Wealth of Nations Excel & Tableau

Project Assignment 1

Contents

Task 1:
Policies and Procedures

Introduction

Data visualisation has become an essential business capability to help transform information into insights that can drive meaningful business outcomes and improved experiences. Today, most organizations have accumulated a wealth of data from the different corners of their businesses and then are unable to see how this data can help them make better decisions, making actions, and results. This is where data analysis comes in, to create visual reports to show clients data in the form of charts and maps. However, data analysts must comply with data protection policies and data misuse policies when working with the data. This is important as certain data shouldn't be available to the general public and can cause risk to businesses. A lot of this data can also belong to consumers who don't want their information shared. It is important to put in important measures so that only the people who are working with the data can access it.

Data Protection policy

The security measures are taken to protect personal data. There are a few measures in this policy data analysts will have to adhere to:

- *Encryption of personal data to protect against unauthorized disclosure:* This will prevent anyone else from accessing those private files. Data analysts will be required to encrypt their workbooks so that a password will be needed in order to see the data in the files.
- *Access controls and authentication mechanisms:* This will prevent unauthorized access to personal data. Different software will require the individual to login, so only employees will be able to edit the data.
- *Storage security*: Data Analysts shouldn't leave their devices readily available to anyone around them. Only they should be handling their devices in order to prevent breach of information. Some companies require employees to only use the company's Wi-Fi to ensure that no on else has access to the files being shared.

Data misuse policies

The misuse of information or information systems at an organisation can lead to unintentional data compromise. Data misuse often happens when employees lack good data handling practices. For example, when employees copy confidential work files or data over to their personal devices, they make that information accessible outside of its intended, secure environment. Without the proper protections in place, this data can be stolen or accidentally leaked.

- *Collection errors* can also lead to the misuse of data. Inaccurate algorithms can result in a company bringing in data it never meant to gather, endangering customers and leaving businesses outside of compliance regulations.
- *Improper filing* is another misuse of information. Depending on how your systems categorise it, some datasets may be stored in locations where they're accessible to the wrong teams or users.

The **European Union's General Data Protection Regulation (GDPR)** is a leading piece of legislation when it comes to protecting personal data. The GDPR's principle of purpose limitation addresses data misuse and mandates that organisations should:

- Clearly state what their purposes are for processing data.
- Document that intent and detail it in privacy information resources.
- Regularly review and, when necessary, update processing and documentation.
- Get individual consent or legal grounding before processing data for alternative outcomes.

These policies must be adhered to as a Data analyst in order to maintain the safety of the company's data, and to protect the consumer and business's information. Moreover, it can also affect the report as mishandling data can cause errors and anomalies within the data analysis itself. Therefore, it is important to be aware of these policies and rules as data analysts.

Task 2:
Excel
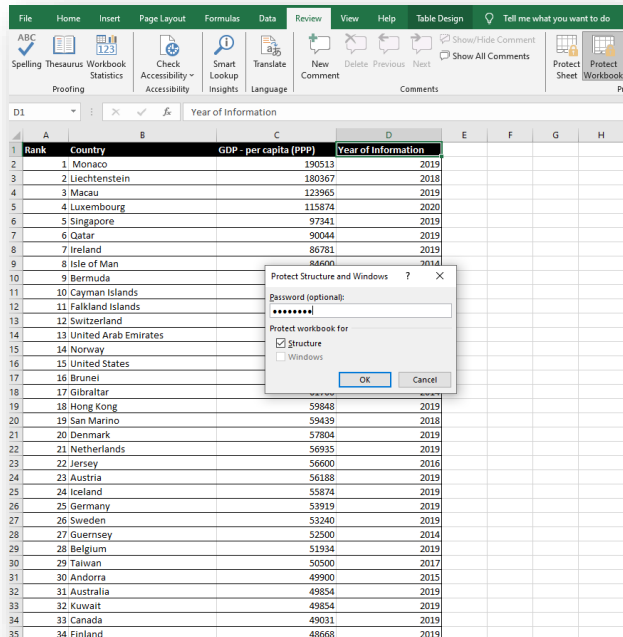
1. Encrypting the workbook

First thing I did after opening the Wealth of Nations file was create my own copy on my computer and encrypted it. To do this, I went to the Review tab and added a password to the Excel workbook to prevent anyone else from being able to access the data.

