Charity Digital Academy

Excel advanced – tips and tricks

Delivered by

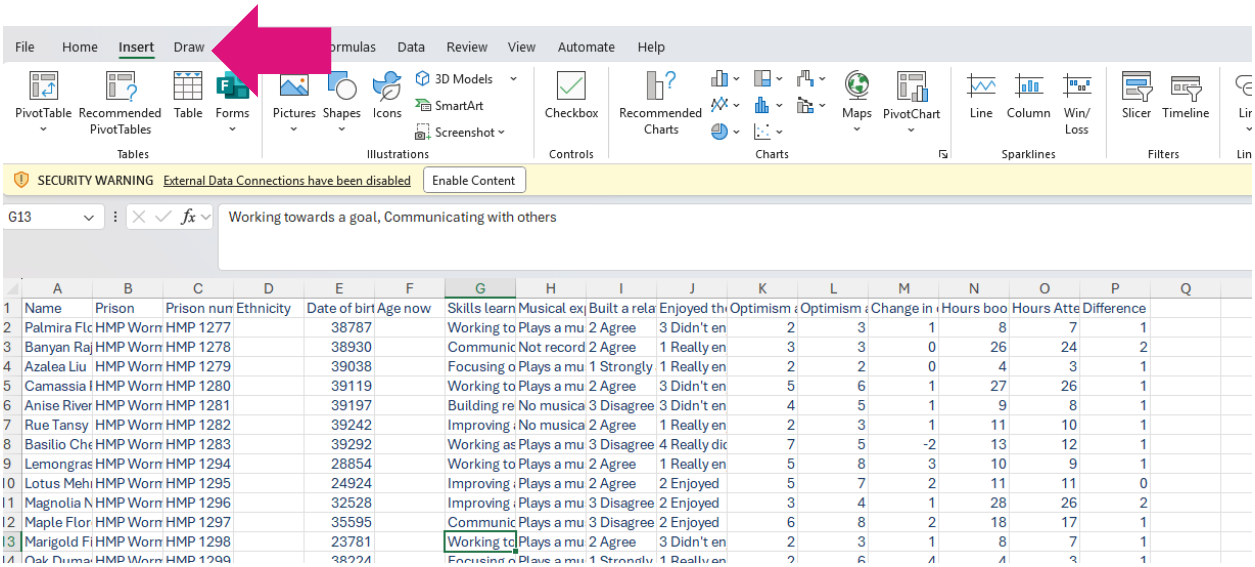
Contents

Exercise 1 – Managing data with tables (1) 2
Creating tables 2
Data validation 3
Data validation - type 3
Data validation - List 5
Conditional formatting 7
Adding totals 9
Exercise 2: Pivot Tables & Charts 9
Exercise 3: Bringing data from one sheet to another 11
Using Xlookup 11
Using Countif 12
Exercise 4 – Bringing data together with Power Query 12
Creating queries 12
Appending queries 13
Adding source data and refreshing queries 16

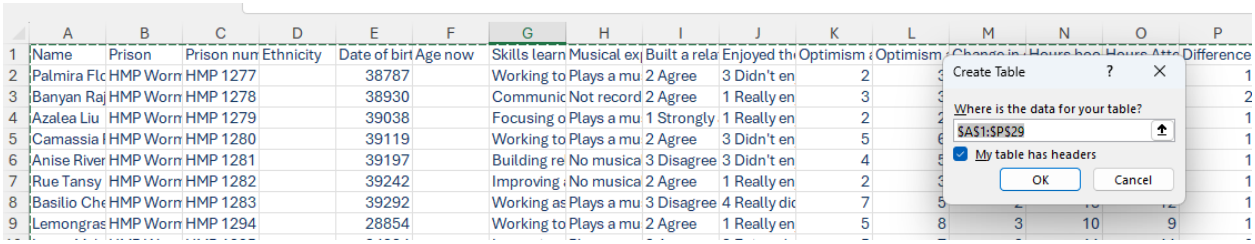
Exercise 1 – Managing data with tables (1)

Creating tables

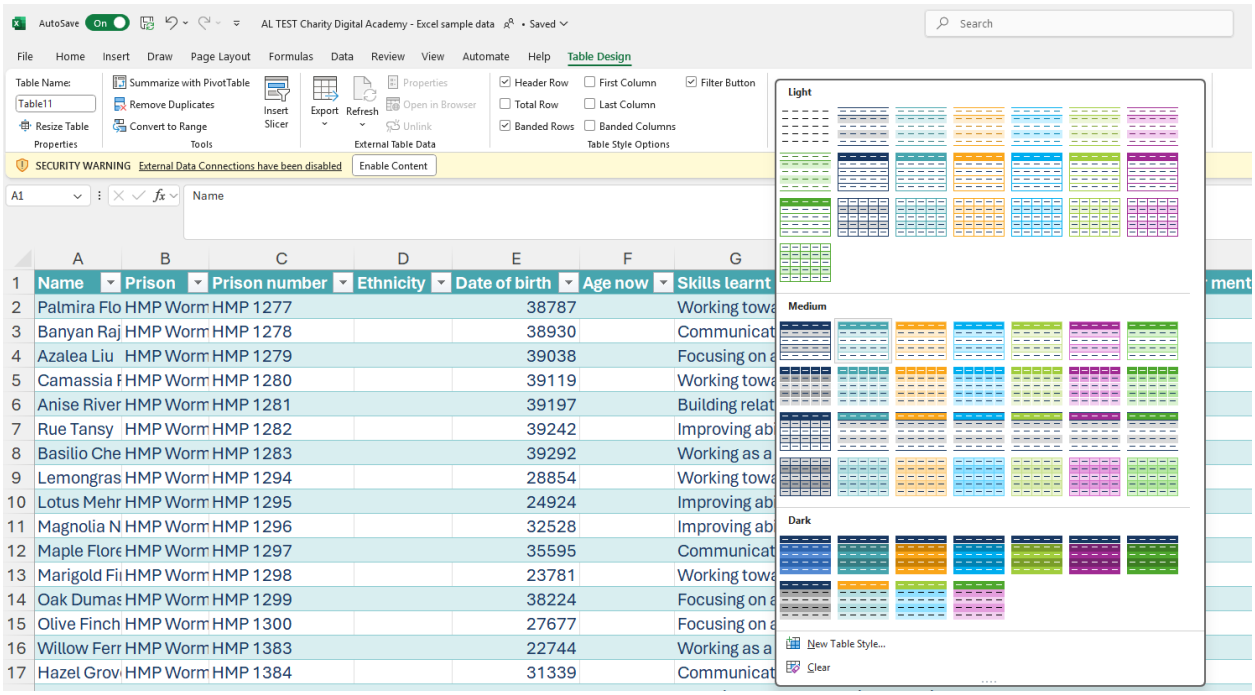
1. Click anywhere on the data in a sheet
2. On the **Insert** menu, click on **Table**



3. Make sure the whole table is selected by checking the cell range and option **My data has headers** is ticked.



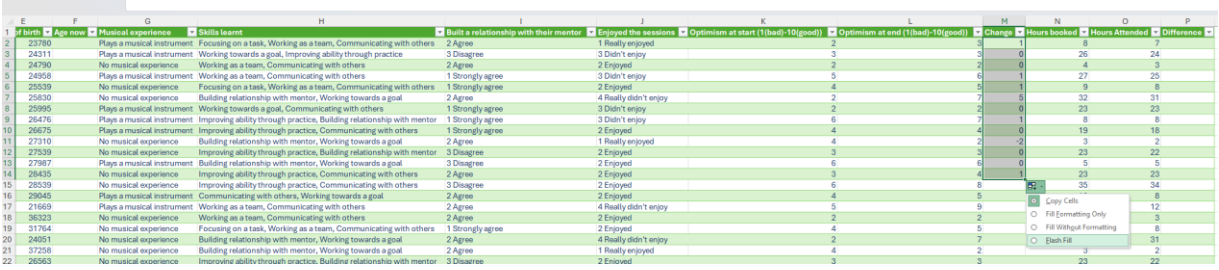
4. From the **Table Design** tab, select the **Table style** you want to change the look & feel



The colours options come from your theme, if you want to change the colours you will need to go to Page Layout tab, select the theme you want and amend the colours on it.

