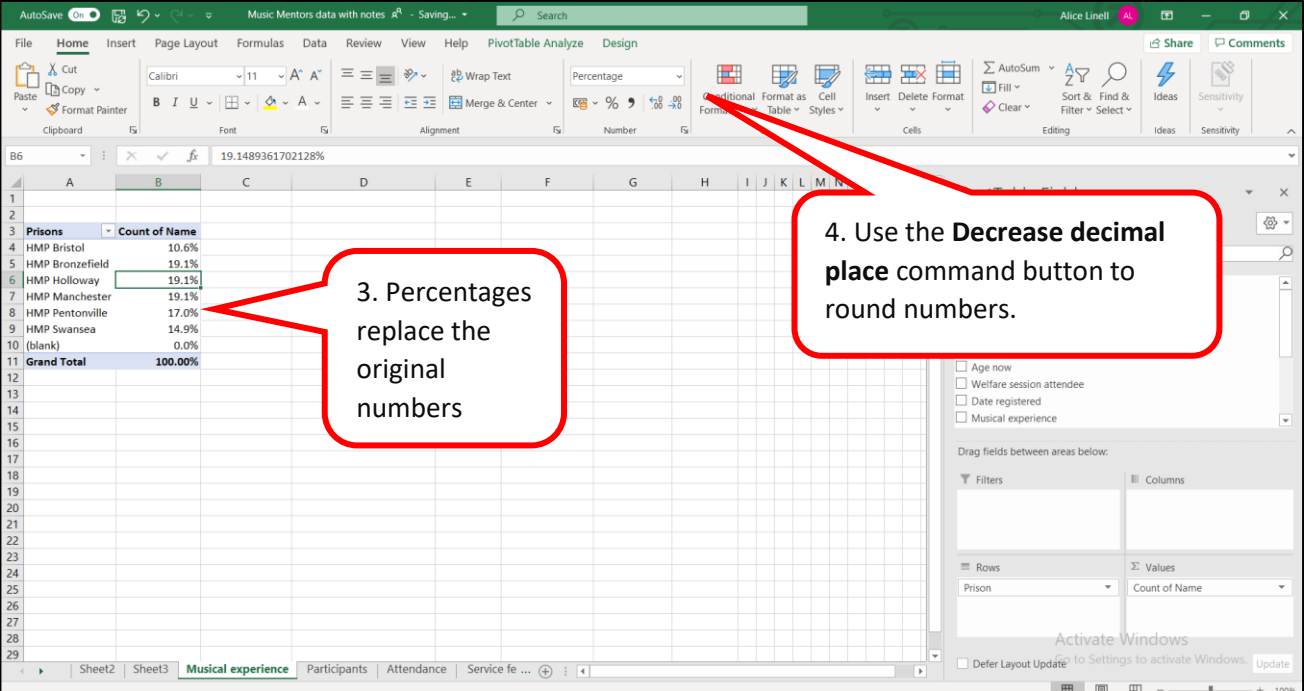
Numerical fields can be displayed in a number of ways in Pivot tables, for example you can display fields as a percentage of the grand total.



1. Highlight the fields you want to display as a percentage.

2. Select **Show Values As** and then **% of Grand Total**





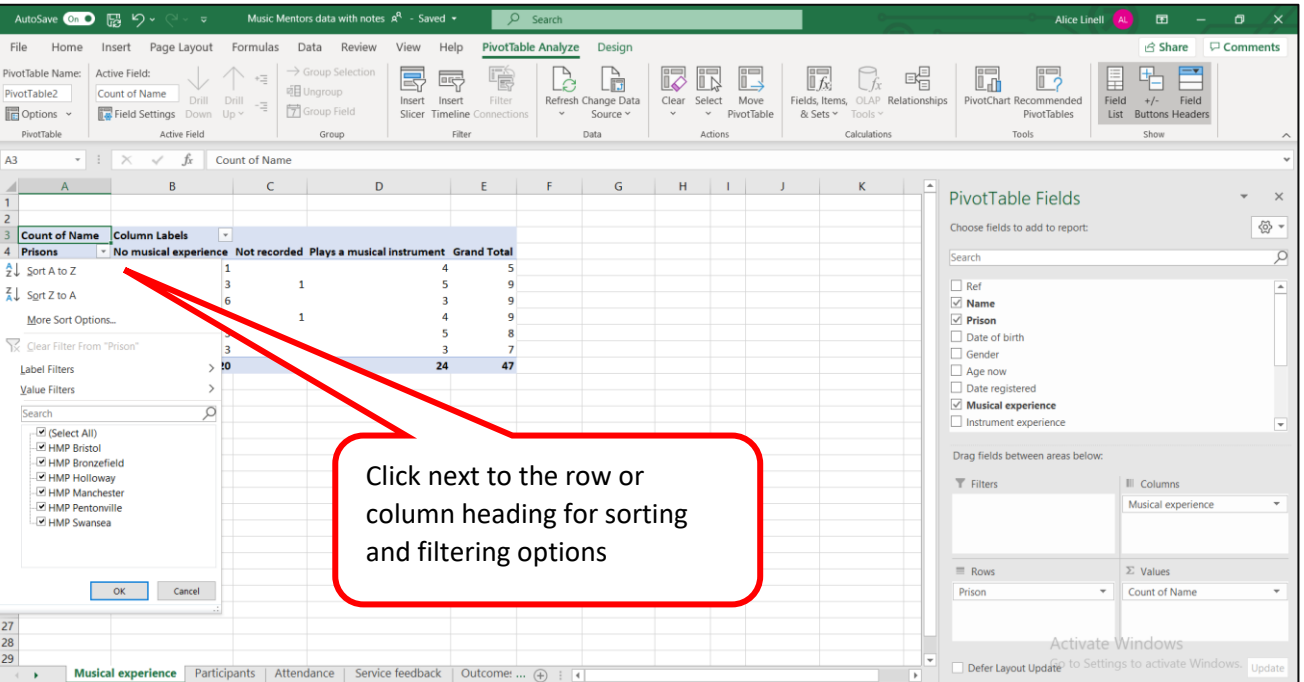
3. Percentages replace the original numbers

4. Use the **Decrease decimal place** command button to round numbers.

Prisons	Count of Name
HMP Bristol	10.6%
HMP Bronzefield	19.1%
HMP Holloway	19.1%
HMP Manchester	19.1%
HMP Pentonville	17.0%
HMP Swansea	14.9%
(blank)	0.0%
Grand Total	100.00%

3. Sorting & Filtering a pivot table

Simple sorting and filtering work exactly the same as elsewhere in Excel.



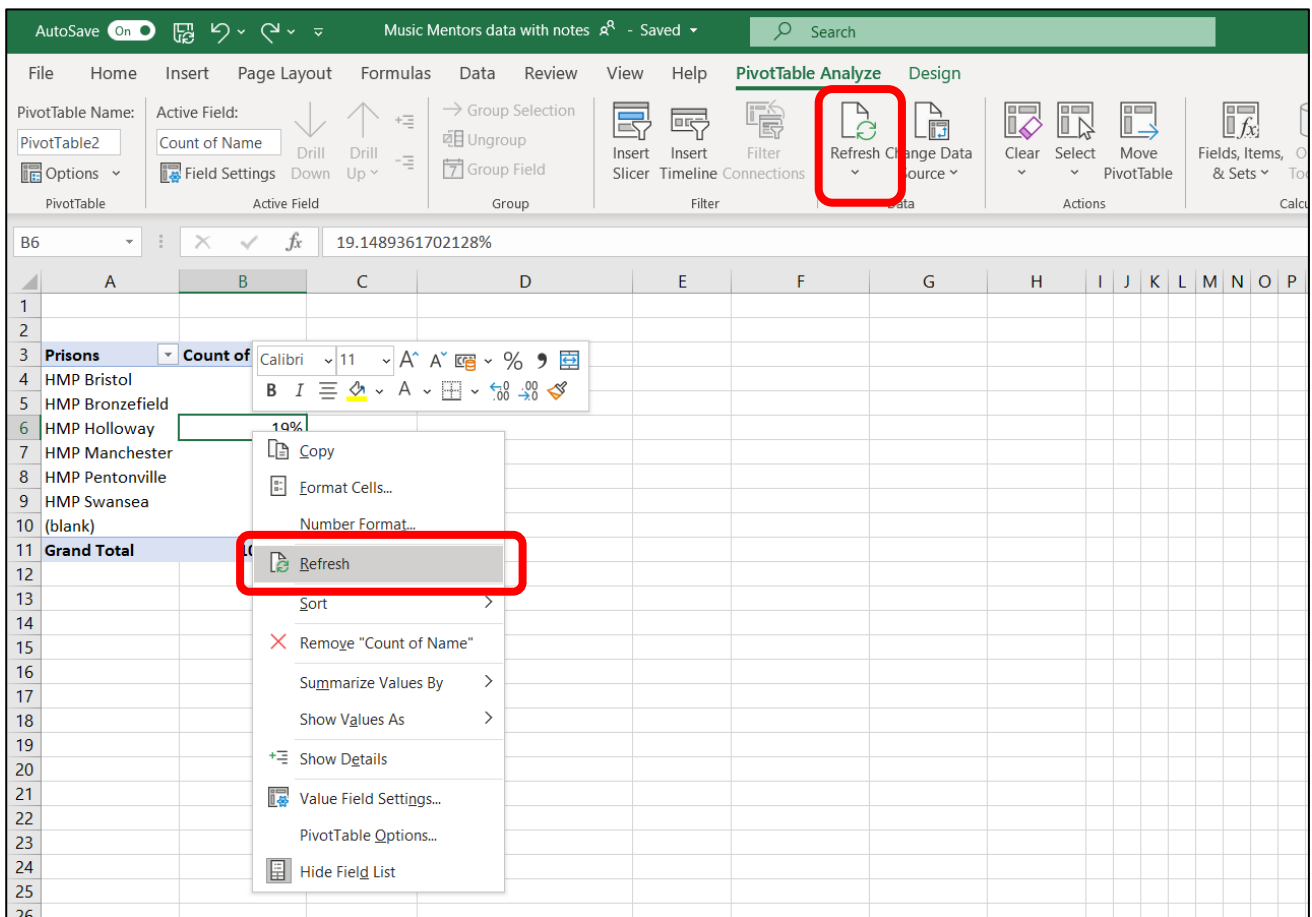
Click next to the row or column heading for sorting and filtering options

Count of Name	Column Labels				Grand Total
Prisons	No musical experience	Not recorded	Plays a musical instrument		
	1	4	5		
	3	1	5	9	
	6		3	9	
		1	4	9	
			5	8	
	3		3	7	
	10		24	47	



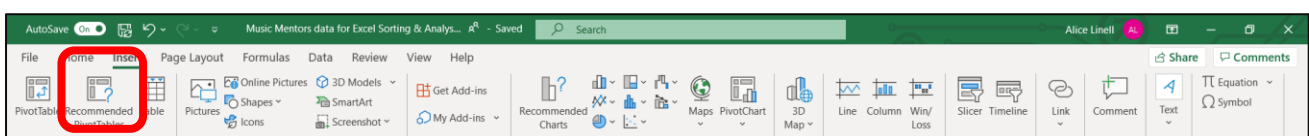
4. Refreshing data in a Pivot table

If you make changes to the data set being used to the pivot table, you might need to refresh the chart so that the changes are immediately reflected in the chart.

