Simon Lim, Blog 2 – (This blog is ready for comments)

Visualization tool: **Tableau**

Dataset: [World University Rankings | Kaggle]

1. Summary of dataset

For my second dataset, I have searched dataset on Kaggle as well. I have chosen the dataset of World University Rankings from 2012 to 2015. The dataset contains two data types, including strings and integers. I have been attracted to this dataset, as the dataset includes various integer columns in a range of years.

The dataset contains the following columns:

- World_rank: world rank for university
- Institution: name of university
- Country: country of each university
- National_rank: rank of university within its country
- Alumni_employment: rank for alumni employment
- Quality_of_faculty: rank for quality of faculty
- Publications: rank for publications
- Influence: rank for influence
- Citations: number of students at the university
- Broad_impact: the potential for research to benefit society
- Patents: invention or copyright
- Score: score of university
- Year: the year of university rankings

2. Rationale of Visualisation Tool – Tableau

I have chosen Tableau as my second visualisation tool. When I first researched some resources about Tableau, the ease of implementation and simple ways to create interactive visualisation looked very attractive. Furthermore, while it is easy to learn and carry out visualisation, Tableau also has various types of visualisations, including various plots, charts, maps and bubbles. Offering desktop dashboard also seemed very convenient and flexible for users.

3. Data Preparation and Cleaning

Data Loading