Adding formulas with Flash Fill

1. Add a formula in the first cell of the column where you want the formula. Flash fill should add the formula to the whole column. If it doesn't, drag the formula down a few cells and then right- mouse click and select Flash fill to have the formula populate all the way down

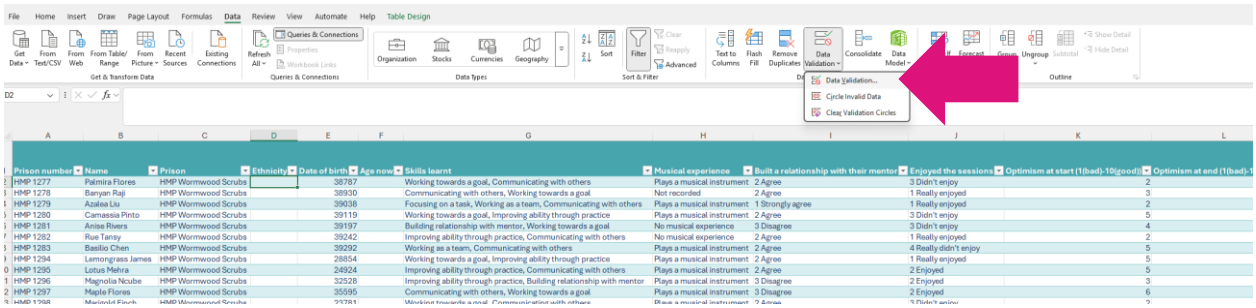


Data validation

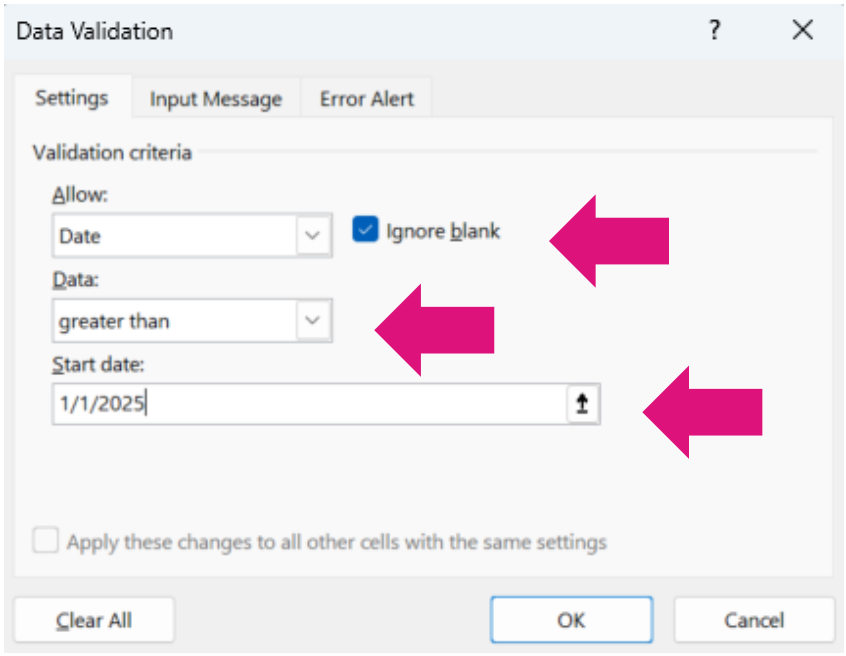
Data validation in Excel is a feature that lets you control what kind of data can be entered into a cell or range of cells.

Data validation - type

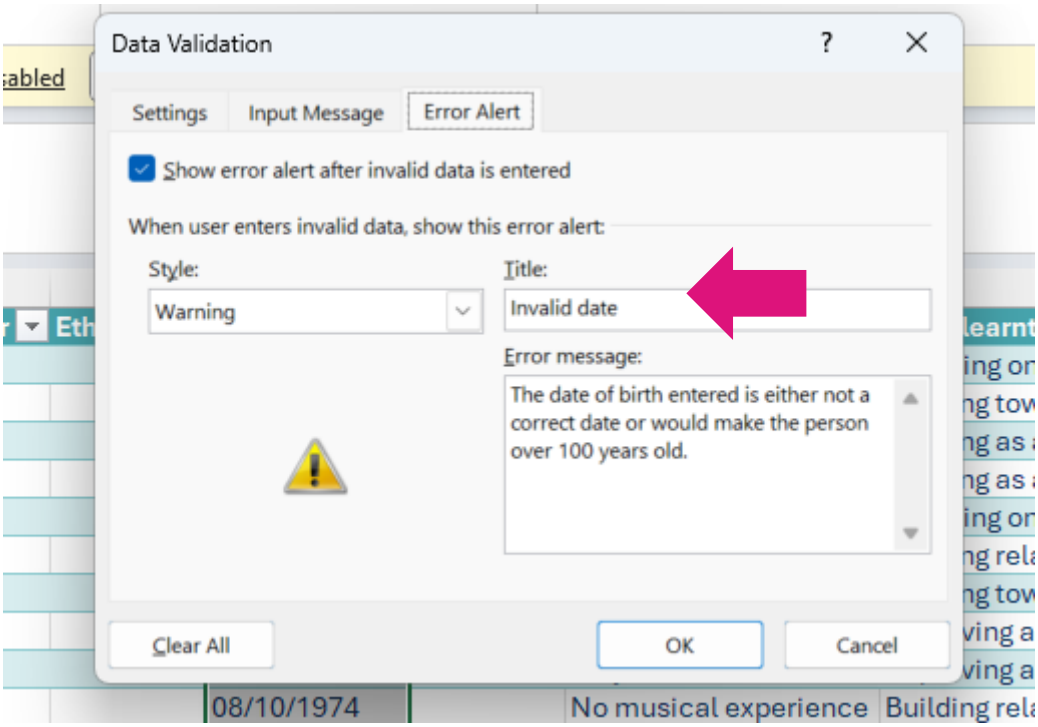
1. Click into the first cell of the column where you want to apply data validation



2. In the **Allow** field select **Date**, in the **Data** field select **greater than** in the Start date put in the earliest possible date e.g. 1/1/2025 as anything earlier would mean someone over 100 being in the prison.

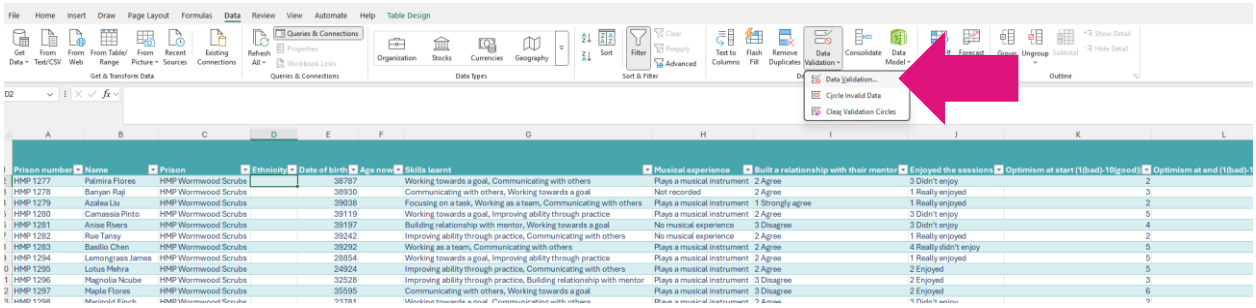


3. Add an alert to warn them what data is required. This will not stop data entry but just warn when it is entered incorrectly. Change the style to warning, put in a title and give an error message to help users understand what the correct data should be.