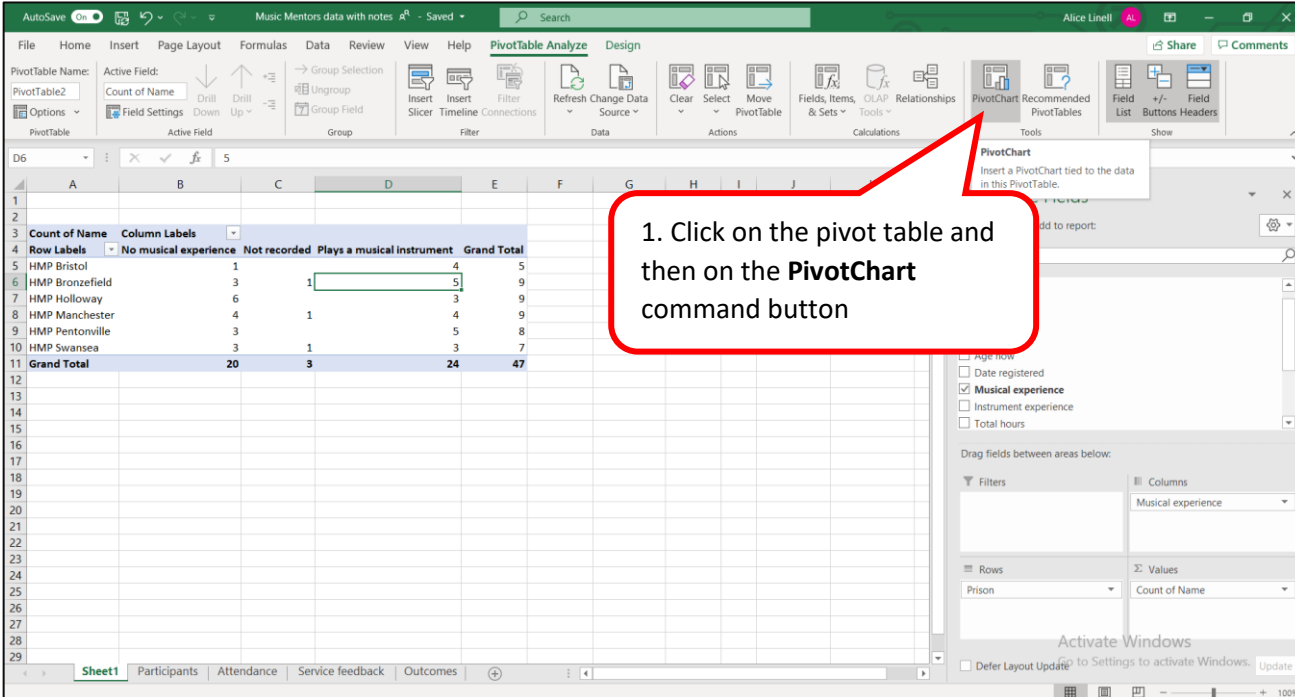


5. Recommended Pivot Tables

A short cut to creating pivot tables can be to use the recommended Pivot table function.



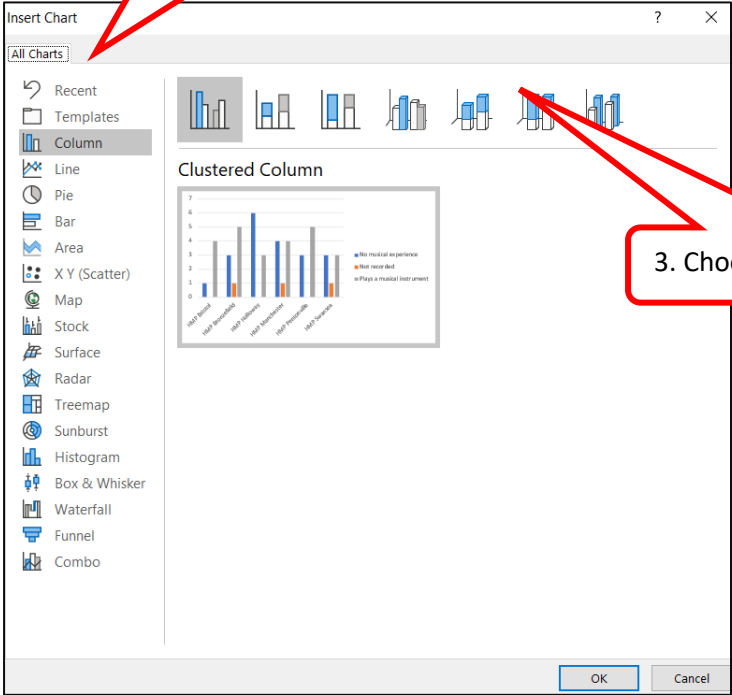
6. Pivot table charts



1. Click on the pivot table and then on the **PivotChart** command button

Count of Name	Column Labels	No musical experience	Not recorded	Plays a musical instrument	Grand Total
HMP Bristol		1		4	5
HMP Bronzefield		3	1	5	9
HMP Holloway		6		3	9
HMP Manchester		4	1	4	9
HMP Pentonville		3		5	8
HMP Swansea		3	1	3	7
Grand Total		20	3	24	47

2. Choose the chart type



3. Choose the chart format



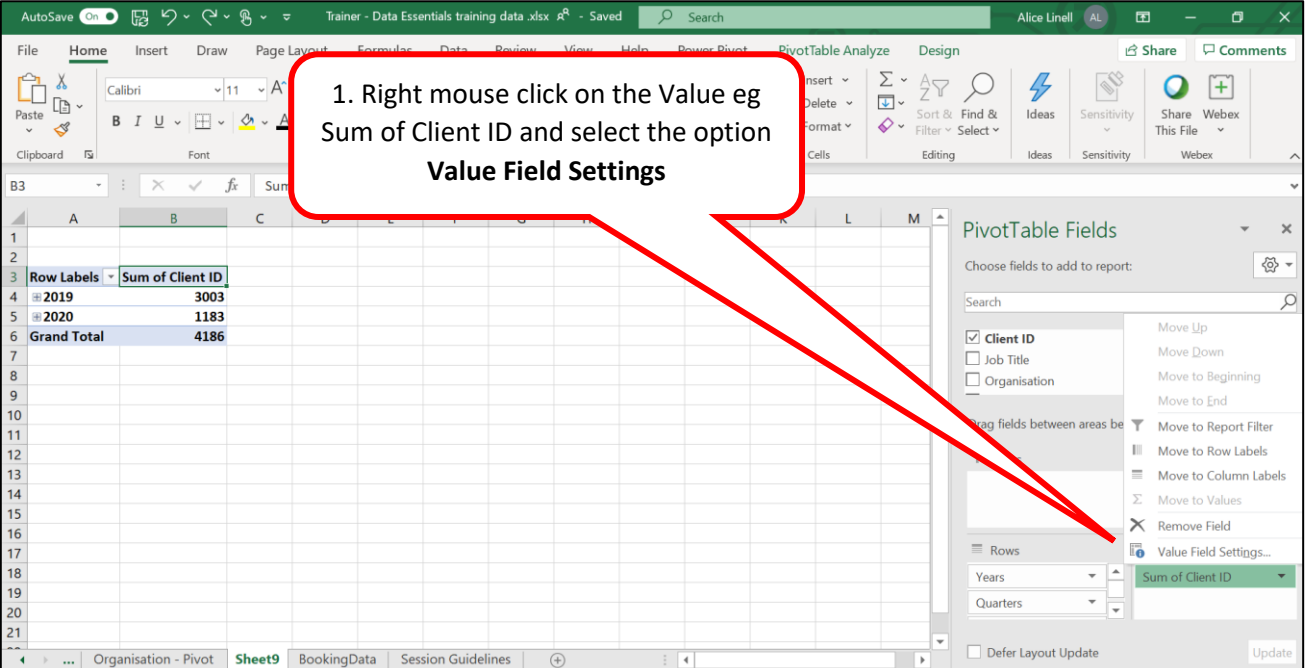
Working with Pivot tables

7. Changing value field settings

In pivot tables you can select different types of setting for the values portion of your Pivot table. You can:

- Give the value set a custom (display) name
- Specify how you want to summarise values
- Specify how you want to display values

1.



The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable has 'Row Labels' and 'Sum of Client ID'. The data is as follows:

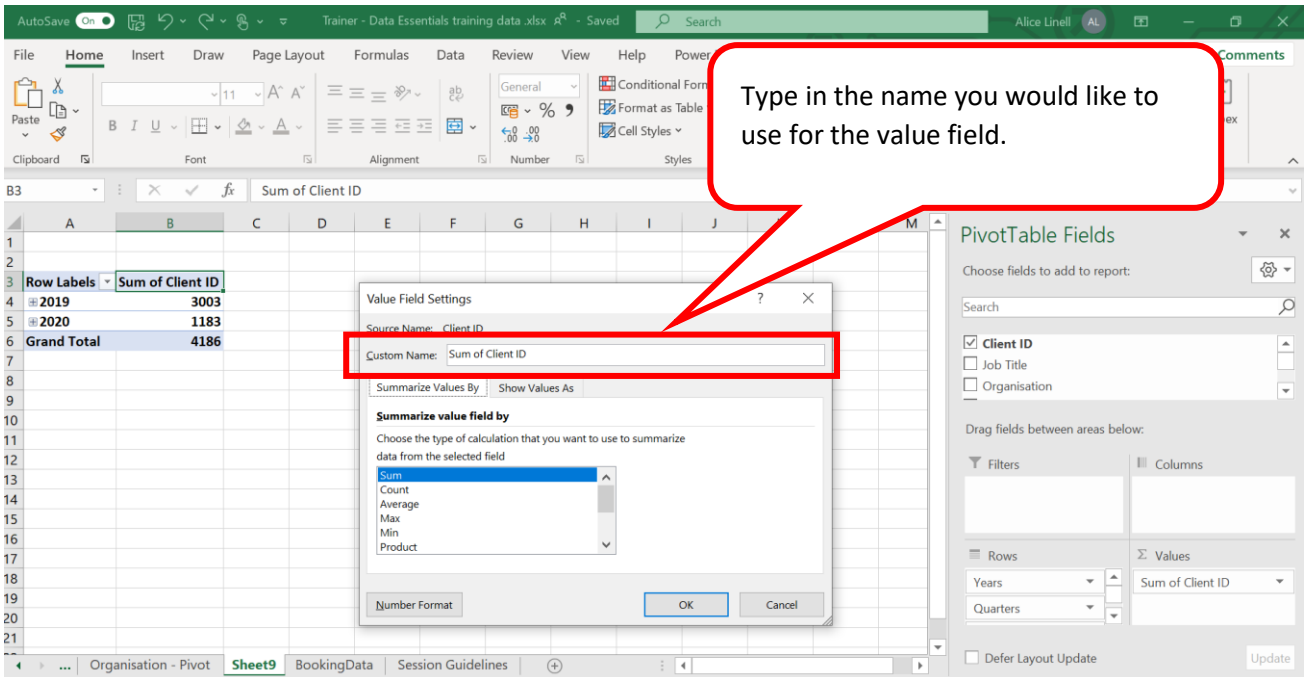
Row Labels	Sum of Client ID
2019	3003
2020	1183
Grand Total	4186

The PivotTable Fields task pane on the right shows 'Client ID' selected. A red callout box contains the text: "1. Right mouse click on the Value eg Sum of Client ID and select the option Value Field Settings". The 'Value Field Settings...' option is highlighted in the task pane.

19.
20.



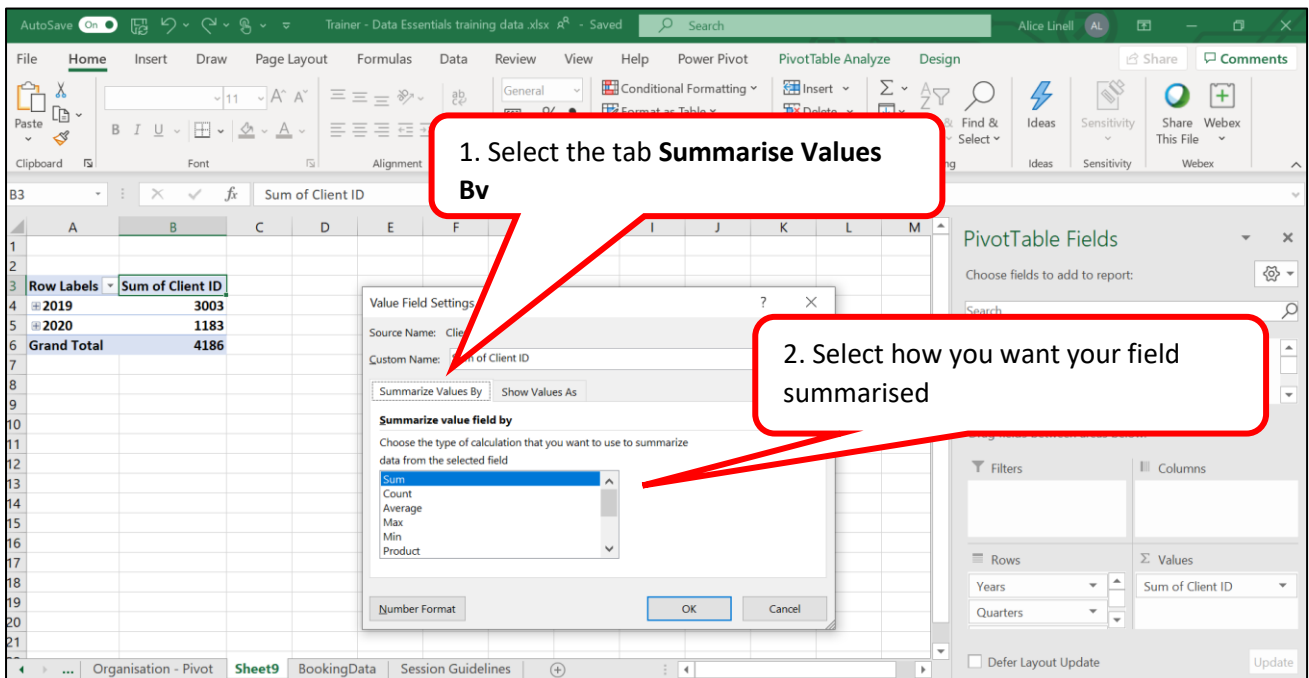
Custom value name



Type in the name you would like to use for the value field.

