Assignment1 Data Visualisation

Project 1

Alena Pavlioglo 2/15/23 JustIt Data Analyst Bootcamp

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Introduction

The project name is the “Data Visualisation” which consists of three parts. The aim of the Project is to show understanding and ability to work with data in Excel, the establishment of relationships, their reflection and visualization in Tableau.

The subject of work is “Wealth of nations” data set, and it includes information about GDP, Smartphone users and Life expectancy in the world.

GDP – Gross Domestic Product. It is a measure of a nation’s economic activity. It is made up of consumer spending, government spending investment and net exports.

GDP per capita – is a financial metric that breaks down a country’s economic output per person.

In the next three tasks we will analyse the data, establish relationships and visualise the results Tableau.

Task 1.

Policies and procedures.

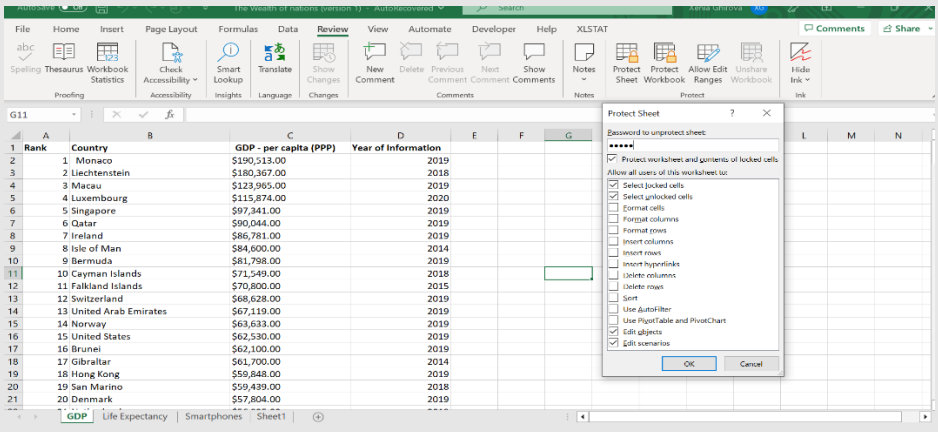
The main responsibility when working with data is to adhere the policies and provide security and competent managing the data. Effective policies are all the more important now and we can list five data security policies that all organisations must have.

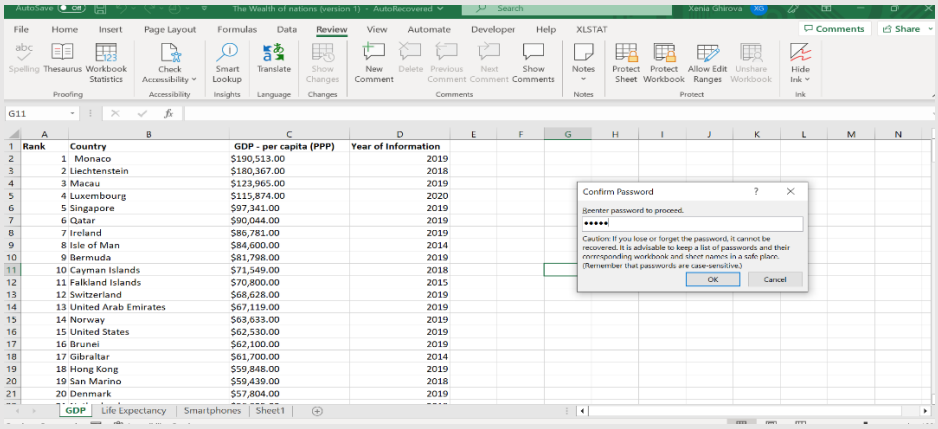
1. Encryption policies. It is only accessible or understood by approved users, as it hides information and replaces identifiers. The process consists of a key generation algorithm, an encryption algorithm, and a decryption algorithm.
2. Password policies. An effective password policy allows to create a set of rules governing the creation of passwords and preventing the theft of confidential data.
3. Email policies to prevent fishing and to detect spam and viruses.
4. Data protection and privacy policies protect people from misuse of information about them.
5. GDPR (General Data Protection Regulation).

By adhering to these rules, we ensure the correct and fair use of everyone's data.

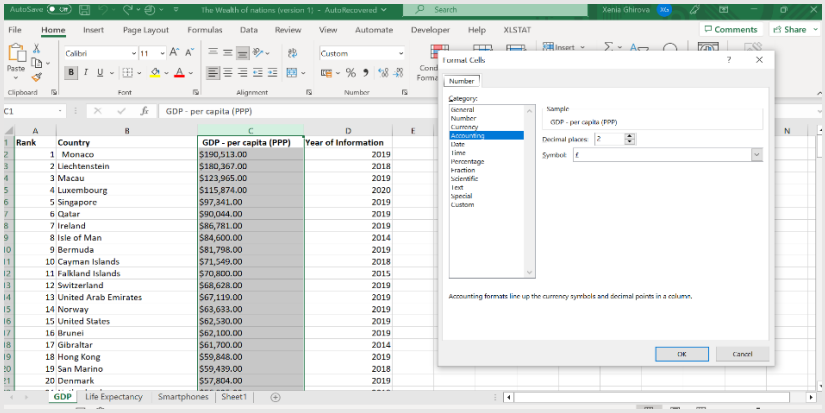
Task 2. Excel

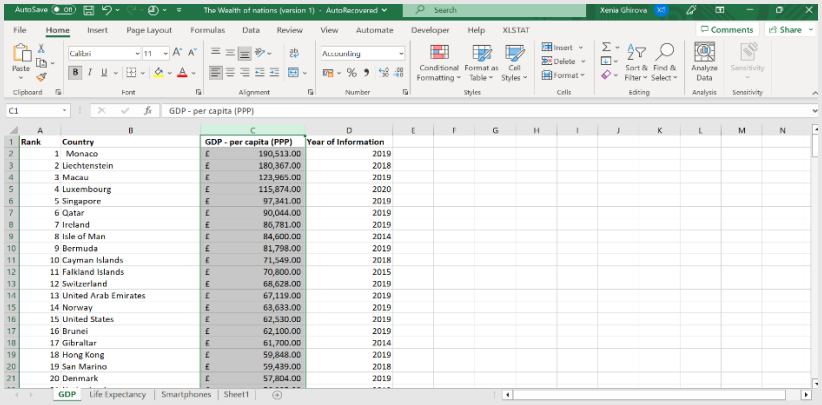
- Set a password to protect the workbook.