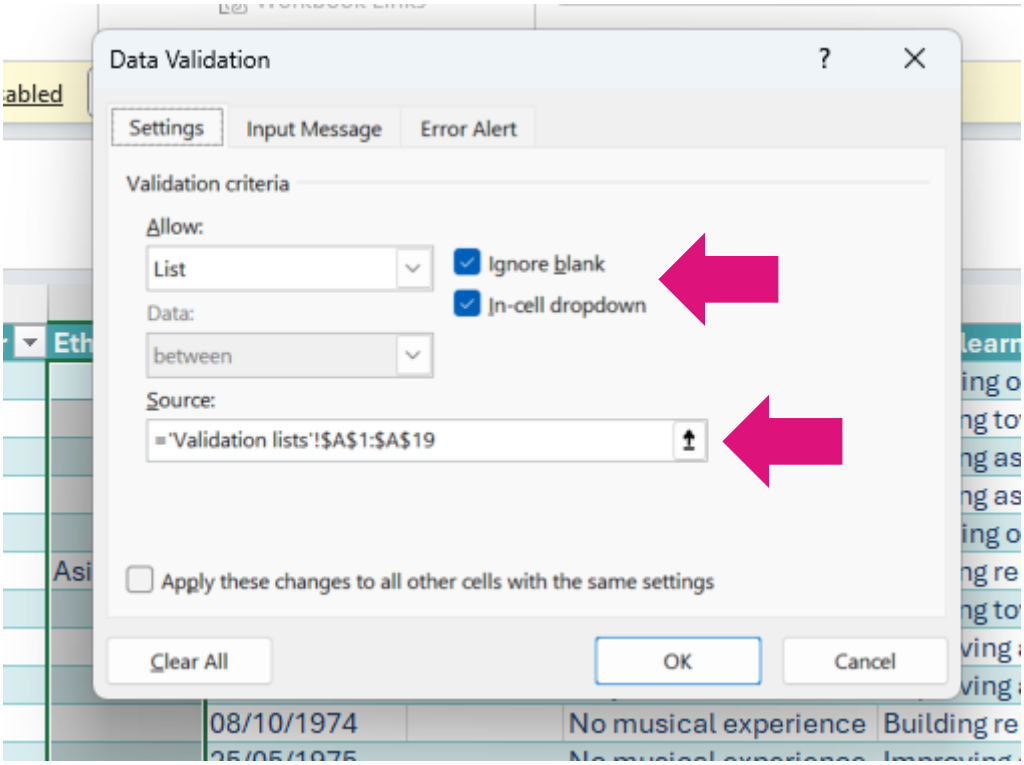


Data validation - List

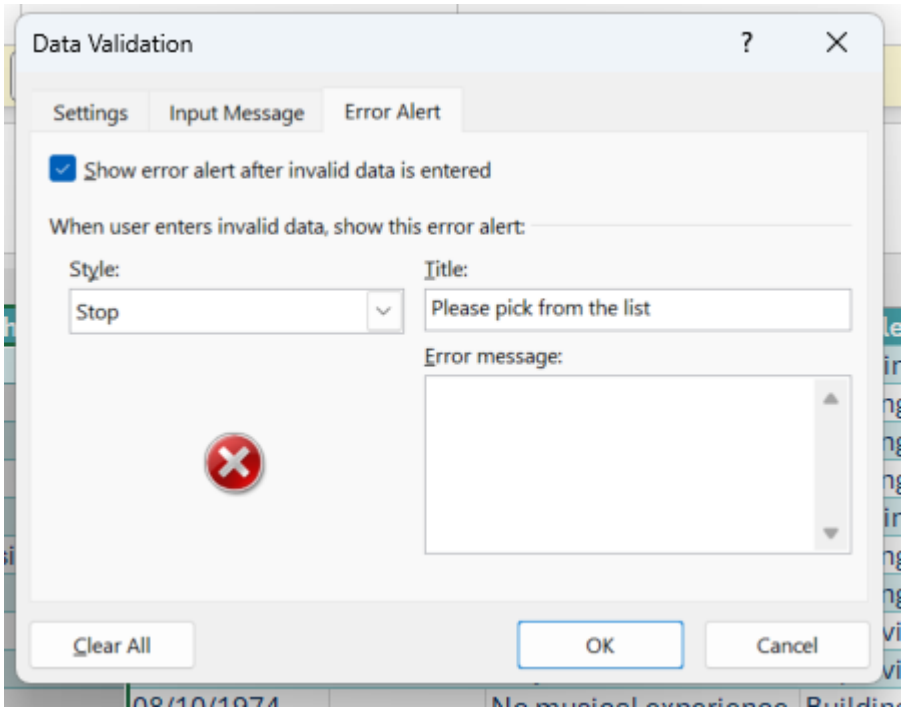
1. Click into the first cell of the column where you want to apply data validation



2. In the **Allow** field select **List**. Click in to the **Source** field and then go to the **Validation lists** sheet, highlight the ethnicity list and click on enter on your keyboard. The worksheet and cell range will then appear in the Source field.



3. Add an **Error Alert** to stop people entering anything which is not on the validation list. In the **Style** field, select **Stop** and then in the **Title** explain why they cannot enter data.

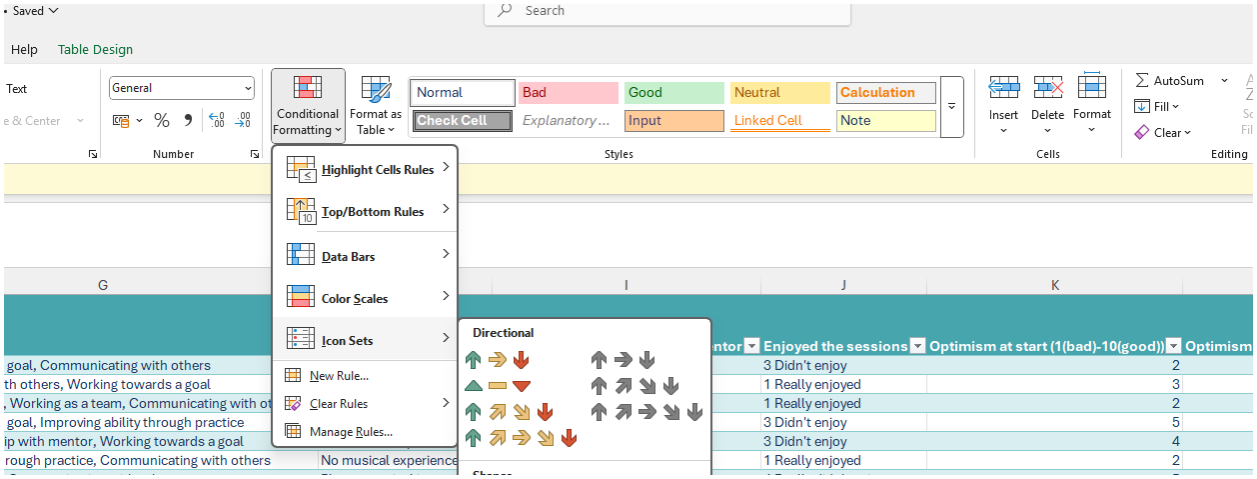


Conditional formatting

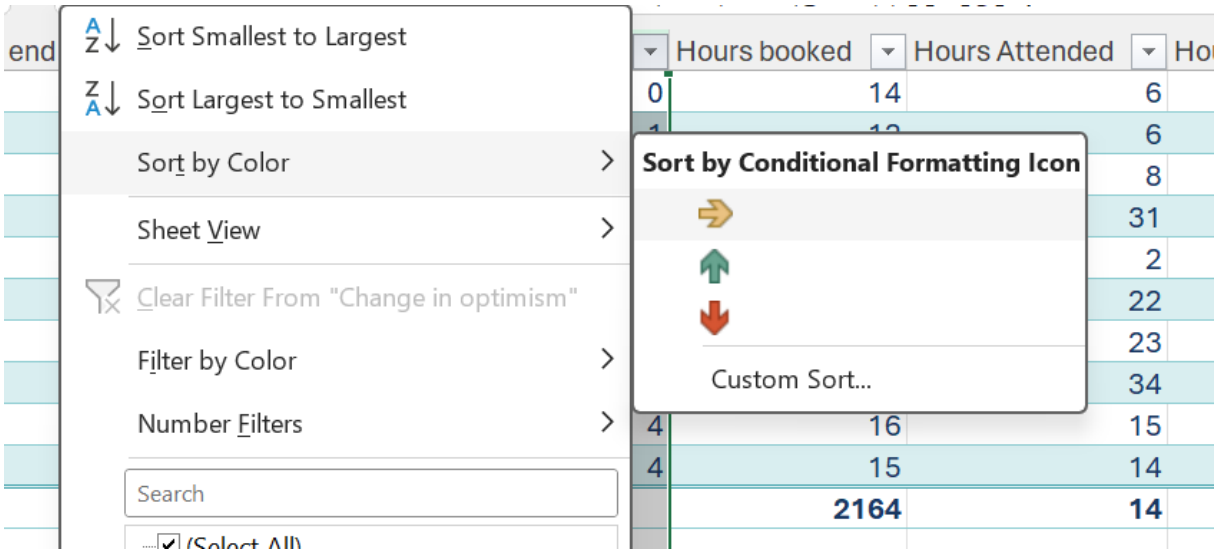
Conditional formatting in Excel lets you automatically change how cells look—like colors, icons, or data bars—based on their values, so patterns and important info stand out instantly.

