Exam in Data Visualisation and Data-driven decision making

Course: Data Visualisation and Data-driven decision making (BSDVDDM1KU)

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*Link to my Github repository containing my tableau notebook, data used, images and all visualisations: https://github.itu.dk/juhi/Dataviz

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1 Introduction

With the advancement of science and the development of rockets, space travel has been more and more explored over the last century. Because of this development, I though it would be interesting to explore the history of space travel. The data I used for this project was found on Kaggle and included data describing space missions from various countries from 1955-2020. By using this data, I wanted to to tell a story of the history of space travel. I therefore decided to make more than one visualisation, and also to split the visualisations up into two dashboards. The first dashboard would give a quick overview of the data through two visualisations; a map and a bar plot. These visualisations showed that Russia and the USA were leading nations both in terms of money spend on space launches and total amount of space launches in their country. This makes sense due to the infamous space race that took place between these countries during the cold war. Because of this discovery, I decided to make another dashboard containing a circle timeline to show the main events of the space race, and thereby tell a story. I wanted to tell this story because the space race pushed the exploration of space tremendously.[1]

1.1 Dashboard 1

The goal with my first dashboard was to give an overview and show trends in my data. I decided to make a map to show the total amount of space missions for each country included in the dataset. In this visualisation, the size and the color of the rings are dependant on the specific country's total amount of space launches from their country. This choice was made to give viewers a very intuitive and easy overview over the message I wanted them to receive. I also decided to make this visualisation interactive by including sub-visualisation in the tool-tip, so when a user would hover their mouse over a specific country, another visualisation would be displayed. This sub-visualisation was an area chart and would display the amount of space launches from the given country over time. I made this decision because I wanted as much information as possible to be viewed in the plot without having to overcrowd the visualisation. I also decided to make a bar chart showing the average amount of US dollars spent on a space mission per country. Here, I only included the top 7 countries because there was not a lot of data available for the remaining countries and I mainly . I wanted to make this plot as simple and aesthetic as possible, which is why I excluded the X and Y axes and simply put flags and values on the actual bars to give viewers a simple understanding of what each bar represented. In the tool-tip, I included the average amount spent on a space mission, the total amount spent (from 1955-2020) and the country in question. The colors used in my visualisations were heavily inspired by a space theme. The colors I used were thus black, white and blue.

1.2 Dashboard 2

In my second dashboard, I decided to make one big visualisation consisting of a circle timeline. The main goal of this visualisation was to tell the story of the main events of the space race. Because I wanted to tell the story of the space race, I only used data from 1955-1975 which was the duration of the space race. In the timeline, the size and the color of the circles represent the amount of space missions for each country in that specific year. I wanted to make the circle timeline as simple as possible as the main focus of this visualisation should be the actual events taken place, and the timeline would simply indicate the order and time of these events. I also decided to make two individual timelines for Russia and the USA so the events would not be too cluttered and so the reader would be able to easily distinguish which events belonged to which countries.

[1] https://www.nationalgeographic.com/science/article/space-race-early-human-spaceflight-history-missions