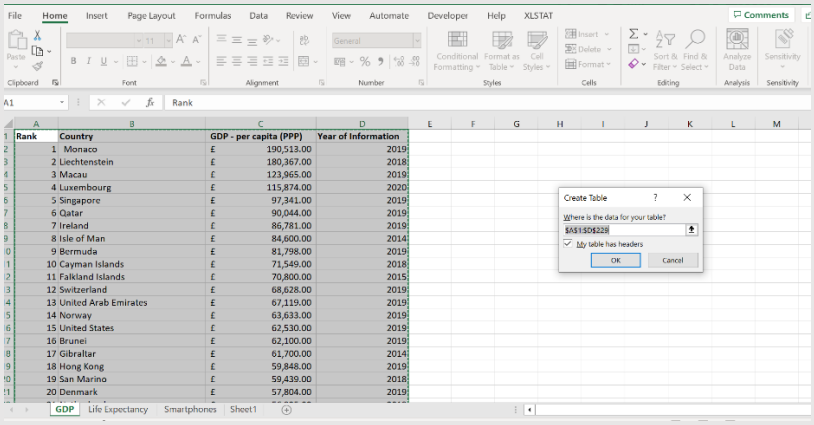
- Highlighting column C and change the data to display in British Pound symbol.

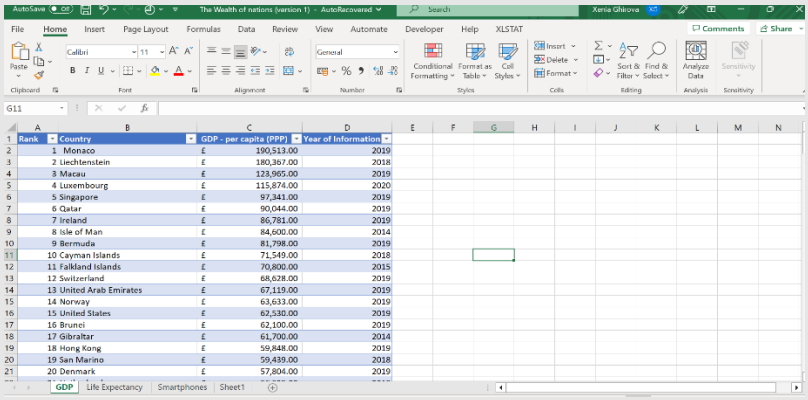




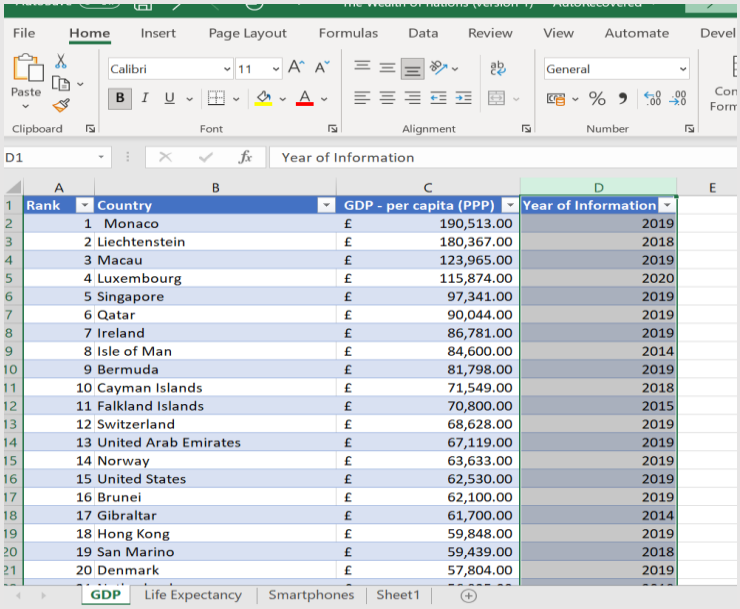
Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	£ 190,513.00	2019
2	Liechtenstein	£ 180,367.00	2018
3	Macau	£ 123,965.00	2019
4	Luxembourg	£ 115,874.00	2020
5	Singapore	£ 97,341.00	2019
6	Qatar	£ 90,044.00	2019
7	Ireland	£ 86,781.00	2019
8	Isle of Man	£ 84,600.00	2014
9	Bermuda	£ 81,798.00	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	£ 62,530.00	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

- Turn the GDP sheet into a table.





- Filtering the table to display only the information for 2019.



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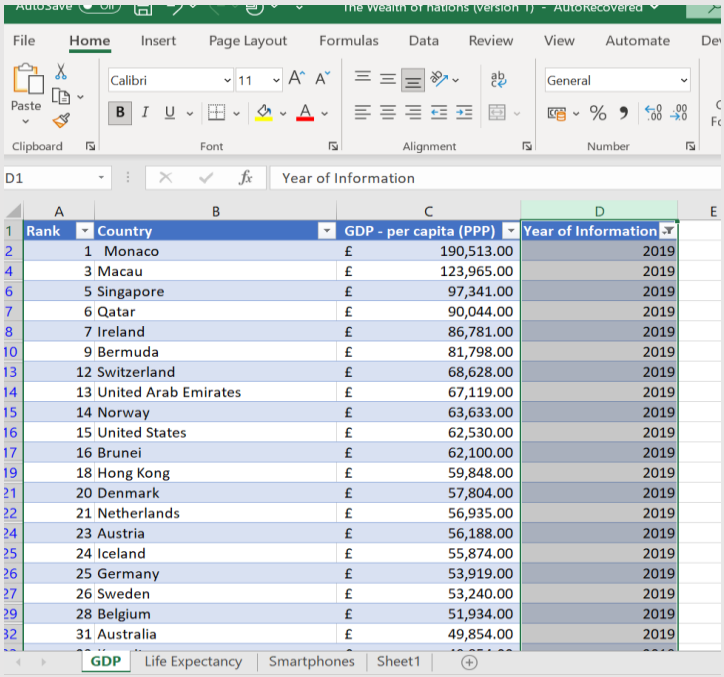