2. Changing the data to display in Great British Pound (£)

To do this, I highlighted Column C and changed the currency of the entire column to Great British Pounds (£).
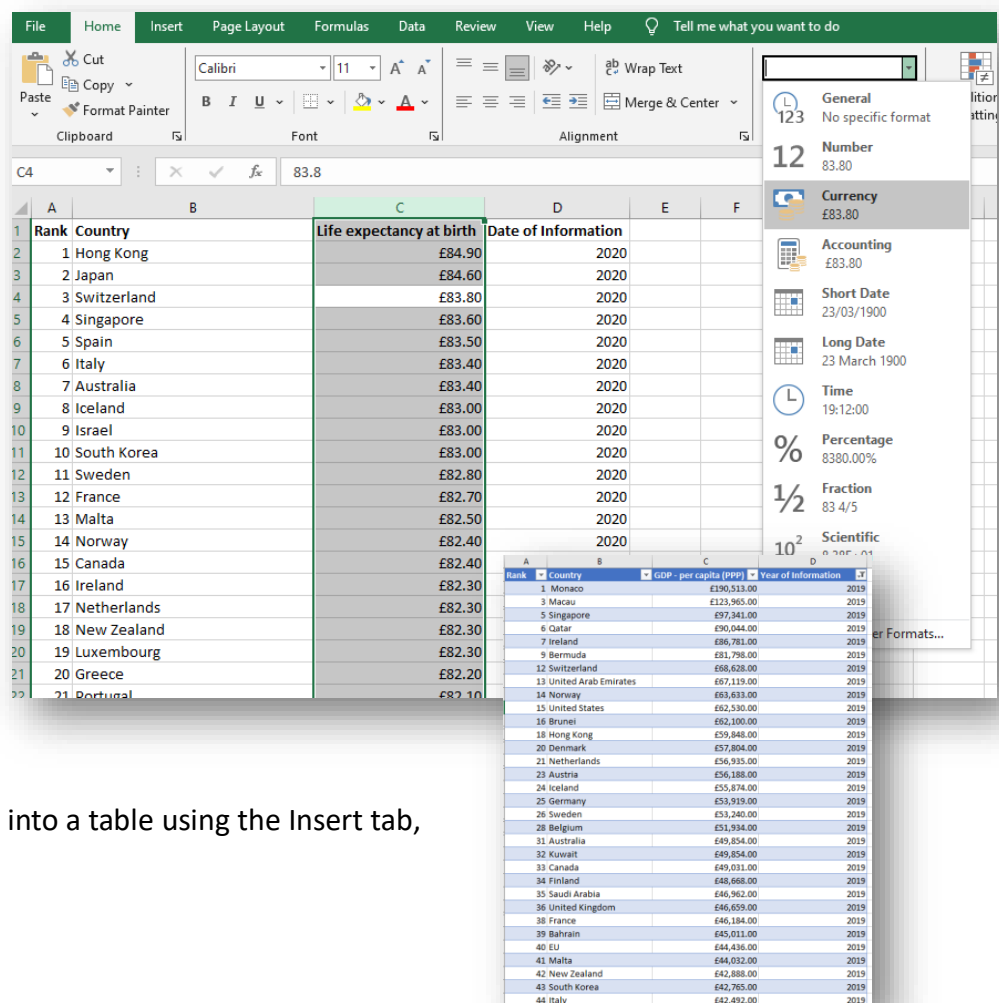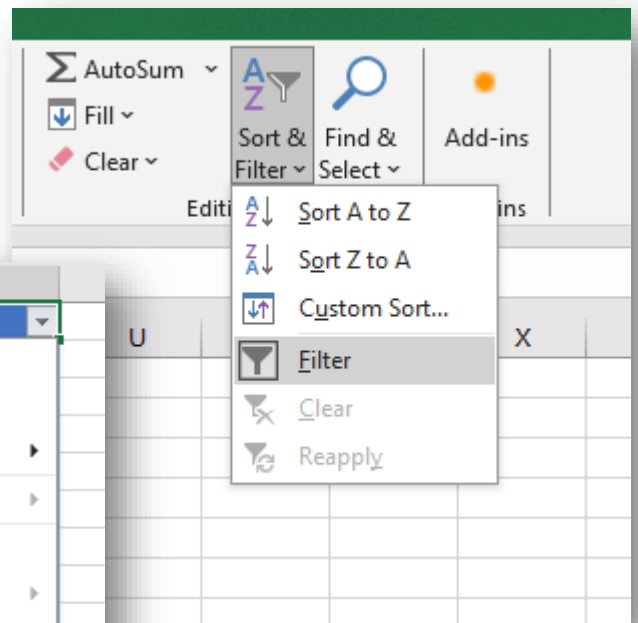

3. Turning the GDP sheet into a table

I then transformed the data into a table using the Insert tab, before filtering it.
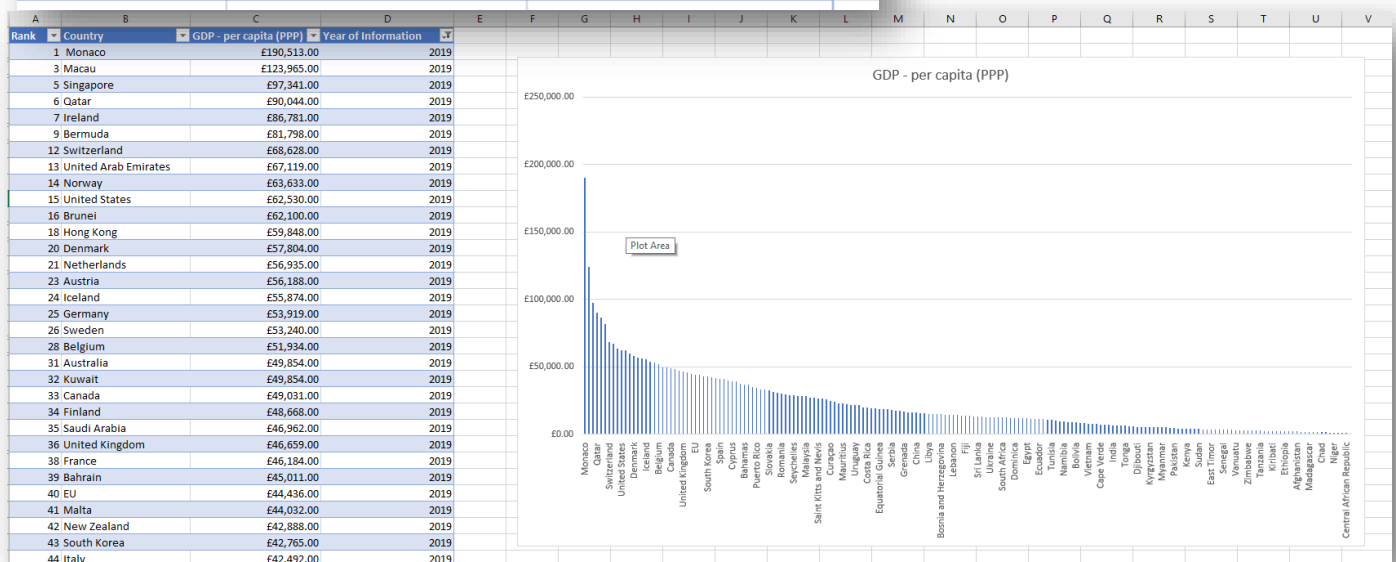
4. Filtering the table

