



Data Story Telling

ASSIGNMENT 1

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Scenario

Data Access authorization and control are vital parts of an organisation's sensitive data protection plan. Various contingency plans are designed to counteract accidents, breaches or the impact of data management. The following are considered when planning:

1. GDPR compliancy and checklist.
2. Access policy deciding those authorized to access and control the access to data by job role, responsibility, and duration.
3. Consistency in secure ways to back up the data.
4. Updating and securing the software, data storage and data in transmission.

Your GDPR Compliance Checklist

Employee, user and guest policies regulate users' proceedings to ensure intruders are kept out of the data system. These policies are designed to restrict and control users' access to sensitive data.

1. Encryption Policies
2. Acceptable Use Policy
3. Password Policy
4. Email Policy
5. Data Processing policy

IT Governance

Organisations will also upkeep various contingency plans to counteract accidents and the extent and impact of their data use.

Task 1 – Policies and Procedures

As a learner at JUSTIT, I am an account holder with privileges to access SharePoint, sharing permissions and access to Microsoft 365 and applications included in the membership package. The security concerns are handled by Microsoft who is the service provider managing a SaaS-platform for software services. All data is protected thereby by the organisation, JUSTIT, the data controller DfE, Department of Education and the Service provider, Microsoft.

As a user I have access to ‘Wealth of the Nations’ and can download a copy from the link below without obtaining permissions:

<https://justit831.sharepoint.com/:x/s/DataAnalyticsProgramme-NewStandards/EVKidsCfWvZMpvJzG9QaQk8Binxz7hYRoKtGfbzJauf94g?e=CR1LFE>

In Task 2, I was asked to protect the data by assigning a password which I have done by adhering to best practice guidance.

[Microsoft.com | Microsoft Policy Recommendations for Microsoft 365 Passwords](#)

I am also aware that I can only share this data with other organisation members who are permitted to this file.

In addition, I have obtained data from the World Data Bank which is indicated as the data source in ‘Wealth of Nations’. As a public user, I have authenticated with my Gmail credentials and downloaded the data without further permission.

Task 2 - GPD Tasks

Overview- The Data

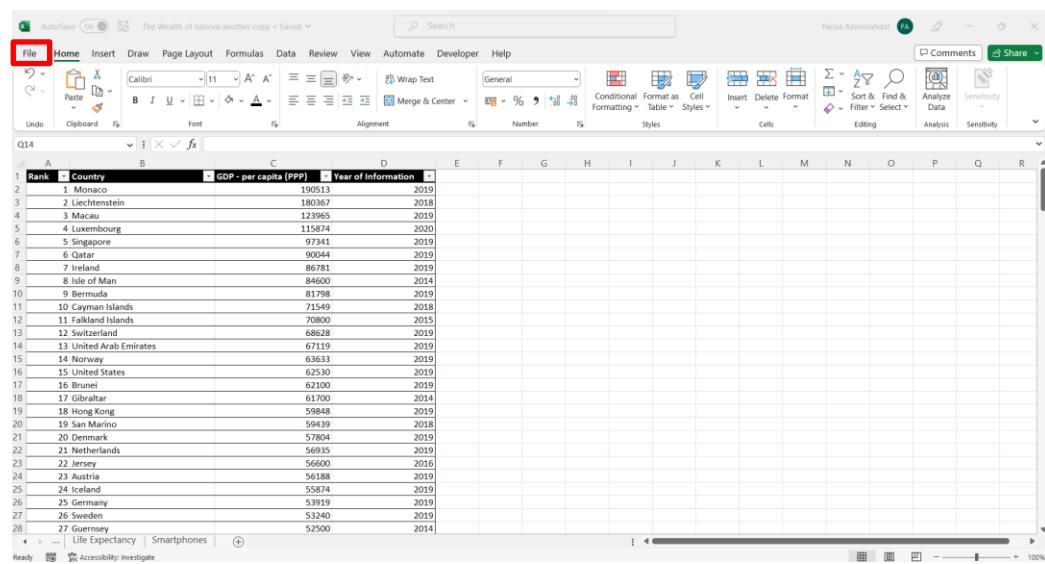
A series of tasks are to be completed.

1. Set a Password Set a password to protect the workbook.

[Microsoft.com| Protect an Excel File](https://www.microsoft.com/protect-an-excel-file)

Step 1

After saving and opening our data “The Wealth of Nations”. Find the “File” tab on the Excel ribbon and click on it.

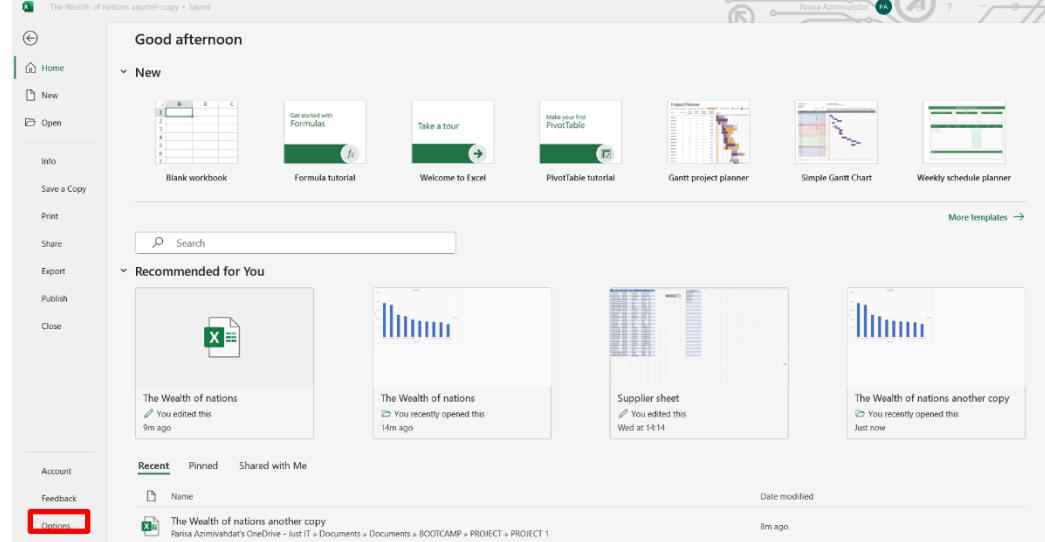


The File tab is selected as shown here in a red box.

Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	190513	2019
2	Liechtenstein	180367	2018
3	Macau	123965	2019
4	Luxembourg	115874	2020
5	Singapore	97341	2019
6	Qatar	90044	2019
7	Ireland	86781	2019
8	Isle of Man	84600	2014
9	Bermuda	81798	2019
10	Cayman Islands	71549	2018
11	Falkland Islands	70800	2015
12	Switzerland	68628	2019
13	United Arab Emirates	67119	2019
14	Brunei	65330	2019
15	United States	62530	2019
16	Brunei	62100	2019
17	Gibraltar	61700	2014
18	Hong Kong	59848	2019
19	San Marino	59439	2018
20	Denmark	57804	2019
21	Netherlands	56935	2019
22	Jersey	56600	2016
23	Austria	56188	2019
24	Iceland	55874	2019
25	Germany	53919	2019
26	Sweden	53240	2019
27	Guernsey	52500	2014

Step2

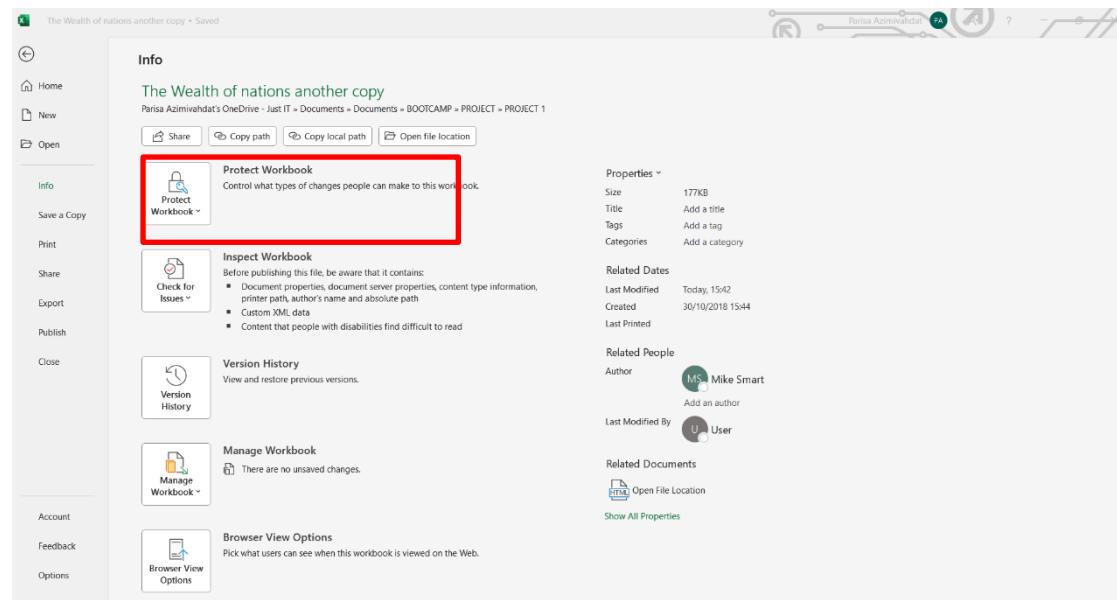
Choose Info.



Click on the Info option on the side panel.

Step 3

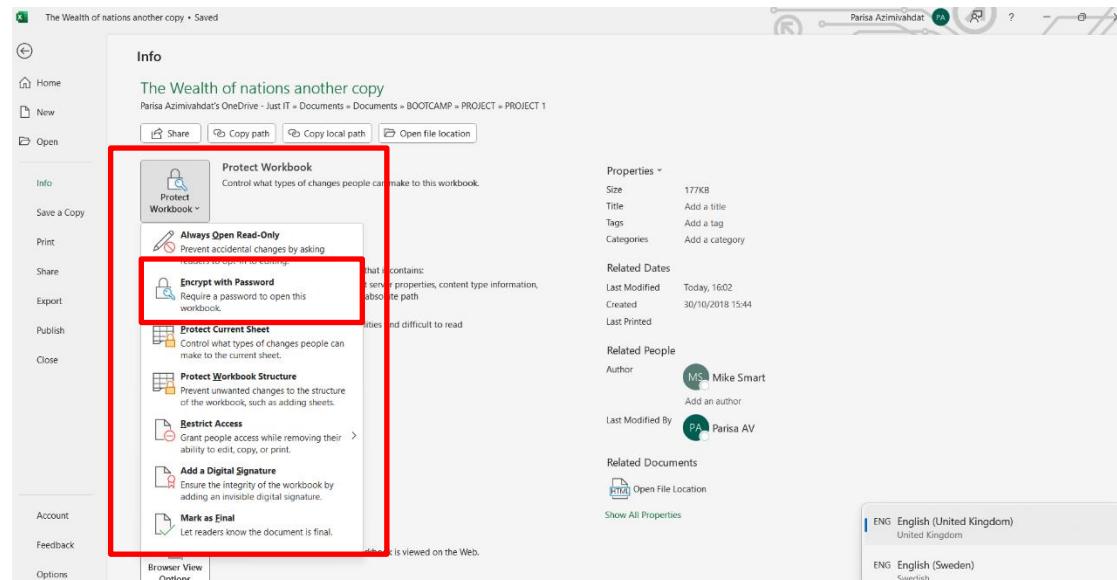
Select 'Protect Workbook'.



Select the action button inside the red box by clicking on it.

Step 4

Choose 'Encrypt with Password'.

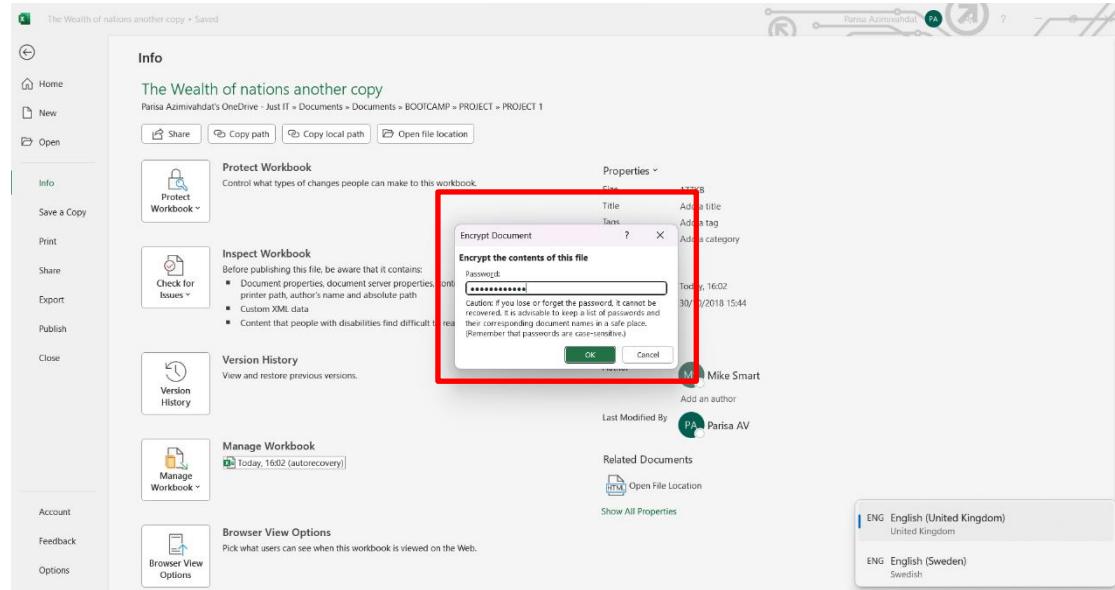


From the roll-down menu, click on 'Encrypt with Password'.

Step 5

Enter a Password in the Password box. Make your password unique with at least 12 characters, including upper- and lower-case letters, numbers and symbols.

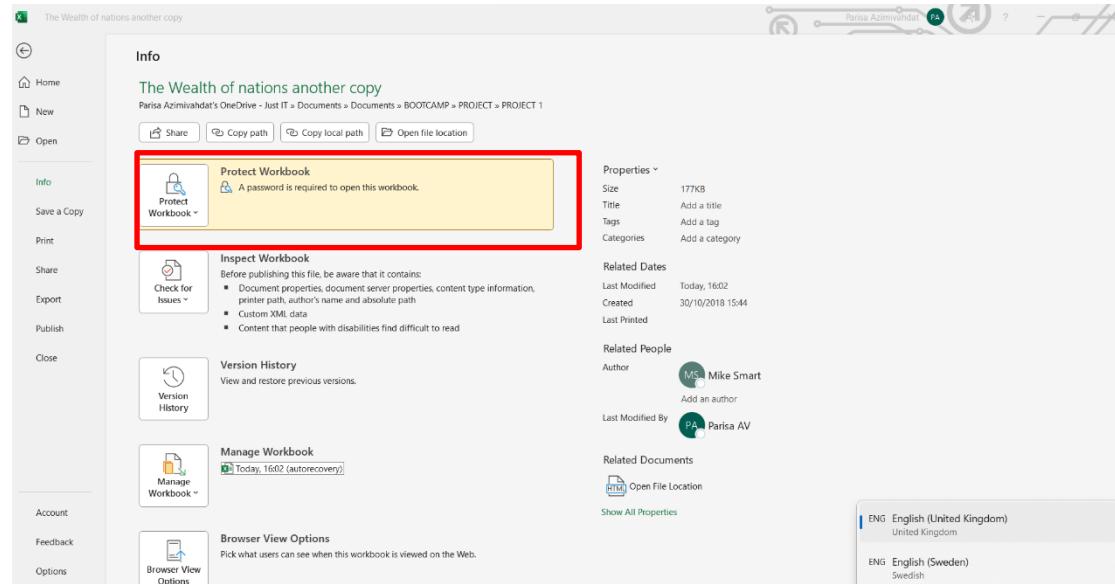
[Microsoft.com |Create and Use Strong Passwords](#)



Enter your password in the box under 'Password'.