Conditional formatting – Directional

1. Select the **Change in Optimism** column but clicking in the column header
2. On the Home tab, click on the Conditional formatting button and then Icon sets to pick a directional arrow.

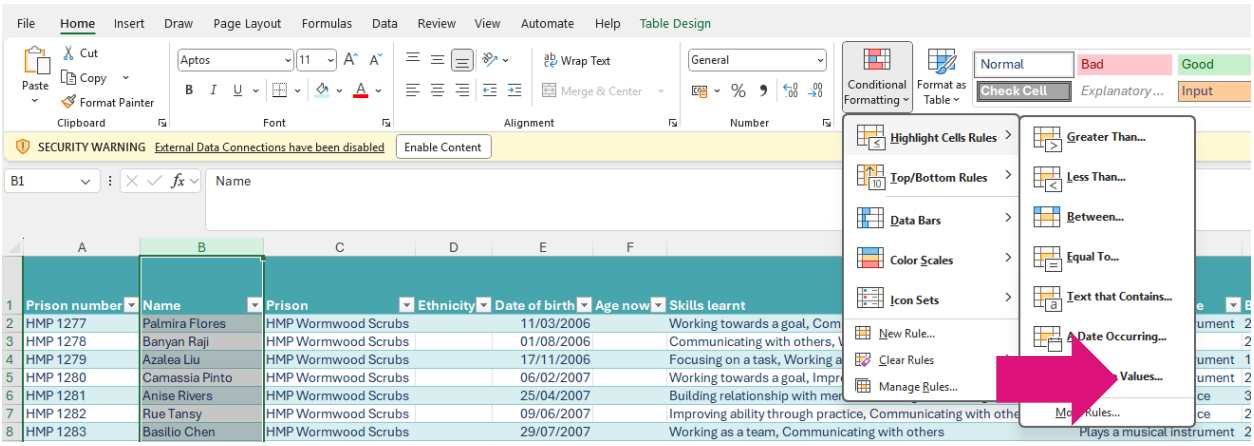


Tip: You can use Icons to sort and filter your table.



Conditional formatting – Duplicates

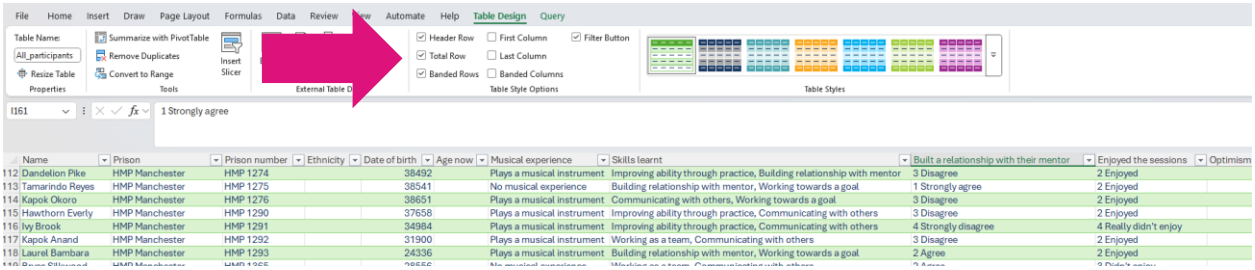
1. Select the **Name** column but clicking in the column header
2. On the Home tab, click on the Conditional formatting button, Select **Highlight Cells Rules** and then **Duplicate values**


File Home Insert Draw Page Layout Formulas Data Review View Automate Help Table Design
Paste Cut Copy Format Painter
Clipboard
Aptos 11
Font
Wrap Text Merge & Center
Alignment
General
Number
Conditional Formatting
Format as Table
Normal Bad Good
Check Cell Explanatory... Input
SECURITY WARNING External Data Connections have been disabled Enable Content
B1 Name
Highlight Cells Rules
Top/Bottom Rules
Data Bars
Color Scales
Icon Sets
New Rule...
Clear Rules
Manage Rules...
Greater Than...
Less Than...
Between...
Equal To...
Text that Contains...
A Date Occurring...
Values...
Rules...
Prison number Name Prison Ethnicity Date of birth Age now Skills learnt
HMP 1277 Palmira Flores HMP Wormwood Scrubs 11/03/2006 Working towards a goal, Com
HMP 1278 Banyan Raji HMP Wormwood Scrubs 01/08/2006 Communicating with others,
HMP 1279 Azalea Liu HMP Wormwood Scrubs 17/11/2006 Focusing on a task, Working a
HMP 1280 Camassia Pinto HMP Wormwood Scrubs 06/02/2007 Working towards a goal, Impr
HMP 1281 Anise Rivers HMP Wormwood Scrubs 25/04/2007 Building relationship with mer
HMP 1282 Rue Tansy HMP Wormwood Scrubs 09/06/2007 Improving ability through practice, Communicating with othe
HMP 1283 Basilio Chen HMP Wormwood Scrubs 29/07/2007 Working as a team, Communicating with others Plays a musical instrument

Adding totals

Adding a total row

1. Click anywhere on the table to select it
2. On the **Table Design** tab, tick the **Total row** box



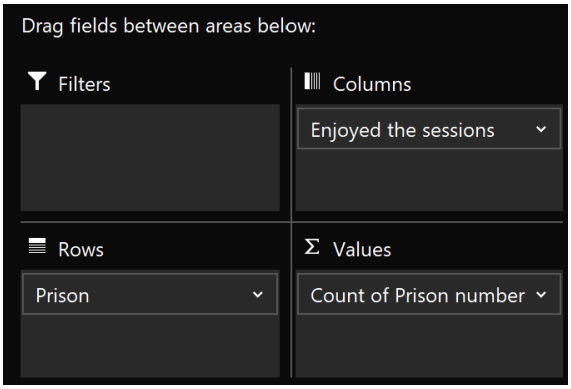
Selecting a type of total

1. Click in the total row in the column where you want to add a calculation and select it off the list

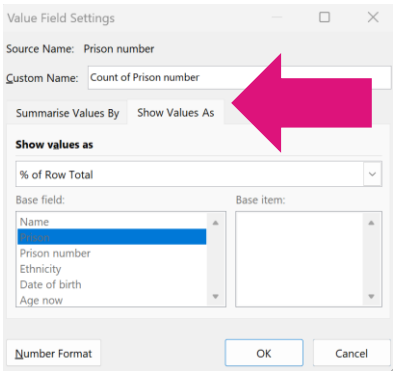
Exercise 2: Pivot Tables & Charts

Pivot tables are a feature in Excel and Power BI that lets you summarise, explore, and analyse large datasets quickly and interactively — without writing formulas from scratch.