I then added a filter using 'Sort and Filter'. Then using the dropdown, I filtered the Year of Information column to only show results from 2019.
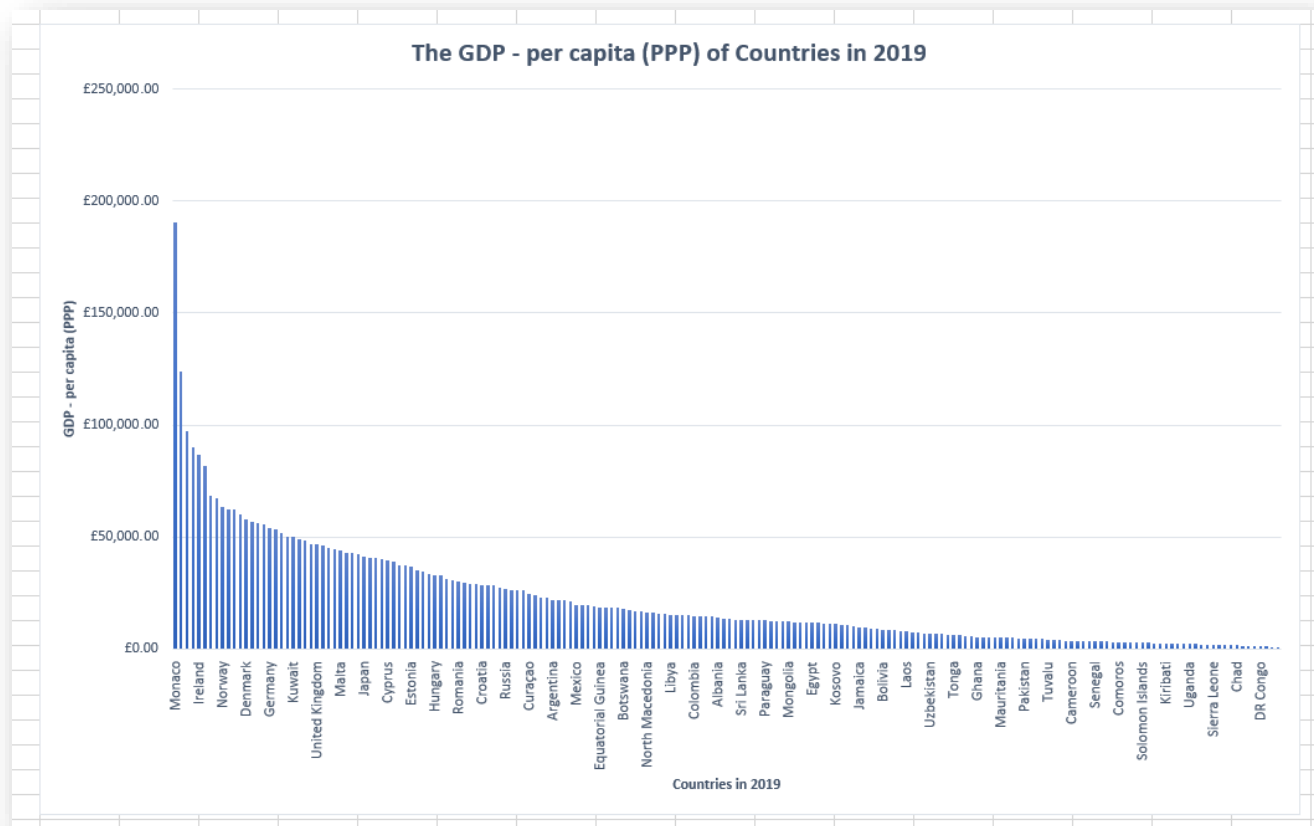

5. Creating a chart to display 'Rank, Country and GDP'

I highlighted the specific columns I needed and inserted a new chart to display 'Rank, Country and GDP'.

| Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	£190,513.00	2019
3	Macau	£123,965.00	2019
5	Singapore	£97,341.00	2019
6	Qatar	£90,044.00	2019
7	Ireland	£86,781.00	2019
9	Bermuda	£81,798.00	2019
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
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
32	Kuwait	£49,854.00	2019
33	Canada	£49,031.00	2019
34	Finland	£48,668.00	2019
35	Saudi Arabia	£46,962.00	2019
36	United Kingdom	£46,659.00	2019
38	France	£46,184.00	2019
39	Bahrain	£45,011.00	2019
40	EU	£44,436.00	2019
41	Malta	£44,032.00	2019
42	New Zealand	£42,888.00	2019
43	South Korea	£42,765.00	2019
44	Italy	£42,492.00	2019

6. Editing the Chart

a) Adding a Title

I added the title 'The GDP – per capita (PPP) of Countries in 2019' to describe the chart. I made it bold and centred it to make the chart neater.

b) Add X and Y axis Labels

I pressed 'Add Chart Element' and went to 'Axis Titles'. I then individually added the title 'Countries in 2019' for the Primary Horizontal (X axis) and the title 'GDP - per capita (PPP)' for the Primary Vertical (Y Axis).

c) Make the chart visually pleasing

I changed the colours and style of the chart to make it more visually pleasing.
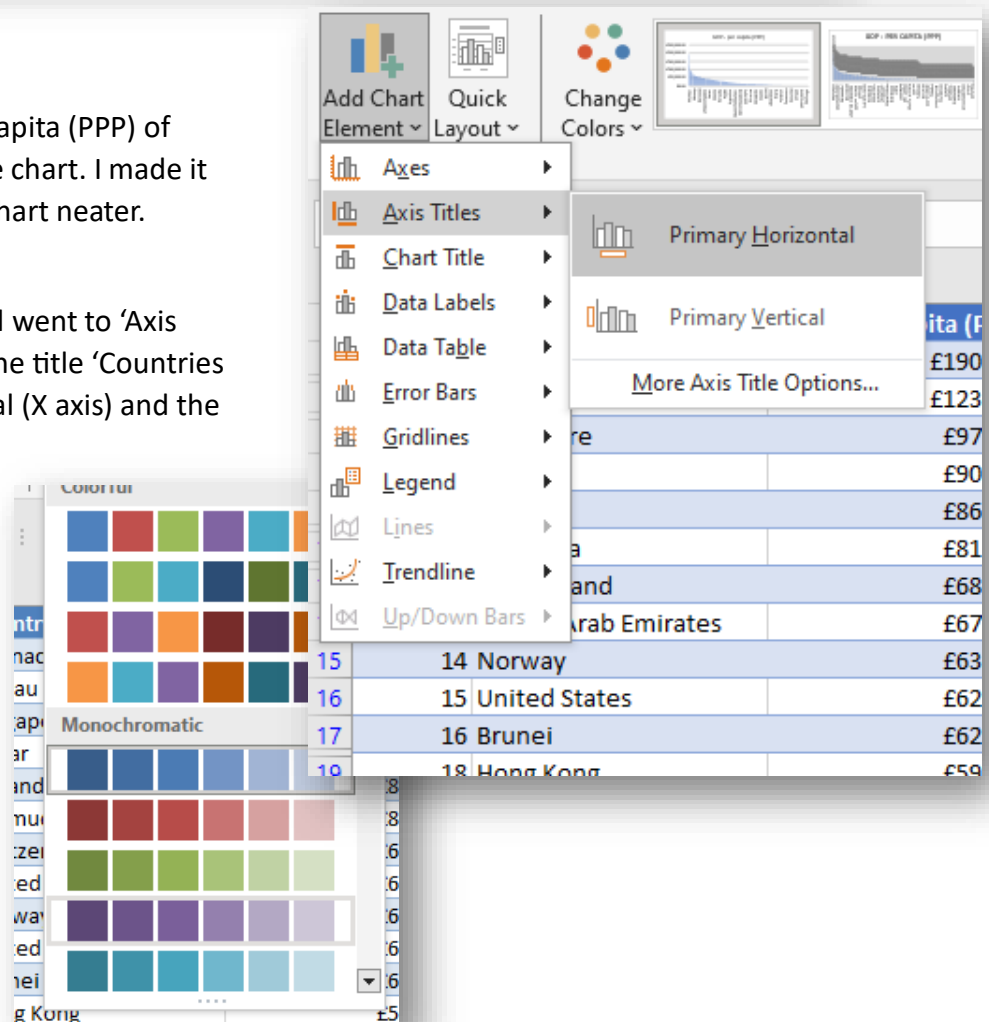
7. Moving the chart to a new sheet tab