Step 6

Confirm your password by reentering it. You will need the password to be able to open the workbook.

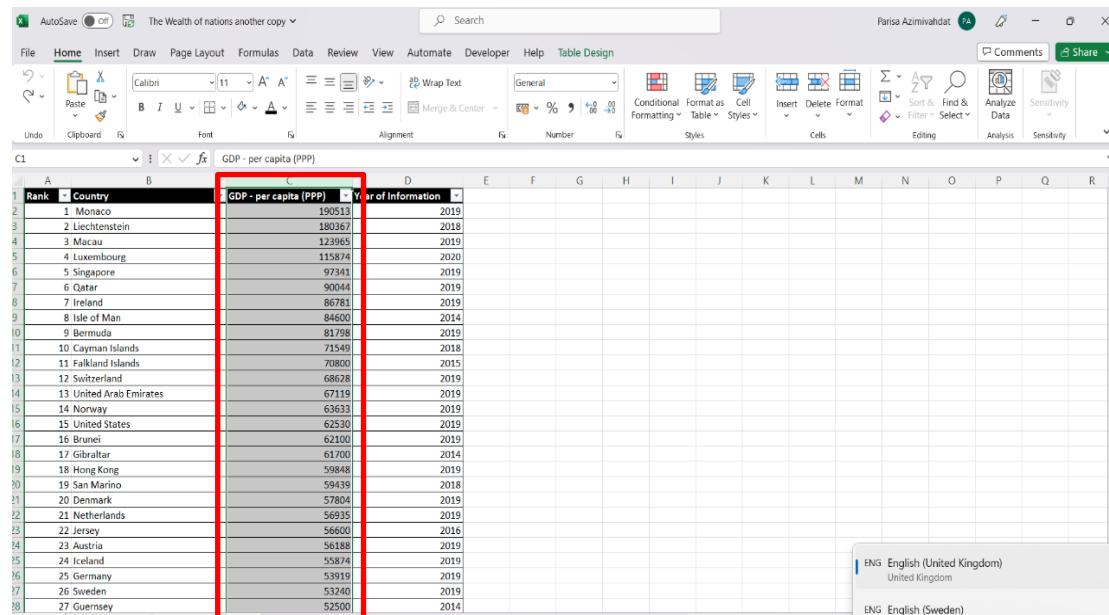


The workbook is now password protected as shown.

2. Highlight column C and change the data to display in British Pound symbol.

Step 1

Select Column C.



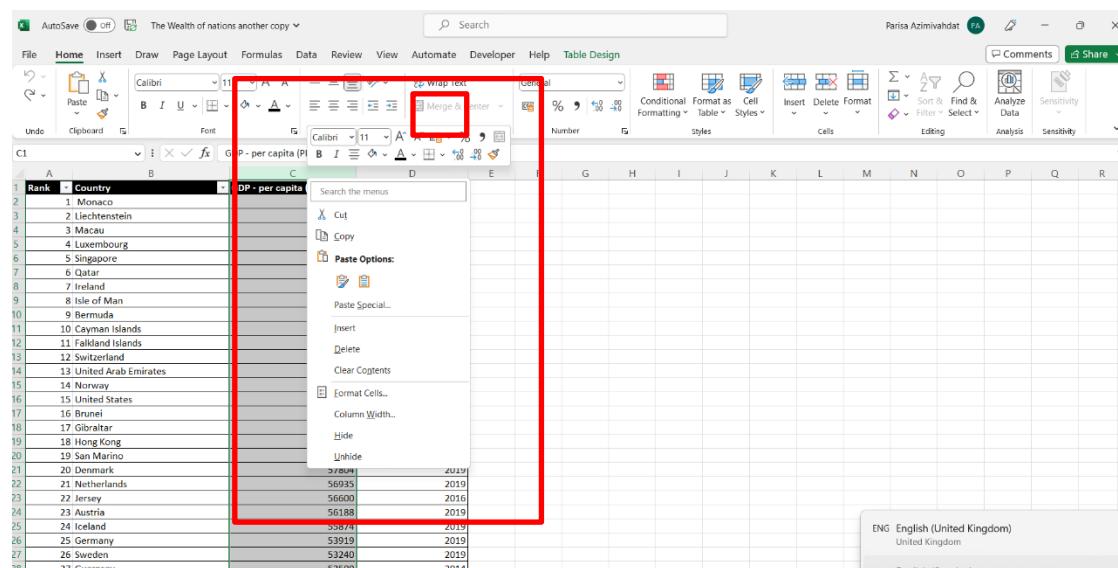
C1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Rank	Country	GDP - per capita (PPP)	Year of Information															
1	Monaco	190513	2019															
2	Liechtenstein	180367	2018															
3	Macau	123965	2019															
4	Luxembourg	115874	2020															
5	Singapore	97341	2019															
6	Qatar	90044	2019															
7	Ireland	86781	2019															
8	Isle of Man	84600	2014															
9	Bermuda	81798	2019															
10	Cayman Islands	71549	2018															
11	Falkland Islands	70800	2015															
12	Switzerland	68628	2019															
13	United Arab Emirates	67119	2019															
14	Norway	63633	2019															
15	United States	62530	2019															
16	Brunei	62100	2019															
17	Gibraltar	61700	2014															
18	Hong Kong	59848	2019															
19	San Marino	59439	2018															
20	Denmark	57804	2019															
21	Netherlands	56935	2019															
22	Jersey	56600	2016															
23	Austria	56188	2019															
24	Iceland	55874	2019															
25	Germany	53919	2019															
26	Sweden	53240	2019															
27	Guernsey	52500	2014															

Column C highlighted in gray.

Step 2

Alt1: Choose the 'Accounting Number Format' in the Number-group of the home tab.

Alt2: Right click for the drop-down menu. Select the 'Accounting Number Format' on the drop-down.

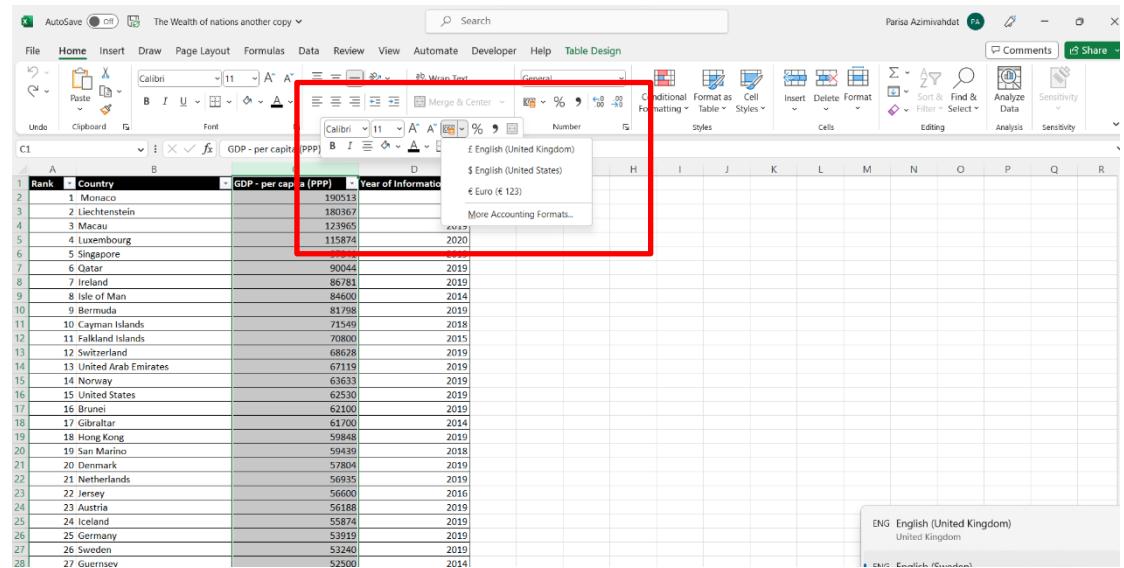


C1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Rank	Country	GDP - per capita	Year of Information															
1	Monaco	190513	2019															
2	Liechtenstein	180367	2018															
3	Macau	123965	2019															
4	Luxembourg	115874	2020															
5	Singapore	97341	2019															
6	Qatar	90044	2019															
7	Ireland	86781	2019															
8	Isle of Man	84600	2014															
9	Bermuda	81798	2019															
10	Cayman Islands	71549	2018															
11	Falkland Islands	70800	2015															
12	Switzerland	68628	2019															
13	United Arab Emirates	67119	2019															
14	Norway	63633	2019															
15	United States	62530	2019															
16	Brunei	62100	2019															
17	Gibraltar	61700	2014															
18	Hong Kong	59848	2019															
19	San Marino	59439	2018															
20	Denmark	57804	2019															
21	Netherlands	56935	2019															
22	Jersey	56600	2016															
23	Austria	56188	2019															
24	Iceland	55874	2019															
25	Germany	53919	2019															
26	Sweden	53240	2019															
27	Guernsey	52500	2014															

Hover over the top menu of the list to find 'Accounting Number Format'.

Step 3

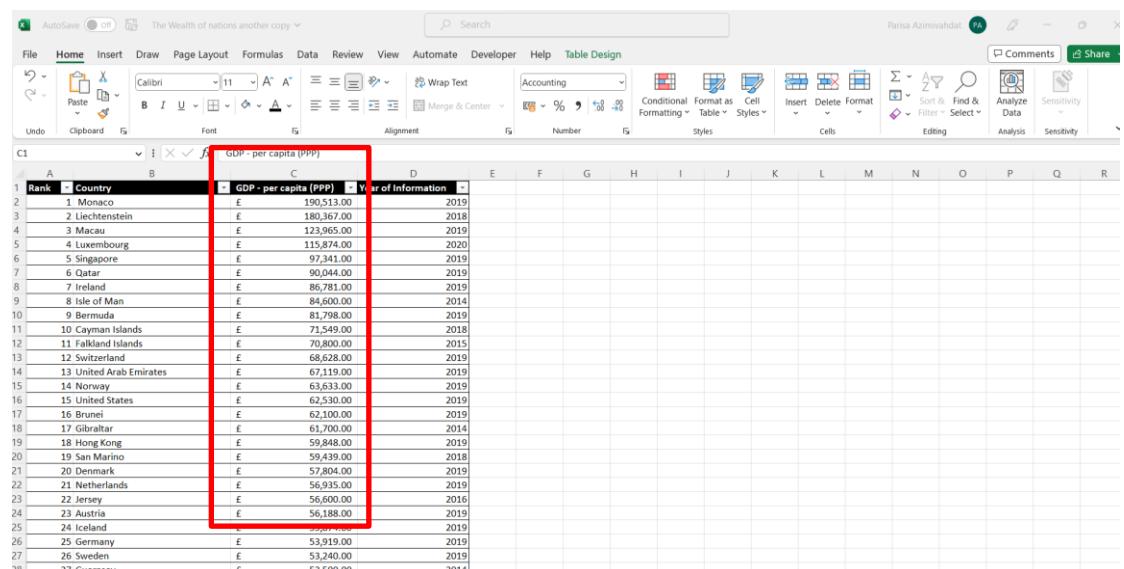
Click on '£ English(United Kingdom)'.



Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	£190,513.00	2019
2	Liechtenstein	£180,367.00	2018
3	Macau	£123,965.00	2019
4	Luxembourg	£115,874.00	2020
5	Singapore	£97,341.00	2019
6	Qatar	£90,044.00	2019
7	Ireland	£86,781.00	2019
8	Isle of Man	£84,600.00	2014
9	Bermuda	£81,798.00	2019
10	Cayman Islands	£71,549.00	2018
11	Falkland Islands	£70,800.00	2015
12	Switzerland	£68,628.00	2019
13	United Arab Emirates	£67,119.00	2019
14	Norway	£63,633.00	2019
15	United States	£62,510.00	2019
16	Brunei	£62,100.00	2014
17	Gibraltar	£61,700.00	2014
18	Hong Kong	£59,848.00	2019
19	San Marino	£59,439.00	2018
20	Denmark	£57,804.00	2019
21	Netherlands	£56,945.00	2019
22	Jersey	£56,600.00	2016
23	Austria	£56,188.00	2019
24	Iceland	£55,919.00	2019
25	Germany	£53,240.00	2019
26	Sweden	£52,500.00	2014
27	Guernsey	£52,500.00	2014

Step 4

The pound symbol is now included in Column C as the data type is formatted to currency.



Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	£190,513.00	2019
2	Liechtenstein	£180,367.00	2018
3	Macau	£123,965.00	2019
4	Luxembourg	£115,874.00	2020
5	Singapore	£97,341.00	2019
6	Qatar	£90,044.00	2019
7	Ireland	£86,781.00	2019
8	Isle of Man	£84,600.00	2014
9	Bermuda	£81,798.00	2019
10	Cayman Islands	£71,549.00	2018
11	Falkland Islands	£70,800.00	2015
12	Switzerland	£68,628.00	2019
13	United Arab Emirates	£67,119.00	2019
14	Norway	£63,633.00	2019
15	United States	£62,510.00	2019
16	Brunei	£62,100.00	2014
17	Gibraltar	£61,700.00	2014
18	Hong Kong	£59,848.00	2019
19	San Marino	£59,439.00	2018
20	Denmark	£57,804.00	2019
21	Netherlands	£56,945.00	2019
22	Jersey	£56,600.00	2016
23	Austria	£56,188.00	2019
24	Iceland	£55,919.00	2019
25	Germany	£53,240.00	2019
26	Sweden	£52,500.00	2014
27	Guernsey	£52,500.00	2014

British Pound £ Sign in the left side of all the cells indicating monetary values in the column.

3. Turn the GDP sheet into a table.

The columns in 'Wealth of The World' are converted into a table.

Microsoft.com| Create a Table in Excel

Step 1

Select a cell in the data and choose 'Format as Table' in the Styles-group in the Home tab. Choose 'Blue, Table Style Medium 16' from the 'Medium-group.

Select and cell and in the Home, tab click on 'Format as Table' in styles.

Rank	Country	GDP per capita (PPP)	Year of information
1	Monaco	190,513.00	2019
2	Liechtenstein	180,367.00	2018
3	Macau	123,965.00	2019
4	Luxembourg	115,874.00	2020
5	Singapore	97,341.00	2019
6	Qatar	90,044.00	2019
7	Ireland	86,781.00	2019
8	Isle of Man	84,600.00	2014
9	Bermuda	81,988.00	2019
11	Cayman Islands	71,549.00	2018
12	Falkland Islands	70,800.00	2015
13	Switzerland	68,628.00	2019
14	United Arab Emirates	67,119.00	2019
15	Norway	63,633.00	2019
16	United States	62,530.00	2019
17	Brunei	62,100.00	2019
18	Gibraltar	61,700.00	2014
19	Hong Kong	59,848.00	2019
20	San Marino	59,439.00	2018
21	Denmark	57,804.00	2019
22	Netherlands	56,935.00	2019
23	Jersey	56,600.00	2016
24	Austria	56,188.00	2019
25	Iceland	55,874.00	2019
26	Germany	53,919.00	2019
27	Sweden	53,240.00	2019
28	Guernsey	52,500.00	2014

The table displaying 'The Wealth of Nations' is shown above.

4. Filter the table to display only the information for 2019.

Step 1

Select the arrow on the column with the heading 'Year of Information' for the drop-down list.