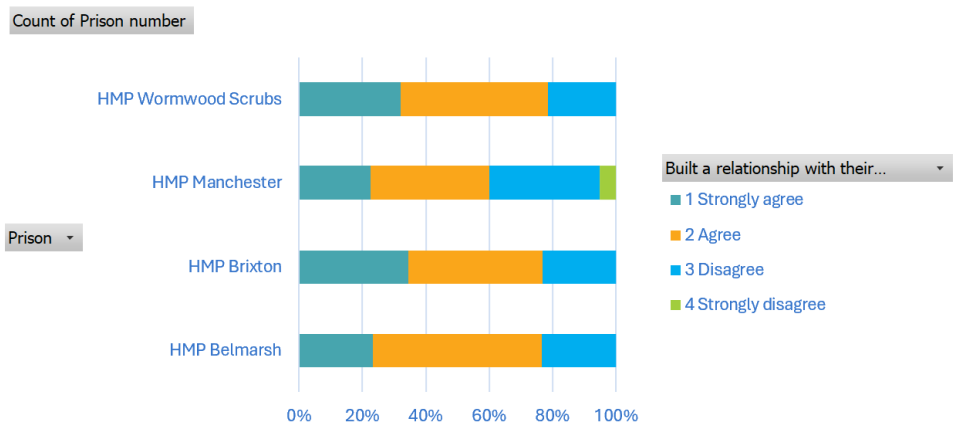
1. Using the **All participants** sheet, insert a Pivot table (Insert tab and select the PivotTable)
2. Name the Pivot Table ‘Enjoyment’ (see top left of PivotTable Analyse Tab, or click down arrow under PivotTable Command)
3. Select the following fields in the PivotTable Fields list on the far-right of your screen: Prison, Prison number, Enjoyed the sessions *(If you don’t see these options, make sure you have clicked somewhere in the PivotTable on the left)*
4. Drag ‘Prison’ to Columns; drag ‘Prison number to Values; drag ‘Enjoyed the sessions’ to Rows. Check the Values is showing as ‘Count of Prison number’.



5. Now change the Value Field Settings to show as % of Row Total (Click on the down arrow next to 'Prison ID' in the Values quadrant and choose % of Row Total from the 'Show Values As' tab)



6. Remove the decimal places (Highlight the cells with % in them in the PivotTable, go to the Home Tab, Number Group, and select the Decrease Decimal command twice to remove decimal places (using the right arrow icon)
7. Rename the new Sheet to 'Enjoyment Pivot' (Double click Sheet tab at the bottom to rename)
8. Now repeat the above choosing Built a relationship with their mentor in place of the Enjoyed the sessions, renaming the new sheet created 'Relationship Pivot'.
9. Using the Relationship pivot, click on the Pivot table analyse tab and then select Pivot Chart on the top menu (towards the right). Create a Stacked bar chart to compare the prisons performance.



10. Add the Musical experience field to the Filter area of the Pivot table – this should now appear on your chart. Do the building a relationship with your mentor results differ depending on whether participants did or did not have prior musical experience?

Exercise 3: Bringing data from one sheet to another

The GETPIVOTDATA() formula in Excel is like a smart query tool that lets you pull specific values from a PivotTable based on its structure—not just cell location

1. In the Summary sheet, create a Get Pivot Data formula in the top cell of the Enjoyment Column (for Belmarsh Prison) by clicking in the cell and entering =
2. Then go to the Enjoyment Pivot Sheet and click on the cell with the results for Belmarsh prison and '1 Really Enjoyed'. Now click on the + sign and click the cell with the results for Belmarsh prison and '2 Enjoyed'. Press Enter.
3. Copy this formula to remaining rows and you'll see an error. In the Formulae in the next cell down change the Prison name to "HMP Brixton" (type this in, in the formula bar, overriding HMP Belmarsh in the 2 places it occurs in the formulae)
4. In the next cell down, this time remove the Prison name (including the speech marks " ") and replace with the cell reference for the Prison name (in the Prison column in the Summary sheet) that you want to replace it with (in this case HMP Manchester – cell A6) Again, you will need to do this twice – for each instance that the Prison name occurs in the formula.
5. Now copy the formula down to the Wormwood Scrubs row and check the answer is correct
6. Repeat for the Built a relationship with their mentor data

Using Xlookup

This formula searches a range or an array for a match and returns the corresponding item from a second range or array. By default an exact match is used.

7. In the Summary sheet, use Xlookup to bring in data for the respective prisons from the Prison info sheet into the Number of mentors column.
8. Follow the Xlookup format below

```
XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])
```

For this scenario you'll need to use **=XLOOKUP(A4, 'Prison info'!A:A,'Prison info'!F:F)** and then copy the formulae down.

Using Countif

This Counts the number of cells within a range that meet the given condition.

9. Still in the Summary sheet, use the Countif formula to bring in data for the respective prisons from the Prison info sheet into the Number of mentors column.
10. Follow the Countif format below

    COUNTIF(**range**, criteria)

    For this scenario you'll need to use

    ```
    =COUNTIF('All participants'!B:B, ' Summary sheet'!A4)
    ```

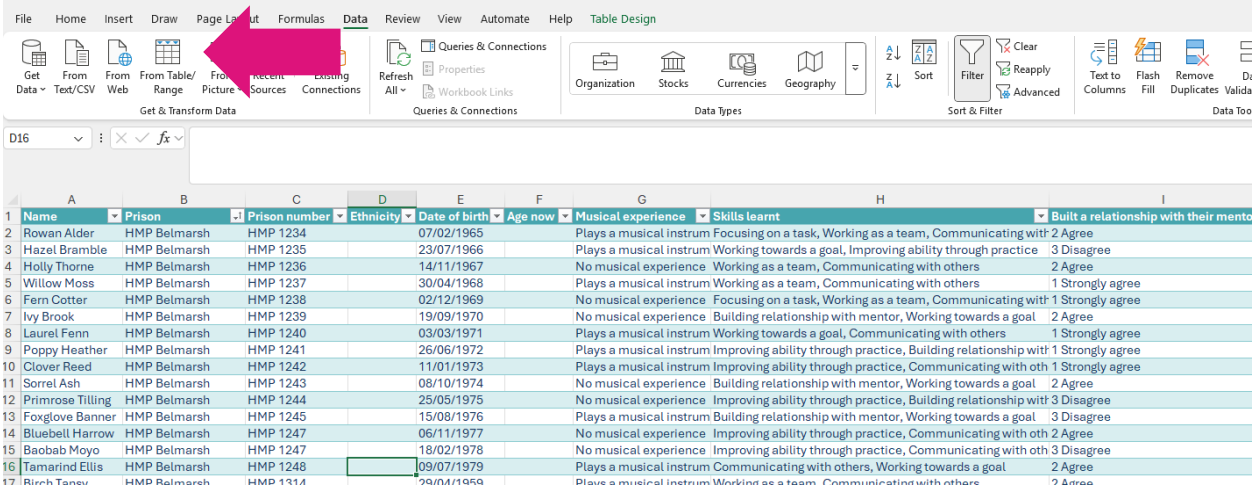
    And then copy down the formula. Remember that you're not typing in the 'All participants'! – this is automatically added to the formula when you move sheets and select a cell.