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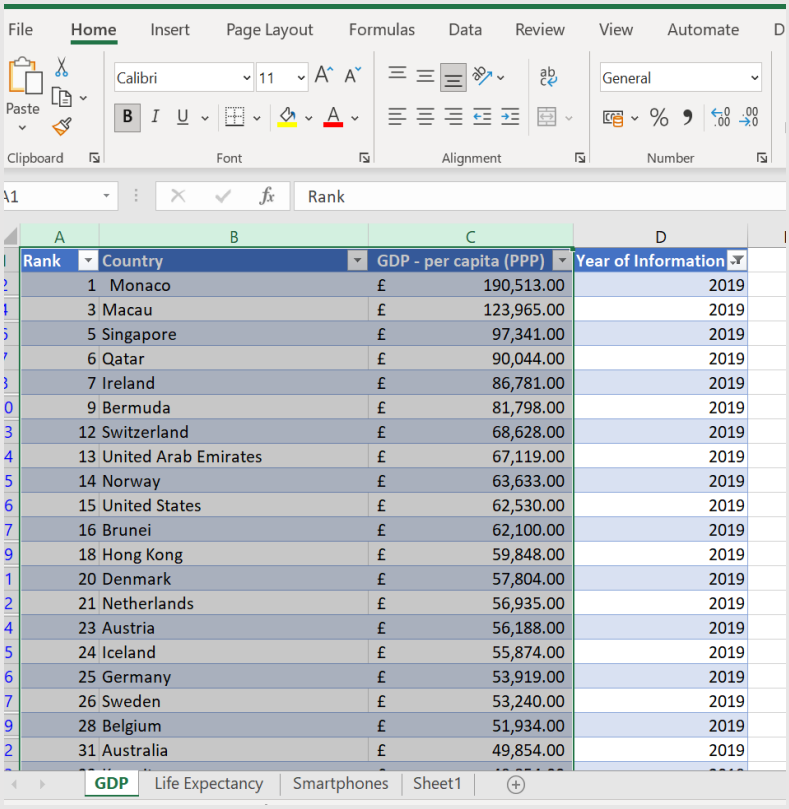
18	Hong Kong	£ 59,848.00	2019
20	Denmark	£ 57,804.00	2019
21	Netherlands	£ 56,935.00	2019
23	Austria	£ 56,188.00	2019
24	Iceland	£ 55,874.00	2019
25	Germany	£ 53,919.00	2019
26	Sweden	£ 53,240.00	2019
28	Belgium	£ 51,934.00	2019
31	Australia	£ 49,854.00	2019

- Next, I have created a chart that will only display the following data ‘Rank, Country and GDP - per capita (PPP).



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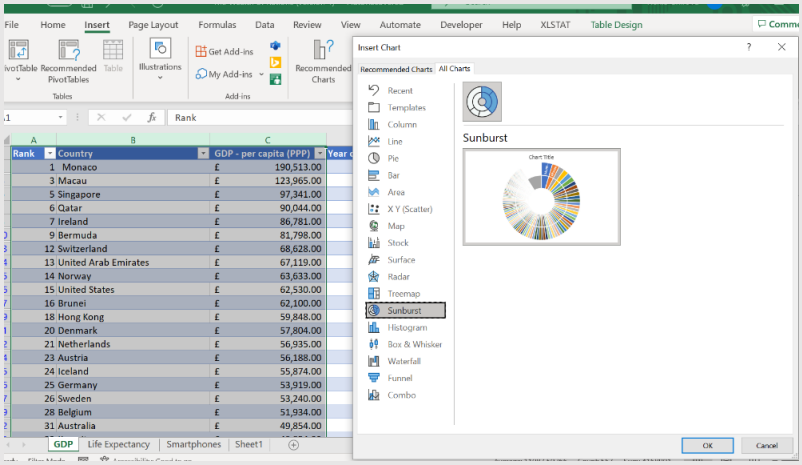
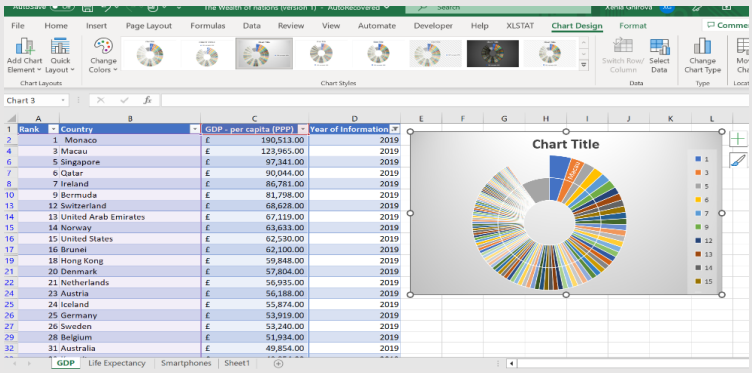


- Using my creative skills I have edited the chart, added a title and have made the chart visually pleasing.



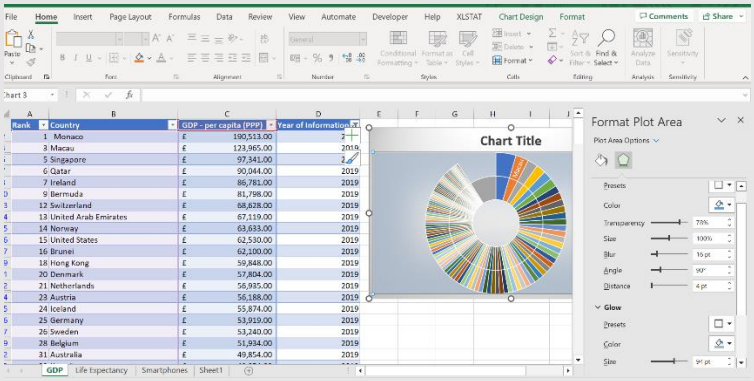
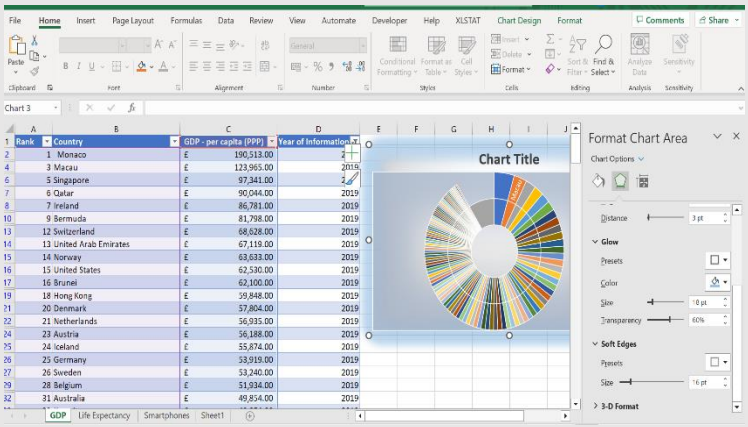