The dropdown menu for the 'Year of information' column is open, showing the following options:

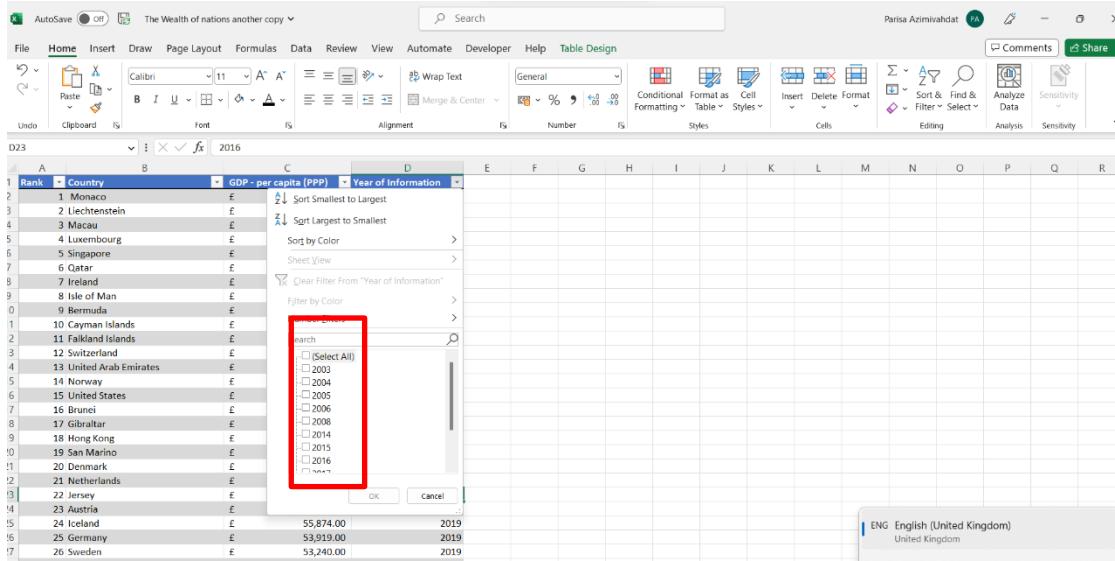
- Sort Smallest to Largest
- Sort Largest to Smallest
- Sort by Color
- Sheet View
- Clear Filter from "Year of Information"
- Filter by Color
- Number Filters
- Search (with input field)
- Checkboxes for years: 2003, 2004, 2005, 2006, 2008, 2014, 2015, 2016

The 'Select All' checkbox is checked. The 'OK' button is highlighted.

the list with the first ticked option ('Select All').

Step 2

Unselect the first option,'(Select All), in the list displaying the options for the years with data.

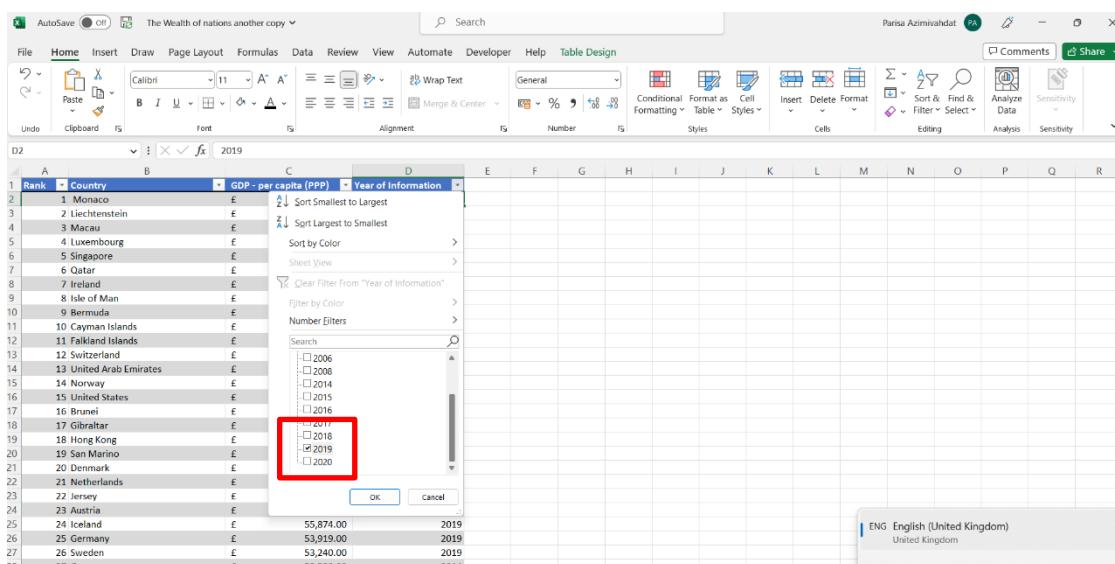


The screenshot shows a Microsoft Excel spreadsheet titled 'The Wealth of nations another copy'. The data is presented in a table with columns: Rank, Country, GDP - per capita (PPP), and Year of Information. A dropdown filter is open over the 'Year of Information' column, showing a list of years from 2003 to 2017. The first item, '2003', is highlighted with a red box. The 'Select All' option is also highlighted with a red box.

Untick the first item on the list with all the years.

Step 3

Select the field for 2019.



The screenshot shows the same Microsoft Excel spreadsheet and table structure as the previous one. The dropdown filter for the 'Year of Information' column is open, showing the same list of years from 2003 to 2017. The year '2019' is highlighted with a red box, indicating it has been selected.

Tick the box next to '2019'

Column 'Year of Information' is now filtered to exclude all data except the data in 2019.

The screenshot shows a Microsoft Excel spreadsheet titled 'The Wealth of nations another copy'. The table has four columns: 'Rank', 'Country', 'GDP - per capita (PPP)', and 'Year of Information'. The 'Year of Information' column is sorted by year (2019). The data includes entries for Monaco, Macau, Singapore, Qatar, Ireland, Bermuda, Switzerland, United Arab Emirates, Norway, United States, Brunei, Hong Kong, Denmark, Netherlands, Austria, Iceland, Germany, Sweden, Belgium, Australia, Kuwait, Canada, Finland, Saudi Arabia, United Kingdom, France, and Bahrain. The 'Year of Information' column for all entries is 2019.

Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	190,513.00	2019
2	Macau	123,965.00	2019
3	Singapore	97,441.00	2019
4	Qatar	90,044.00	2019
5	Ireland	86,781.00	2019
6	Bermuda	81,798.00	2019
7	Switzerland	68,628.00	2019
8	United Arab Emirates	67,119.00	2019
9	Norway	63,633.00	2019
10	United States	62,530.00	2019
11	Brunei	62,109.00	2019
12	Hong Kong	59,948.00	2019
13	Denmark	57,804.00	2019
14	Netherlands	56,935.00	2019
15	Austria	56,188.00	2019
16	Iceland	55,874.00	2019
17	Germany	53,919.00	2019
18	Sweden	53,240.00	2019
19	Belgium	51,934.00	2019
20	Australia	49,854.00	2019
21	Kuwait	49,854.00	2019
22	Canada	49,031.00	2019
23	Finland	48,668.00	2019
24	Saudi Arabia	46,962.00	2019
25	United Kingdom	46,659.00	2019
26	France	46,184.00	2019
27	Bahrain	45,011.00	2019

Column 'Year of Information' is showing the data in the year 2019.

5. Next create a chart that will only display the following data 'Rank, Country, and GDP - per capita (PPP). The chart can be anything as long as it is suitable.
6. Using your creative skills edit the chart.
 - a. Add a title.
 - b. Add X and Y axis labels.
 - c. Make the chart visually pleasing

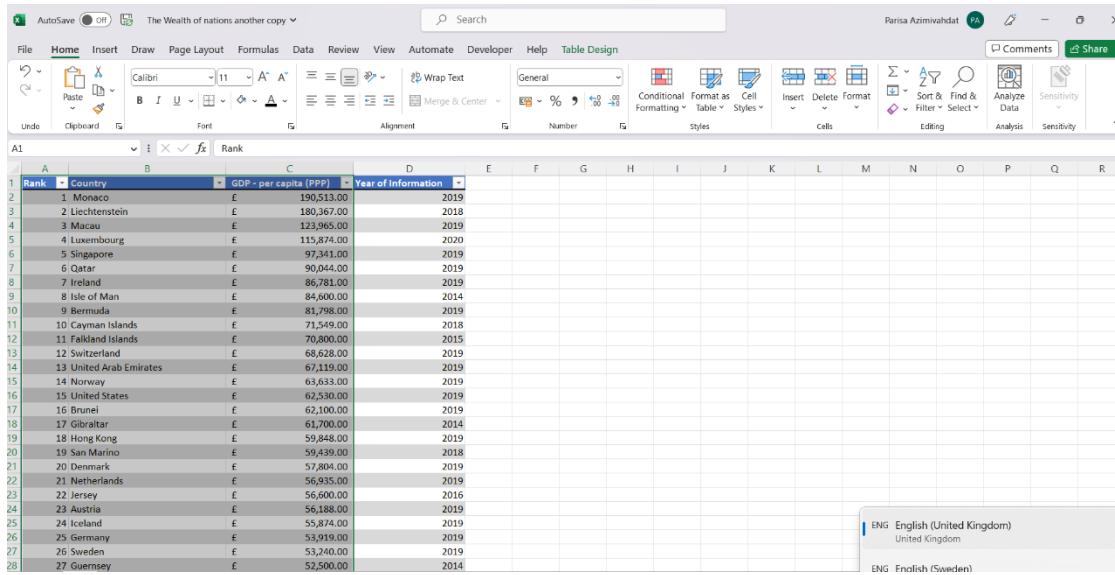
Step 1

For displaying the rank and GPD per Capita (PPP) of the country, a pivot table must be created.

Creating a pivot table with columns 'Rank', 'Country', 'GPD- per capita(PPP)'.

[## Step 1](https://www.microsoft.com/en-us/learn/courses/excel-2016/analyze-data-with-a-pivot-table/1>Create a Pivot Table to Analyse Worksheet Data</p>
</div>
<div data-bbox=)

Select the columns to be included in the pivot table.



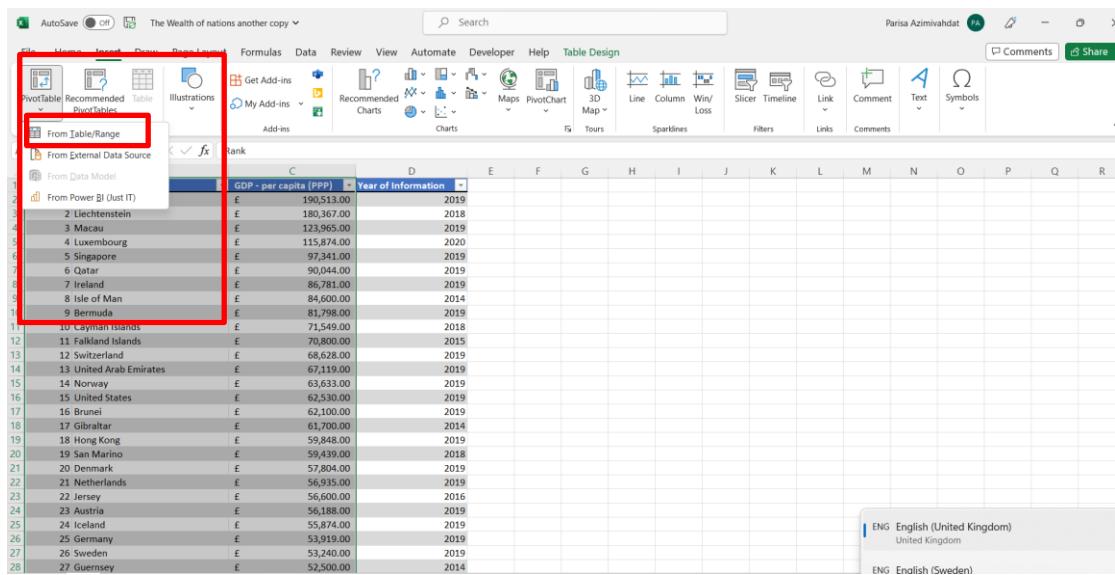
A	B	C	D
Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	190,513.00	2019
2	Liechtenstein	180,367.00	2018
3	Macau	123,965.00	2019
4	Luxembourg	115,874.00	2020
5	Singapore	97,541.00	2019
6	Qatar	90,044.00	2019
7	Ireland	86,781.00	2019
8	Isle of Man	84,600.00	2014
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18	Hong Kong	59,848.00	2019
19	San Marino	59,439.00	2018
20	Denmark	57,804.00	2019
21	Netherlands	56,935.00	2019
22	Jersey	56,600.00	2016
23	Austria	56,188.00	2019
24	Iceland	55,874.00	2019
25	Germany	53,919.00	2019
26	Sweden	53,240.00	2019
27	Guernsey	52,500.00	2014

Highlight all cells in the Rank, Country and GPD- per capita (PPP) columns.

Step 2

Alt1: Select from the Insert tab, the table-groups the Pivot table for the drop-down menu. Select then 'From Table/Range'.

Alt2: Select 'Recommended PivotTables' and choose an option from the recommended pivot tables.

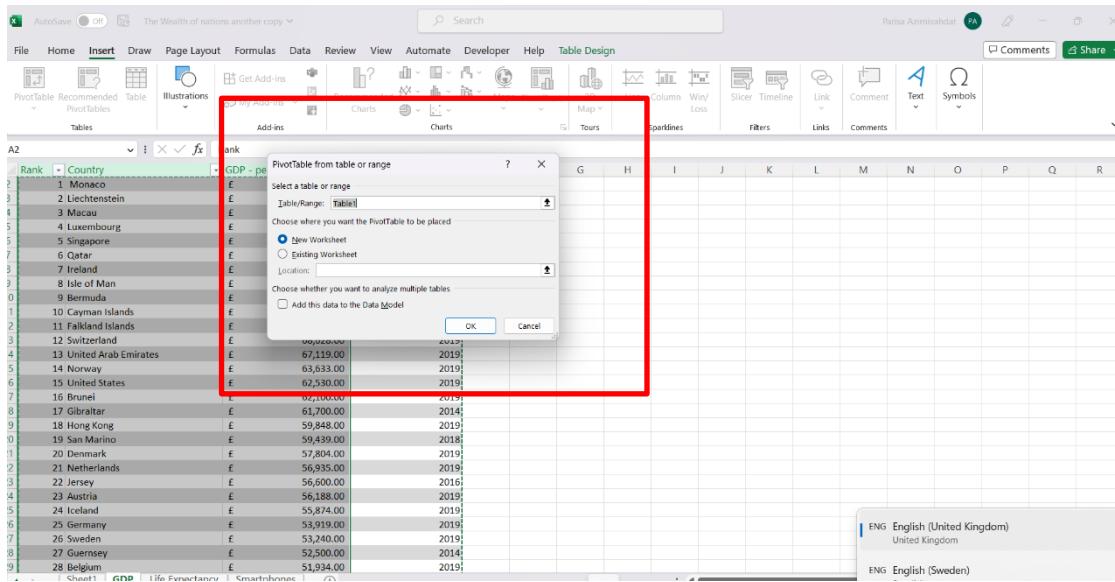


A	B	C	D
Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	190,513.00	2019
2	Liechtenstein	180,367.00	2018
3	Macau	123,965.00	2019
4	Luxembourg	115,874.00	2020
5	Singapore	97,541.00	2019
6	Qatar	90,044.00	2019
7	Ireland	86,781.00	2019
8	Isle of Man	84,600.00	2014
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13	United Arab Emirates	67,119.00	2019
14	Norway	63,633.00	2019
15	United States	62,530.00	2019
16	Brunei	62,100.00	2019
17	Gibraltar	61,700.00	2014
18	Hong Kong	59,848.00	2019
19	San Marino	59,439.00	2018
20	Denmark	57,804.00	2019
21	Netherlands	56,935.00	2019
22	Jersey	56,600.00	2016
23	Austria	56,188.00	2019
24	Iceland	55,874.00	2019
25	Germany	53,919.00	2019
26	Sweden	53,240.00	2019
27	Guernsey	52,500.00	2014