2 Visualisations

2.1 Dashboard 1

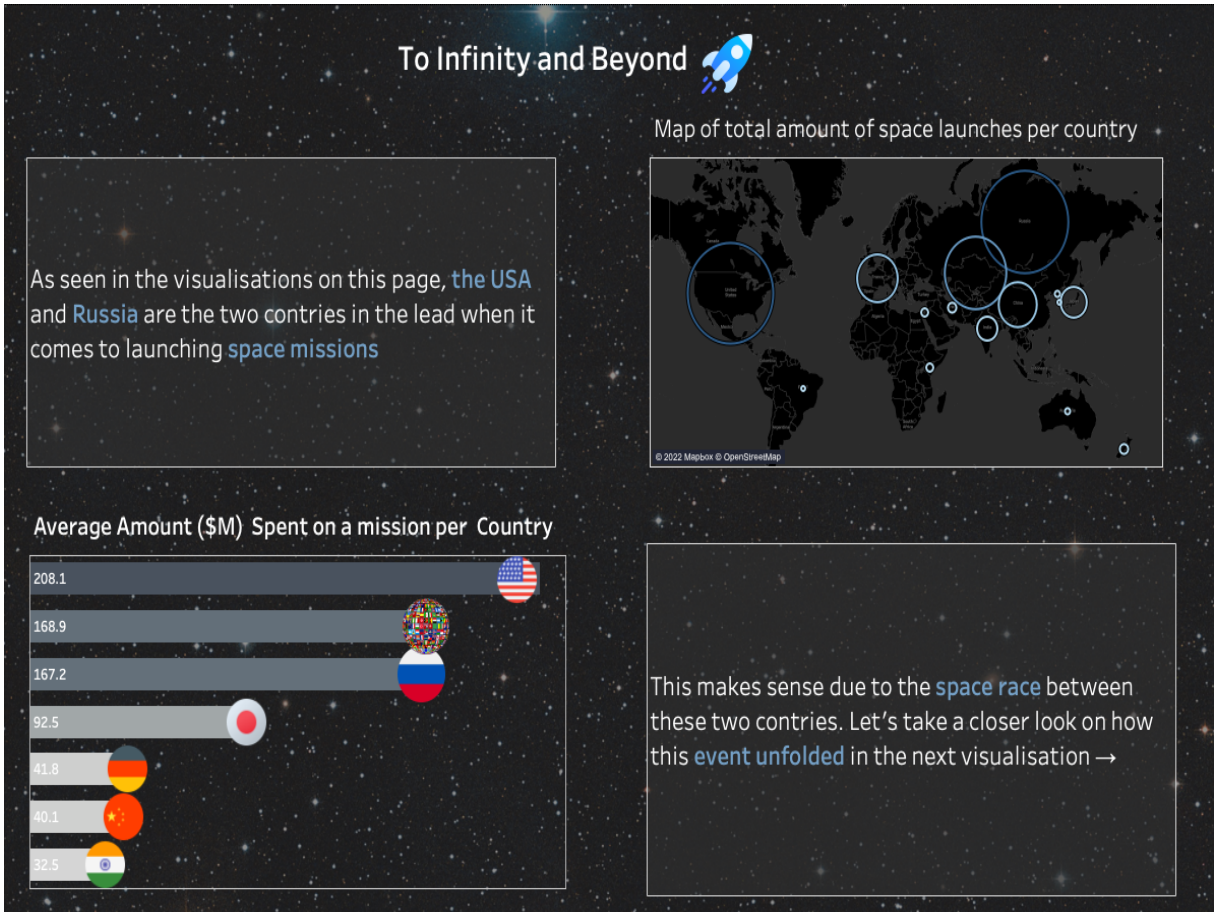

Figure 1: Dashboard 1

2.1.1 Visualisation 1

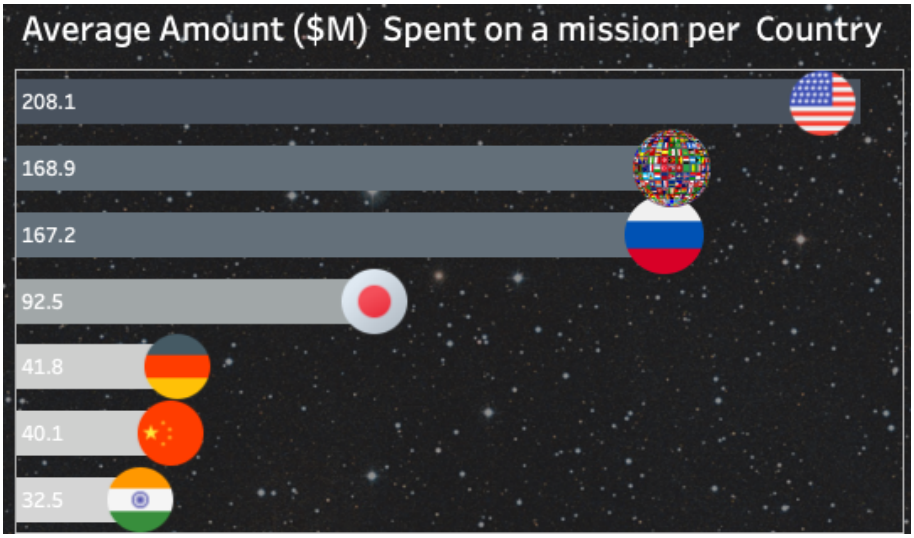

Figure 2: Bar plot of amount of dollars spend on average space mission per country

