University of Macau

CISC7204 – Data Science and Data Visualization

Assignment 2, 2019/2020

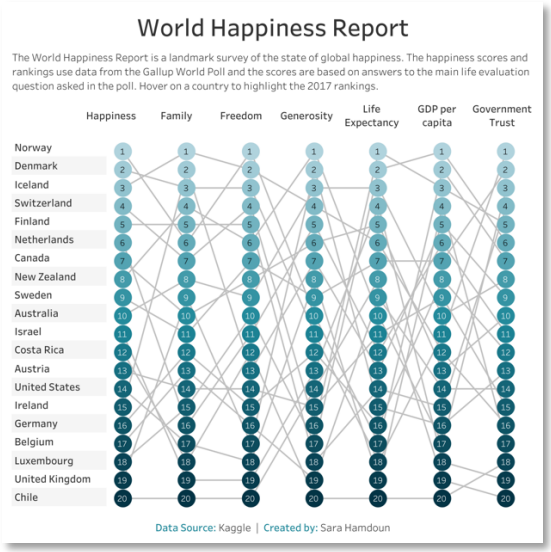
(Due date: *9 October 2019*)

Recreation of Visualizations

This assignment requests you to reconstruct the visualization from ONE of the following two visualization dashboards according to their DIFFICULTY LEVEL. This process is seen as a kind of reverse engineering that allows you to start with the final designed visualization and seek to understand how it was designed and what the requirements are able to replicate something similar in a different use of the knowledge you have learned.

Q1: World Happiness 2017 (Difficulty Level: Normal, Maximum Grade: 90)

The World Happiness Report[1] is a survey of the state of global happiness. Its first report was published in 2012. The fifth report, the World Happiness 2017, which ranks 155 countries by their happiness levels, was released at the United Nations at an event celebrating International Day of Happiness on March 20th. The report continues to gain global recognition as governments, organizations and civil society increasingly use happiness indicators to inform their policy-making decisions. The reports review the state of happiness in the world today and show how the new science of happiness explains personal and national variations in happiness. Below shows the dashboard created by Sara Hamdoun:



https://public.tableau.com/zh-tw/gallery/which-country-happiest?tab=featured&type=featured

The sources: dataset[2] and Tableau Workbook[3]

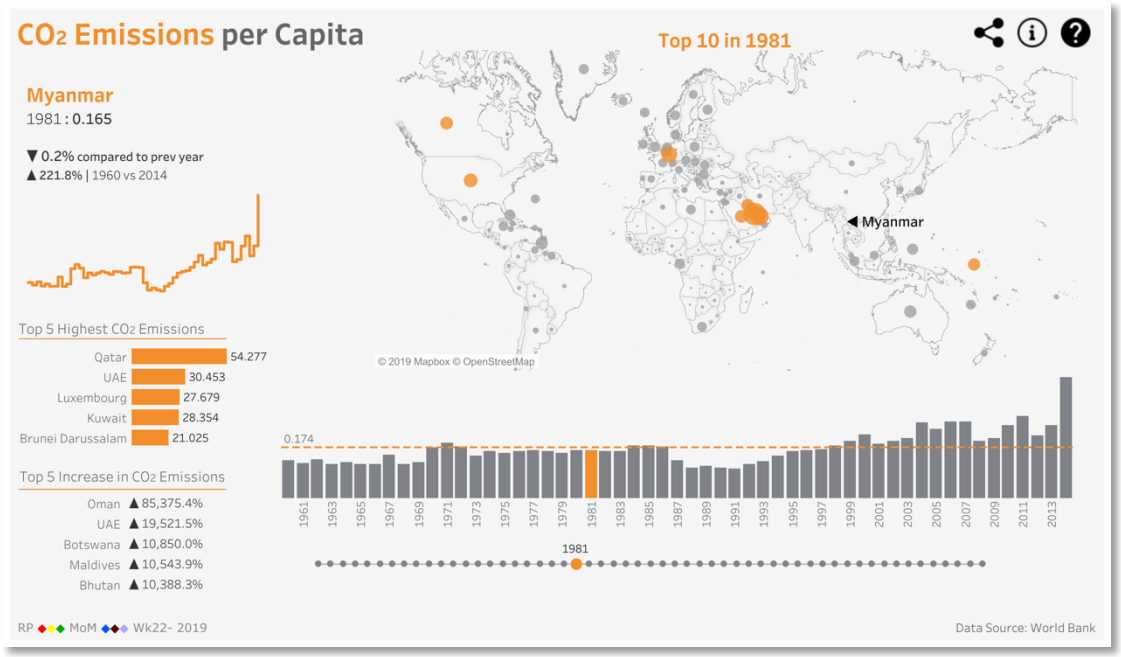
[1] https://www.kaggle.com/unsdsn/world-happiness#2017.csv

[2] https://ummoodle.um.edu.mo/pluginfile.php/2663895/mod_folder/content/0/World%20Happiness%202017.csv?forcedownload=1

[3] https://ummoodle.um.edu.mo/pluginfile.php/2663895/mod_folder/content/0/World%20Happiness%20Report.twbx?forcedownload=1

Q2: CO2 Emissions Per Capita (Difficulty Level: Challenging, Maximum Grade: 100)

The annual per-capita carbon dioxide (CO2) emissions by country data is released by the United Nations Millenium Development Goals Indicators,[4] to show the CO2 emissions varies by county. Carbon dioxide emissions, largely by-products of energy production and use, account for the largest share of greenhouse gases, which are associated with global warming. To better visualize the dataset, Prasanna Ratnam has created the following dashboard for visualization:



https://public.tableau.com/zh-tw/gallery/carbon-dioxide-emissions-around-world?tab=viz-of-the-day&type=viz-of-the-day

The sources: dataset[5] and Tableau Workbook[6]

The Assignment

1. Choose either Q1 or Q2, download the dataset and the given Tableau workbook:
    - Get familiar with the data
    - Explore the dashboard and worksheets by learning the design requirements
2. Build your own dashboard and visualization:
    - Provide the necessary steps to build the designed worksheets and dashboard.

The Submissions

You need to submit the following materials:

- (30%) The replicated visualization workbook
- (10%) The snapshot of dashboard, and
- (60%) The detailed steps in replicating the visualization, in MS Word file.

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[4] http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=751

[5] https://ummoodle.um.edu.mo/pluginfile.php/2663895/mod_folder/content/0/CO2%20Emission.csv?forcedownload=1

[6] https://ummoodle.um.edu.mo/pluginfile.php/2663895/mod_folder/content/0/CO2%20Emissions%20per%20Capita.twbx?forcedownload=1

References

You need the following knowledge/techniques to accomplish the assignment:

1. Creating a Dual Axis Chart in Tableau
2. Tableau Rank Calculation Advanced
3. Filtering with Parameters
4. Reference Lines, Bands, Distributions and Boxes
5. Actions and Dashboards