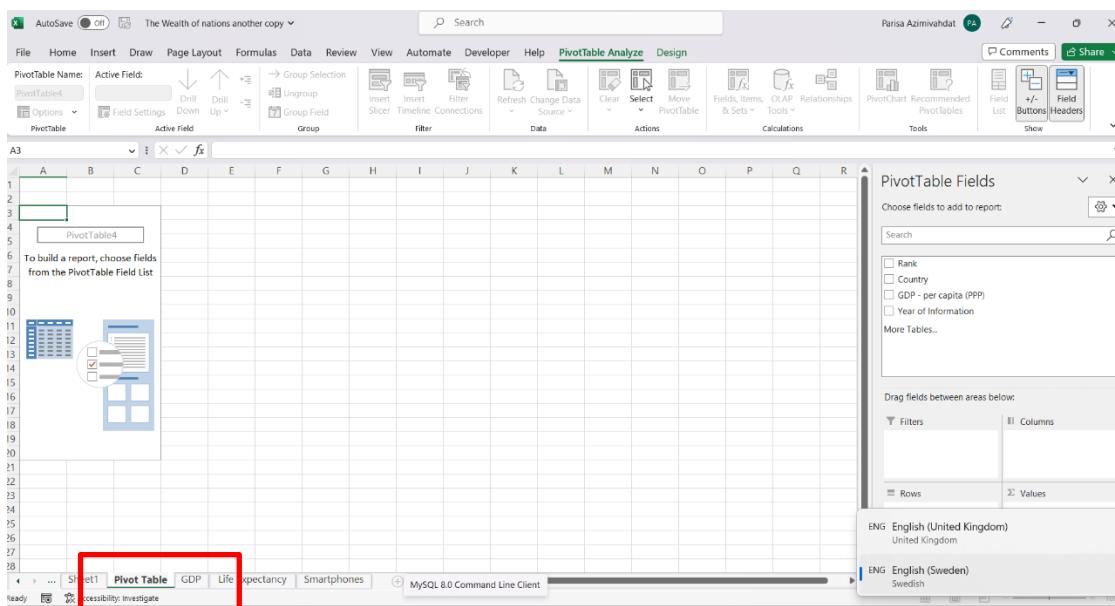
Click on Insert, then click on Pivot Table and choose From Table/Range.

Step 3

See 'Table 1' by excel in 'Table/Range'. Select the place for the pivot table to be on a new sheet.



See the range in the box named 'Table/Range', and click on 'New Sheet.'



Rename the worksheet by double clicking on the tab and typing the name.

Step 4

Choose the fields to add to the pivot table. See that the added fields can be removed by unticking the box.

PivotTable Name: PivotTable4 Active Field: Country

Row Labels: Sum of Rank Sum of GDP - per capita (PPP)

	Rank	Country	GDP - per capita (PPP)
1			
2			
3	Row Labels		
4	Monaco	1	190513
5	Afghanistan	212	2065
6	Albania	119	13965
7	Algeria	139	11511
8	American Samoa	142	11200
9	Andorra	30	49900
10	Angola	161	6670
11	Anguilla	133	12200
12	Antigua and Barbuda	87	21910
13	Argentina	86	22064
14	Armenia	121	13654
15	Aruba	53	37500
16	Australia	31	49854
17	Austria	23	56188
18	Azerbaijan	118	14404
19	Bahamas	55	37101
20	Bahrain	39	45011
21	Bangladesh	176	4754
22	Barbados	108	15639
23	Belarus	94	19150
24	Belgium	28	51934
25	Belize	158	7005
26	Benin	194	3287
27	Bermuda	9	81798
28	Bhutan	135	11832

Sheet1 Pivot Table GDP Life Expectancy Smartphones

Tick the boxes for Rank, Country and GPD-per capita (PPP)

Step 5

Drop the field 'Rank' into the box with the name 'Filters' on the Pivot Table fields' panel on the right side.

Rank (All)

Rank	Country	GDP - per capita (PPP)
1	Monaco	190513
2	Afghanistan	2065
3	Albania	13965
4	Algeria	11511
5	Amer. Samoa	11200
6	Andorra	49900
7	Angola	6670
8	Anguilla	12200
9	Antigua and Barbuda	21910
10	Argentina	22064
11	Armenia	13654
12	Aruba	37500
13	Australia	49854
14	Austria	56188
15	Azerbaijan	14404
16	Bahamas	37101
17	Bahrain	45011
18	Bangladesh	4754
19	Barbados	15639
20	Belarus	19150
21	Belgium	51934
22	Belize	7005
23	Benin	3287
24	Bermuda	81798
25	Bhutan	11832

PivotTable Fields

Choose fields to add to report:

Rank

Country

GDP - per capita (PPP)

Filters

Rank

See the drop-down list with the ranks after this field is placed

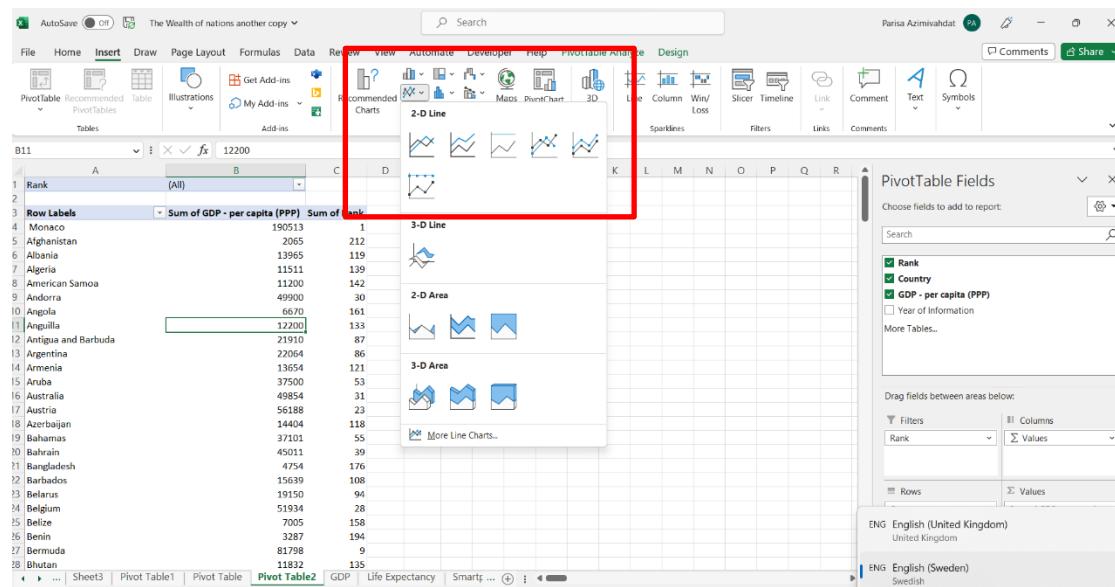
in the Filters' box.

Creating a chart

[Microsoft.com | Create a Chart](#)

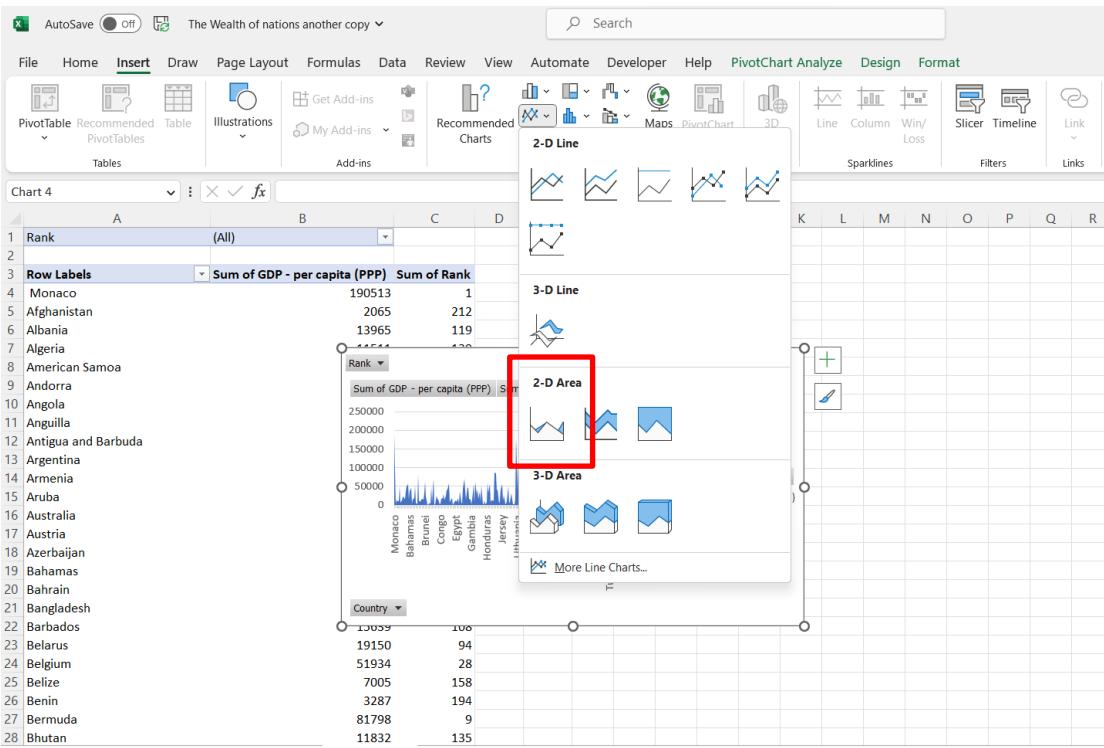
Step 1

Select any cell in Table 1. Click on Insert and choose line charts from the charts-group.



Step 2

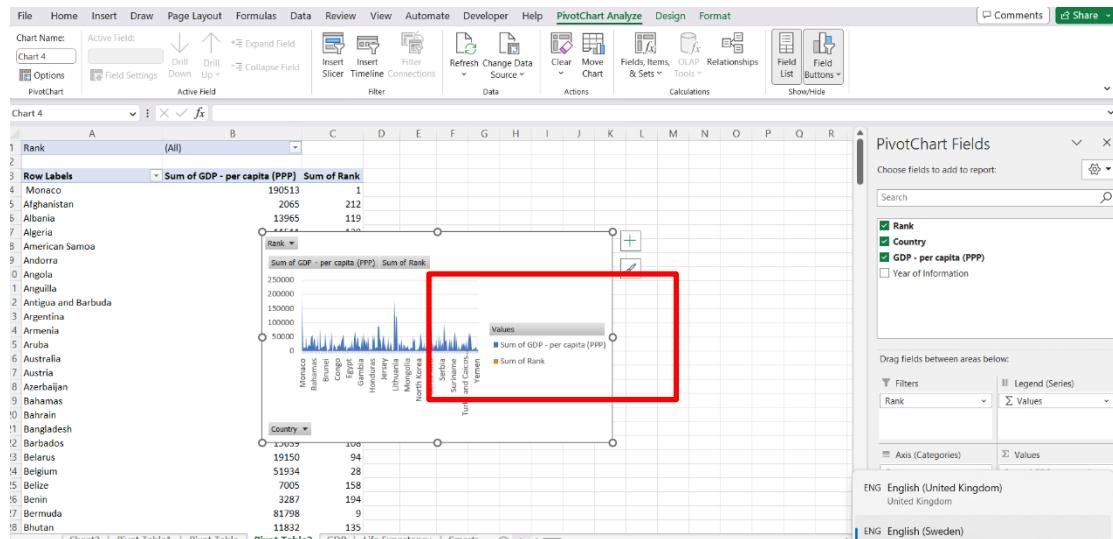
Choose the first option in '2-D Area'.



Click on this chart.

Step 3

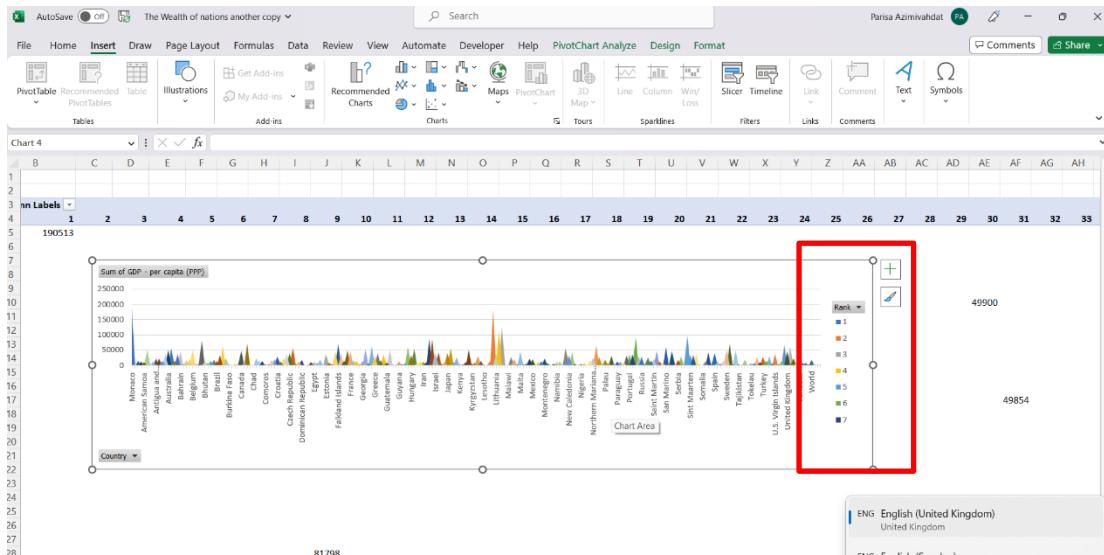
Click on the arrow on the 'Rank' tab in the 'Values' box and choose 'Remove Field'.



Remove Rank from 'Values' for Sum of GPD - per capita (PPP) in the legend.

Step 4

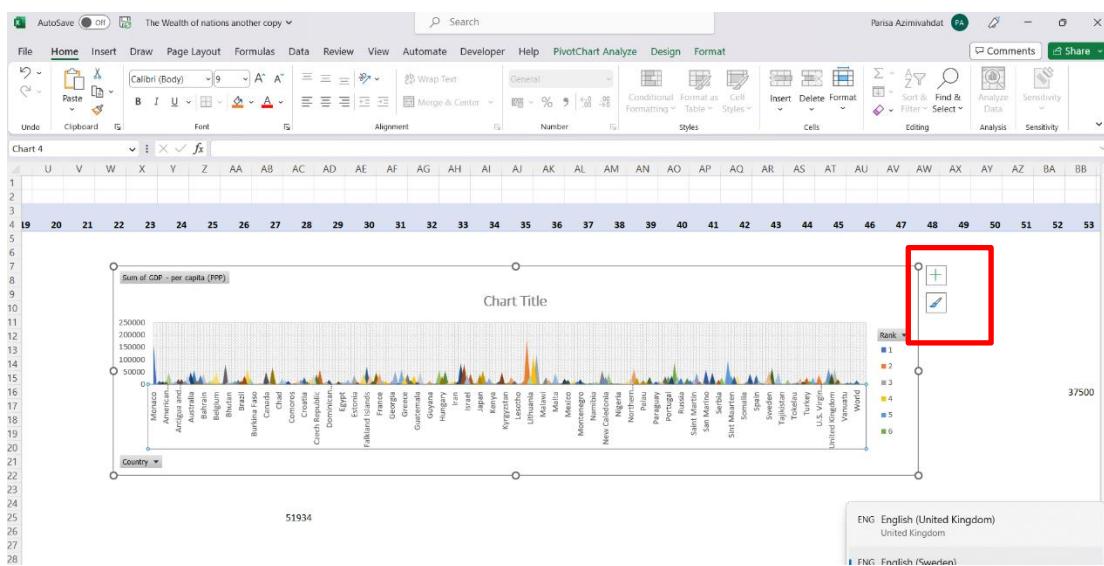
Click on the arrow on the 'Rank' button and choose 'Move to Legend Fields (Series)'.