First, I pressed the plus icon to create a new sheet and then transferred the chart to a new sheet tab by copying it.


8. Creating a sort for the top 20 highest ranking countries

I used the auto Filter and filtered it to show the Top 20 Items.
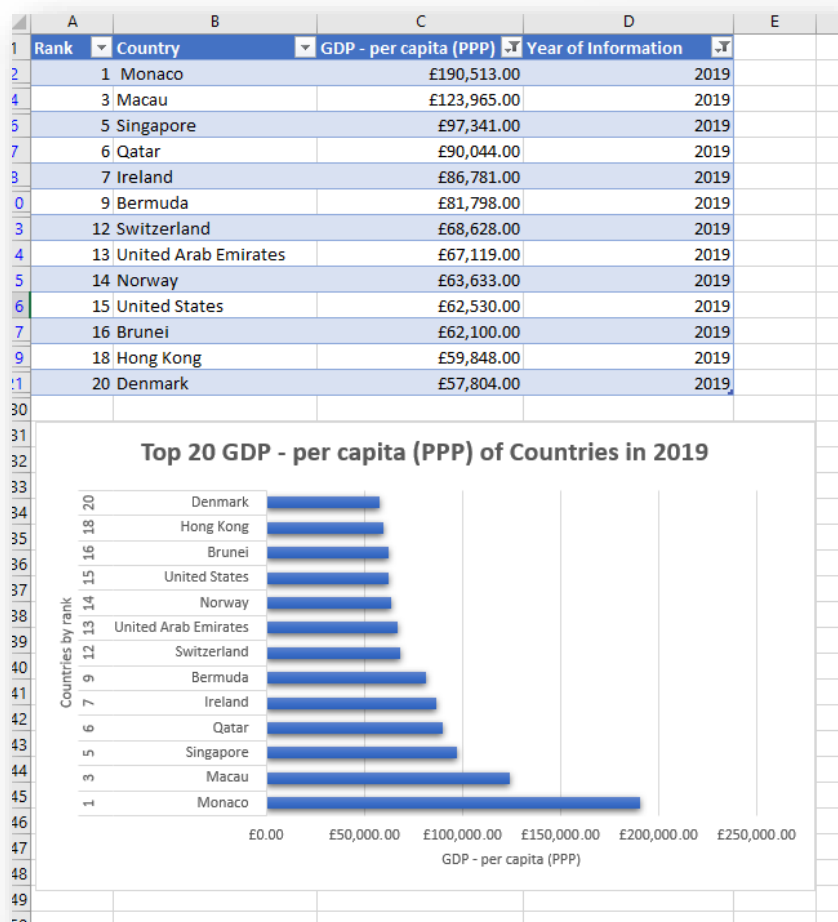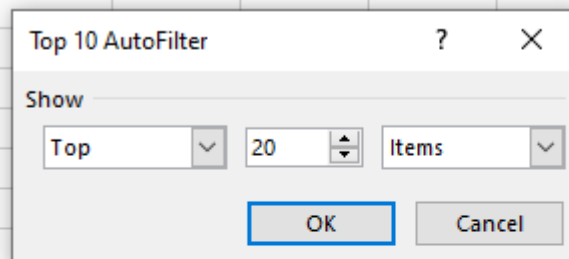
9. Creating a new Bar chart to display the 20 highest ranking countries

I created a new bar chart based on the new table displaying the 20 highest ranking countries. I did this using the Insert tab. I then added a title for the chart and labelled the x and y axis.
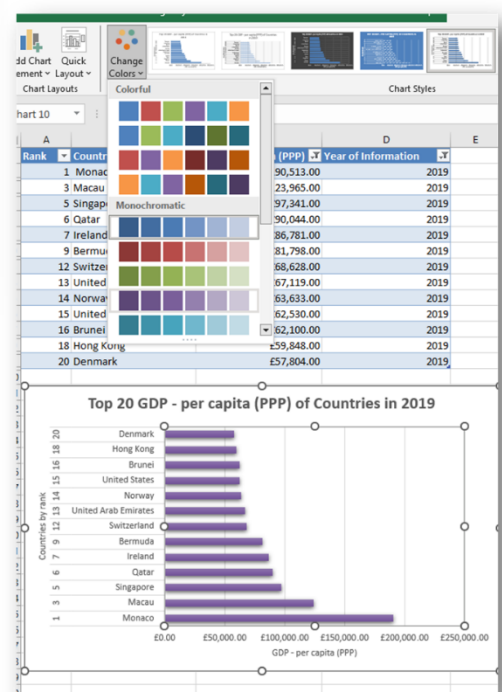
10. Colouring the chart

I then changed the different colours for the chart and added a drop shadow.