1. I used Tableau desktop dashboard and Imported dataset by selecting “text file” and brought it into the dashboard.

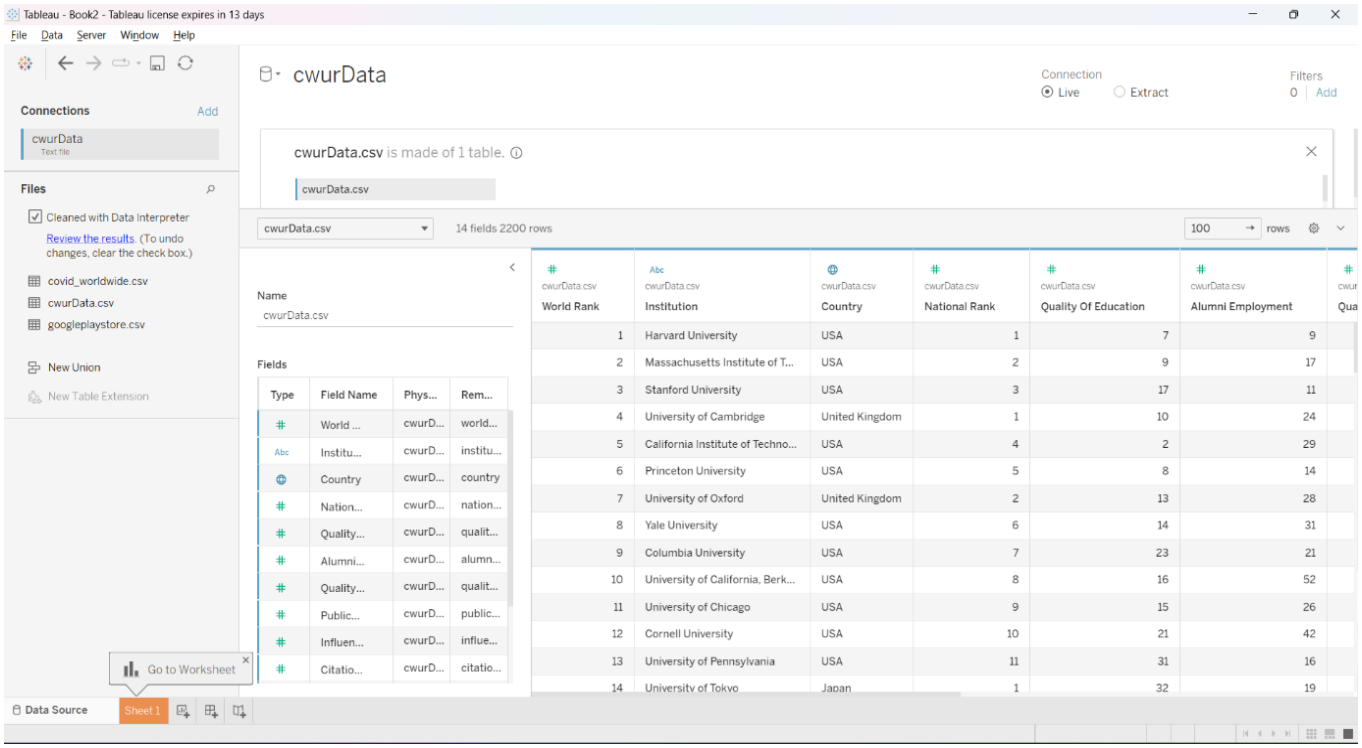

Figure 1. importing and loading World University Rankings Dataset from Kaggle

Fields

Type	Field Name	Physical Table	Remote Field Name
#	World Rank	cwurData.csv	world_rank
Abc	Institution	cwurData.csv	institution
🌐	Country	cwurData.csv	country
#	National Rank	cwurData.csv	national_rank
#	Quality Of Education	cwurData.csv	quality_of_education
#	Alumni Employment	cwurData.csv	alumni_employment
#	Quality Of Faculty	cwurData.csv	quality_of_faculty
#	Publications	cwurData.csv	publications
#	Influence	cwurData.csv	influence
#	Citations	cwurData.csv	citations
#	Broad Impact	cwurData.csv	broad_impact
#	Patents	cwurData.csv	patents
#	Score	cwurData.csv	score

Figure 2. Fields in dataset

Data Cleaning

2. I found that Tableau Prep Builder has more available options for cleaning data than Tableau Desktop. Hence, I switched to Tableau Prep Builder for cleaning phase. The cleaning phase in Tableau Prep Builder was very simple and straightforward. Another benefit of using Tableau Prep Builder was that it provided recommendations for cleaning data (Shown in Figure 3).

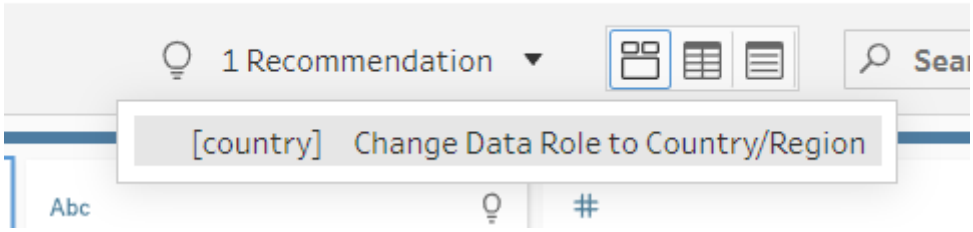

Figure 3. Recommendation for cleaning data

3. There were few changes in cleaning phase. There were few missing values in the column “broad_impact” but the column was not necessary for visualisation and hence I removed the column. I also removed few unnecessary columns, including national_rank, alumni_employment, patents and citations. Finally, as Tableau builder recommended, I changed the data role and name of column from ‘Country’ to ‘Country/Region’.