Note the legend is now filtering Rank.

Step 5

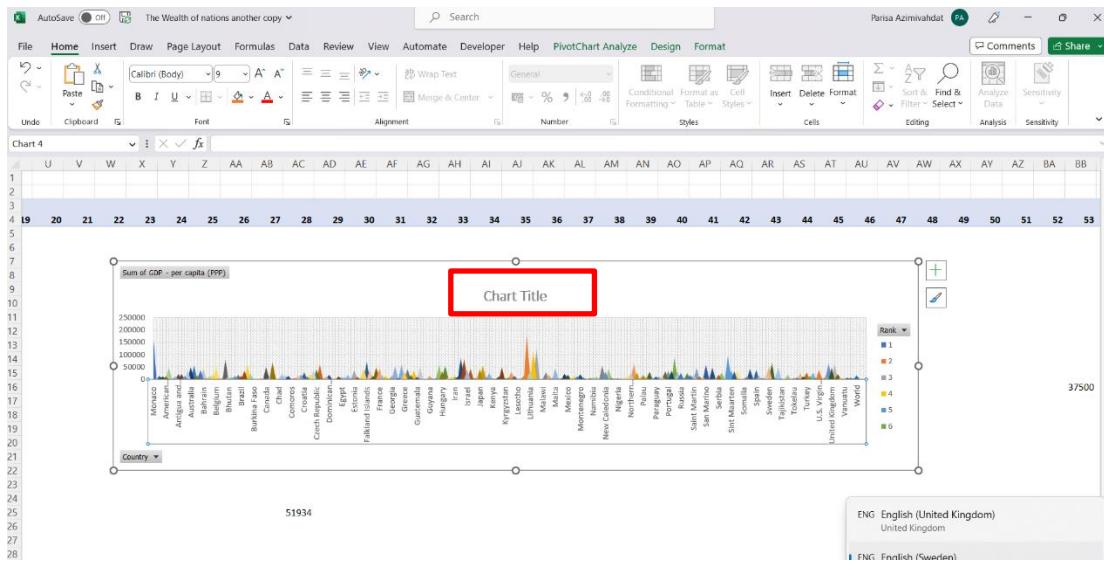
Format the chart by clicking on the x or y axis. 'Chart Style' will then appear in the corner of the chart.



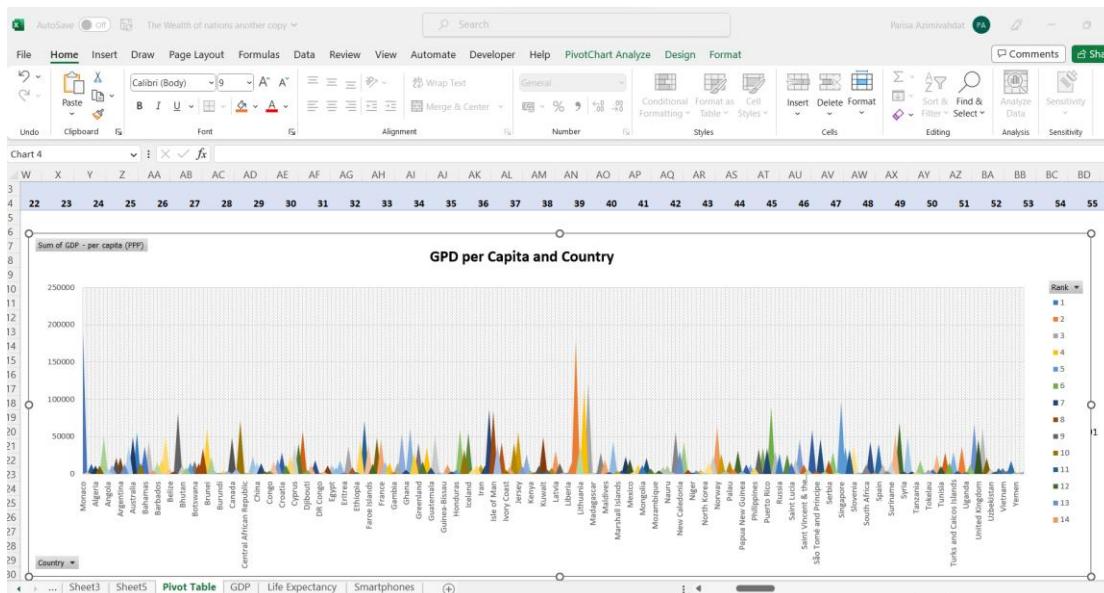
Click either on the number on the y axis or the countries on the x axis for the Chart Style to be visible in the corner. Hover on the icon to see its name.

Step 6

Double click on the title and rename the chart.

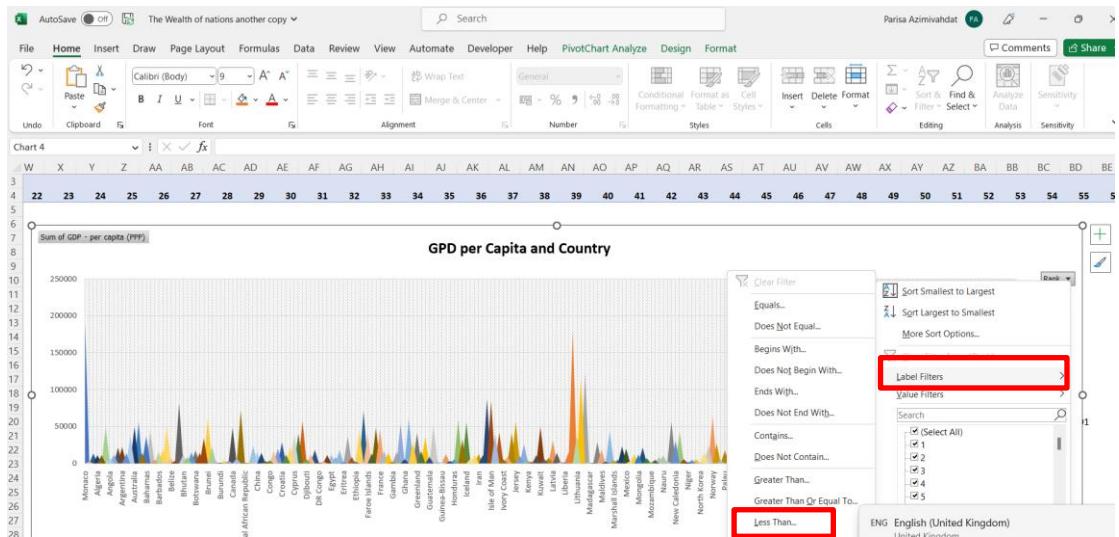


Rename and format the name.

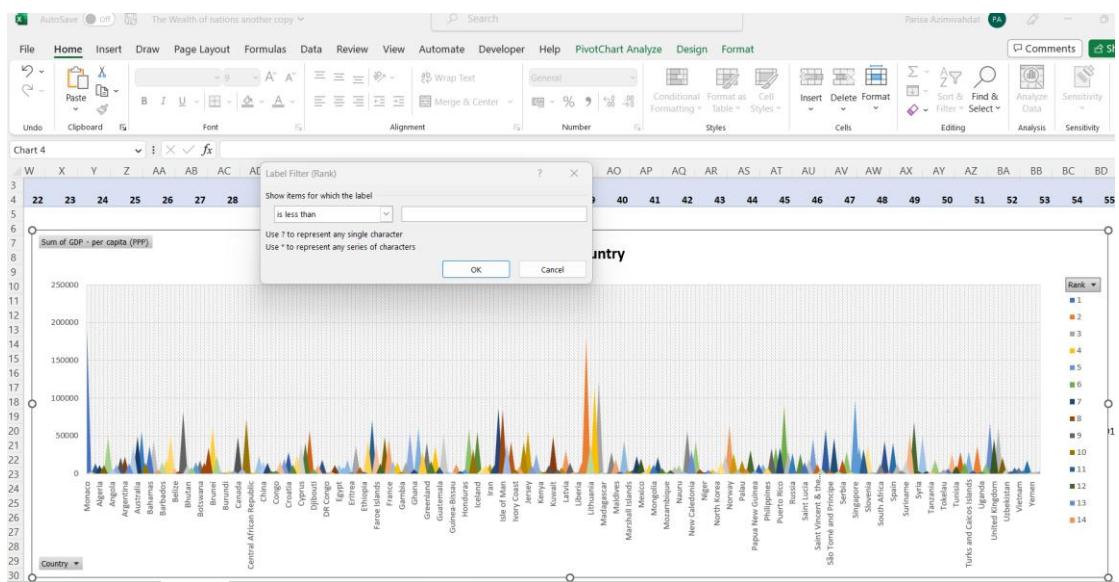


Step 7

One of the many ways to filter the chart by the Rank of the countries is to choose a parameter for the 'lable Filter'. The parameter 'Less Than' can be set for less than 20 which will display the countries with ranks less than 20.



Click on the arrow on the 'Rank' in the legend, and choose 'Value Filter' and 'Less Than...'.



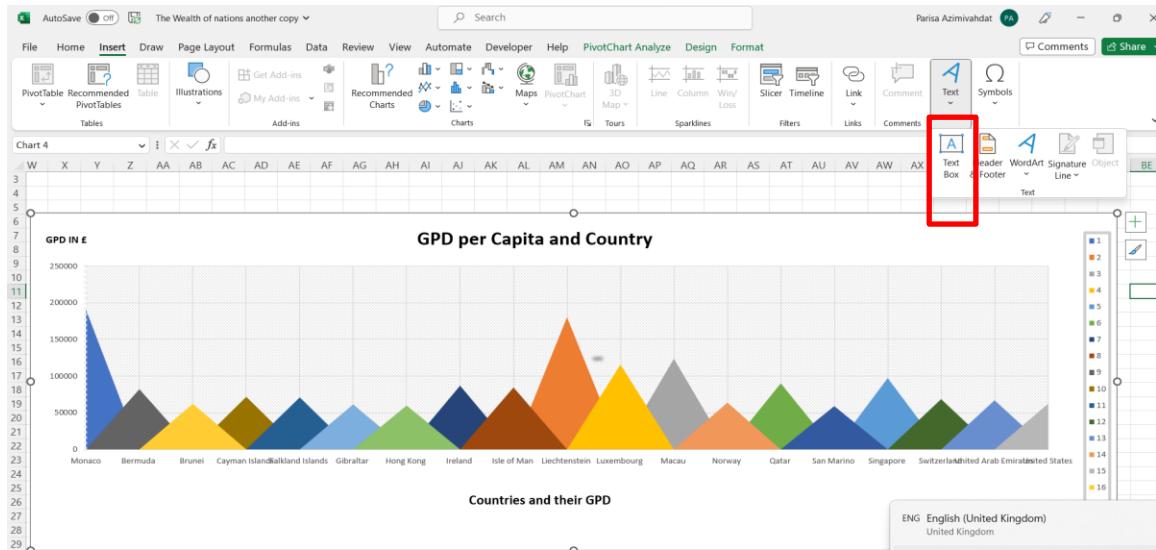
Type 20 or a number of choice in the empty box and click OK.



Chart is now displaying the top 20 countries and their GPD-per capita (PPP)

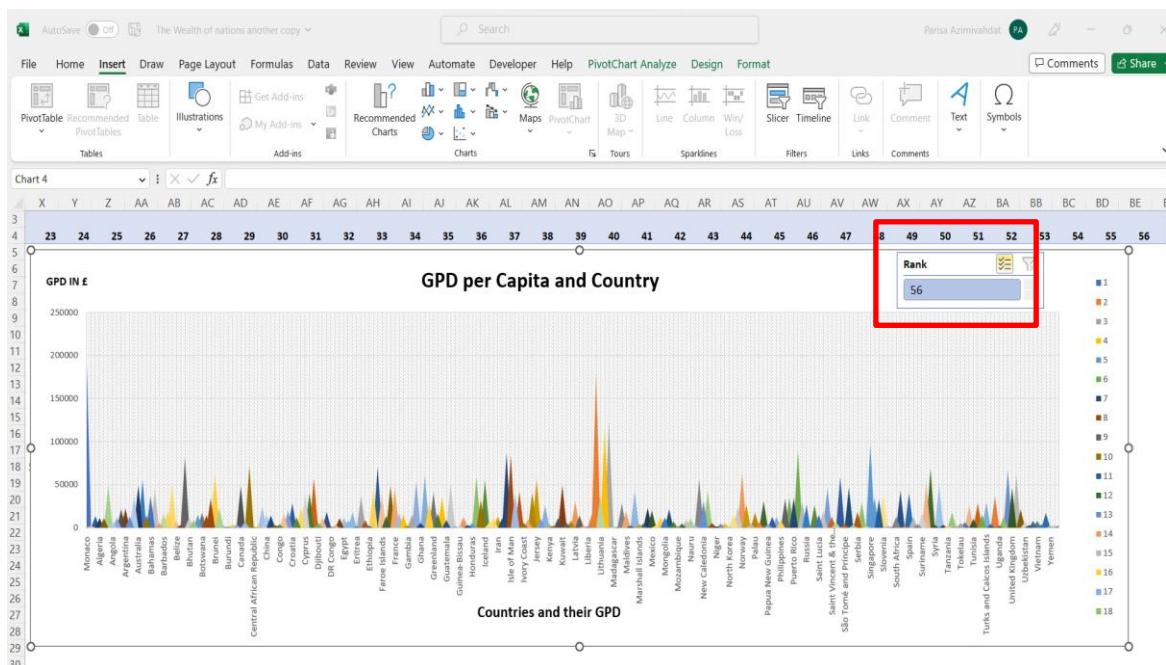
Step 8

Right Click on any of the fields and choose 'Hide All Filed Buttons on Chart'. Insert a text box for the horizontal and vertical axis and name it.



Insert a text box for the x and y axis and name and format them.

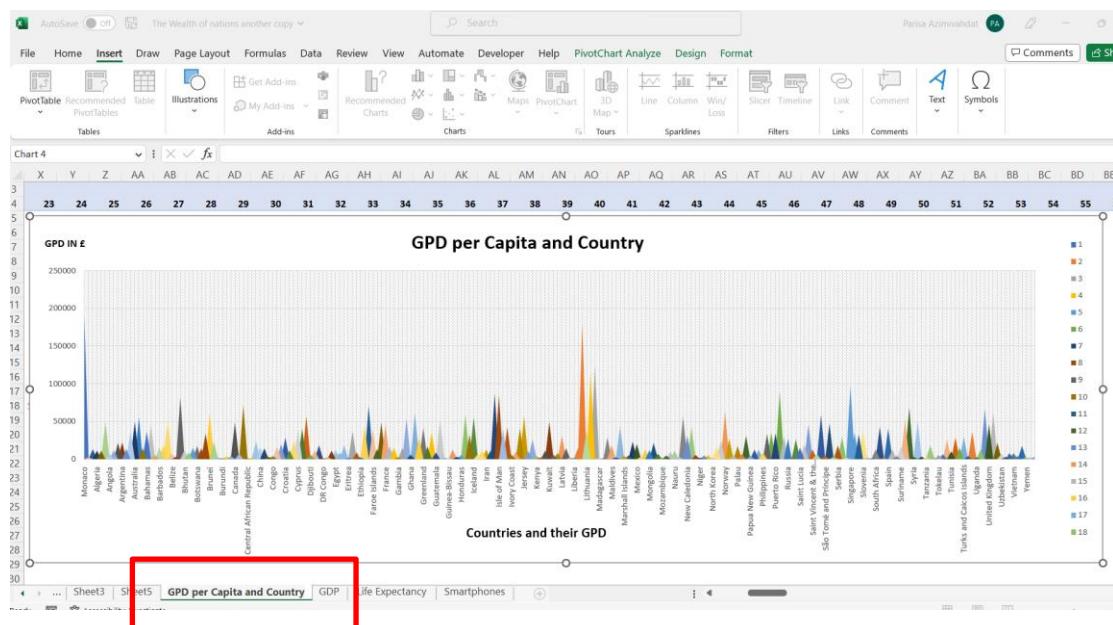
The Slicer allows for selecting values by rank number or multiple ranks. The right click drop-down menu has options for removing it or sending it to the front or back of the chart. It can also be resized to show one value seen below.