Task 3:
Tableau

1. Import Data

I opened the Wealth of Nations excel file in Tableau and imported the data.

2. Set Relationships

I dragged the Life Expectancy sheet and Smartphones sheet onto the page. Then, to establish a relationship, I set it to Country for each set of data. I then dragged GDP as well and arranged the sheets
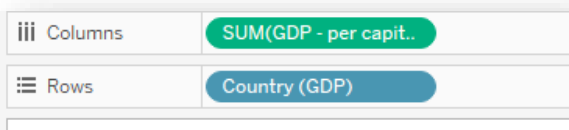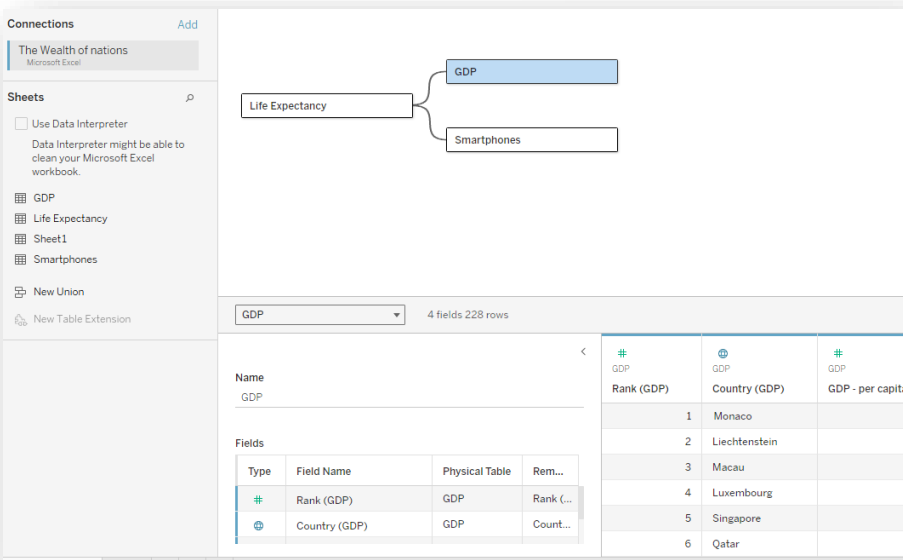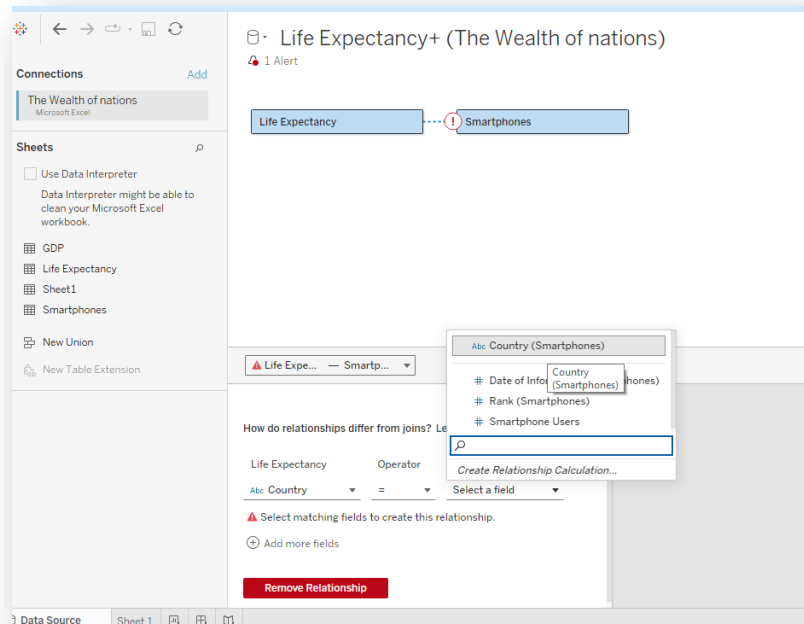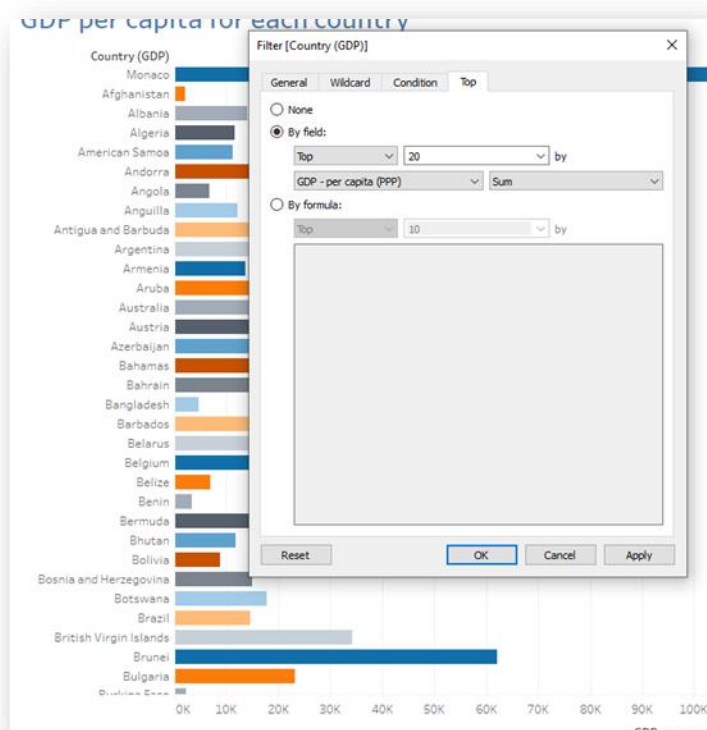
3. Creating my first worksheet

To create my first worksheet, I dragged Country (GDP) and SUM(GDP – per capita) onto the columns and rows. I used the Show Me tool to see the best type of chart recommended for this data, and opted for the horizontal bars. This chart is ideal for this data as it will clearly show the correlation between the countries and their GDP per capita.