Row Labels	Sum of Client ID
2019	3003
2020	1183
Grand Total	4186

Summarise values by



1. Select the tab **Summarise Values**
Bv

2. Select how you want your field summarised

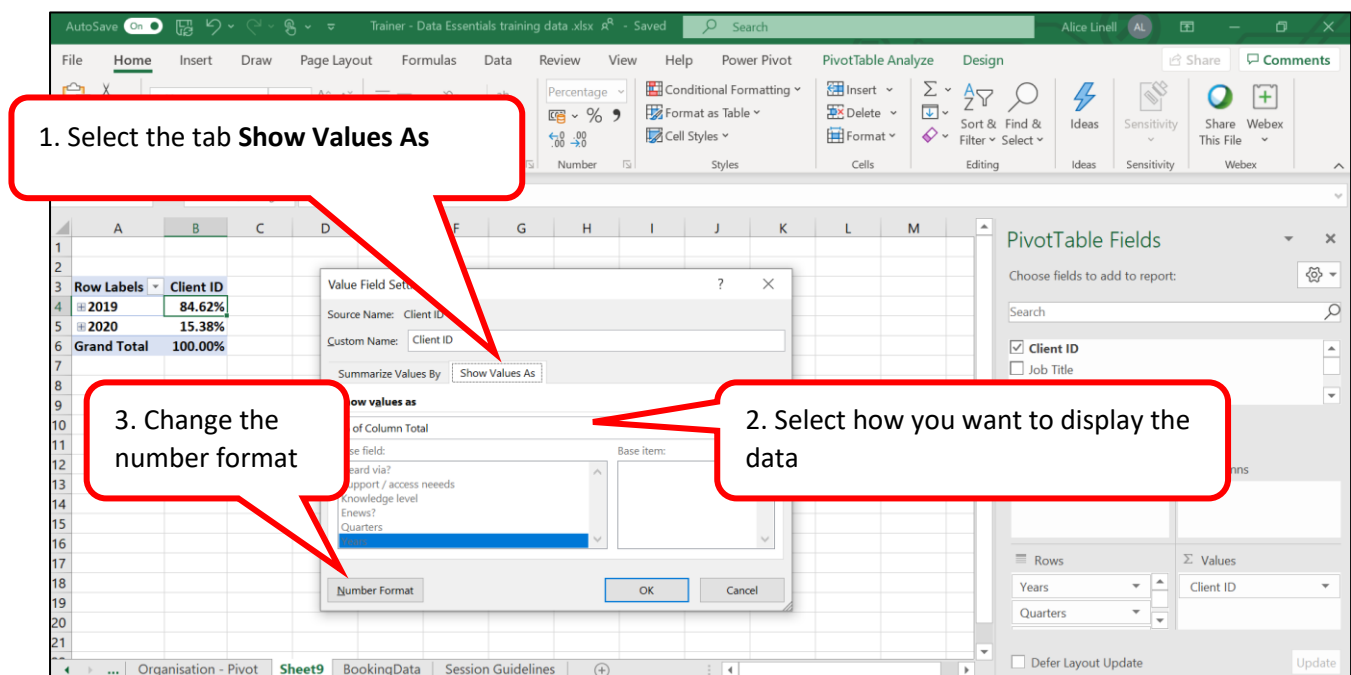
Row Labels	Sum of Client ID
2019	3003
2020	1183
Grand Total	4186



Most common calculations used to summarise data:

Function	Summarizes
Sum	The sum of the values adds all the values in the selected data range. This is the default function for numeric values.
Count	The number of values. The Count summary function works the same as the COUNTA worksheet function. Count is the default function for values other than numbers.
Average	The average of the values. The average is the mean average of the numbers. To calculate: Excel adds up all the numbers, then divides by how many numbers there are. In other words it is the sum divided by the count.
Max	The largest value.
Min	The smallest value.
Product	The product of the values. The product is the result of multiplying the numbers eg the product of 2 and 3 is 6.

Show values As



1. Select the tab **Show Values As**

2. Select how you want to display the data

3. Change the number format

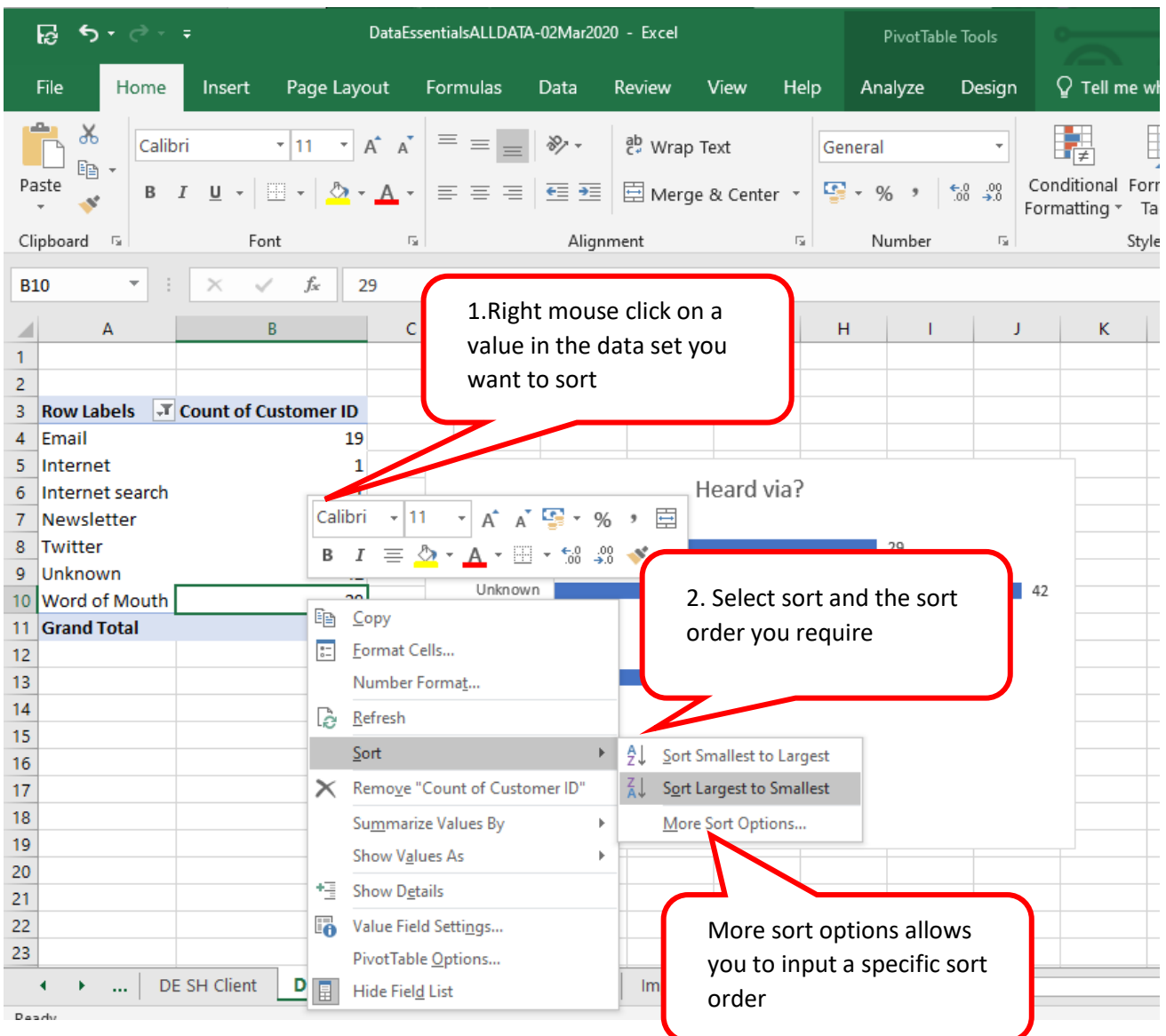
Most common ways of displaying data:

Use this calculation	To
No calculation	Turn off custom calculation.
% of Column Total	Display all the values in each column or series as a percentage of the total for the column or series.
% of Row Total	Display the value in each row or category as a percentage of the total for the row or category.



Rank smallest to largest	Display the rank of selected values in a specific field, listing the smallest item in the field as 1, and each larger value with a higher rank value. Create a new column for Rank if you want to show the specific amounts too.
Rank largest to smallest	Display the rank of selected values in a specific field, listing the largest item in the field as 1, and each smaller value with a higher rank value. Create a new column for Rank if you want to show the specific amounts too.

8. Changing the sort order



1. Right mouse click on a value in the data set you want to sort

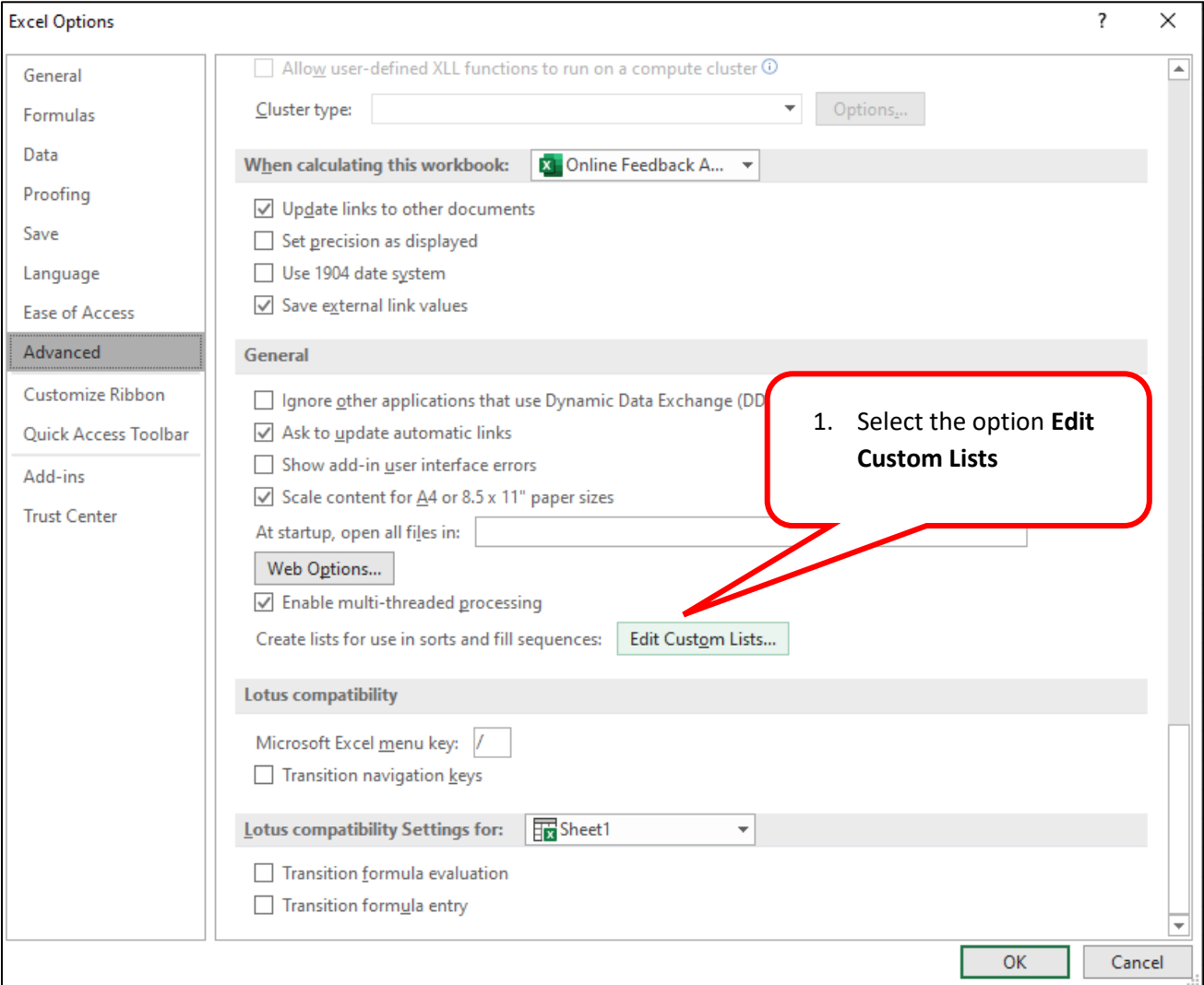
2. Select sort and the sort order you require

More sort options allows you to input a specific sort order



9. Custom sort order

Go to File > Options > Advanced



The image shows the Excel Options dialog box with the Advanced tab selected. A red callout box highlights the 'Edit Custom Lists...' button with the text '1. Select the option Edit Custom Lists'.