Insert a slicer from the Filters-group in the Insert tab. Choose Rank among the fields.

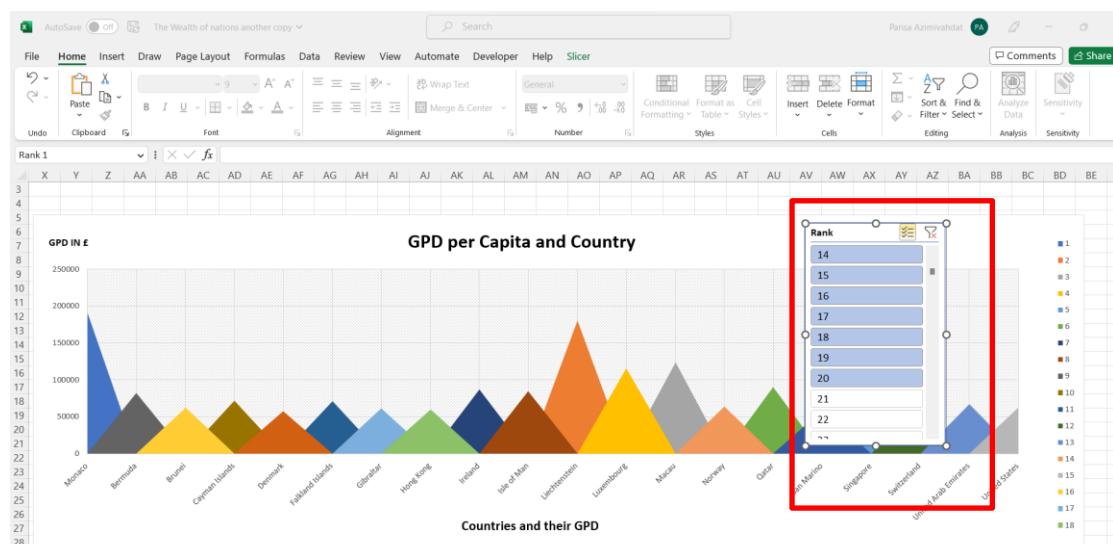
- Move the chart to a new sheet tab and label with a suitable name.

The worksheet is renamed from Pivot Table to GPD per Capita and Country.



- Create a sort for the top 20 highest ranking counties.

The slicer will slice out a single country by choosing a rank number. For 20 highest ranks, choose the Multi option from the right click drop-down menu and select the numbers 1 to 20 by clicking on them individually.



Right click on the Slicer and choose Multi-Select Rank. Then click 1-20.

1. Next create a new Bar chart to display the 20 highest ranking countries from your sort and then move the chart to be underneath the table, as shown below.

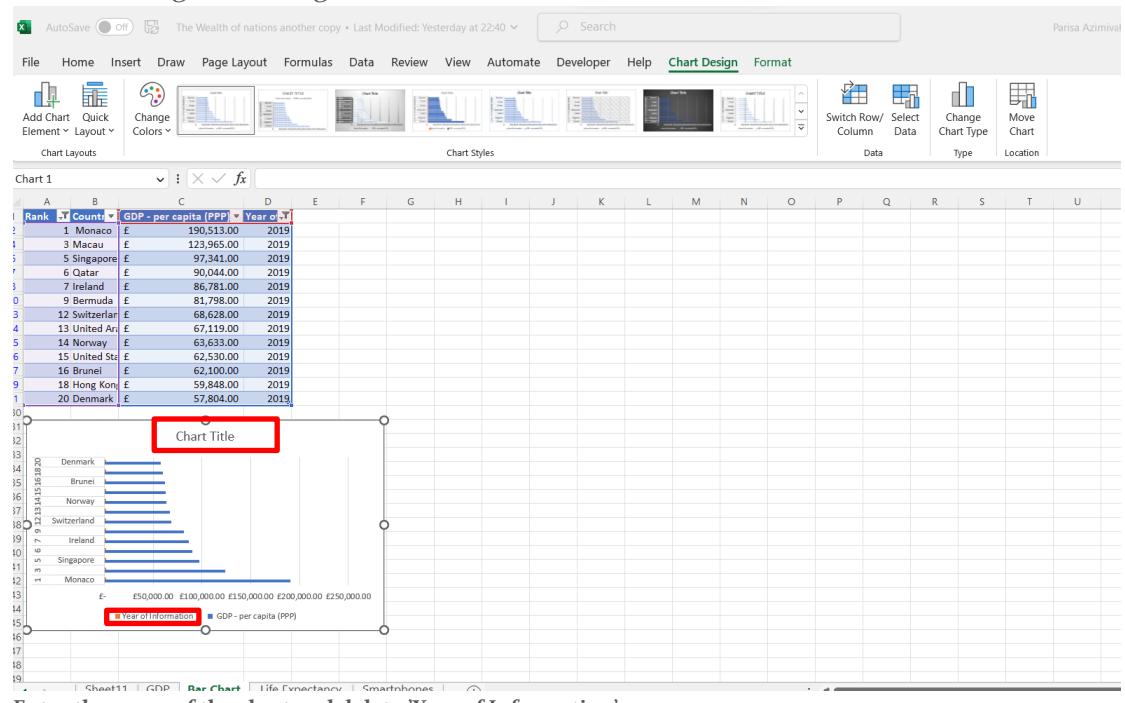
Step 1

Create a new worksheet with a pivot table created from 'GDP- per capita (PPP)'. Filter the top 20 highest ranking countries.

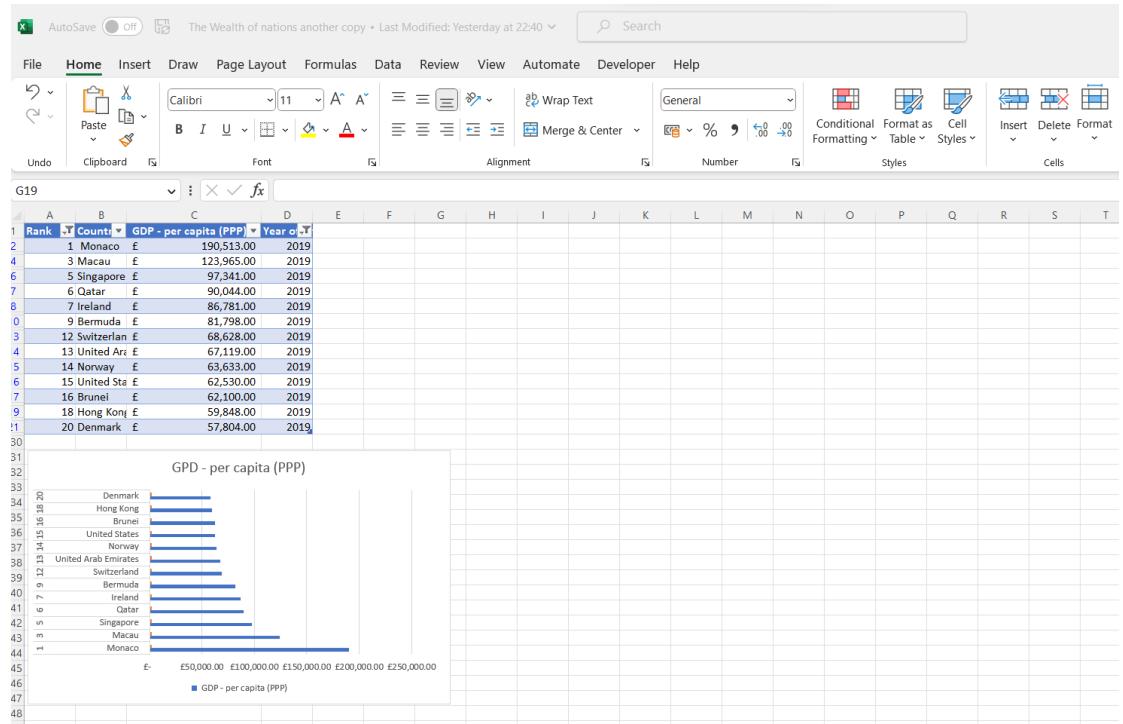
Step 2

It is now time to format and style the chart.

1. Rename the chart.
2. Format a single value legend.

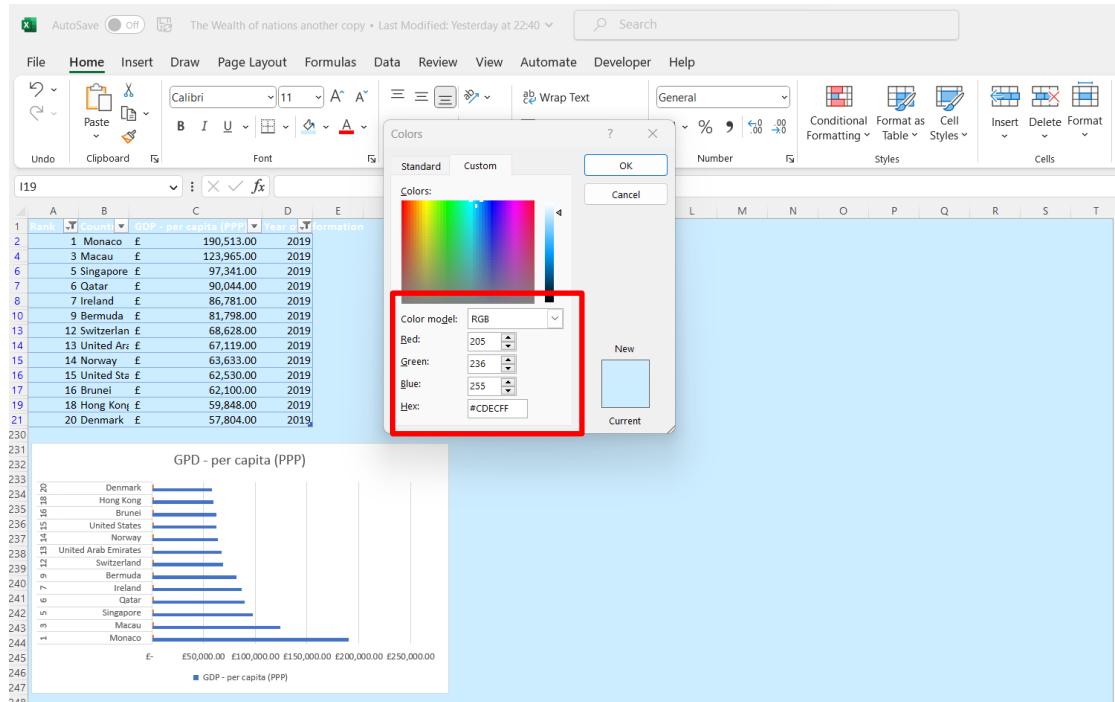


Enter the name of the chart and delete 'Year of Information'.



Resizing the chart will add all the country names on the vertical x-axis.

- Colour the background by highlighting the area underneath the table as shown below. Find the add a fill colour icon and select a colour.



The background colour model and Hex characters.

11. The next task is to create 3 macro buttons, print the sheet, Save the file, and copy the sheet. To copy the sheet in a macro you highlight the area to be copied then right click copy then stop the macro. Next assign the macro to the copy button.

[Microsoft.com | Create a Macro](#)

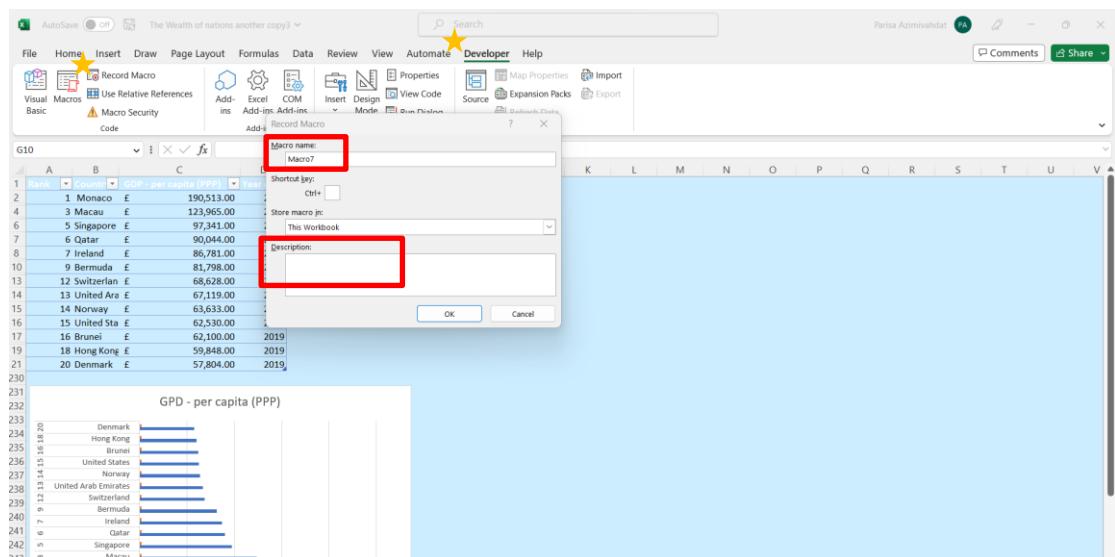
[Microsoft.com | Assign A Macro to A Button](#)

Step 1

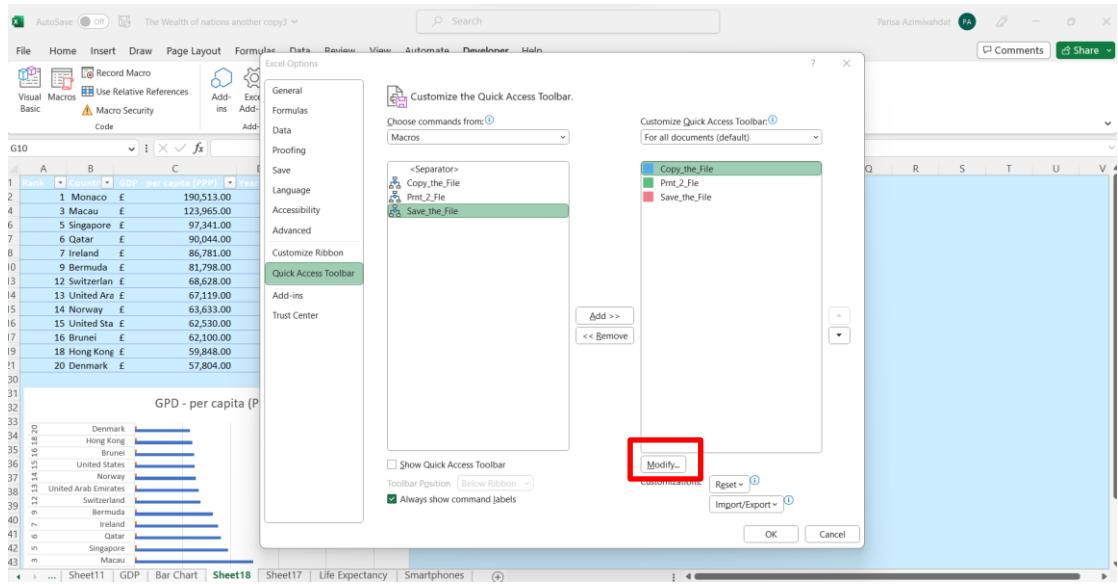
Click on 'Record Macro' in the Cod-group in 'Developer'. Record copying, saving, and printing the worksheet to a file. When completed stop the recording.