### 4. Filtering the country for Top 20 Countries

I then dragged Country (GDP) into the Filter box and went to the 'Top' tab. I pressed the 'BY field' option and changed it to the top 20 results by the GDP – per capita (PPP). After applying this, my chart now only showed the top 20 results, like the client requested.
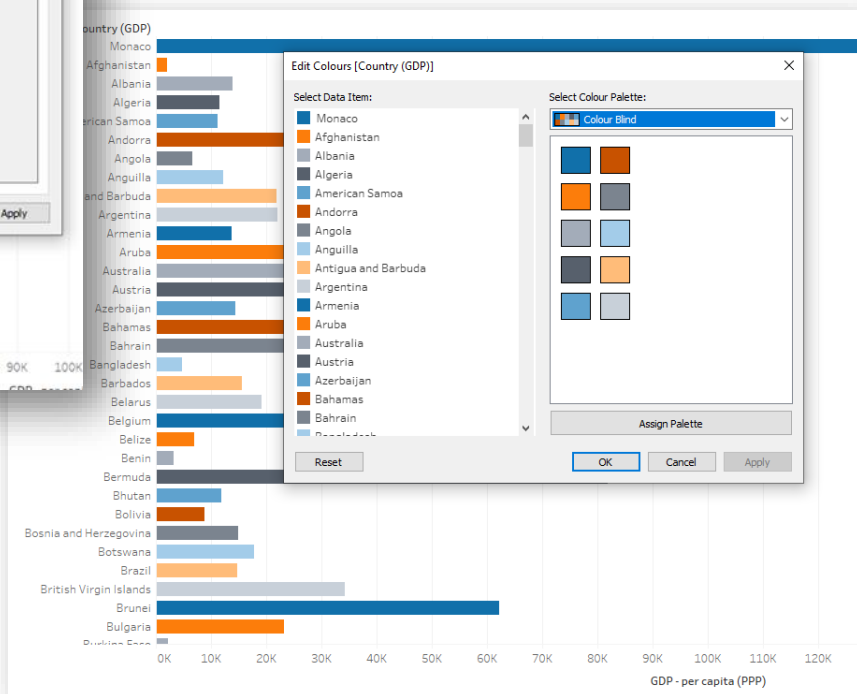
### 5. Changing to Colour Blind colour scheme

The client is colour blind, so I altered the colour palette for the visuals by editing the colours. I selected the colours more appropriate for colour blind people and applied to the chart.

I then added a title to my worksheet to describe what is going on in the chart. I enlarged the font, made it bold and picked an appropriate colour for the client.
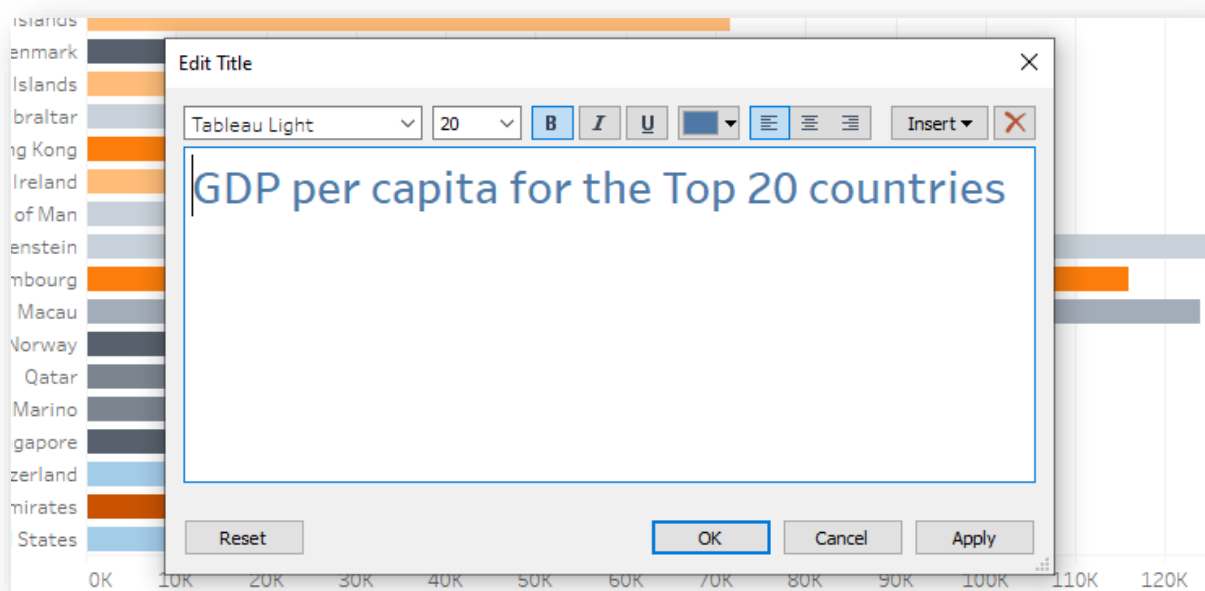
6. Creating my second worksheet