Excel Options

General
Formulas
Data
Proofing
Save
Language
Ease of Access
Advanced
Customize Ribbon
Quick Access Toolbar
Add-ins
Trust Center

Allow user-defined XLL functions to run on a compute cluster ⓘ
Cluster type: [] Options...

When calculating this workbook: [x] Online Feedback A... [v]

Update links to other documents
 Set precision as displayed
 Use 1904 date system
 Save external link values

General

Ignore other applications that use Dynamic Data Exchange (DD...
 Ask to update automatic links
 Show add-in user interface errors
 Scale content for A4 or 8.5 x 11" paper sizes
At startup, open all files in: []
Web Options...
 Enable multi-threaded processing
Create lists for use in sorts and fill sequences: [Edit Custom Lists...]

Lotus compatibility

Microsoft Excel menu key: [/]
 Transition navigation keys

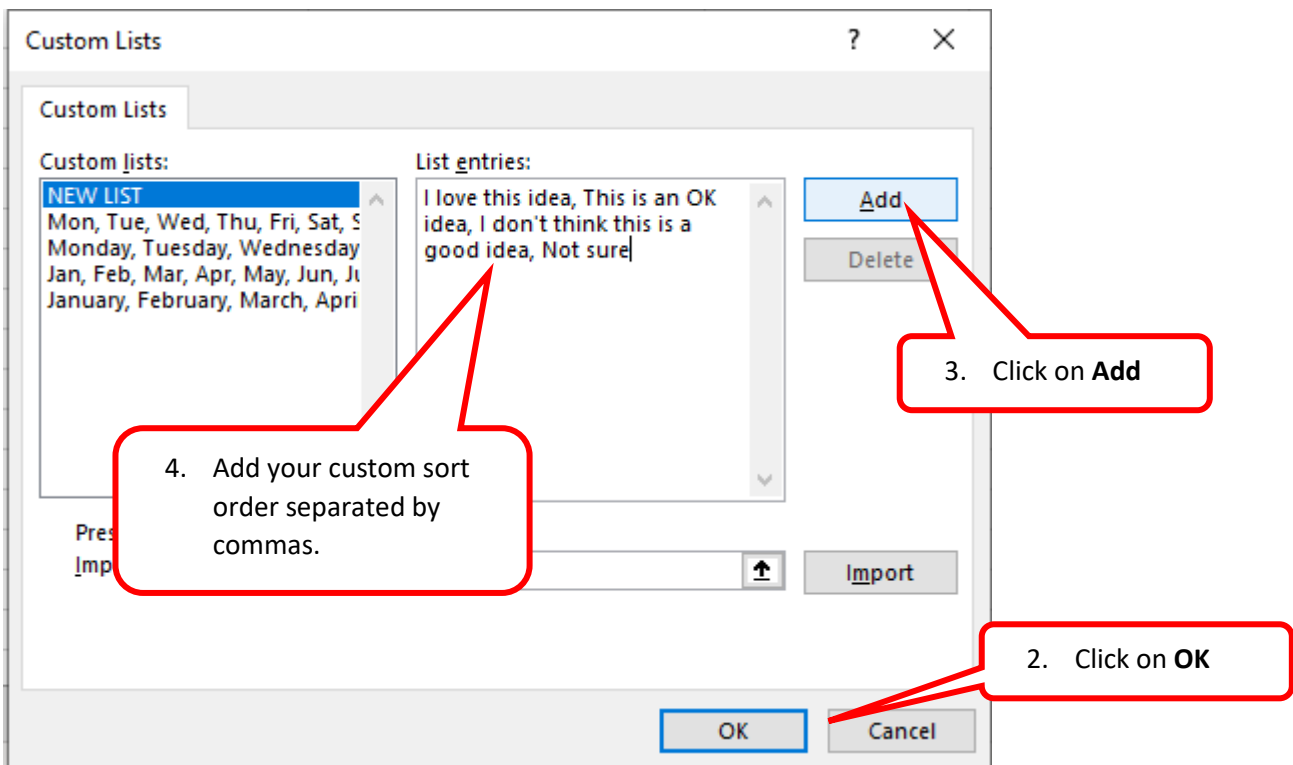
Lotus compatibility Settings for: [x] Sheet1 [v]

Transition formula evaluation
 Transition formula entry

OK Cancel

1. Select the option Edit Custom Lists

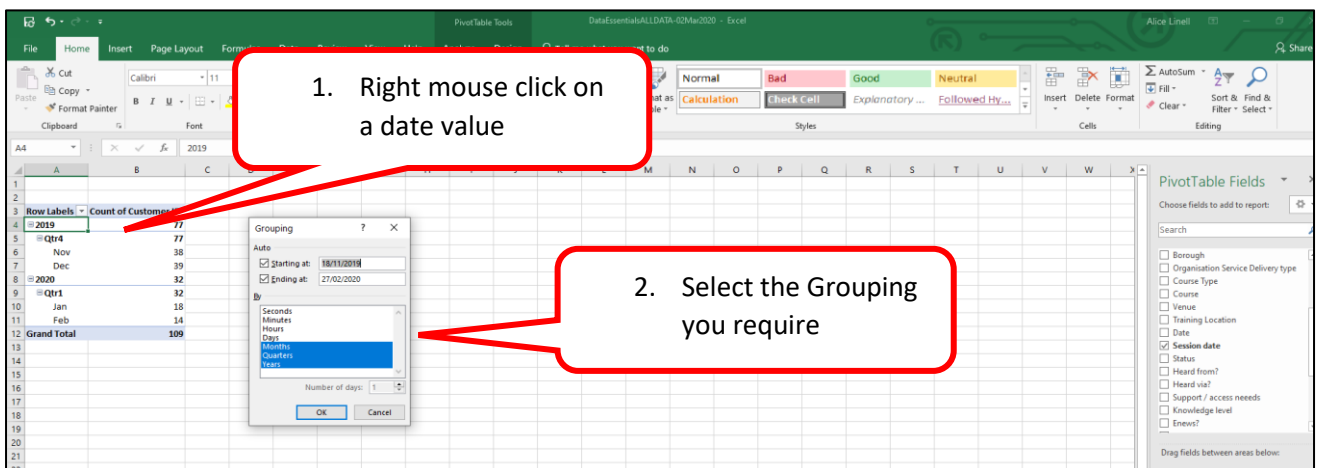




You can also choose to import the values from a range of cells.

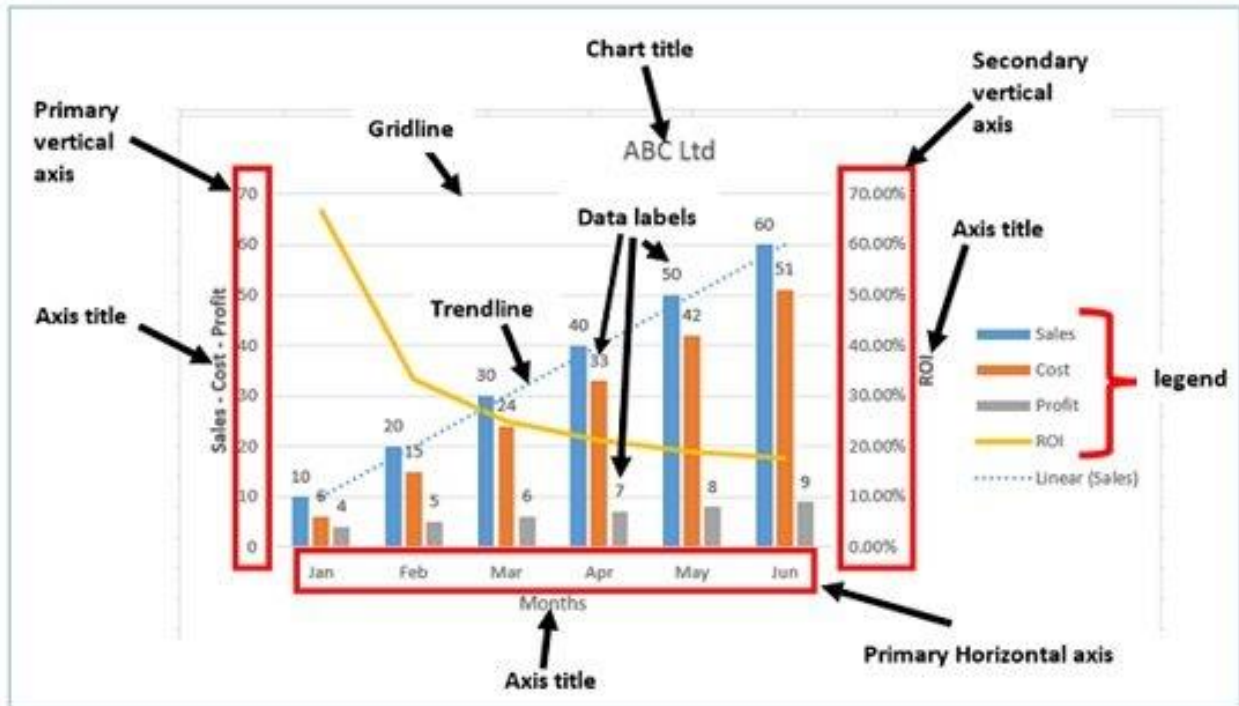
10. Grouping dates

In Excel 2016 forward Excel automatically groups dates by months & quarters. If you are working with an Excel version prior to that or you want to change the automatic grouping you can manually group dates.

