**1st**

**Assignment**

**@**

**Data Visualization**

**Deadline: 27/08/2024**

**The wealth of Nations**

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Just IT Bootcamp

Data Analysis

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# Introduction

Currently, we are living in the era of big data, where data has been described as a raw material for business. The volume of data used in businesses, industries, research organizations, and technological development is massive, and it is rapidly growing every day.

The more data we collect and analyse, the more capable we can be in making critical business decisions. However, with the enormous growth of data, it has become harder for businesses to extract crucial information from the available data.

That is where the importance of data visualization becomes clear. Data visualization helps people understand the significance of data by summarizing and presenting a huge amount of data in a simple and easy-to-understand format to communicate the information clearly and effectively.

## Scenario

I was given a data workbook and familiarize with. This assignment was given to me, to work on the **Wealth of Nations** project. I was also asked to create a visual report, that will show the data in the form of charts and maps using Tableau, to help the client with better decision making.

Firstly, I will consider data protection and computer misuse policies. Then, I will go through step by step explaining the data set presented on the Excel sheet.

**Task 1**

# Policies and Procedures

An organisation’s policies are at the heart of its business operations. They detail exactly how employees should handle certain issues, ensuring that everybody is on the same page and following agreed best practices. Effective policies are even more important now that General Data Protection Regulation is in place.

Here are 5 policies that most organisations must have

* **Data Processing Policies**

Organisations should map the way data flows, to see what data is being processed, how it’s being used and who is receiving it.

This has become especially important since the GDPR took effect, as it enables organisations to account for all their data and provide the necessary information to individuals. (The UK General Data Protection Regulation (GDPR) and Data Protection Act 2018)

* **Encryption Policy**

Policy that helps obscuring information and replacing identifiers with something else, meaning it is only accessible or understandable to approved users.

* **Acceptable Use Policy**

Tells employees and users how the organisation monitors them to ensure the policy is being followed, to prevent from malware and viruses, if perusing no-work activities.

* **Passwords Policies**

Passwords should be always kept safe, should not be shared or displayed with anyone. Companies should implement systems to prompt staff to change password every six months.

* **Email policies**

Email policies should, therefore, mandate that employees take regular staff awareness courses, to stay up to date with the threat of email-based fraud.

One of the biggest email-based threats is phishing, which can be weaken by technology only to some extent.

As a data analyst, it is important to understand the importance of data protection and the steps that must be taken to ensure that sensitive information is kept secure. Data protection refers to the measures put in place to prevent unauthorized access, use, alteration, disclosure, or destruction of personal information. This includes both paper and electronic records.

**Task 2 – Excel**

1. **Create a Password to protect Workbook**

Before I start organising and make changes to the Workbook, I will have to protect it, for security measures. To do this, once the Workbook is open in Excel, go to Review Tab, click on protect Workbook, a screen will appear for you to create and verify a password, then click ok. Your Workbook will automatically be protected

**A screenshot of a chat

Description automatically generated**

A screenshot of a computer screen

Description automatically generated

1. **Change Column C to display British Pound symbol**

Click on the letter C at the top of the Column to select entirely, right click and select “Format Cells” from the context menu

**A screenshot of a spreadsheet

Description automatically generated**

in the Format Cells dialog box, go to “Number” tab, then select “Currency” clicking on the £ symbol, then OK, column C is now displayed in British Pound £

A screenshot of a computer

Description automatically generated

1. **Turn the GDP Sheet into a table**

Select Data range, including headers, go to “Insert” on the ribbon, click on “Table”, then OK

**A screenshot of a computer

Description automatically generated**

**A screenshot of a calculator

Description automatically generated**

A screenshot of a computer

Description automatically generated

1. **Filter to display only the information for 2019**

Click the small dropdown arrow that appears next to the “Year of Information header”

A table will appear, filter by year, by unchecking “Select All” to clear all sections, then check only the box next to 2019, click OK

The table will now filter out to display only Year of Information 2019

A screenshot of a computer

Description automatically generated

A screenshot of a cell phone

Description automatically generated

A screenshot of a computer

Description automatically generated

1. **Create a chart displaying “Rank’, “Country”, “GDP”- per capita**

Select Columns A, B and C, go to “insert tab, charts group, click on the Bar chart icon.