Exercise 4 – Bringing data together with Power Query

Power Query is a data transformation tool built into Excel and Power BI that lets you connect to data sources, clean and reshape data, and automate repetitive tasks—all without writing code

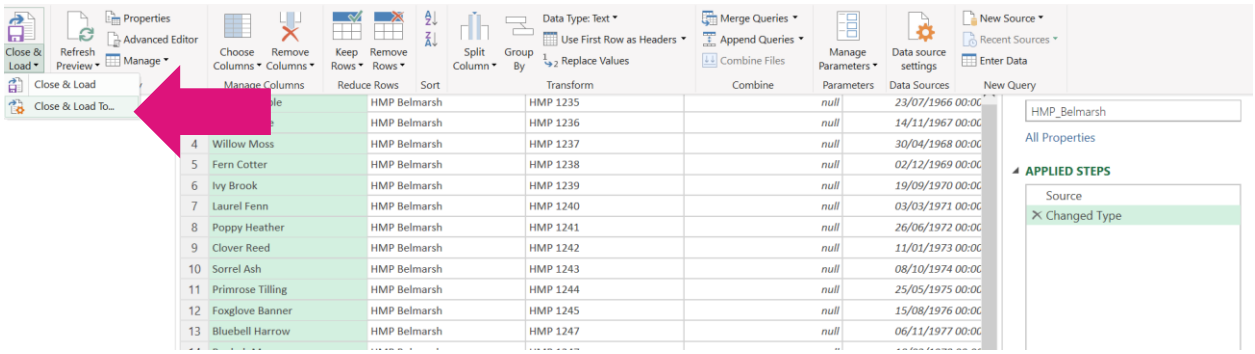
Creating queries

1. Click on the table
2. On the data tab select **From Table/range**

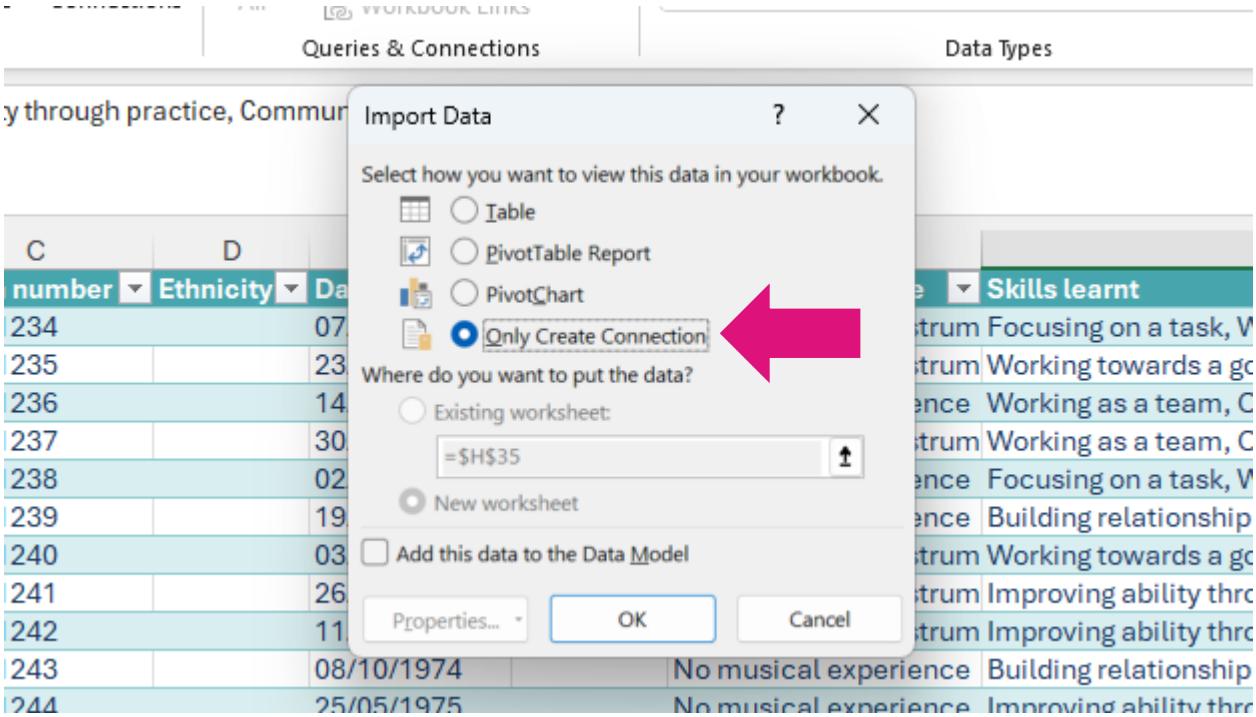


	A	B	C	D	E	F	G	H	I
1	Name	Prison	Prison number	Ethnicity	Date of birth	Age now	Musical experience	Skills learnt	Built a relationship with their mento
2	Rowan Alder	HMP Belmarsh	HMP 1234		07/02/1965		Plays a musical instrum	Focusing on a task, Working as a team, Communicating with	2 Agree
3	Hazel Bramble	HMP Belmarsh	HMP 1235		23/07/1966		Plays a musical instrum	Working towards a goal, Improving ability through practice	3 Disagree
4	Holly Thorne	HMP Belmarsh	HMP 1236		14/11/1967		No musical experience	Working as a team, Communicating with others	2 Agree
5	Willow Moss	HMP Belmarsh	HMP 1237		30/04/1968		Plays a musical instrum	Working as a team, Communicating with others	1 Strongly agree
6	Fern Cotter	HMP Belmarsh	HMP 1238		02/12/1969		No musical experience	Focusing on a task, Working as a team, Communicating with	1 Strongly agree
7	Ivy Brook	HMP Belmarsh	HMP 1239		19/09/1970		No musical experience	Building relationship with mentor, Working towards a goal	2 Agree
8	Laurel Fenn	HMP Belmarsh	HMP 1240		03/03/1971		Plays a musical instrum	Working towards a goal, Communicating with others	1 Strongly agree
9	Poppy Heather	HMP Belmarsh	HMP 1241		26/06/1972		Plays a musical instrum	Improving ability through practice, Building relationship with	1 Strongly agree
10	Clover Reed	HMP Belmarsh	HMP 1242		11/01/1973		Plays a musical instrum	Improving ability through practice, Communicating with oth	1 Strongly agree
11	Sorrel Ash	HMP Belmarsh	HMP 1243		08/10/1974		No musical experience	Building relationship with mentor, Working towards a goal	2 Agree
12	Primrose Tilling	HMP Belmarsh	HMP 1244		25/05/1975		No musical experience	Improving ability through practice, Building relationship with	3 Disagree
13	Foxglove Banner	HMP Belmarsh	HMP 1245		15/08/1976		Plays a musical instrum	Building relationship with mentor, Working towards a goal	3 Disagree
14	Bluebell Harrow	HMP Belmarsh	HMP 1247		06/11/1977		No musical experience	Improving ability through practice, Communicating with oth	2 Agree
15	Baobab Moyo	HMP Belmarsh	HMP 1247		18/02/1978		No musical experience	Improving ability through practice, Communicating with oth	3 Disagree
16	Tamarind Ellis	HMP Belmarsh	HMP 1248		09/07/1979		Plays a musical instrum	Communicating with others, Working towards a goal	2 Agree
17	Birch Tansy	HMP Belmarsh	HMP 1314		29/04/1959		Plays a musical instrum	Working as a team, Communicating with others	2 Agree

3. Check the query has the prison name
4. On the home tab, select **Close and Load to**



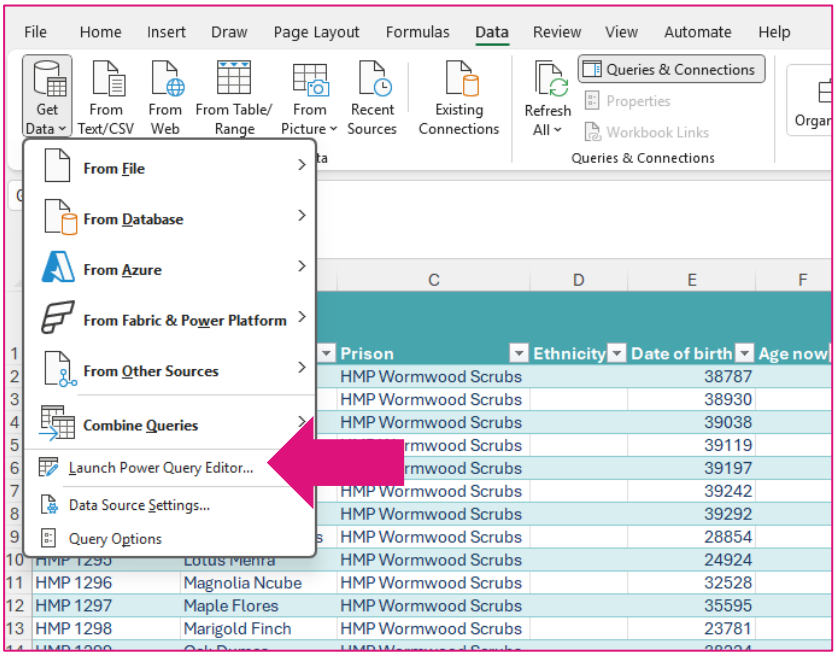
5. Under the Import data options select **Only Create Connection**
6. Click on **OK**