For my second worksheet, I dragged Country and Life Expectancy at Birth onto the page. I used the Show Me pane to see the recommended charts and I chose to use the symbol maps. I changed the style of background maps from Normal to Outdoors.
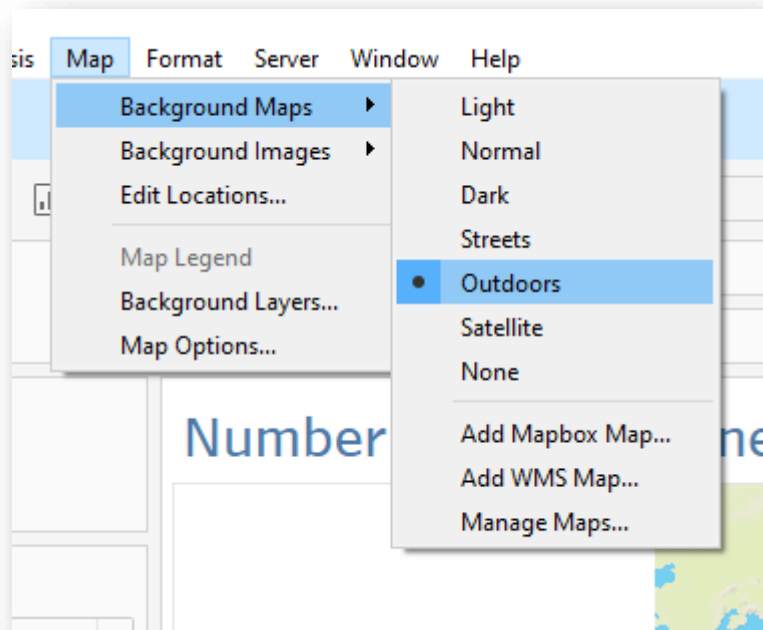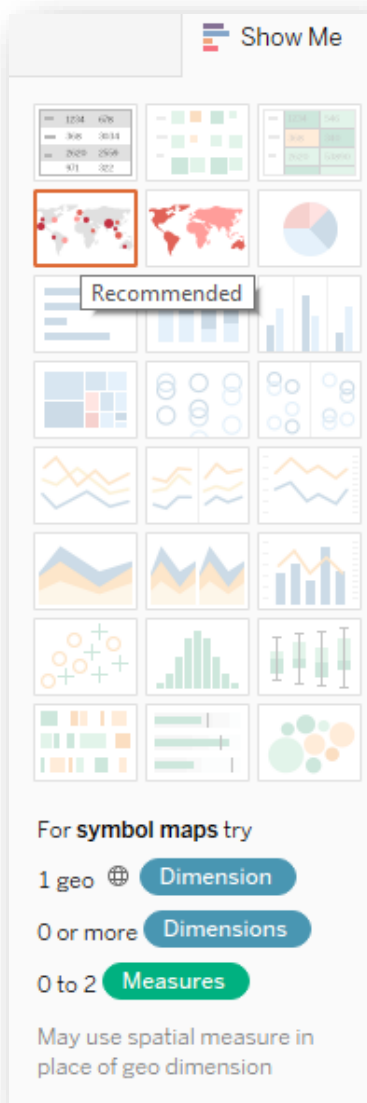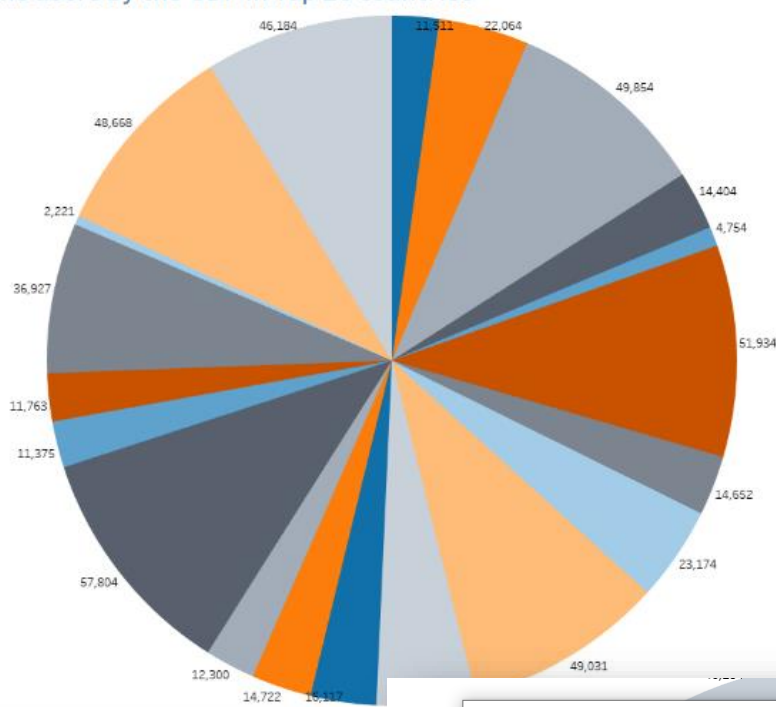
I then also added the GDP – per capita data so we could see the correlation between the life expectancy rates and the GDP of those countries. I also filtered this chart to get the top 20 countries.

7. Creating my third worksheet

For this worksheet, I used the smartphone data sheet, so I dragged the Countries and the SUM of Smartphone Users. I also added GDP as that is what I am analysing in my report, the effect of GDP on the Wealth of Nations. I used a Pie chart to display this data.

I again filtered this to get the Top 20 Countries, by the number of Smartphone users, and then titled the worksheet. I also edited the colour palette so that it uses the colour-blind friendly colours.