Chart Title
Format Plot Area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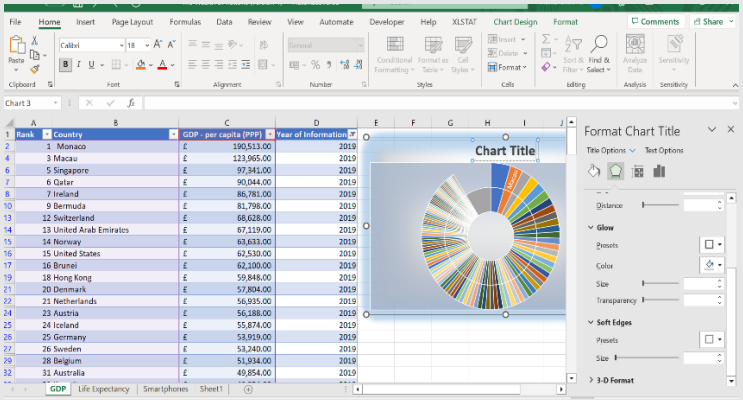
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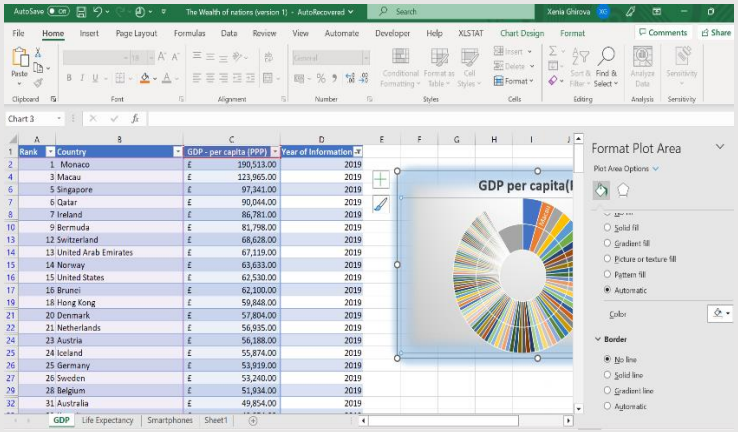
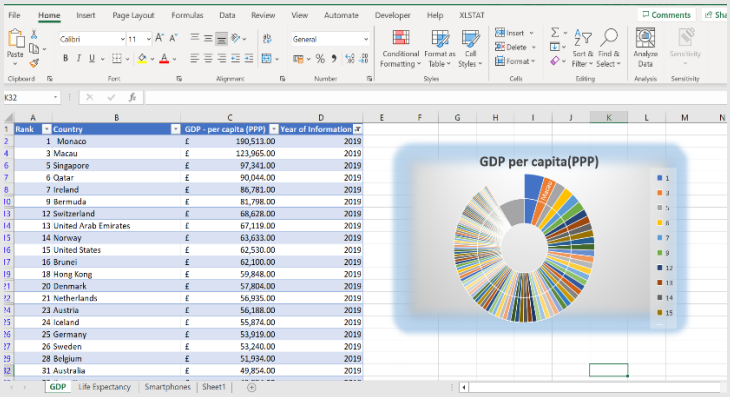
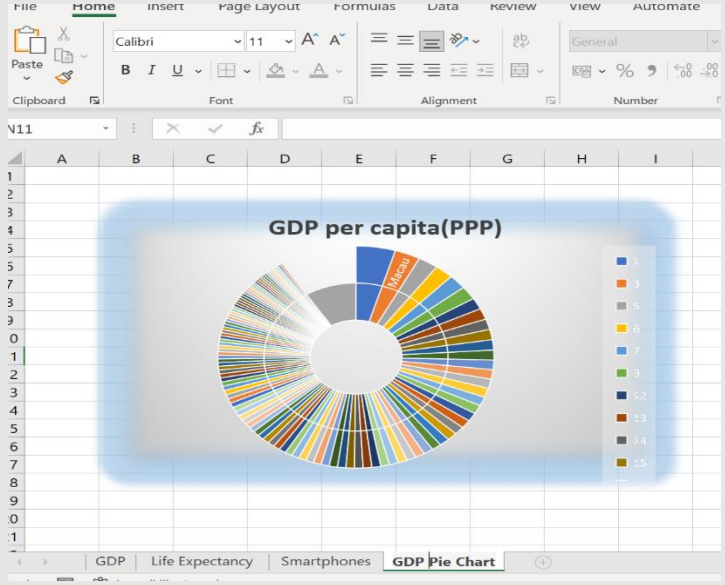
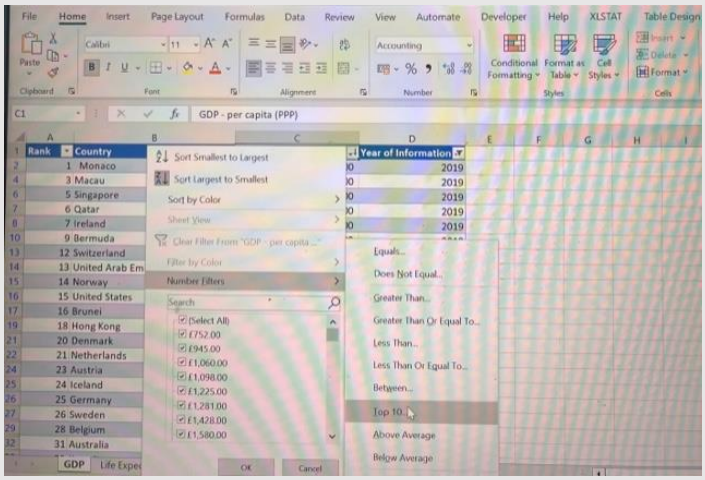

GDP per capita(I
Format Plot Area

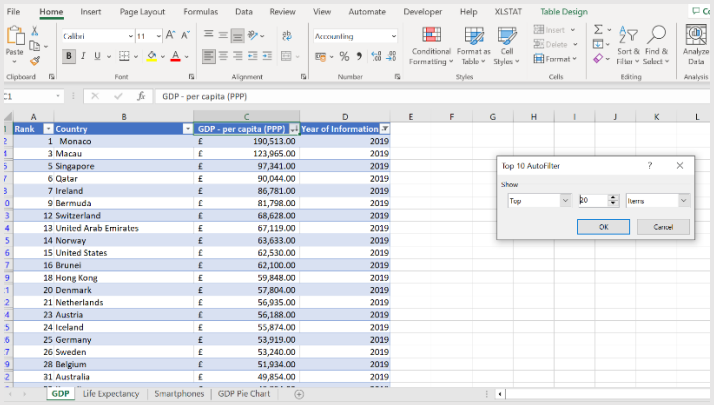


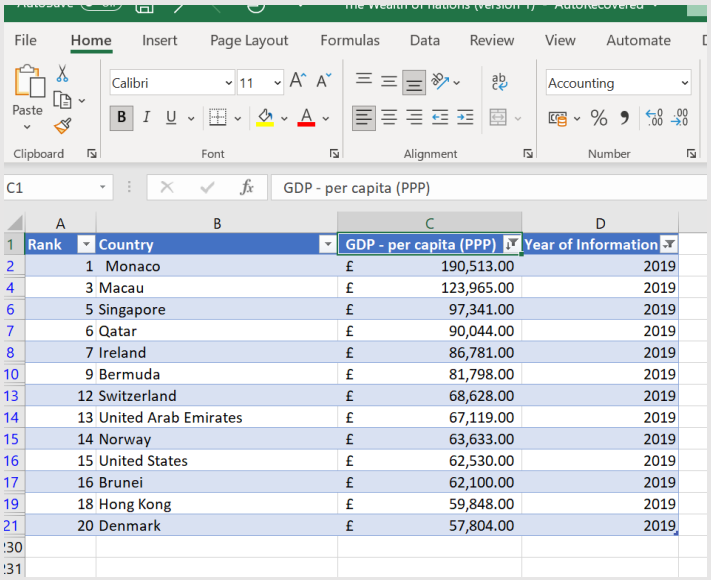
- I have moved the chart to a new sheet tab and labelled it with a suitable name as required.