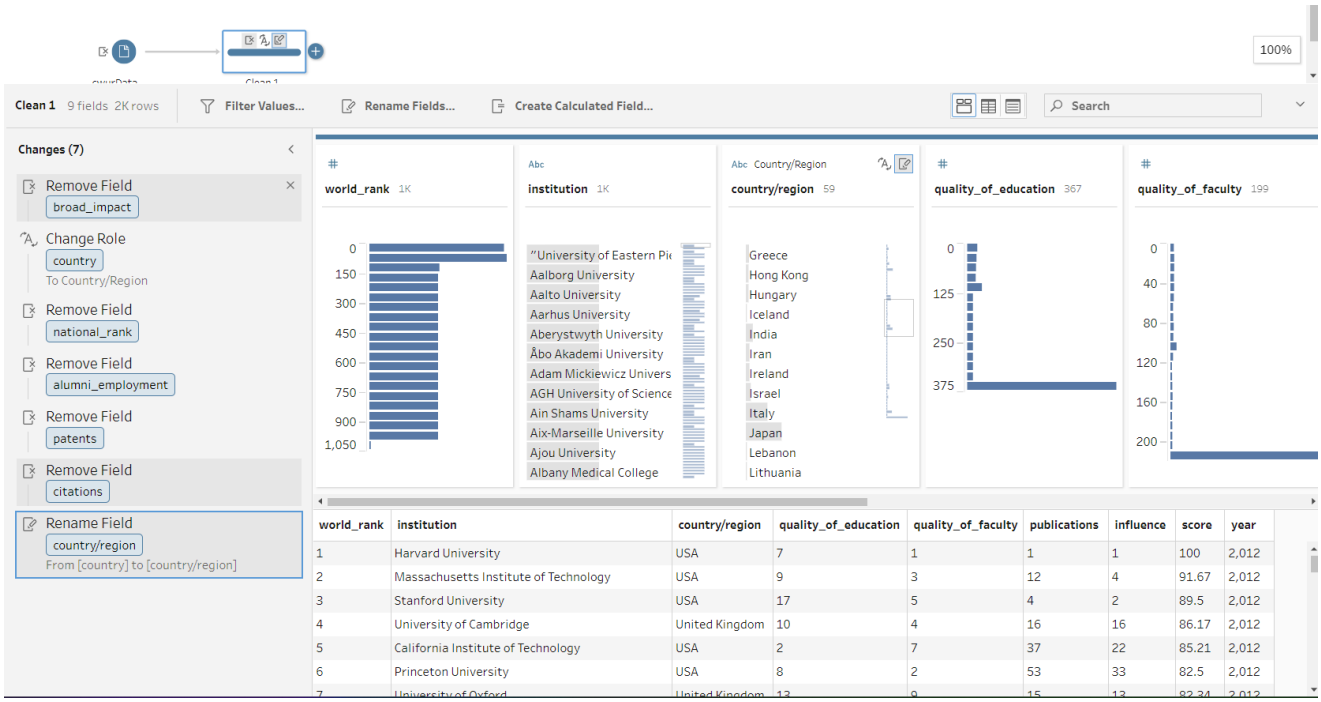

Figure 4. Removing some fields and changing the name of the field

4. Data Visualisation

After cleaning the data, I switched back to Tableau Desktop dashboard for visualization phase. I exported cleaned dataset as a csv file in Tableau Prep Builder and then imported it in Tableau Desktop.

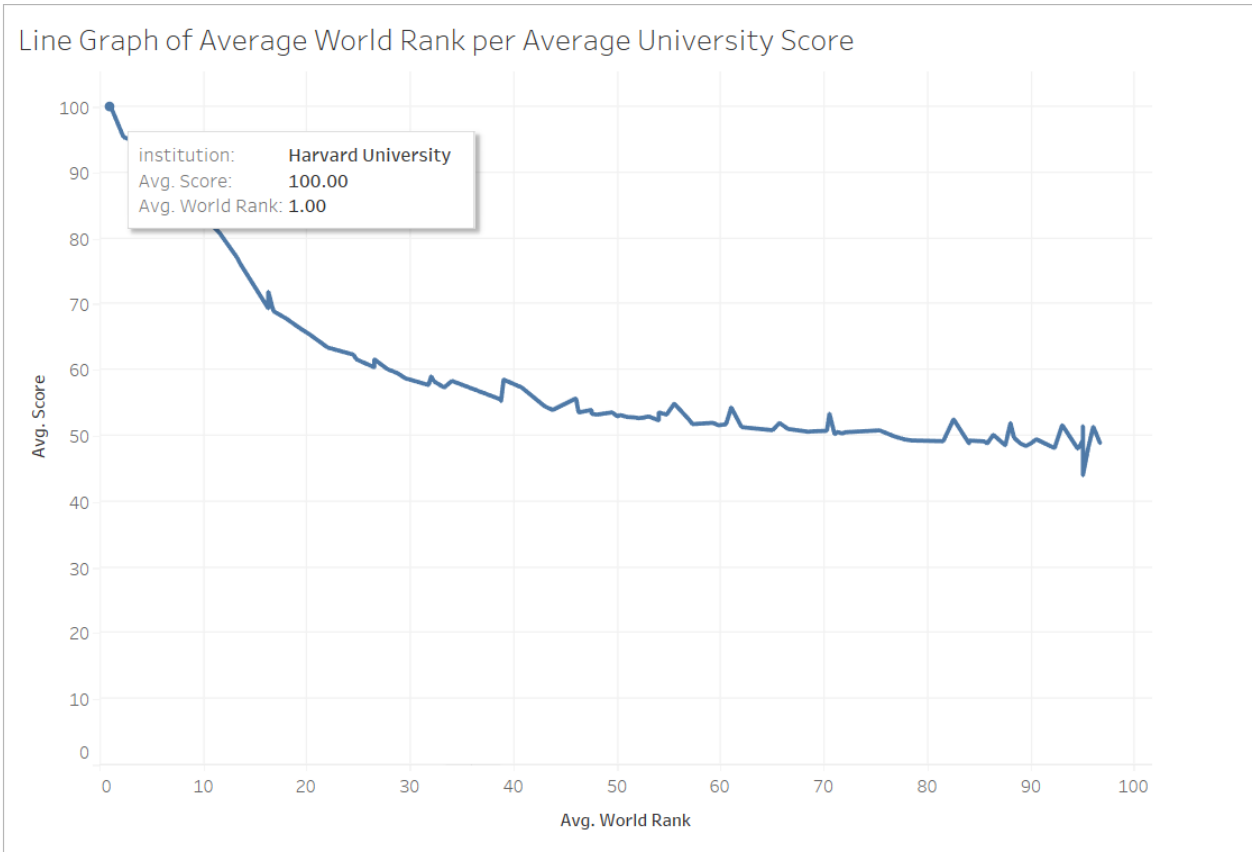

Figure 5. Line Graph of University Average World Ranking displayed in Tableau Desktop Dashboard.