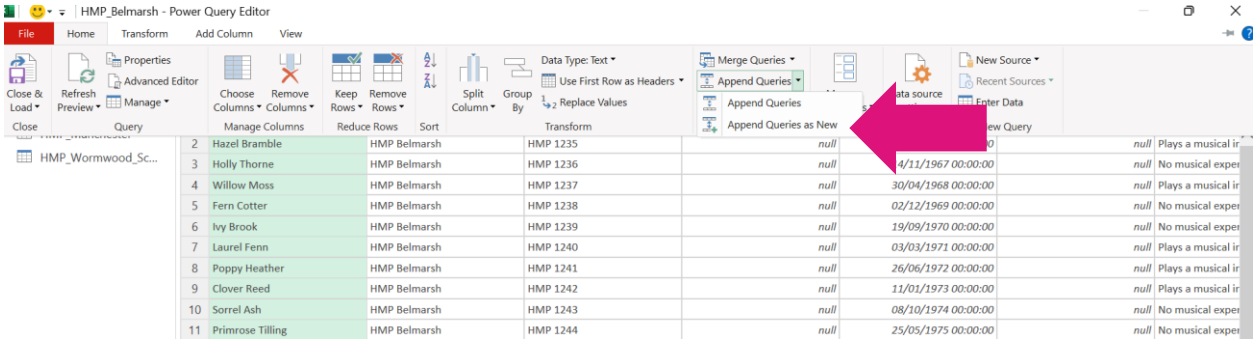
7. Repeat for the other 3 Prisons

Appending queries

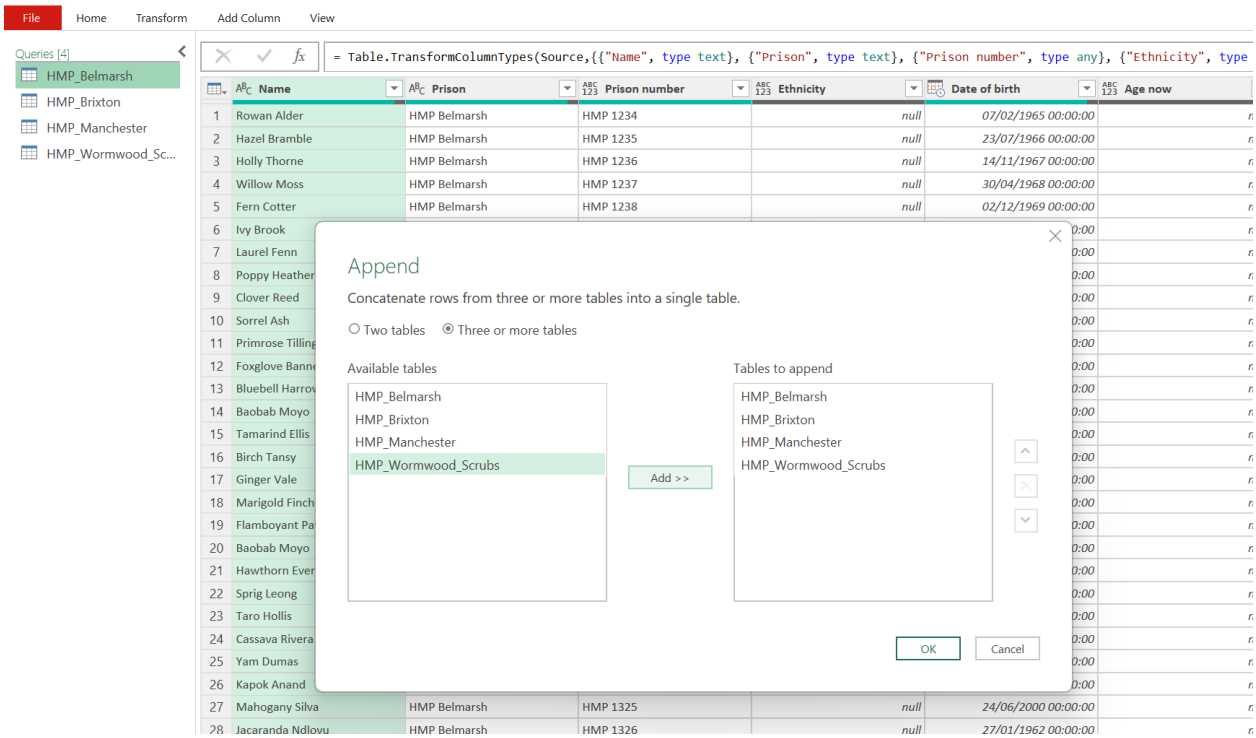
1. Open the Query editor on the Data tab by going to Get Data and selecting Launch Power Query Editor.



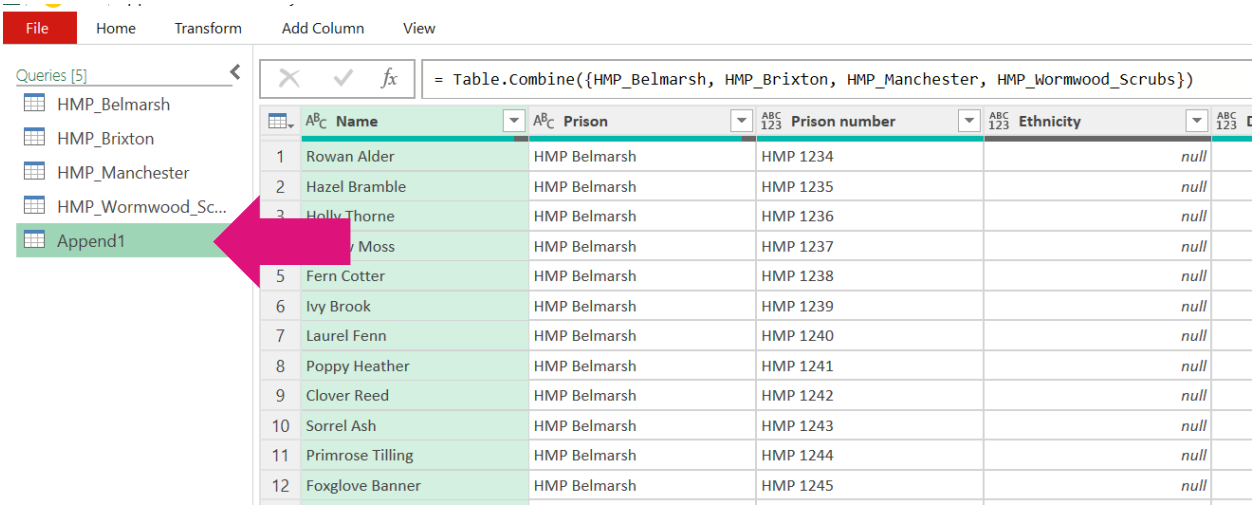
2. On the **Home** tab, select the option **Append Queries as New**



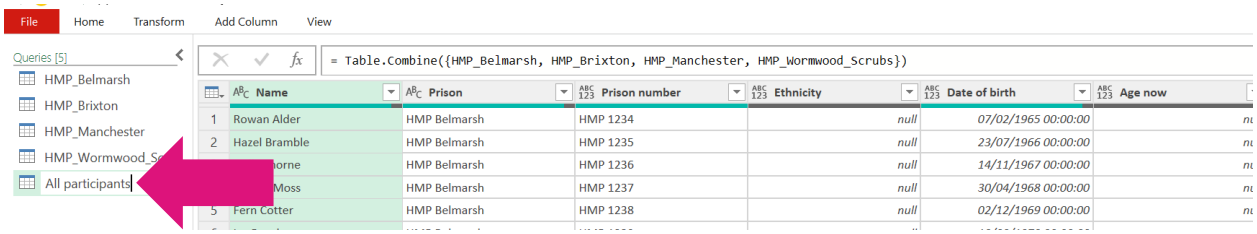
3. Select the 4 Prison queries by clicking on them and then on **Add>>** so that all 3 queries are in the **Tables to append** box