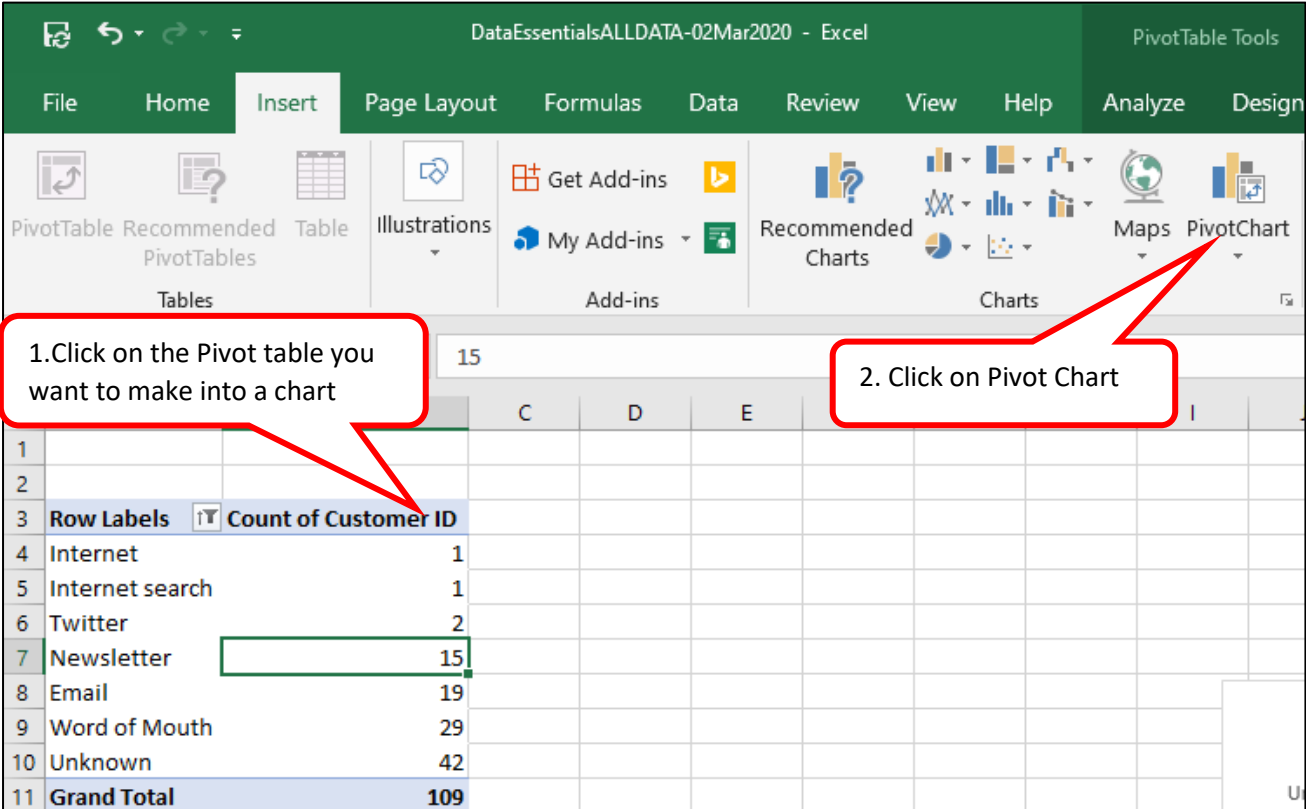


Working with Charts

11. Anatomy of a chart



12. Creating Pivot charts

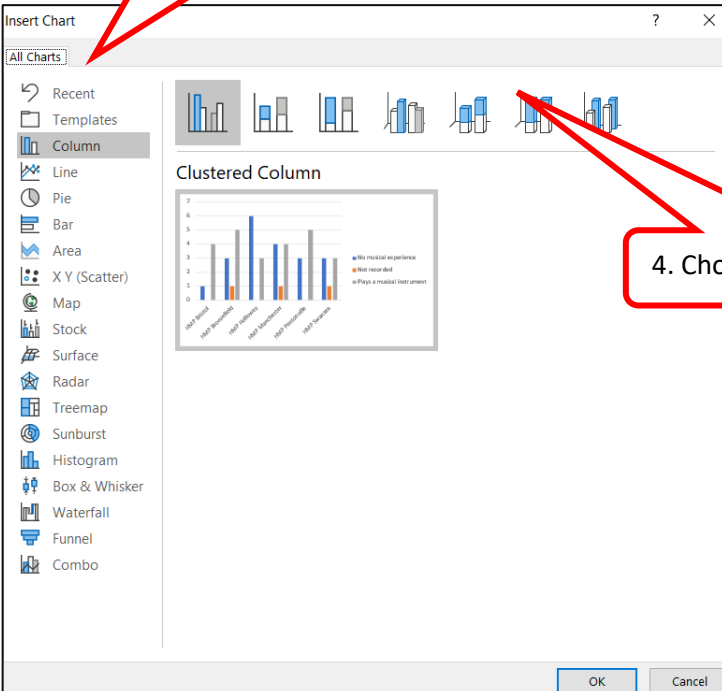


1. Click on the Pivot table you want to make into a chart

2. Click on Pivot Chart

Row Labels	Count of Customer ID
Internet	1
Internet search	1
Twitter	2
Newsletter	15
Email	19
Word of Mouth	29
Unknown	42
Grand Total	109

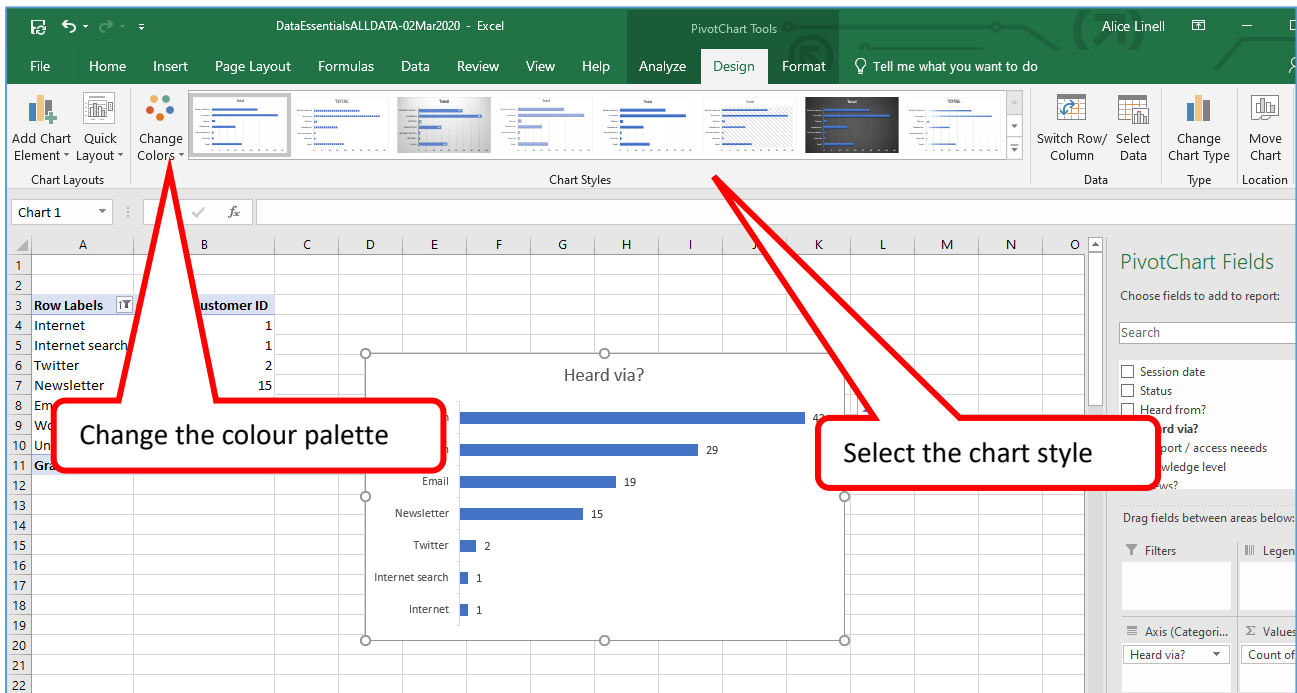
3. Choose the chart type



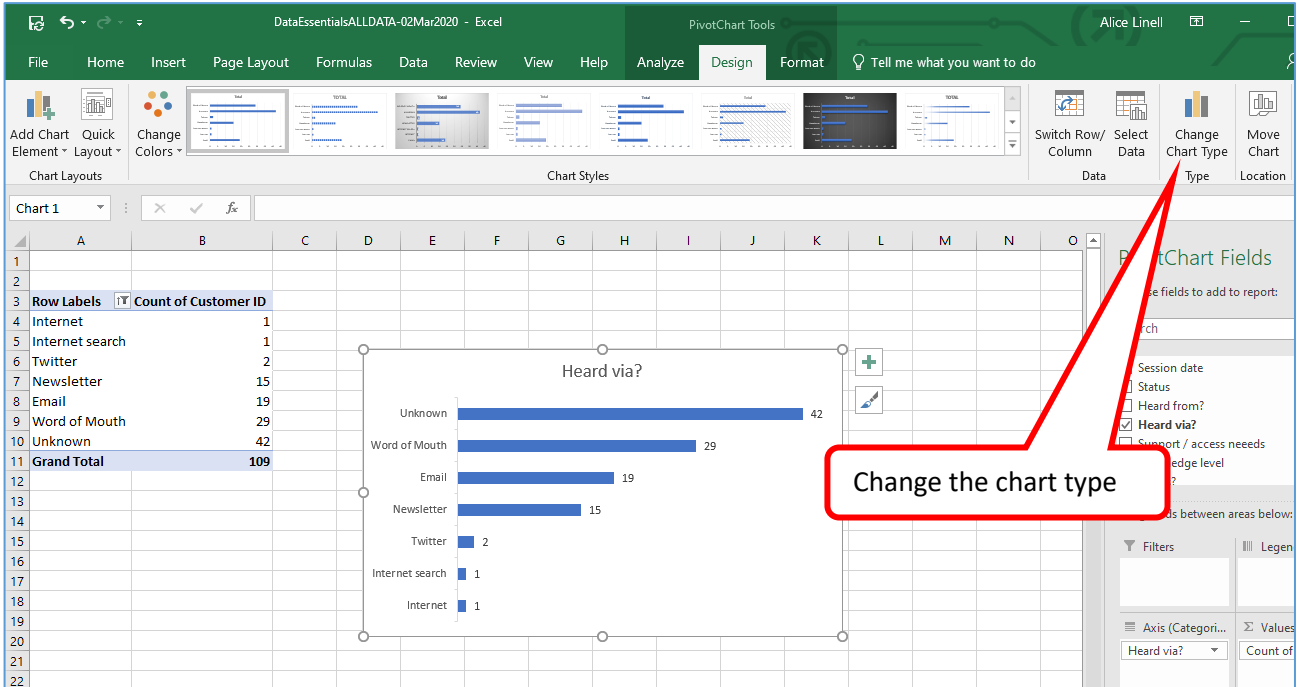
4. Choose the chart format



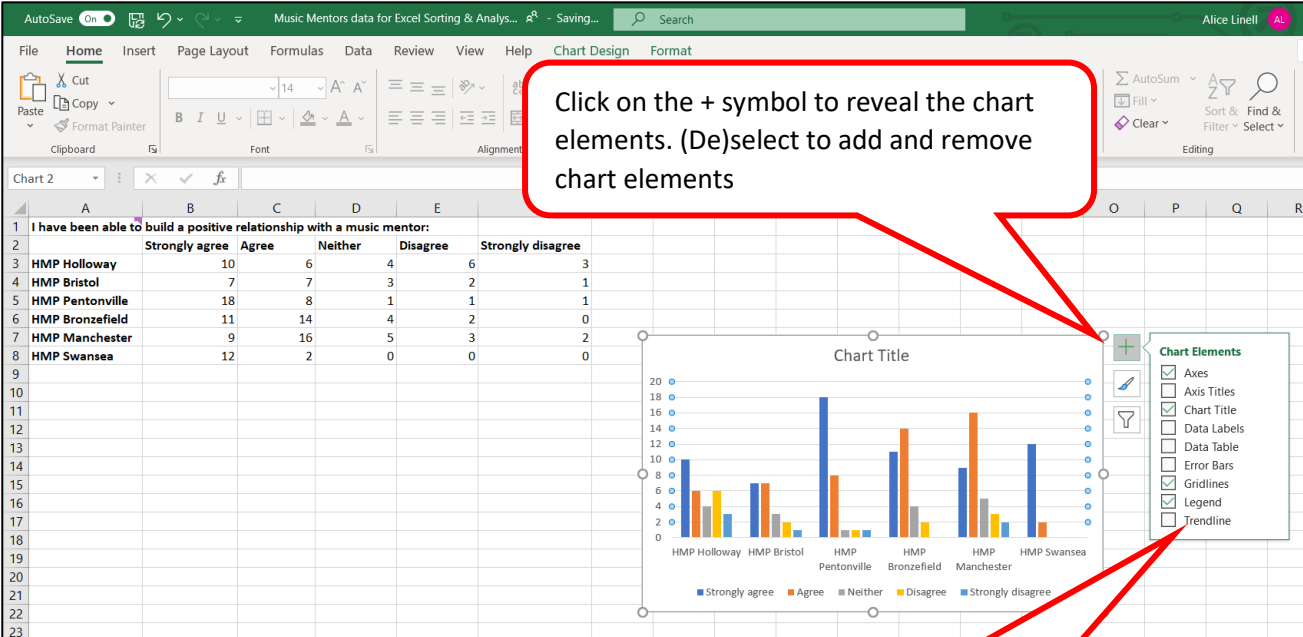
13. Chart design



14. Change chart type



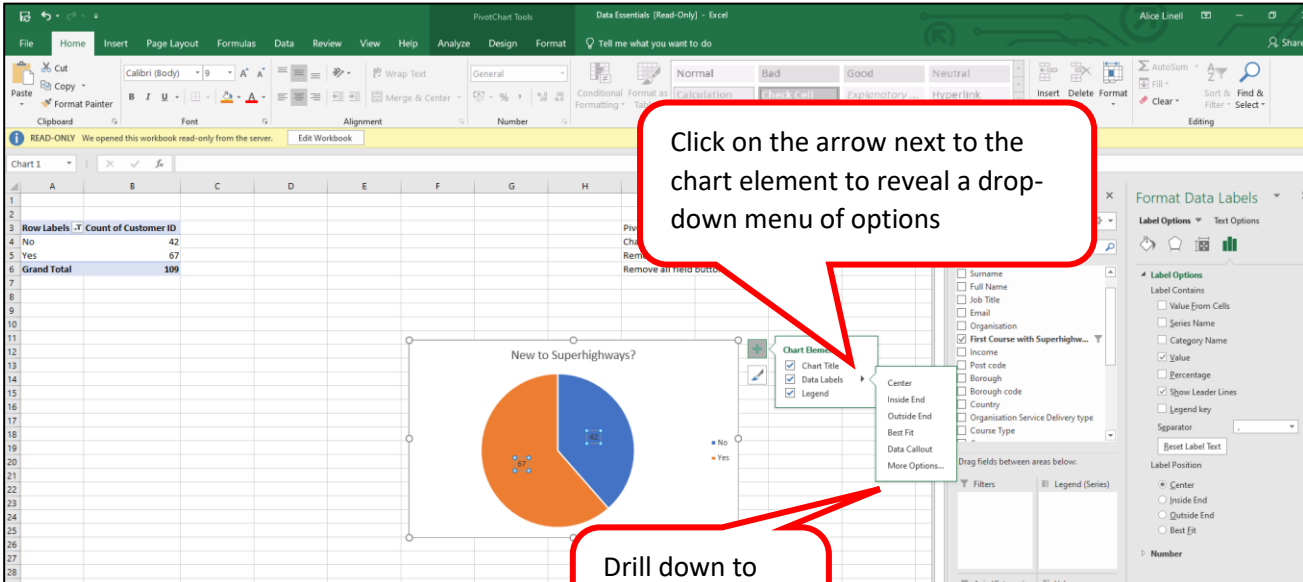
15. Chart elements



Click on the + symbol to reveal the chart elements. (De)select to add and remove chart elements