Step 2

In 'File' choose 'Options', and 'Quick Access Toolbar'. Under 'Choose Commands From' find 'Macros' and select it. Add all the macros recorded and customize the icon.



Fill out the fields for Macro name and Description. Store the macro in the same worksheet or a new one.



Add the Macros to the right side panel and choose an icon in Modify.

12. Using the copy macro, copy the sheet and then paste it into a new word document keeping the formatting. Give the page a title 'GDP (Gross domestic product)'.
13. Save your document as 'Word Gross domestic product report 1'.
[World Gross Domestic Product Report](#)
14. Before we finish with our excel table 'Gross domestic product' sheet, we will add a header and footer to our table.
15. Enter your name and GLA DATA 1 in the three boxes.
16. In the footer add today's date then Assignment 1 and lastly Data Visualization.
17. Return your view to normal.
18. Save your table as 'Excel Gross domestic product report 1'.
19. Close your word document only.
[Excel Gross Domestic Product Report](#)

Task 3 – Tableau

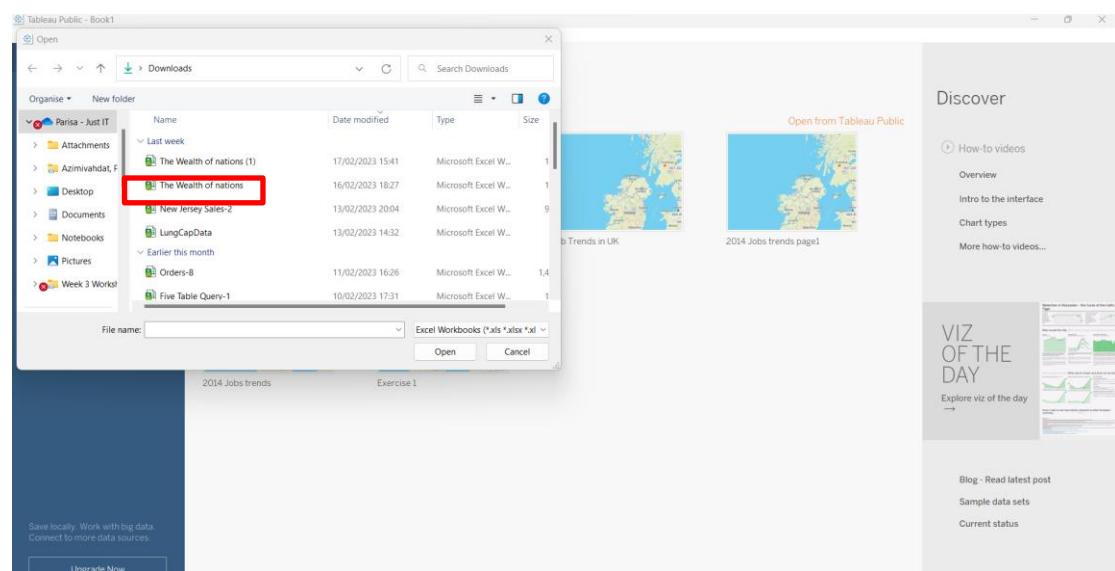
- 1) Import Data
- 2) Set Relationships
- 3) Check Data types.
- 4) Build Charts
- 5) For counts of Null Values, select the Filter Option
- 6) Build your Dashboard.

1) Import Data

Step 1

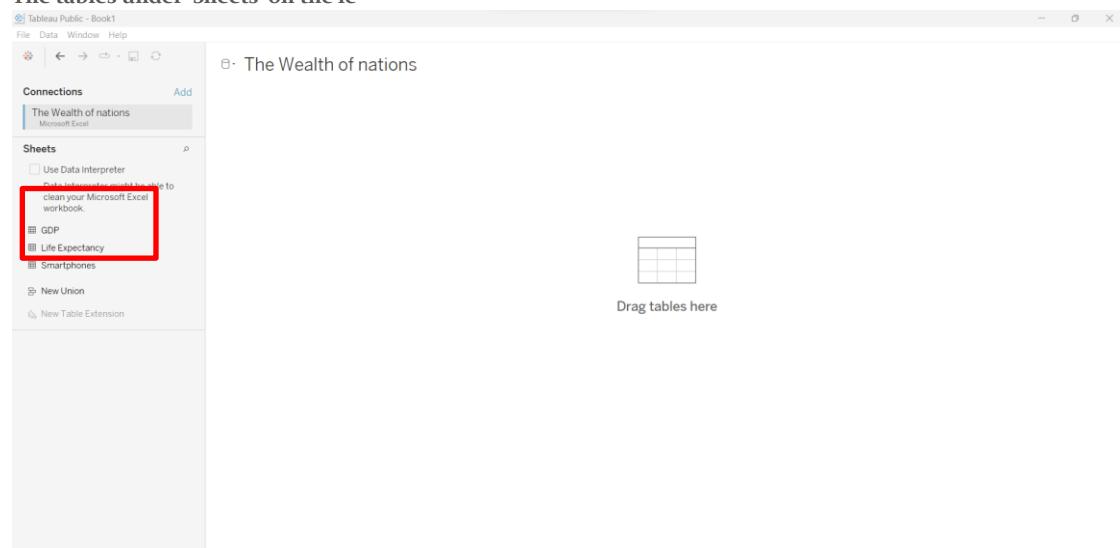
Open Tableau Desktop.

From the ‘Connect’ panel on the left side, choose ‘Microsoft Excel’ and double click on ‘The Wealth of Nations’ to open the file from the hard drive.



We don't have to turn on the Data interpreter because 'Wealth of Nations' is clean and structured data.

The tables under 'Sheets' on the left side are marked in red.



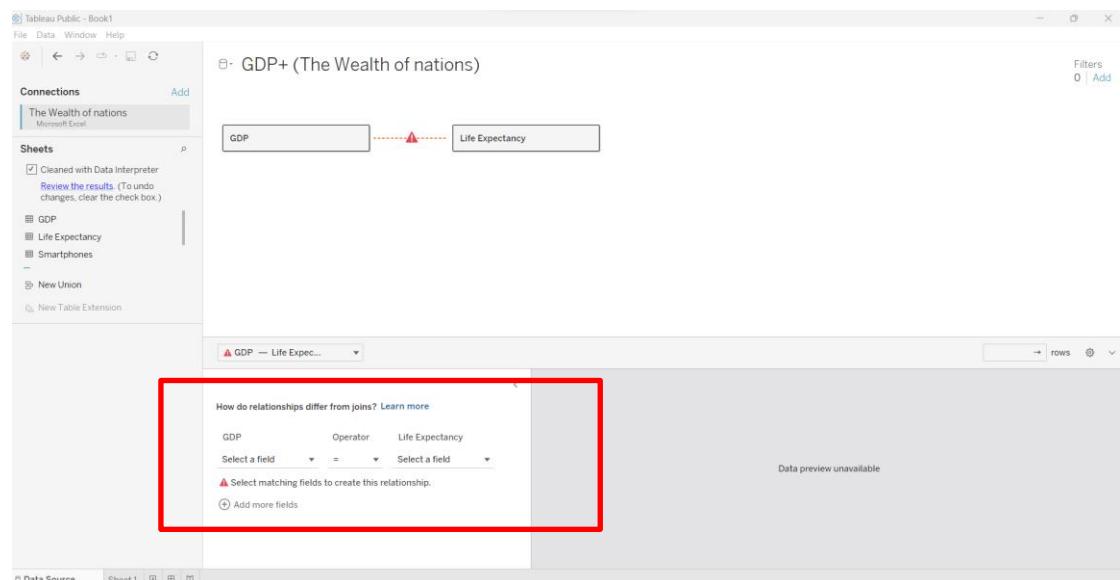
The screenshot shows the Tableau Public interface. On the left, the 'Sheets' pane is open, displaying three tables: 'GDP', 'Life Expectancy', and 'Smartphones'. A red box highlights these three tables. The main canvas area is empty, with a grid icon and the text 'Drag tables here'.

The tables under 'Sheets' on the left side are marked in red.

2) Set Relationships

Step 1

Drag and drop two of the three tables into the canvas as shown below.



The screenshot shows the Tableau Public interface with the 'GDP' and 'Life Expectancy' tables on the canvas. A red box highlights the 'Relationships' pane in the bottom right corner, which is used for setting relationships between fields from different tables.

Scroll through to see which two fields are similar in both tables.

Set the relationship between 'GDP' and 'Life Expectancy' by finding the column 'Country' in both tables and making sure the operator is set to equal or '=' between them.

The screenshot shows the Tableau interface with a connection to 'The Wealth of nations' Excel file. A relationship is being set between the 'GDP' and 'Life Expectancy' sheets. The 'GDP' sheet is joined to the 'Life Expectancy' sheet via the 'Country' field. The 'Operator' for this relationship is set to '='. A red box highlights the relationship dialog and the 'Country' field in both tables.

Find the list of fields or columns in both tables marked in red.

Step 2

Drag and drop 'Smartphones' and set the relationship between 'GDP' and 'Smartphones' as by related fields.

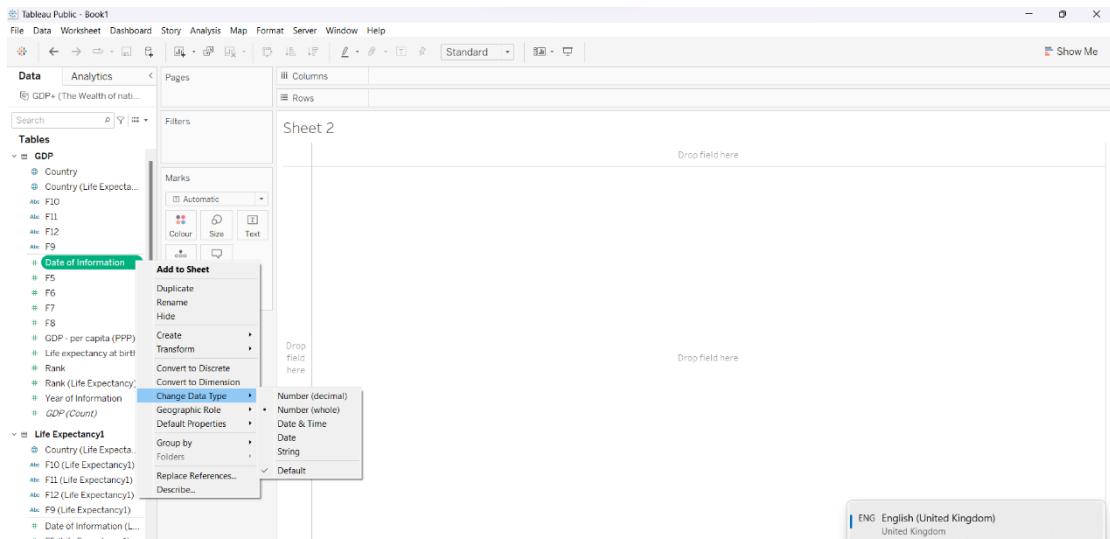
Optimise Relationship Queries using Performance Options

The screenshot shows the Tableau interface with a connection to 'The Wealth of nations' Excel file. A relationship is being set between the 'GDP' and 'Smartphones' sheets. The 'GDP' sheet is joined to the 'Smartphones' sheet via the 'Country' and 'Rank' fields. The 'Operator' for this relationship is set to '='. A red box highlights the relationship dialog and the 'Country' and 'Rank' fields in both tables.

Note columns Country and Rank are set equal in the relationship.

3. Check Data Types

Check and change the data type of a field by clicking on the arrow and hover over 'Change Data Type' and choose a new type of data.



Three tables displayed on the Data panel to the left with 'Dimensions' on top of 'Measures'. Each data type is represented by a symbol and visible on the left side of the field.

4. Build Charts

Bar Chart

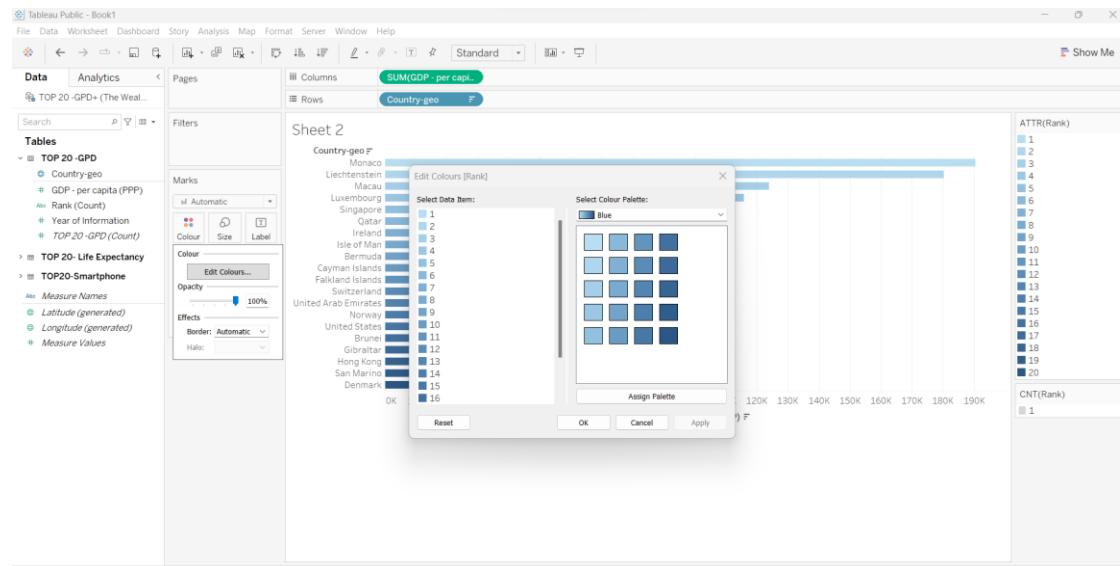
[The Wealth of nations-Top20.xlsx \(sharepoint.com\)](#)

Our data, 'Wealth of Nations' is incomplete for the requested Top 20 countries and Smartphone users. A table is downloaded from World Data Bank with information about the top 20 countries with smartphone users in 2015. This data is imported from hard drive into Tableau. The relationship has been set by setting the 'Rank' column between the three tables containing the selected data.