- I have created a sort for the top 20 highest ranking counties.







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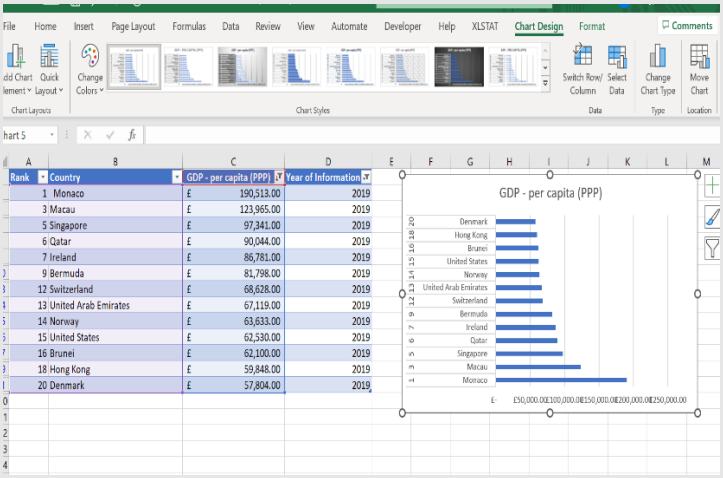
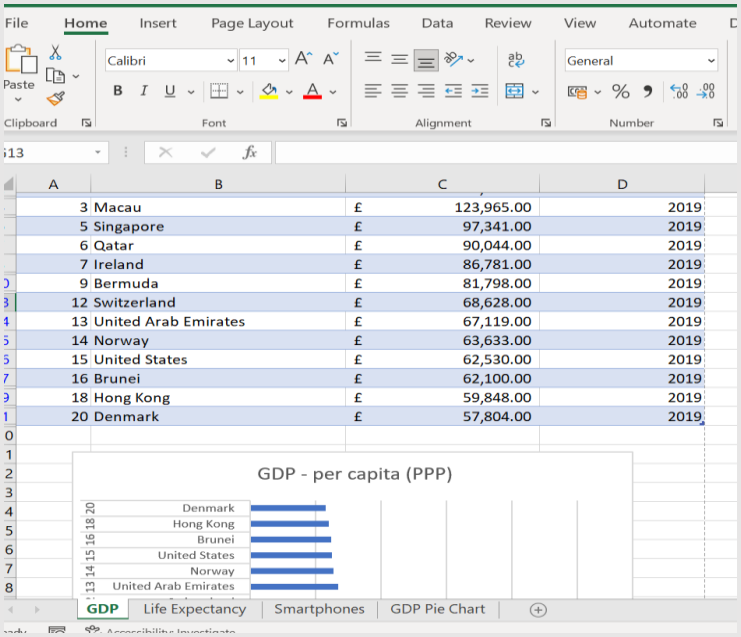
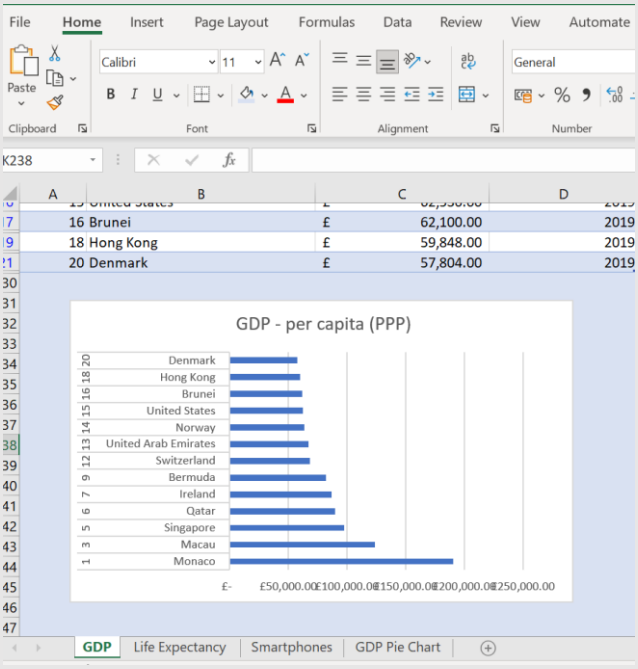
16	Brunei	£ 62,100.00	2019
18	Hong Kong	£ 59,848.00	2019
20	Denmark	£ 57,804.00	2019

- Next, I have created a new Bar chart to display the 20 highest ranking countries from my sort and then moved the chart to be underneath the table.

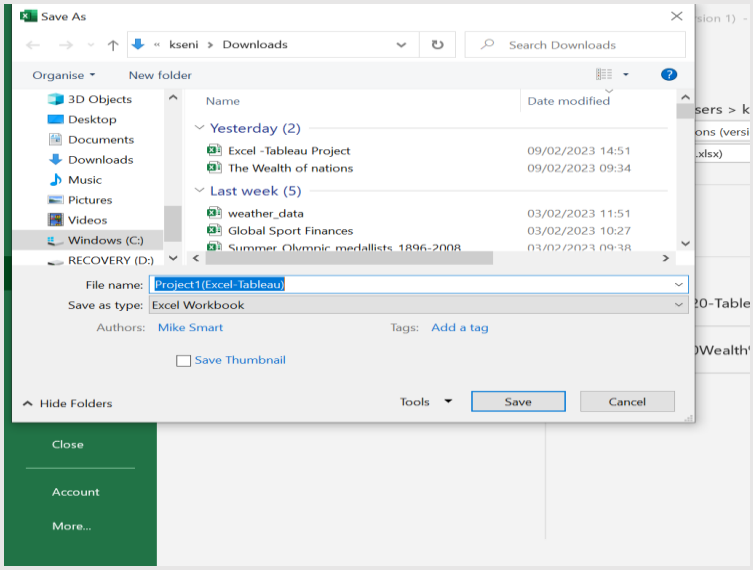




- Coloured the background by highlighting the area underneath the table. Have found the add a fill colour icon and selected a colour.