	Strongly agree	Agree	Neither	Disagree	Strongly disagree
HMP Holloway	10	6	4	6	3
HMP Bristol	7	7	3	2	1
HMP Pentonville	18	8	1	1	1
HMP Bronzefield	11	14	4	2	0
HMP Manchester	9	16	5	3	2
HMP Swansea	12	2	0	0	0

Different Chart Elements options will appear depending on the type of chart

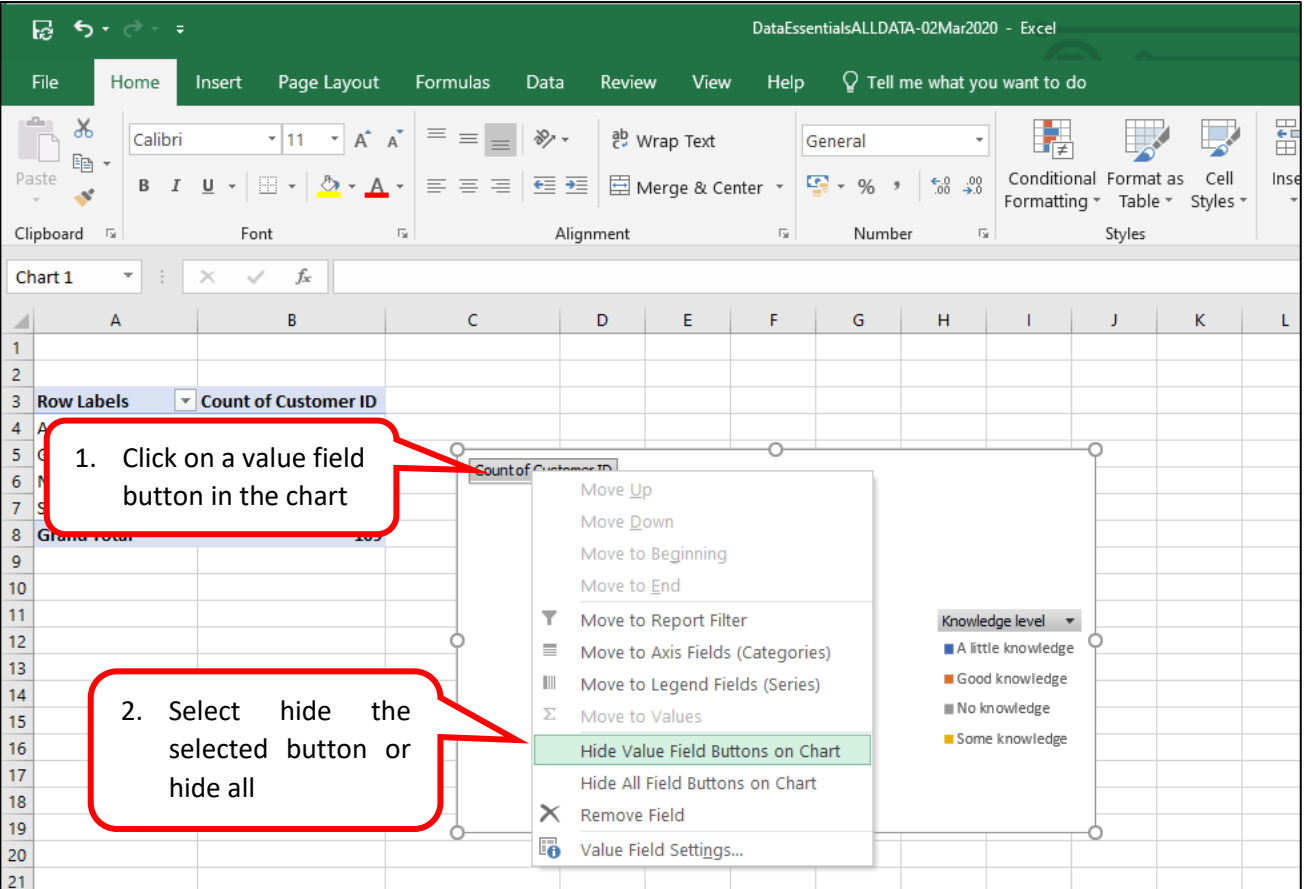


Click on the arrow next to the chart element to reveal a drop-down menu of options

Drill down to select more options



16. Hide Value field button settings



The screenshot shows the Excel interface with a PivotTable and a PivotChart. The PivotTable has 'Row Labels' and 'Count of Customer ID'. The PivotChart is a bar chart with a legend for 'Knowledge level' (A little knowledge, Good knowledge, No knowledge, Some knowledge). A context menu is open over the chart, and two red callout boxes provide instructions:

1. Click on a value field button in the chart
2. Select hide the selected button or hide all

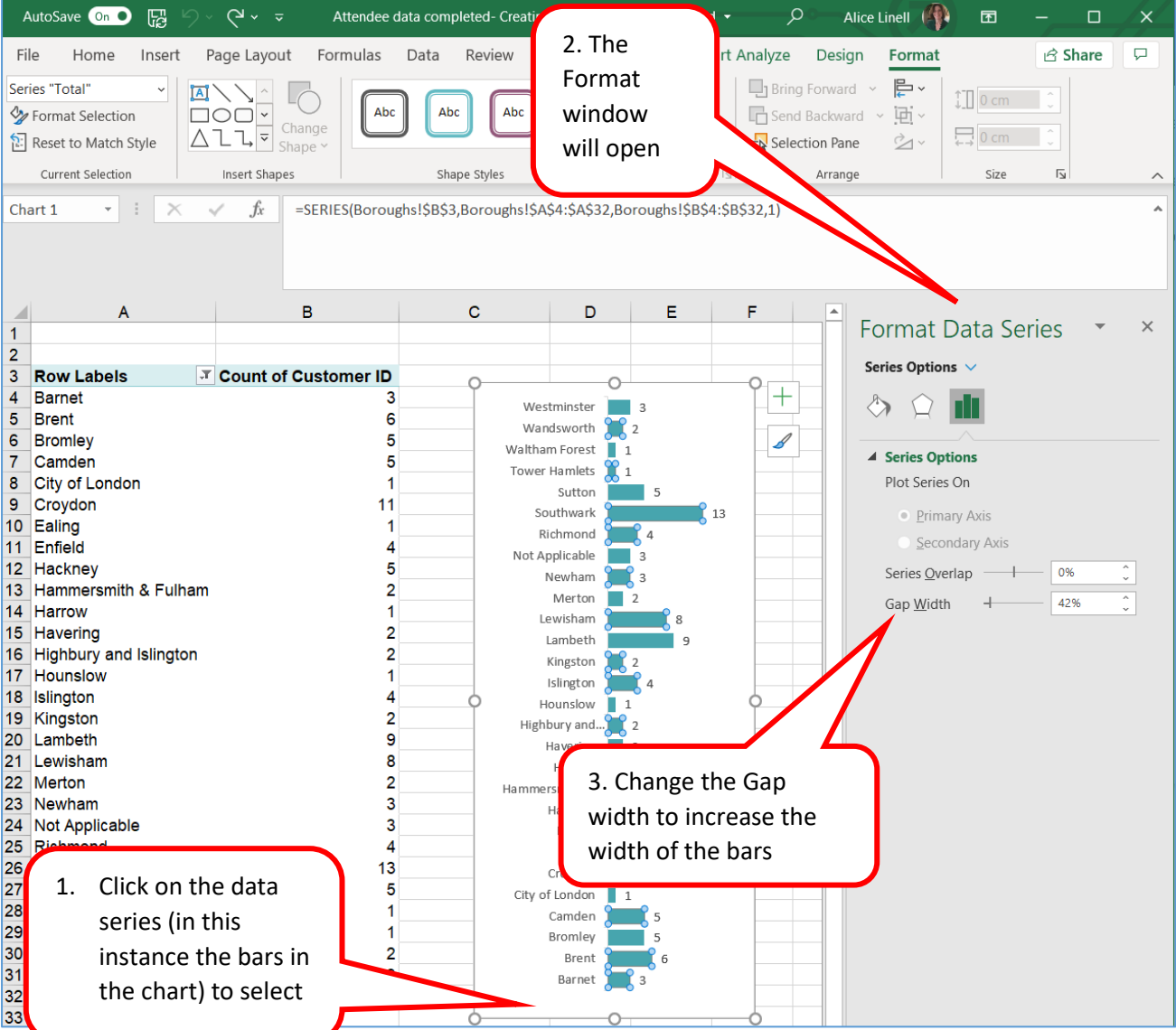
The context menu options are:

- Move Up
- Move Down
- Move to Beginning
- Move to End
- Move to Report Filter
- Move to Axis Fields (Categories)
- Move to Legend Fields (Series)
- Move to Values
- Hide Value Field Buttons on Chart
- Hide All Field Buttons on Chart
- Remove Field
- Value Field Settings...



17. Changing the data series

Making Rows/columns broader



2. The Format window will open

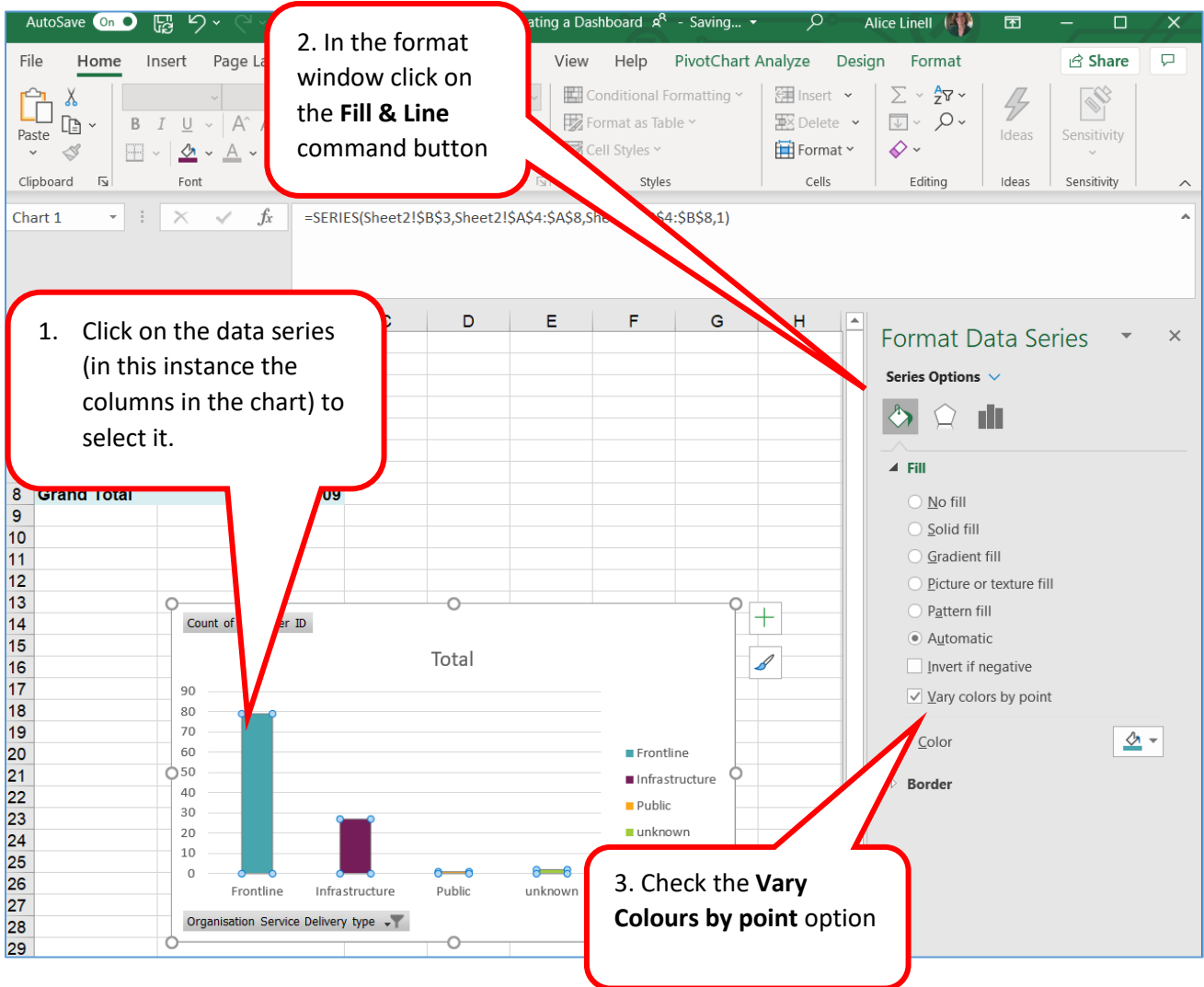
1. Click on the data series (in this instance the bars in the chart) to select