Choose Bar chart – Clustered Bar, form the dropdown menu

A screenshot of a computer

Description automatically generated

A screenshot of a bar graph

Description automatically generated

A graph of a number of countries/regions

Description automatically generated

1. **Creative Skills to edit the chart, add X and Y axix to make it visually pleasing**

The title goes at the top of the chart, to clearly convey what the data reprerssents

A close up of a logo

Description automatically generated

Then add X-Axis label for GDP, and Y-Axix for label for countries, to ensure clarity



By making the chart visibly pleasing, I will go to chart design and choose one that is appealing

A graph with numbers and a bar chart

Description automatically generated

1. **Move the chart to a new sheet**

First thing, before I can open a new sheet, I have to enter the password that is protecting the Workbook. Go to “Review” click on Protect Workbook, then enter the password that you have previously created.

This image below, shows that the Workbook is lockedA close-up of a sign

Description automatically generated

A screenshot of a computer screen

Description automatically generated

Once I have unlocked the Workbook, I can now open a new Sheet, as you can see on this image below

A white rectangular object with green letters

Description automatically generated

Click on the “plus” symbol/sign on the bottom right of the sheet, then select “Insert” sheet

A screenshot of a computer

Description automatically generated

That’s the title of the new sheet

A close up of a chart

Description automatically generated

1. **Create a sort for the Top 20 countries highest ranking countries**

Click on the filter icon next to the Rank header, from the dropdown box, select sort by “Ascending”

A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated

1. **Create new bar chart to display top 20 countries, then move the chart to be underneath the table**

A screenshot of a spreadsheet

Description automatically generated

A screenshot of a spreadsheet

Description automatically generated

1. **Colour the background by finding the add fill colour icon**

Highlight the back of the chart, by selecting and drag down to the limit around the chart area, then from the “Home” tab, click on “fill colour” to choose the one of your choice

A screenshot of a graph

Description automatically generated

A screenshot of a computer

Description automatically generated

A screenshot of a graph

Description automatically generated

1. **Create 3 macro buttons, Print the sheet, Save the file, Copy the sheet**

Begin by creating a button from the developer tab, choose cell to insert button, press the record macro button and select which cell you want to “Print, Save or Copy”, once recording is done, press stop, right click the button and press assign macro

A screenshot of a video recording application

Description automatically generated A close up of a sign

Description automatically generated

**A close-up of a sign

Description automatically generated**

**A screenshot of a computer screen

Description automatically generated**

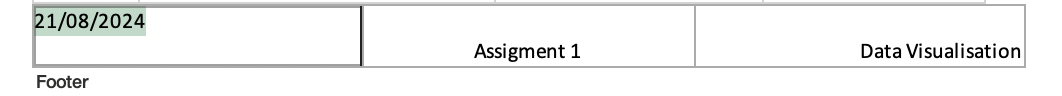
**Adding Header and Footer**

Go to view, select Page layout…

**A screenshot of a computer

Description automatically generated**

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Once Header and Footer are added to the page, click “Normal” from the View Tab

**Tableau**

This is my Tableau Dashboard, of the analysis on ‘The Wealth of the Nations’.

**A screenshot of a graph

Description automatically generated**

**Conclusion**

In this project, I utilised Excel and Tableau to analyse, visualise and interpret key datasets relevant to global economic and social indicators. Although, I am an Excel beginner level, I understand that by leveraging its powerful data processing capabilities, I was able to clean and organise large datasets.

Subsequently, as a first time Tableau user, Tableau was used to create dynamic and interactive visualizations, allowing for deeper insights and more intuitive understanding of the trends.

The **Bar Chart** visualisation highlighted the vast differences in smartphone penetration across the 20 countries. Indicates levels of technological adoption, that correlate with both population size and economic development.

The **scatter plot** showcases the relationship between GPD per capita and life expectancy.

As expected, countries with higher GPD per capita generally tend tom have higher life expectancy.

The **Map visualization**, allowed for a geographical perspective on life expectancy, clearly showing regional disparities that are important for policymakers to consider global health initiatives.

Lastly, the **line chart**, provides a historical overview of GDP per capita trends, showing economic fluctuations over recent years. The spike observed in certain years, prompts further investigation into economic events that may have caused changes.

**Final considerations**

the combination of Excel and tableau in this assignment, demonstrates the power of data visualisation in making complex datasets more accessible and easier to understand.

For future work, integrating more real time-data, could provide even more comprehensive insights. Additionally, refining the visualizations based on user feedback, could further enhance the dashboard’s usability and impact

Overall, this project underscore the importance of data-driven decision making and the role that tools like Excel and Tableau can play, in presenting those decisions.