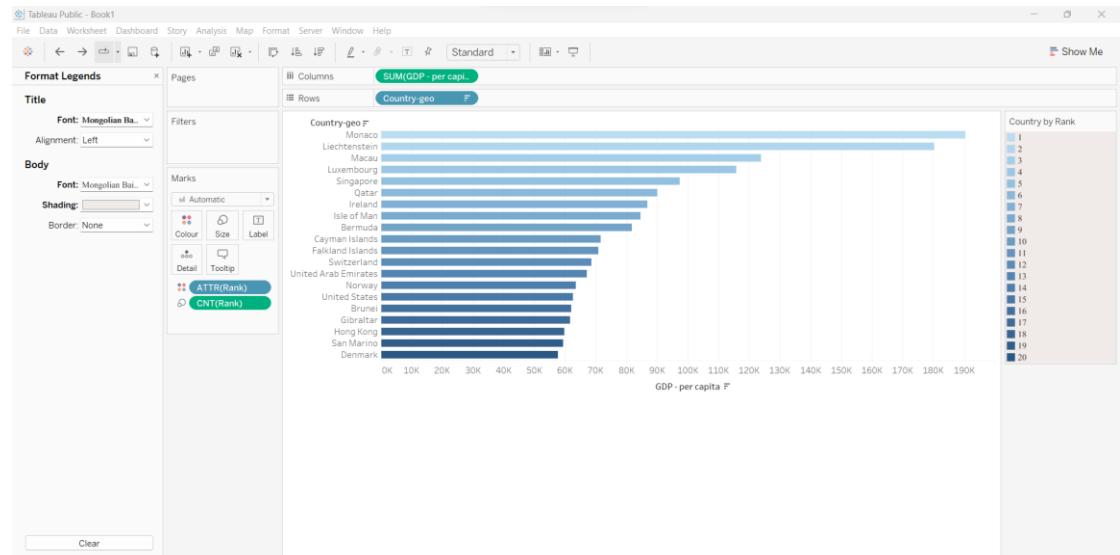
The data type in 'Rank' is changed from number to string.

The colour palette is set to blue for grouping similarities and showing differences of the values.

This chart introduces the top 20 countries with the highest GPD per capita.



The blue colour with shades is chosen as required. Chart, axis, and legend titles are edited and formatted.

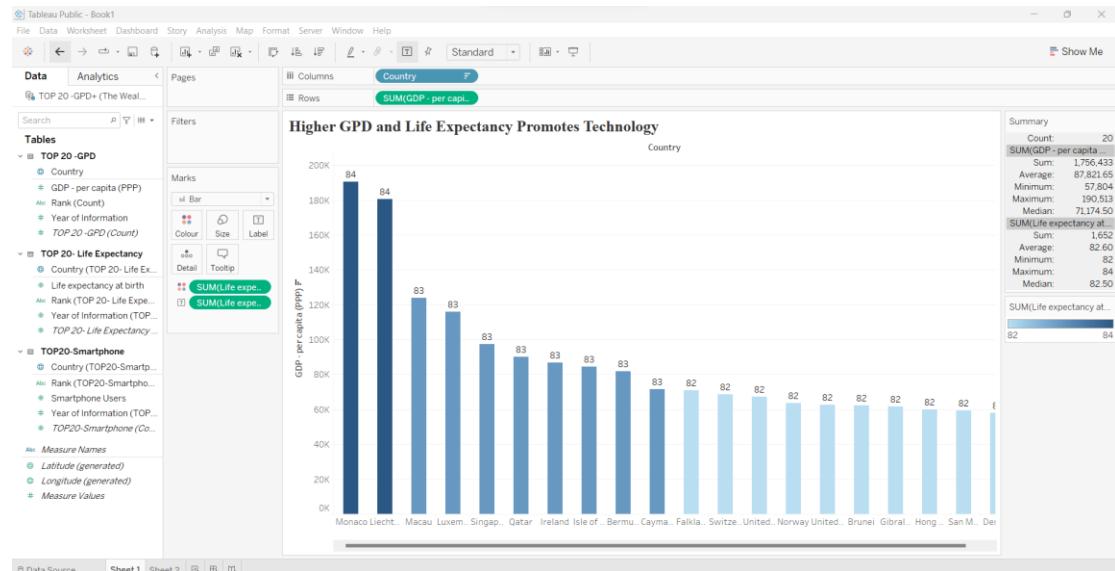


The fields used are marked in red. The fields are dropped into boxes as shown.

Bar and Line chart

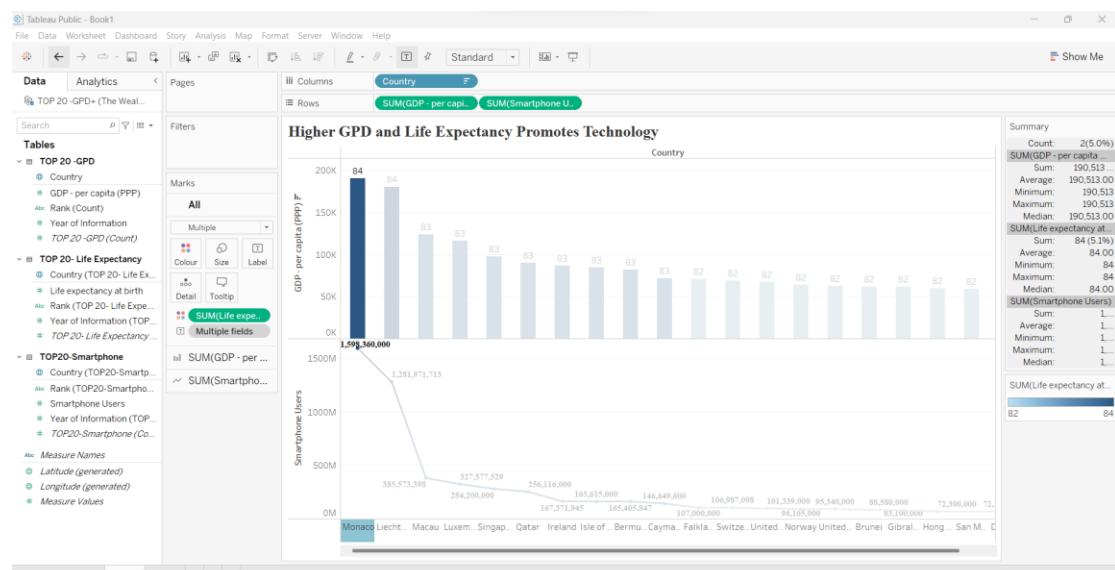
This double chart is created to show the relation between higher GPD per capita, life expectancy and the number of smartphone users.

Drop 'Country' to columns, 'GPD- per capita' in rows for a bar chart. Drop 'Life expectancy' in both colour and labels in the marks card.



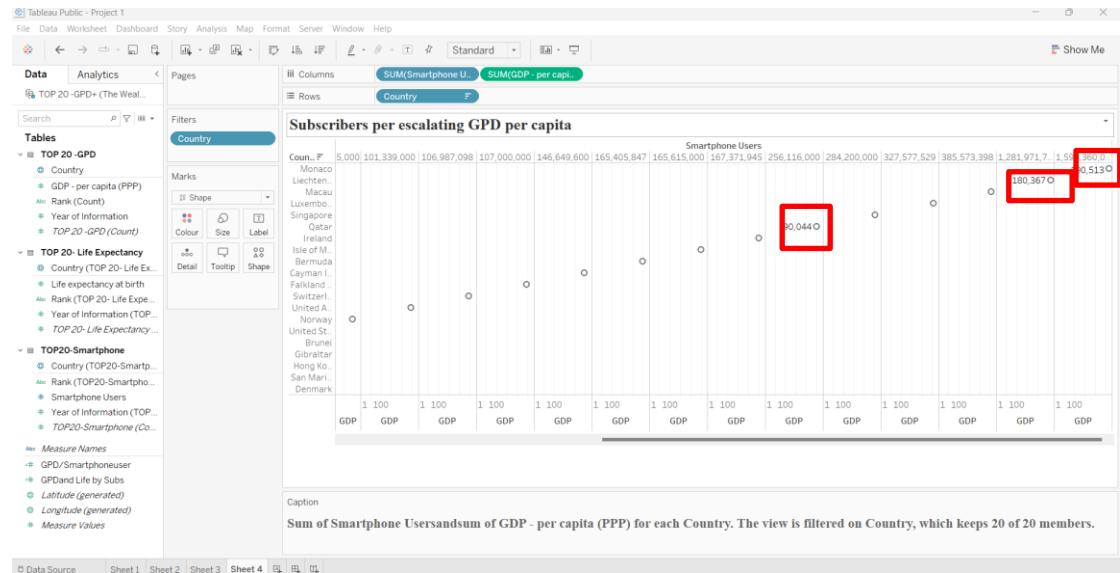
Choose Summary for the legend to display information related to a selected country.

Then drop 'Smartphone Users' into rows and into the labels. Any country can be chosen for details about GPD, Life expectancy and smartphone subscriptions.



Scatter plot chart

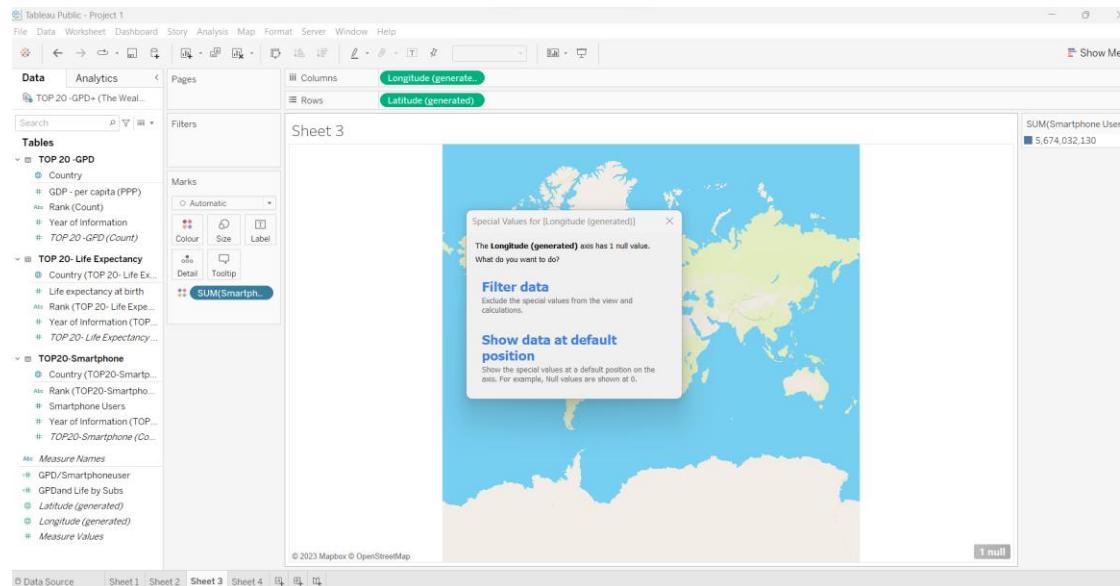
The Smartphone subscribers displayed with increasing GPD per capita on a logarithmic x-axis for clarity for each of the countries. This chart shows the relation between the number of subscribers and GPD per capita. Three markings display a larger increase in the number of subscribers.



This chart is using the label card instead of the colour card.

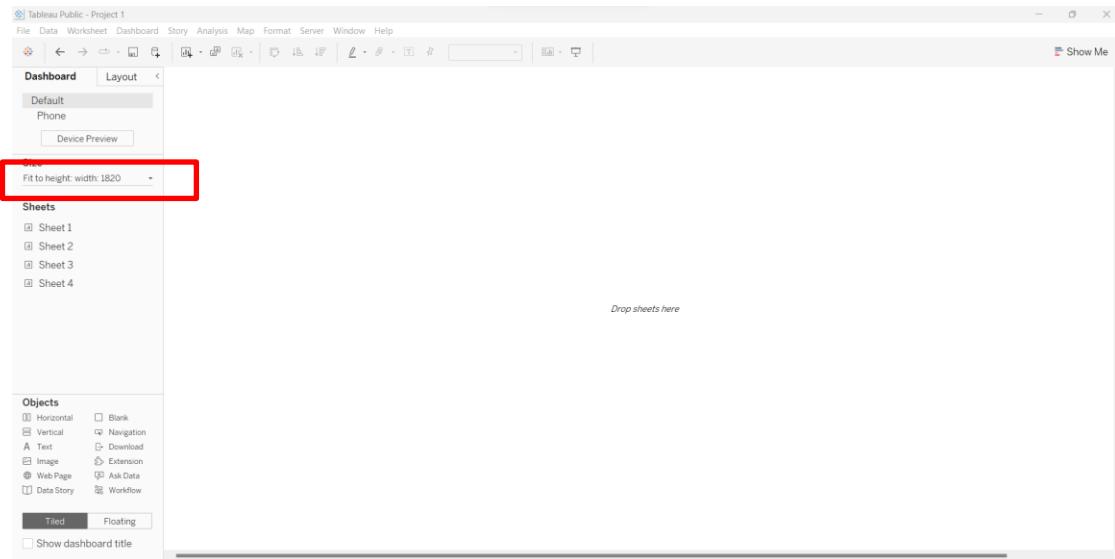
The Map

Filtered a null value.



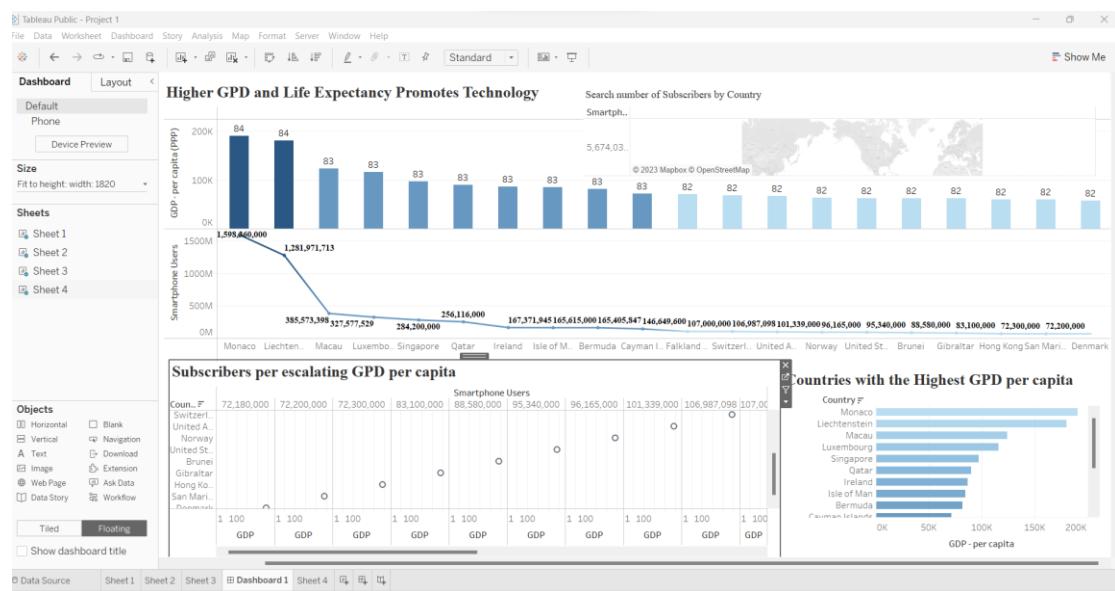
Dashboard

From 'Dashboard' on the ribbon, click on 'New Dashboard'. Increase the width to cover the full size of the canvas.



Click on the arrow under 'size' marked in red to get the dropdown menu.

The final view on the Dashboard.



Reflections

The data I used is not complete. The GPD-worksheet has 228 countries, but the year of information is between 2014 and 2020. Filtering years would diminish the numerical data to single cells. 'Life Expectancy'- worksheet has 196 countries and all information is gathered in 2020. However, life expectancy at birth with 1 decimal is not as detailed as the other data. So, it will not be useful to decide trends and relationships.

The third worksheet, 'Smartphone Users' has a copy of the number of users copied into the country column. I have decided to download the information about smartphone subscribers in the top 20 countries from World Bank Data. But I only managed to get a worksheet covering up to 2015 which is 5 years behind the final year of information gathering in 2020.

I made three tables over the top 20 countries, GPD per capita, Smartphone users and Life expectancy, and I set the relationship by country. Unfortunately, I still could not find a clearer relation between GPD, life expectancy and the number of subscribers.

I see that data must be processed and analysed before visualisation, so that there is sufficient data to support queries.