3. Change the Gap width to increase the width of the bars

Borough	Count of Customer ID
Barnet	3
Brent	6
Bromley	5
Camden	5
City of London	1
Croydon	11
Ealing	11
Enfield	4
Hackney	5
Hammersmith & Fulham	2
Harrow	1
Havering	2
Highbury and Islington	2
Hounslow	1
Islington	4
Kingston	2
Lambeth	9
Lewisham	8
Merton	2
Newham	3
Not Applicable	3
Richmond	4
City of London	1
Camden	5
Bromley	5
Brent	6
Barnet	3



Make each data point a different colour



The screenshot shows an Excel PivotChart with four data series: Frontline (teal), Infrastructure (purple), Public (yellow), and unknown (green). The 'Format Data Series' task pane is open, showing the 'Fill' section with the 'Vary colors by point' checkbox checked. The chart's data source is '=SERIES(Sheet2!\$B\$3,Sheet2!\$A\$4:\$A\$8,Sheet2!\$B\$8,1)'. The chart is titled 'Total' and has a legend on the right.

1. Click on the data series (in this instance the columns in the chart) to select it.

2. In the format window click on the **Fill & Line** command button

3. Check the **Vary Colours by point** option



Creating an Excel Dashboard

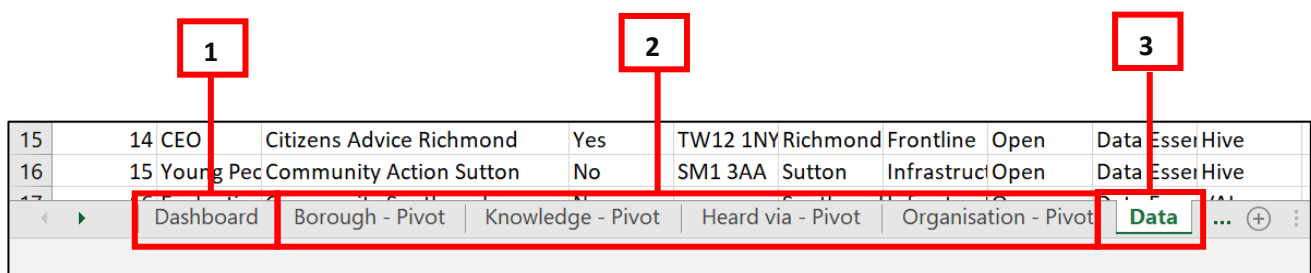
18. Preparing your Workbook

Create worksheets in your workbook as follows:

1. **Data**
2. **Analysis**

You can create these as you begin to work on the data. Ideally create one worksheet for each pivot table.

3. **Dashboard**



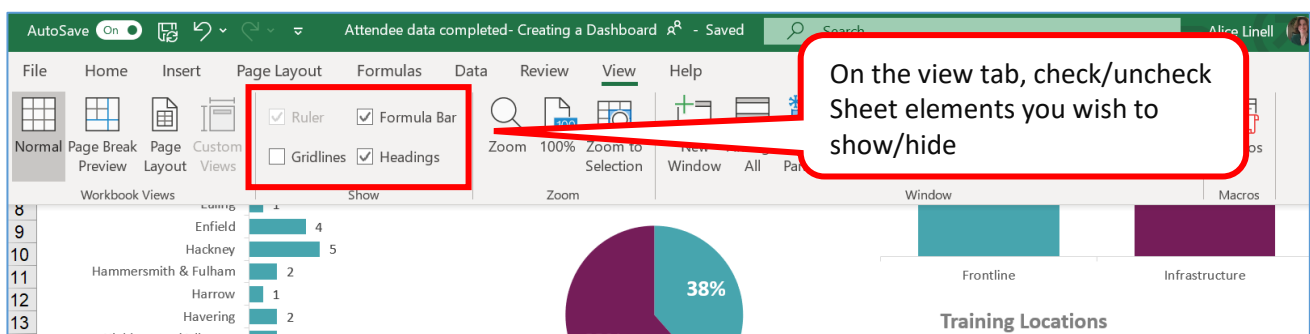
19. Formatting your Dashboard

Add Title

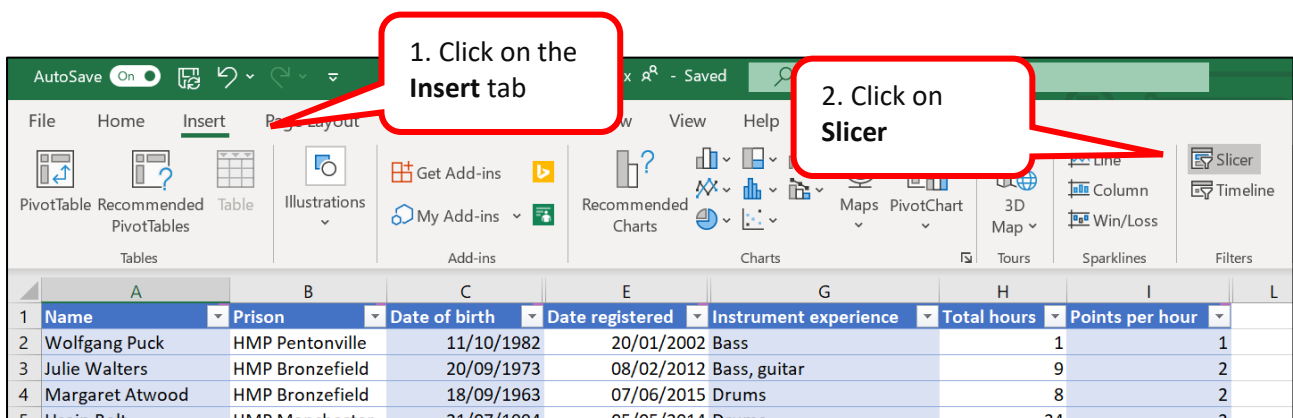
Add a text box to add a title to your chart

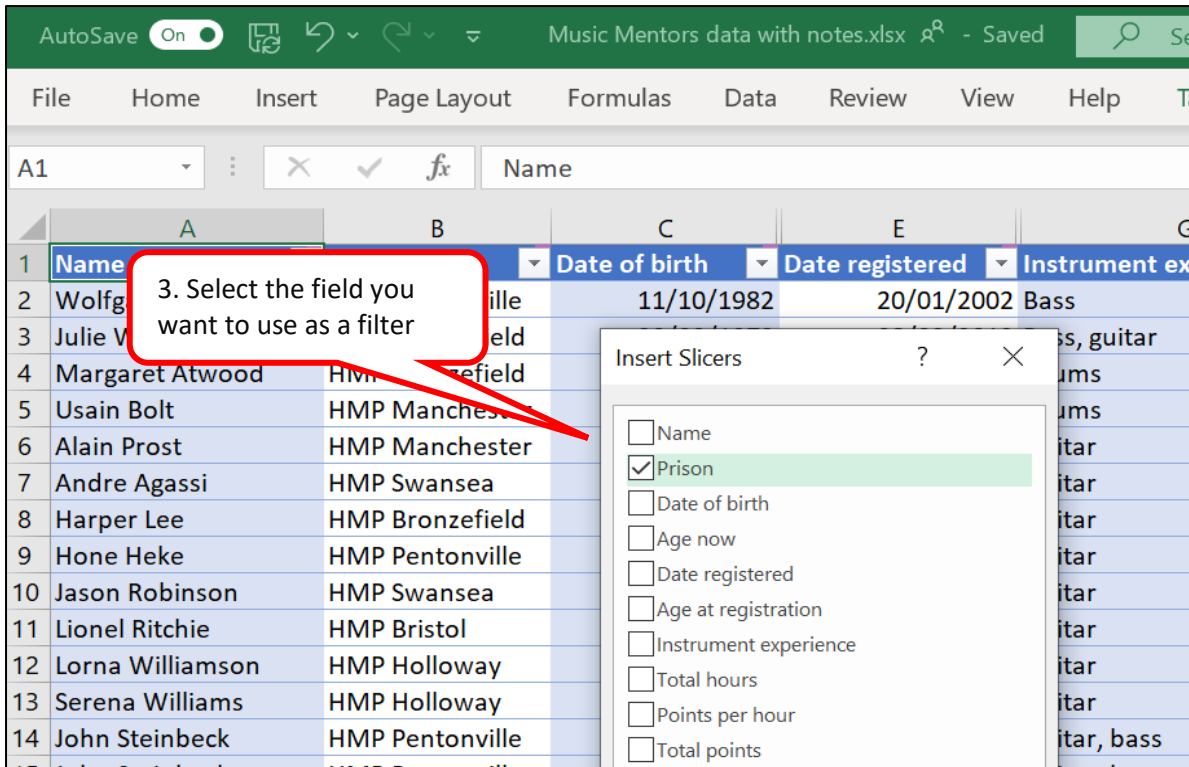
Copy and paste charts in from other sheets, hold Alt key down when moving to snap charts to the gridlines

Hide Gridlines, Headers & the formula bar



20. Slicers





AutoSave On Music Mentors data with notes.xlsx - Saved

File Home Insert Page Layout Formulas Data Review View Help

A1 Name

	A	B	C	E	G
1	Name		Date of birth	Date registered	Instrument ex
2	Wolfg	ille	11/10/1982	20/01/2002	Bass
3	Julie V	held			ss, guitar
4	Margaret Atwood	Hmv	ronze	field	ums
5	Usain Bolt	HMP Manches			ums
6	Alain Prost	HMP Manchester			itar
7	Andre Agassi	HMP Swansea			itar
8	Harper Lee	HMP Bronzefield			itar
9	Hone Heke	HMP Pentonville			itar
10	Jason Robinson	HMP Swansea			itar
11	Lionel Ritchie	HMP Bristol			itar
12	Lorna Williamson	HMP Holloway			itar
13	Serena Williams	HMP Holloway			itar
14	John Steinbeck	HMP Pentonville			itar, bass

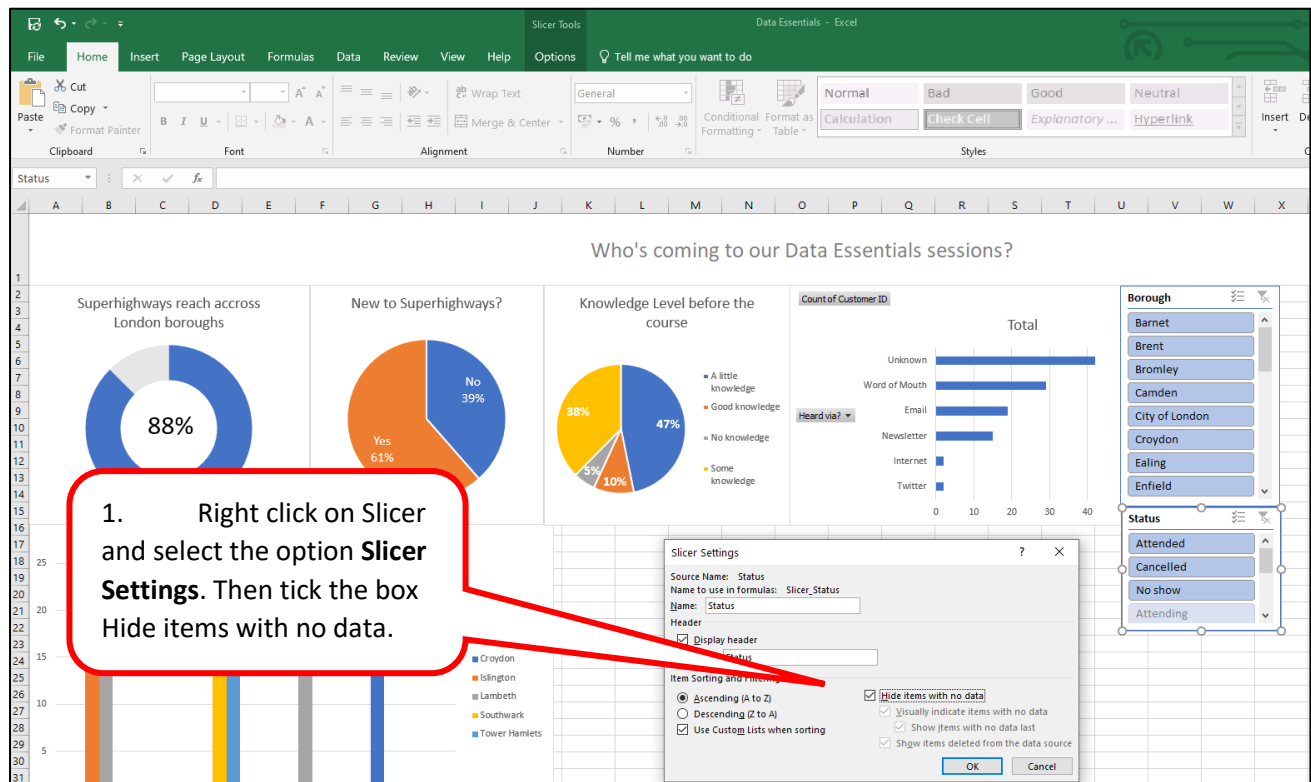
3. Select the field you want to use as a filter

Insert Slicers

- Name
- Prison
- Date of birth
- Age now
- Date registered
- Age at registration
- Instrument experience
- Total hours
- Points per hour
- Total points

Formatting a Slicer

When using a slicer it is a good idea to only include only filters for where data exists otherwise the filter will return no results.