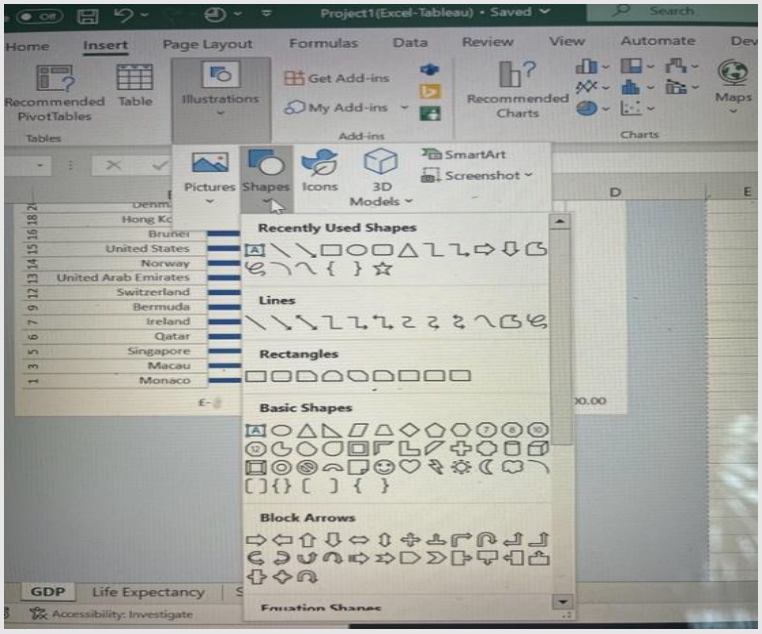


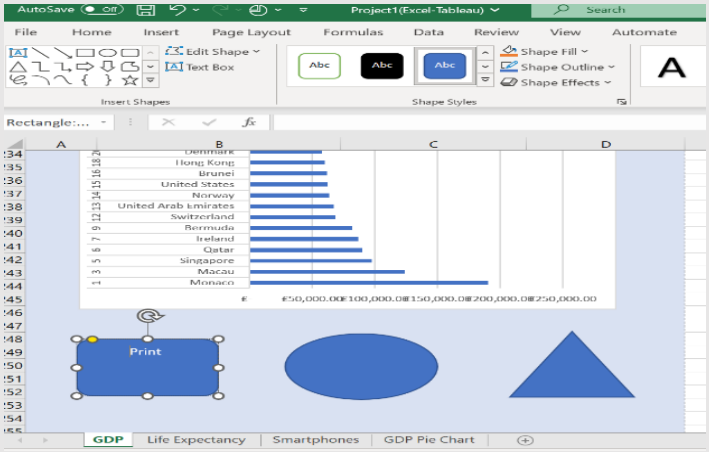
- I have changed the name for Project1(Excel-Tableau) and saved my worksheet.



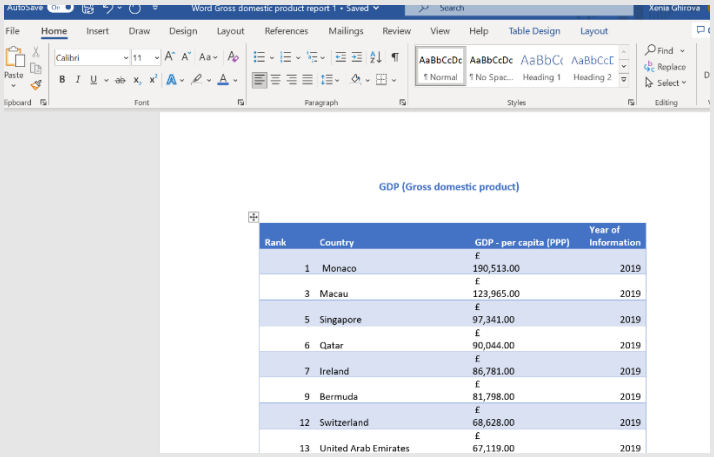
Task 2. Macros

The next task is to create 3 macro buttons, print the sheet, Save the file and Copy the sheet.





- Using the copy macro, I have copied the sheet and then pasted it into a new word document keeping the formatting. I gave the page a title 'GDP (Gross domestic product) and saved my document as 'Word Gross domestic product report.



GDP (Gross domestic product)

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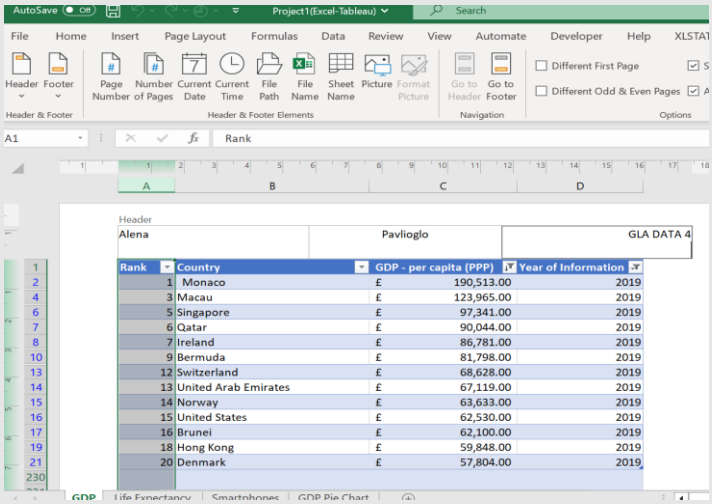
- I have added a header and footer to my table.



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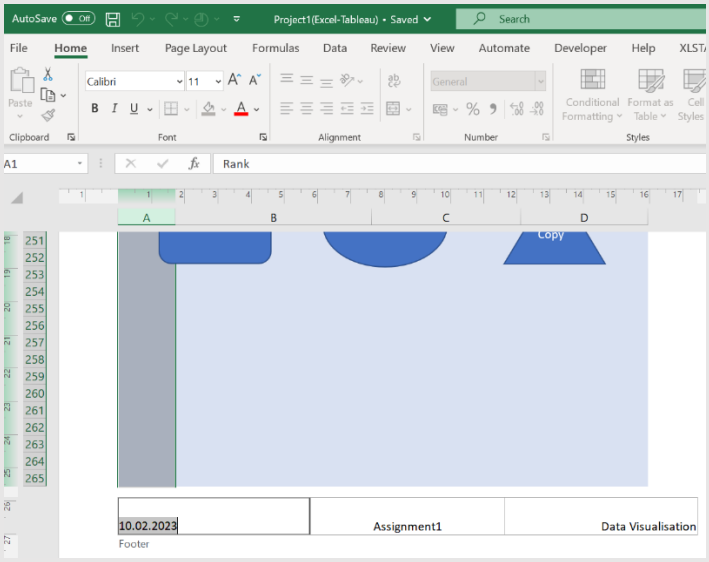