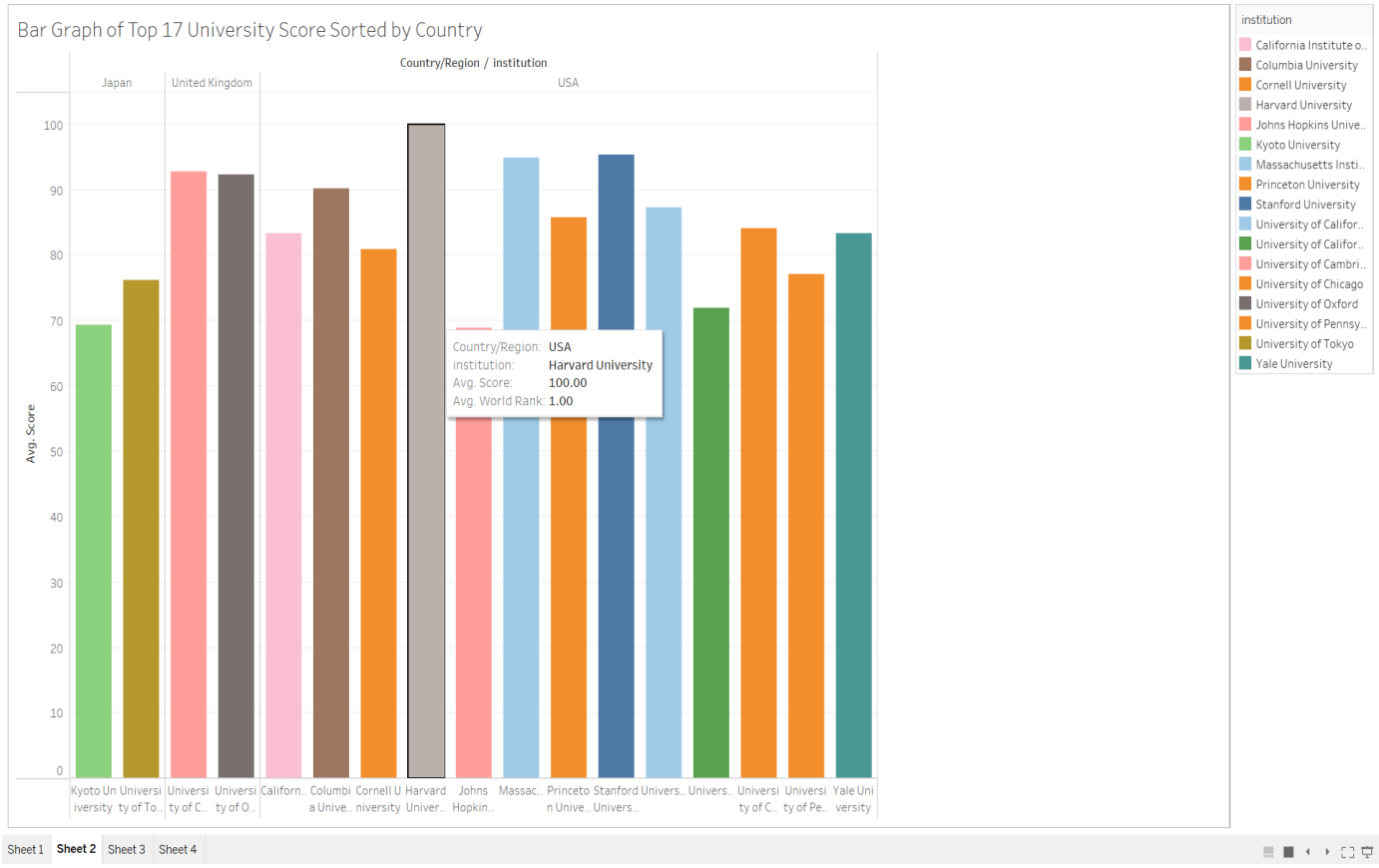

Figure 6. Bar Graph of Top 17 University Average Score Sorted by Country

I have chosen a bar graph, a line graph and a visual world map to display visualizations of average of world university rankings and average scores from 2012 to 2015. The graphs clearly show that there is a correlation between university ranking and university score. The visual world map and bar graph also clearly display that there are mostly top universities in USA and Europe countries.