Slicer Tools Data Essentials - Excel

File Home Insert Page Layout Formulas Data Review View Help Options Tell me what you want to do

Who's coming to our Data Essentials sessions?

Superhighways reach across London boroughs: 88%

New to Superhighways? Yes 61%, No 39%

Knowledge Level before the course: 47% A little knowledge, 38% Good knowledge, 5% No knowledge, 10% Some knowledge

Count of Customer ID: Total

Borough: Barnet, Brent, Bromley, Camden, City of London, Croydon, Ealing, Enfield

Status: Attended, Cancelled, No show, Attending

1. Right click on Slicer and select the option **Slicer Settings**. Then tick the box **Hide items with no data**.

Slicer Settings

Source Name: Status
Name to use in formulas: Slicer_Status
Name: Status

Header

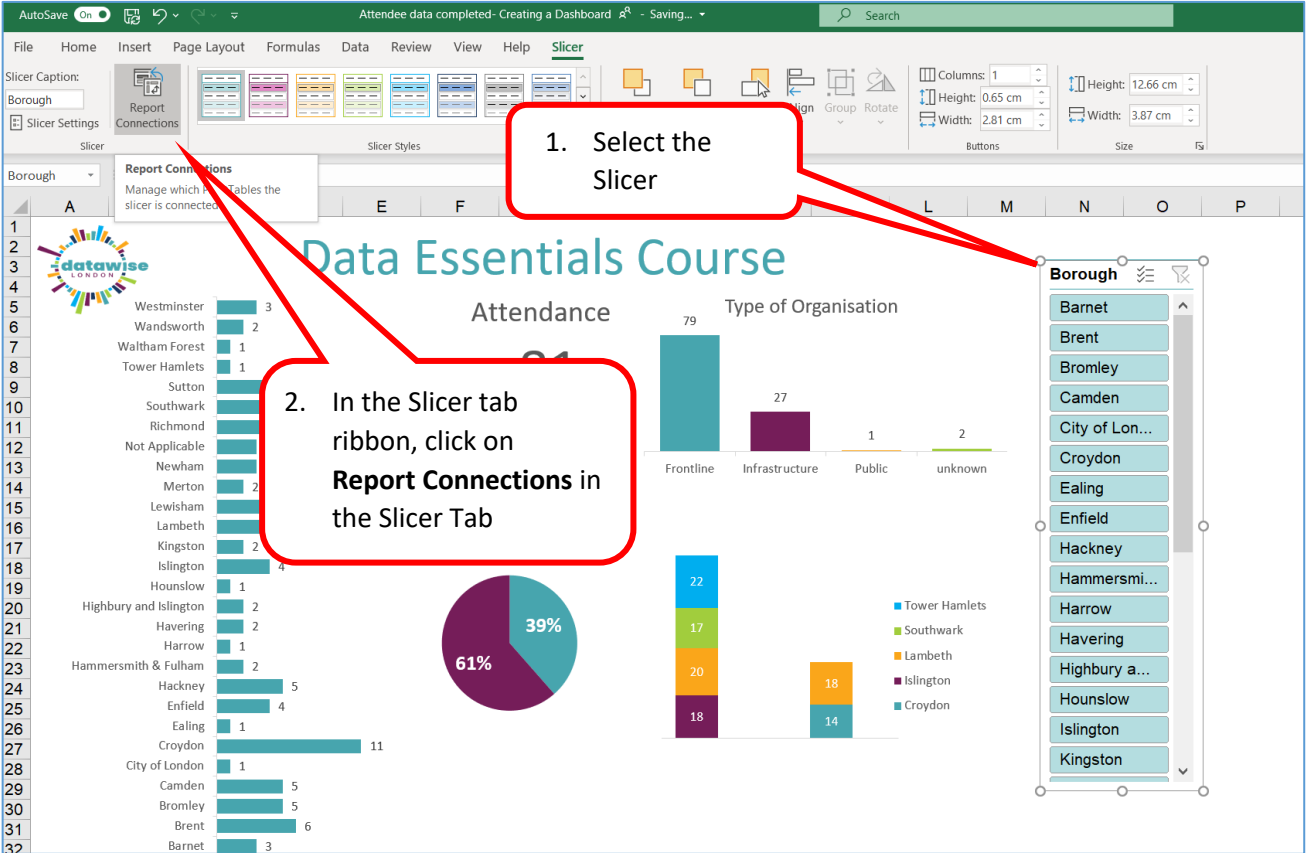
- Display header
- Hide items with no data

Item Sorting and Filtering

- Ascending (A to Z)
- Descending (Z to A)
- Use Custom Lists when sorting
- Hide items with no data
- Visually indicate items with no data
- Show items with no data last
- Show items deleted from the data source



Linking the slicer to your charts



1. Select the Slicer

2. In the Slicer tab ribbon, click on **Report Connections** in the Slicer Tab

Data Essentials Course Attendance

Bar Chart: Attendance by Borough

Borough	Attendance
Westminster	3
Wandsworth	2
Waltham Forest	1
Tower Hamlets	1
Sutton	1
Southwark	1
Richmond	1
Not Applicable	1
Newham	1
Merton	2
Lewisham	1
Lambeth	1
Kingston	2
Islington	4
Hounslow	1
Highbury and Islington	2
Havering	2
Harrow	1
Hammersmith & Fulham	2
Hackney	5
Enfield	4
Ealing	1
Croydon	11
City of London	1
Camden	5
Bromley	5
Brent	6
Barnet	3

Stacked Bar Chart: Type of Organisation

Organisation Type	Count
Frontline	79
Infrastructure	27
Public	1
unknown	2

Pie Chart: Attendance by Borough

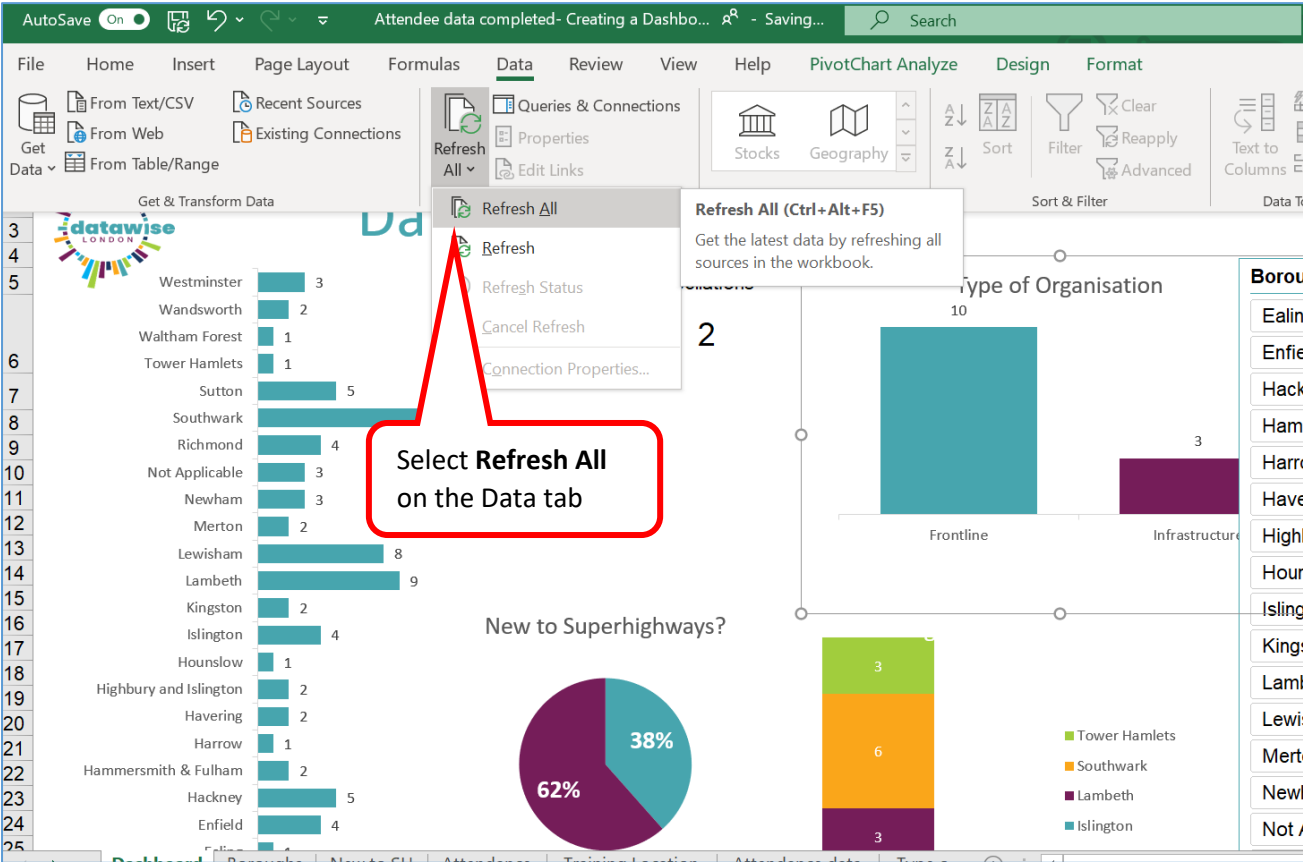
Borough	Attendance	Percentage
Islington	4	61%
Croydon	11	39%

Slicer: Borough

- Barnet
- Brent
- Bromley
- Camden
- City of Lon...
- Croydon
- Ealing
- Enfield
- Hackney
- Hammersmi...
- Harrow
- Havering
- Highbury a...
- Hounslow
- Islington
- Kingston



Refreshing the Dashboard



The screenshot shows the Microsoft Excel interface with the Data tab selected. The 'Refresh All' dropdown menu is open, showing options: Refresh All, Refresh, Refresh Status, Cancel Refresh, and Connection Properties... A red callout box points to the 'Refresh All' option with the text: **Select Refresh All on the Data tab**. A tooltip for 'Refresh All (Ctrl+Alt+F5)' is also visible, stating: 'Get the latest data by refreshing all sources in the workbook.'

The dashboard contains several charts:

- Bar Chart (Left):** Shows counts for various London boroughs.

Borough	Count
Westminster	3
Wandsworth	2
Waltham Forest	1
Tower Hamlets	1
Sutton	5
Southwark	9
Richmond	4
Not Applicable	3
Newham	3
Merton	2
Lewisham	8
Lambeth	9
Kingston	2
Islington	4
Hounslow	1
Highbury and Islington	2
Haring	2
Harrow	1
Hammersmith & Fulham	2
Hackney	5
Enfield	4
- Pie Chart (Center):** Titled 'New to Superhighways?'. It shows 62% in purple and 38% in teal.
- Bar Chart (Right):** Titled 'Type of Organisation'. It shows counts for Frontline (10) and Infrastructure (3).
- Stacked Bar Chart (Bottom Right):** Shows counts for Tower Hamlets (3), Southwark (6), and Lambeth (3).