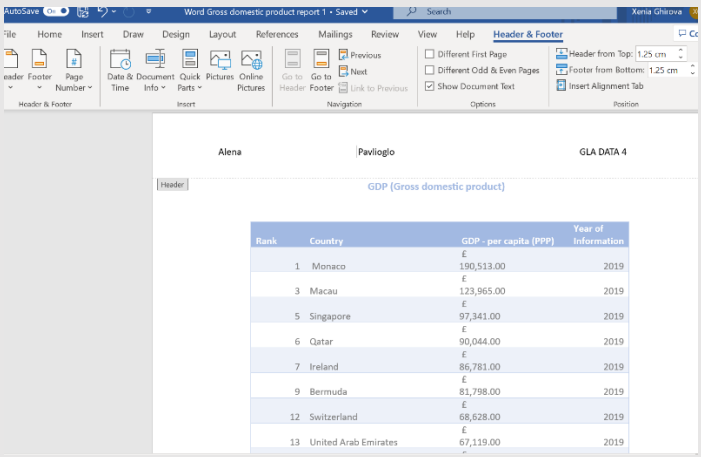

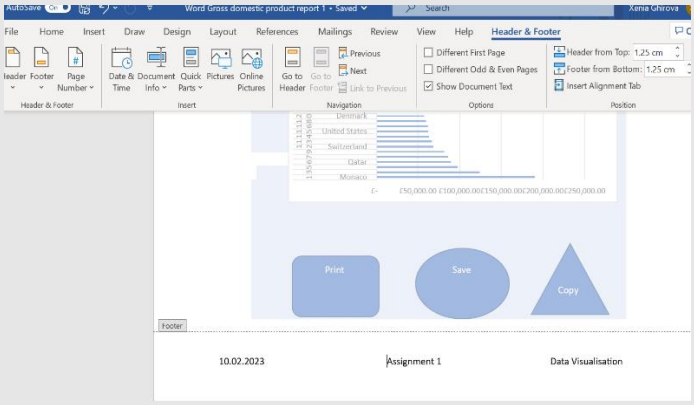

Macro of Copy.

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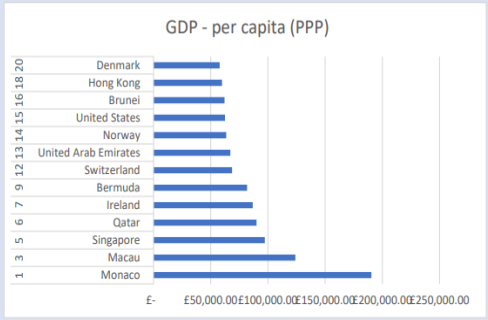
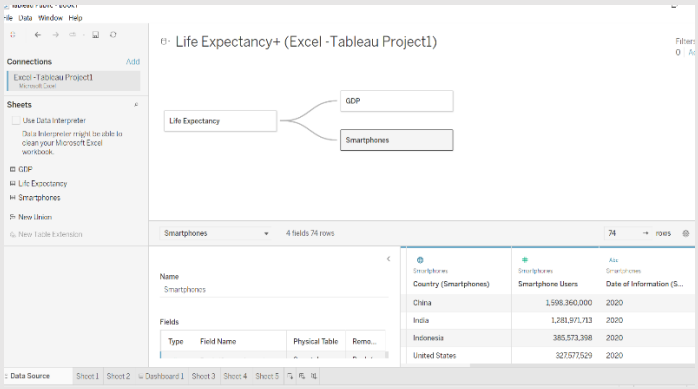
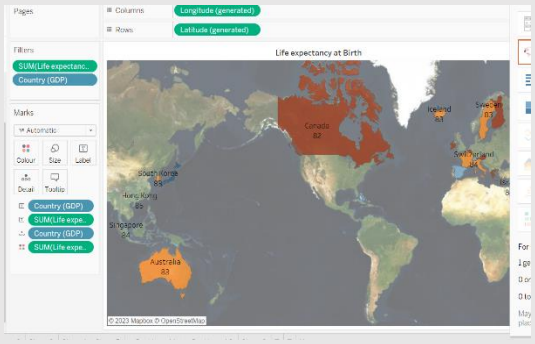


Task 3. Tableau

Continuing with the Excel table “The Wealth of nations” I have imported data and set up relationships.

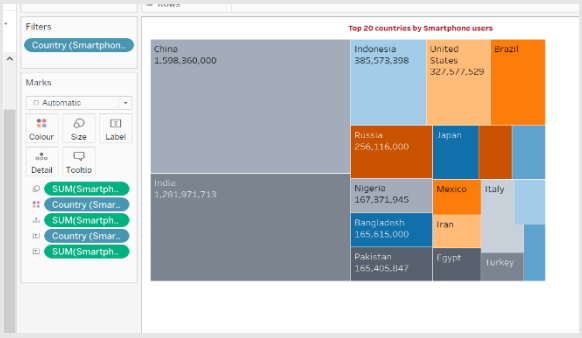


After checking the data types I started to create basic charts, handling missing values and building a dashboard. We have 3 data sets GDP, Life expectancy and Smartphone users in the countries.
My first relationship was set up between Countries and Life expectancy and I reflected it by the visualisation on the Map and as a packed bubble. Following the requirements of the client I applied the filter “top 20 by Life expectancy” for the countries. Under “Analytics” field I grouped already filtered countries in four clusters and have applied the “colour” and “label” filters respectively. I have put the title and the background, plus created two different visualisations for the same parameters.



From the charts we can see that the highest life expectancy at birth is 85 years in Hong Kong and Japan which are coloured blue and grouped in one cluster. The next highest results are 84 years for cluster coloured orange that includes such countries as Switzerland, Spain and Singapore.

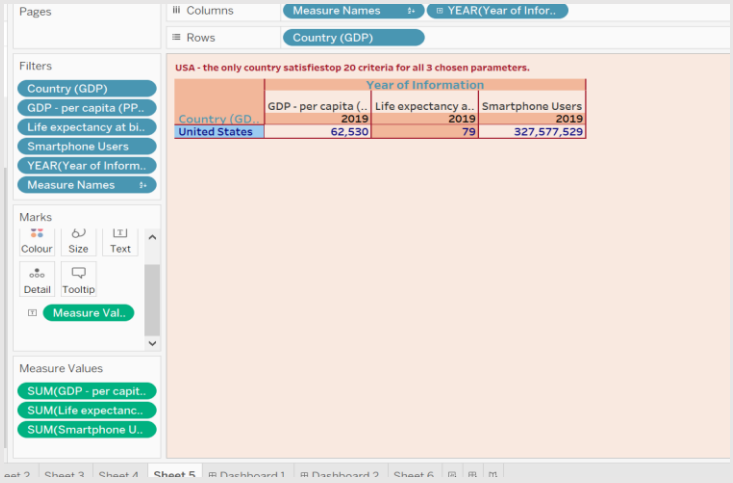
My second horizontal bar reflects results of 20 top countries by GDP per capita. I have created a calculated “Index” field as a discrete parameter along with “Countries” and “Rank” and filtered countries by GDP per capita. To make my graph more colourful I dragged the dimensions and measures to the “Colour” field on the “Marks” section and to adhere the requirements of the client chose “Colour blind” palette. By using the field “Label” I labelled the countries and GDP per capita. Under “Format” section I consequently have used “Font”, “Shading”, “Borders”, “Line” etc to create very nice visualisation and make it visually simple and understandable.