I also added labels by selecting the pie chart and pressing Mark Label to Always Show. This allows you to always be able to see the GDP of each of the countries.
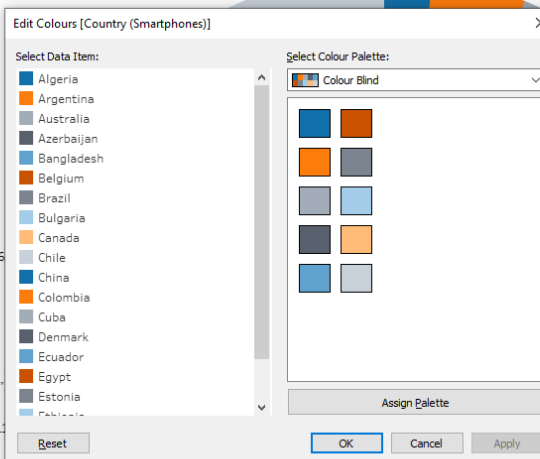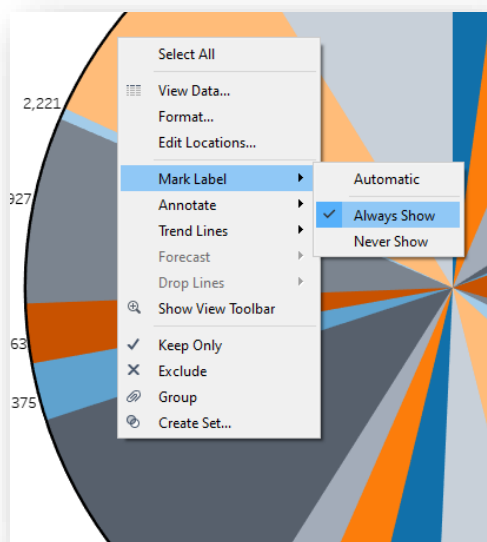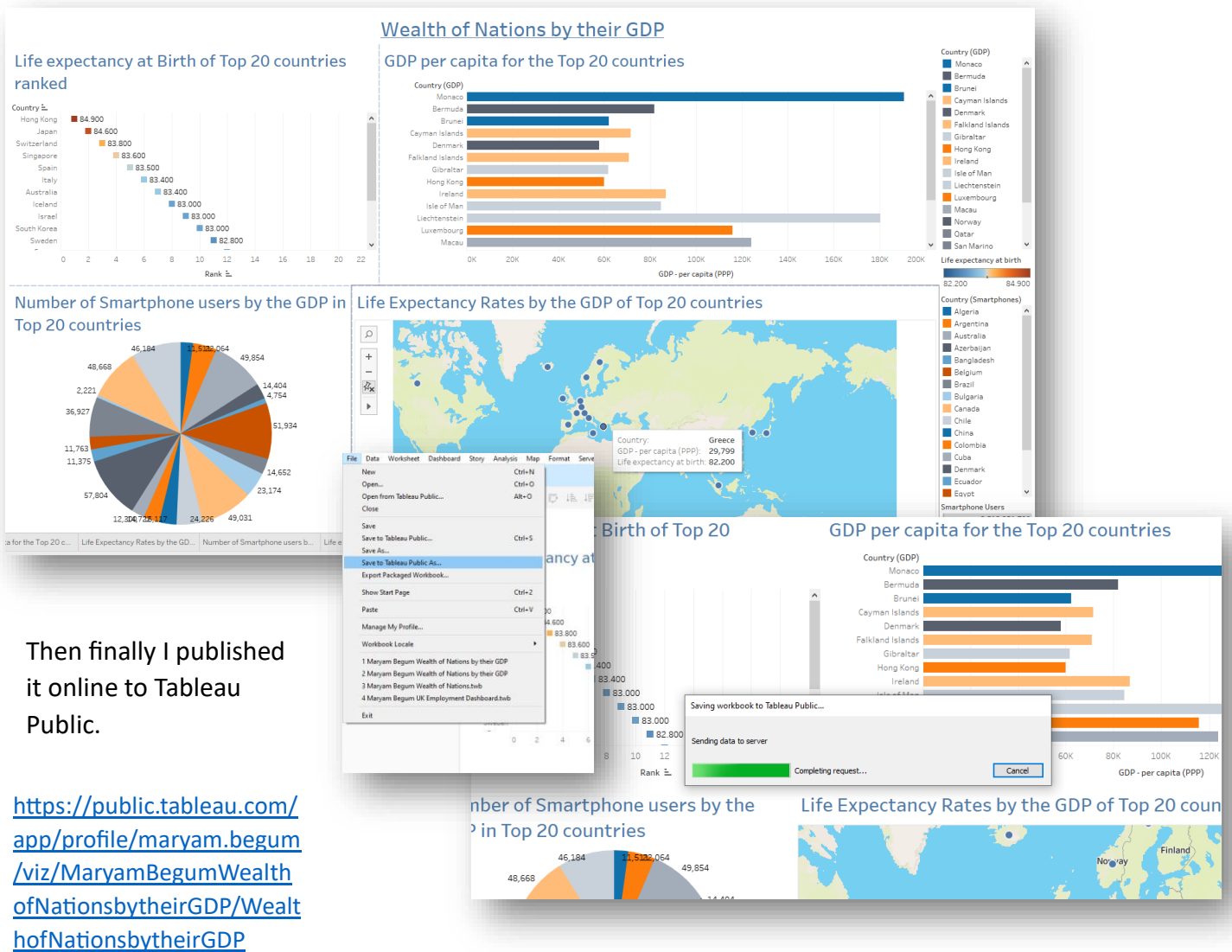

8. Creating my fourth worksheet

For this worksheet, I decided to use a scatter plot. I used the life expectancy data and ranked the different countries using the scatter plot. Like the others, I filtered the results to only show the top 20 highest ranking countries and then a displayed them in descending order. I also applied the Colour-Blind colour palette to the scatter plot chart.

Life expectancy at Birth of Top 20 countries ranked

9. Creating my dashboard

To create my dashboard, I clicked the new dashboard icon at the bottom of the screen. I dragged all 4 of my visuals onto the page and started rearranging them, moving their placement and changing their sizes. Once I was happy with my arrangement, I added on the title to my dashboard.

Then finally I published it online to Tableau Public.

https://public.tableau.com/app/profile/maryam.begum/viz/MaryamBegumWealthofNationsbytheirGDP/WealthofNationsbytheirGDP

Task 4:
Evaluation

What Went Well

I think I've managed to understand the new topics I've learnt pretty well, and I enjoyed getting to apply them when creating this report. I understood the task and fulfilled all the requirements. I think I found the Tableau task the easiest to complete, but perhaps that is because it's the most recent thing we've learned so it is fresher in my mind. Furthermore, I also enjoyed making the different kinds of charts and making them appropriate for the client. I believe it really helps me understand what daily tasks will look like for a data analyst. The guidelines were well written and easy to follow so I didn't require any assistance. As well as using Excel and Tableau, I also really enjoyed creating this report, adding Cover pages and Contents pages; I feel it allows me to be creative which is fun.

Areas for Development

I could maybe go over certain topics (mostly Excel), especially from the beginning as I was struggling to remember certain things at times. When I got stuck, I would open up the exercises from the start of the bootcamp and see how I did certain tasks so that I could replicate it for this assignment, which worked pretty well for me. I could also do more research about policies and procedures as I didn't know much about the data protection policies and safeguarding techniques which I had to write about at the beginning of this report.

Lessons learned

I've learnt how to create a report and how to use Excel and Tableau collectively. Moreover, I have also understood how to apply the new skills I've learnt in a practical approach in regards to an actual client. This assignment also gave me the opportunity to see how much I can do without any assistance as in the lessons I would usually follow instructions. I got to apply skills that I have learnt and understand what the work would entail in this field, which I found very enjoyable. I think the most important lesson I've learnt is to keep up with the work, and revise topics consistently, otherwise I will forget how to do them. I think I should also create some charts based on my own personal interests recreationally, just so I get to apply the skills frequently, as I believe the best way to improve is to actually try to use the different skills I've learnt, rather than just recapping the old topics.