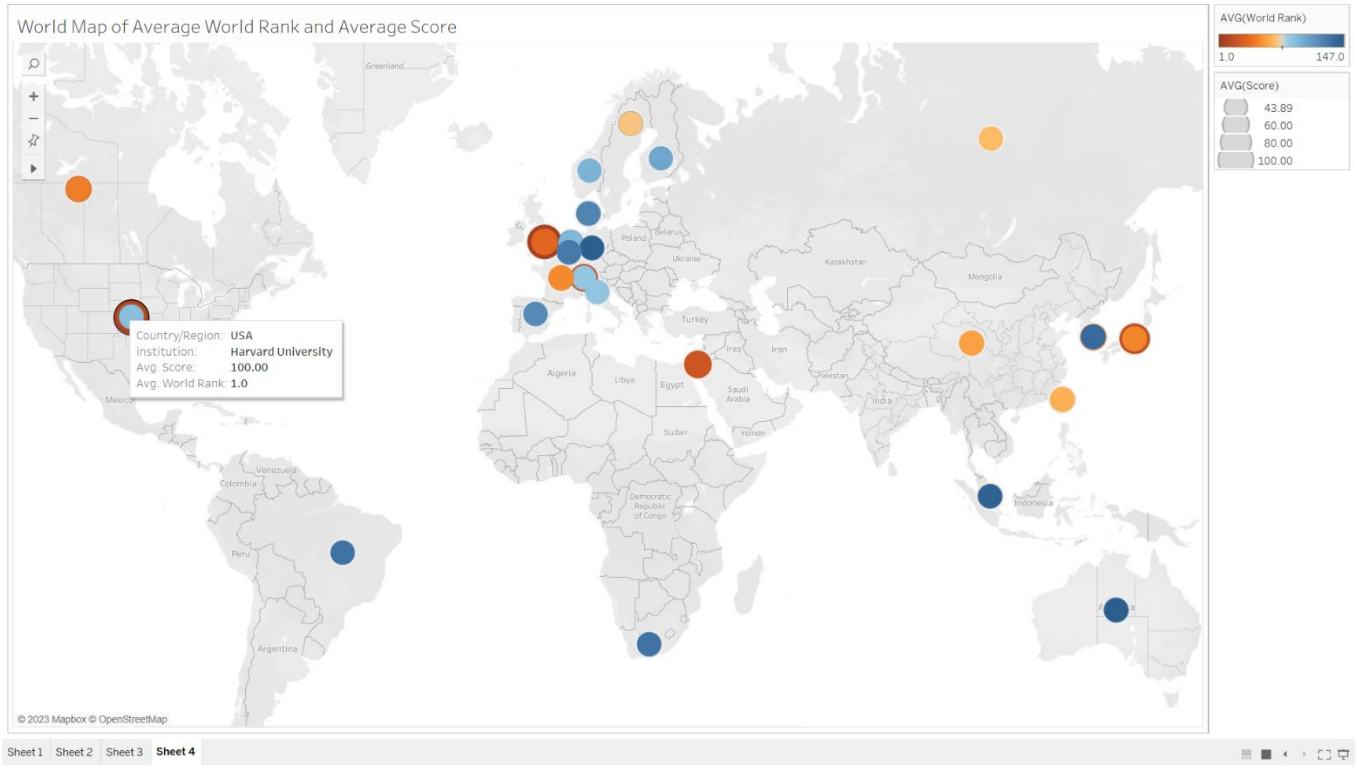

Figure 7. Visual World Map of Universities Displaying Average World Rank and Average Score.

5. **Personal User Experience**

Opportunity

- **There are tutorials for beginners on Tableau Desktop**
- **Comparatively easier to learn than other visualisation tools (Personal opinion)**
- **Ease of implementation and the process is very simple and straightforward.**
- **There are various types of visualisations available.**
- **There are recommendation tools for data cleaning and visualisations.**
- **Especially useful when analysing a large dataset.**

Challenges

- **A lack of data cleaning options in Tableau Desktop**
- **Need to use two different tools, Tableau Prep Builder for data cleaning and visualisations for Tableau Desktop**
- **I found Tableau a bit difficult to create desired format of visualisation.**