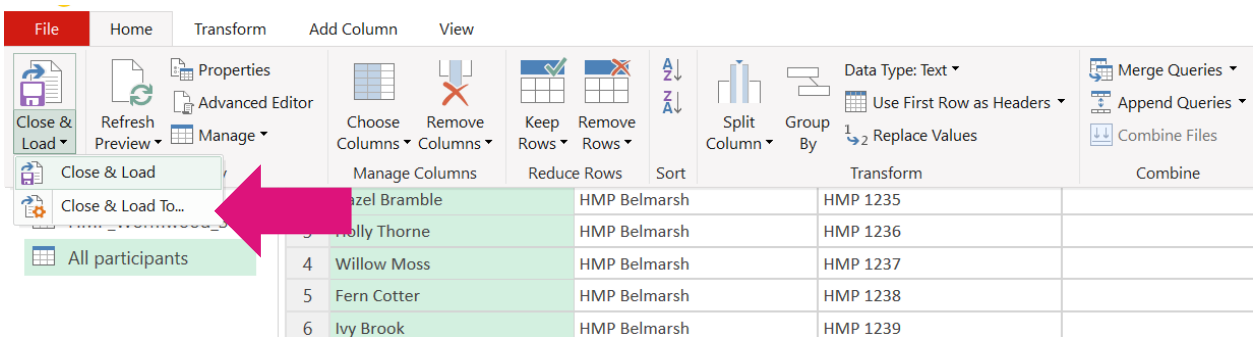
4. Click on OK
5. A new query will appear on the left called Append1



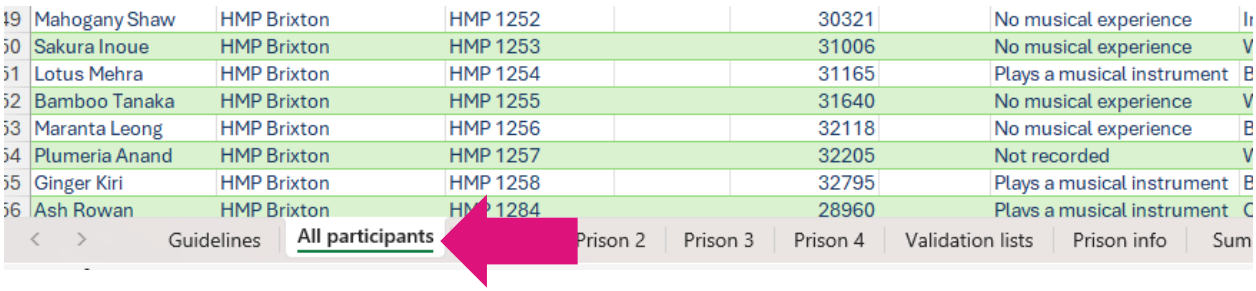
6. Double click on **Append 1** or right click and select rename, and rename it to **All participants**



7. On the **Home** tab click on the **Close & Load** button

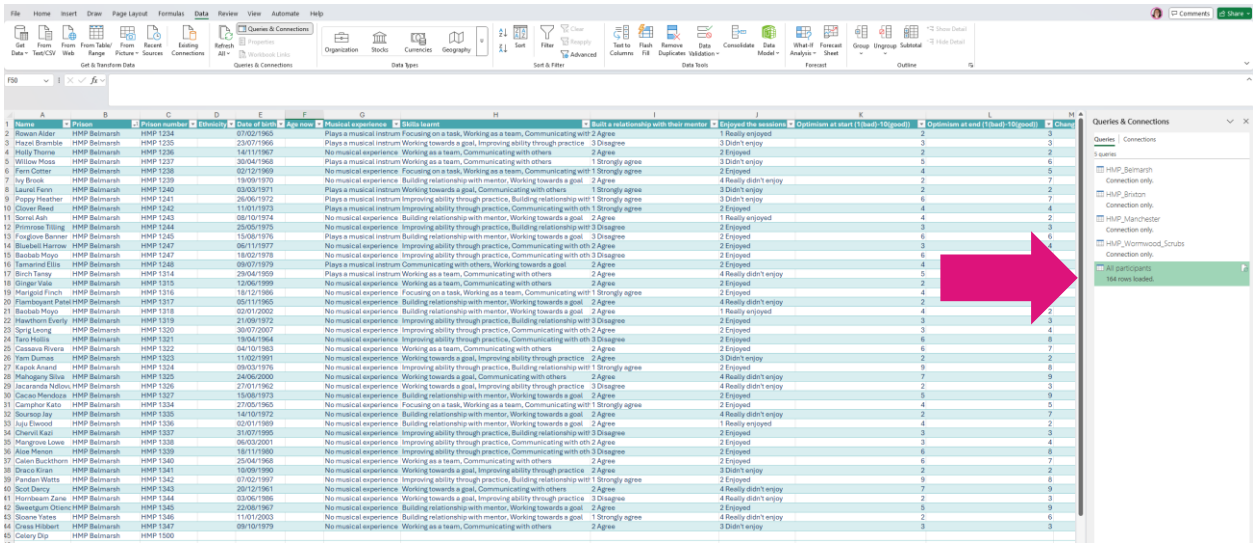


8. You should now have a new sheet called **All participants** in your workbook

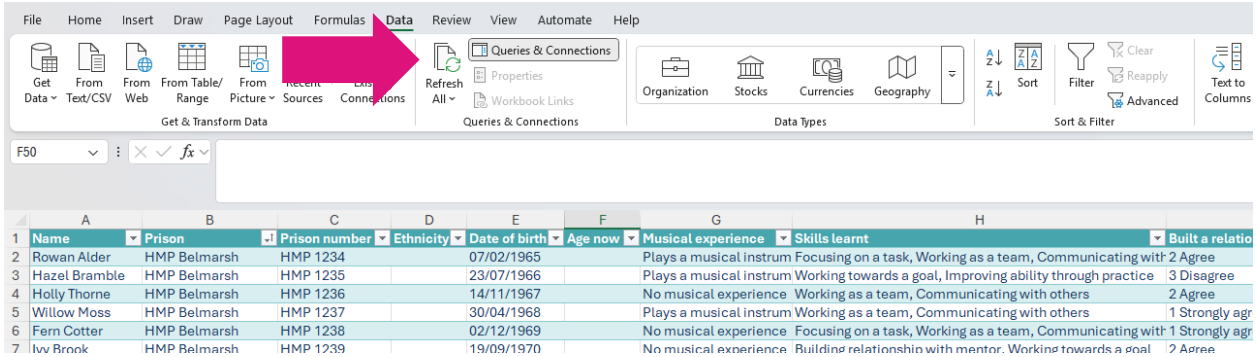


Adding source data and refreshing queries

1. Add a row of data for a new participant to any of the 3 prison tables
2. Refresh the query either individually by clicking on the refresh icon next to the query name



Or by clicking on Refresh all on the Data tab



	A	B	C	D	E	F	G	H	
1	Name	Prison	Prison number	Ethnicity	Date of birth	Age now	Musical experience	Skills learnt	Built a relatio
2	Rowan Alder	HMP Belmarsh	HMP 1234		07/02/1965		Plays a musical instrum	Focusing on a task, Working as a team, Communicating with	2 Agree
3	Hazel Bramble	HMP Belmarsh	HMP 1235		23/07/1966		Plays a musical instrum	Working towards a goal, Improving ability through practice	3 Disagree
4	Holly Thorne	HMP Belmarsh	HMP 1236		14/11/1967		No musical experience	Working as a team, Communicating with others	2 Agree
5	Willow Moss	HMP Belmarsh	HMP 1237		30/04/1968		Plays a musical instrum	Working as a team, Communicating with others	1 Strongly agr
6	Fern Cotter	HMP Belmarsh	HMP 1238		02/12/1969		No musical experience	Focusing on a task, Working as a team, Communicating with	1 Strongly agr
7	Ivy Brook	HMP Belmarsh	HMP 1239		19/09/1970		No musical experience	Building relationship with mentor, Working towards a goal	2 Agree