As a result I have 20 countries with the highest GDP per capita sorted in descending order. The top five are Singapore (97,341K), Ireland (86,781K), UAE (67,119K), US (62,530K), Hong Kong (59,848K).

Similar to the previous one I have built a treemap to show the top 20 countries filtered by smartphone users.

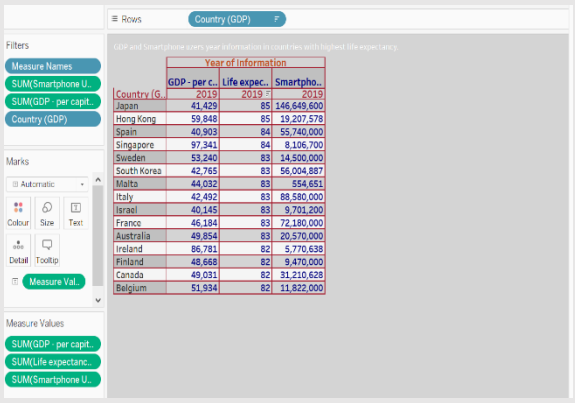
To understand which countries satisfy top 20 criteria for all chosen parameters I used “Smartphone users”, “GDP per capita” and “Life expectancy” as measure values for the columns and filtered them by top 20 for each category respectively. To apply the filter I had to change from “Measure” to “Dimensions” or from “Discrete” to “Continuous”. I have cancelled all filters for “Countries” since all countries that fall under restrictions should have participated in the selection. All three categories were marked by the year without applying any filters. As a result we got that only USA satisfies top 20 criteria for all categories. At the end I have used “Format” field to make every line and background in my table different in colour.

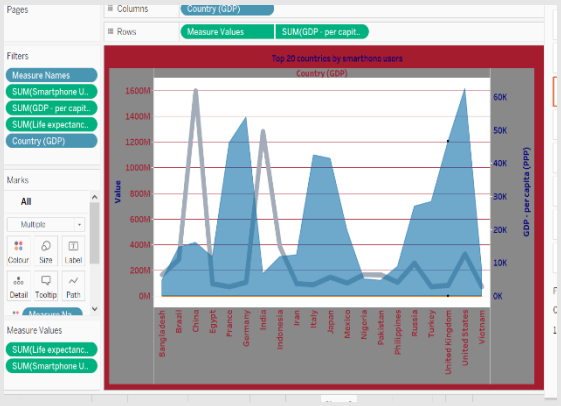


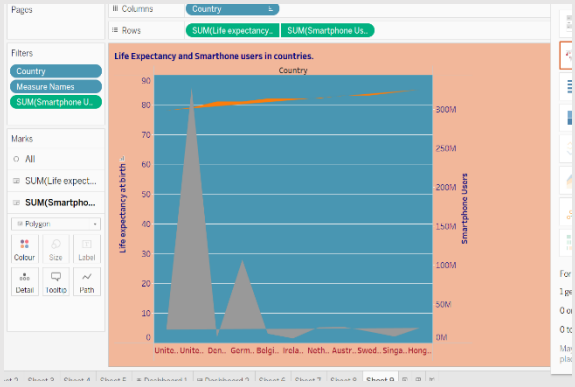
My text table (grey one) next to graph reflects all three categories but filtered only by top 20 “Life expectancy” and sorted in descending order. From here we can see that Japan is the first country in 2019 with highest bars for Life expectancy and Smartphone usage.

To describe my last two-line graph charts I have used Country filtered by Smartphone users in the first chart and by GDP per capita in the second chart. I dragged Country to Columns and measures values (Life expectancy and Smartphone Users) plus GDP per capita as a separate value to Rows to create a line chart with two and three measures on same axis. Then applied Colour filter for Measure Values and changed Mark type to Area. From the first chart we can see that China is the leader of Smartphone Users (1,598,360) and United States ahead of everyone in GDP per capita (62 530). From second chart we notice that United States has the biggest amount of Smartphone Users

(327,577,529) with the lowest Life Expectancy (79) and Hong Kong is the opposite, which has the highest Life Expectancy (85) and the lowest amount of Smartphone users (19,207, 578).

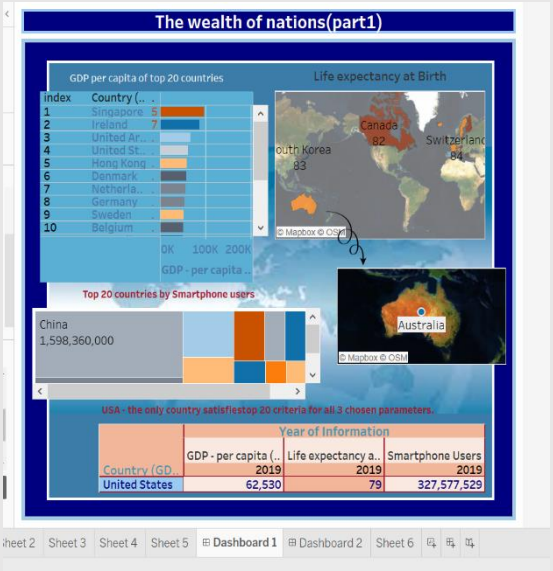


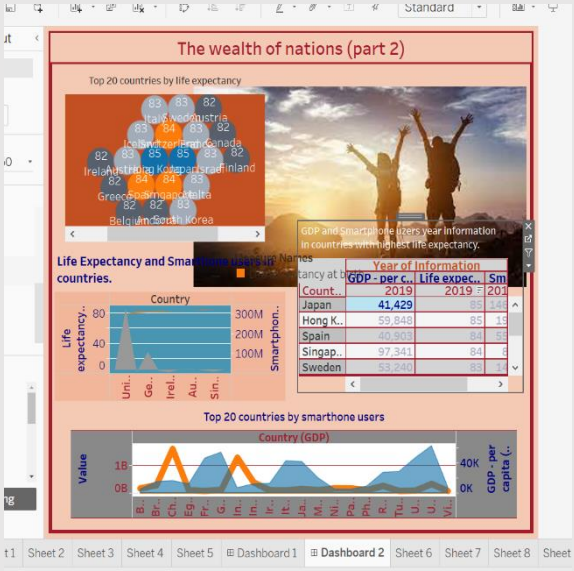




In conclusion, I would like to say that we have analysed and filtered the top 20 countries according to three indicators: Life Expectancy, GDP per capita and Smartphone users. As a result, we can say with certainty that the United States the only country that satisfies all three parameters.

I created 2 dashboards Part1 and Part2 to show all the connections. I have used an Image on the background in Part1 and have included image in Part2 dashboard.





https://public.tableau.com/views/Thewealthofnationspart1/Dashboard1?:language=en-GB&:display_count=n&:origin=viz_share_link

https://public.tableau.com/views/Thewealthofnationspart2/Dashboard2?:language=en-GB&:display_count=n&:origin=viz_share_link