2.1.2 Visualisation 2

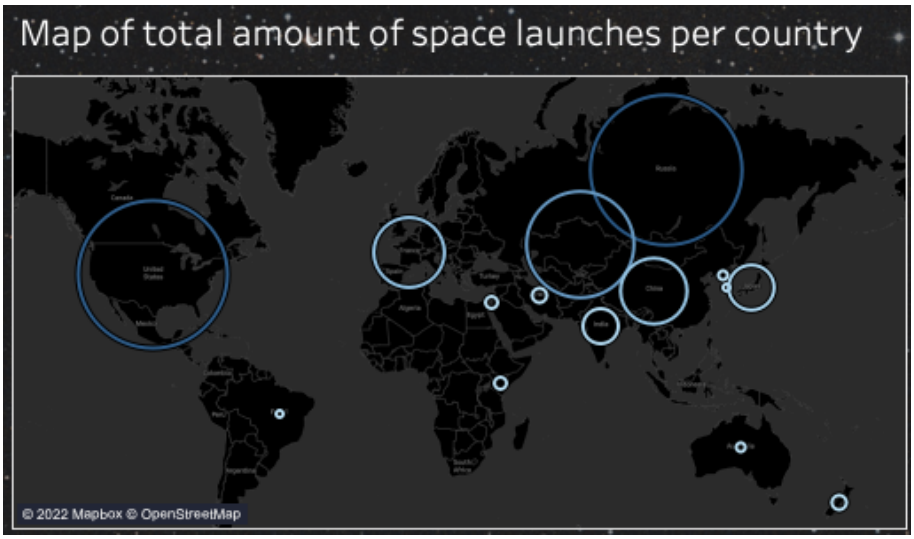

Figure 3: Map visualisation

2.1.3 Visualisation 3

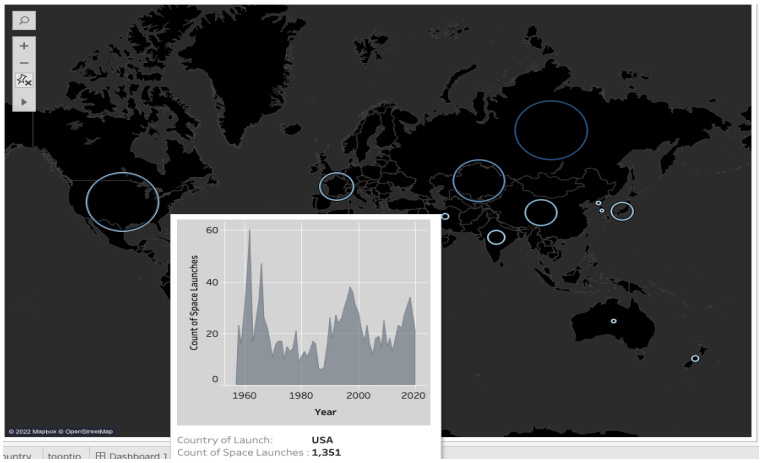

Figure 4: Subvisualisation of the map when hovering the mouse on the USA

2.2 Dashboard 2

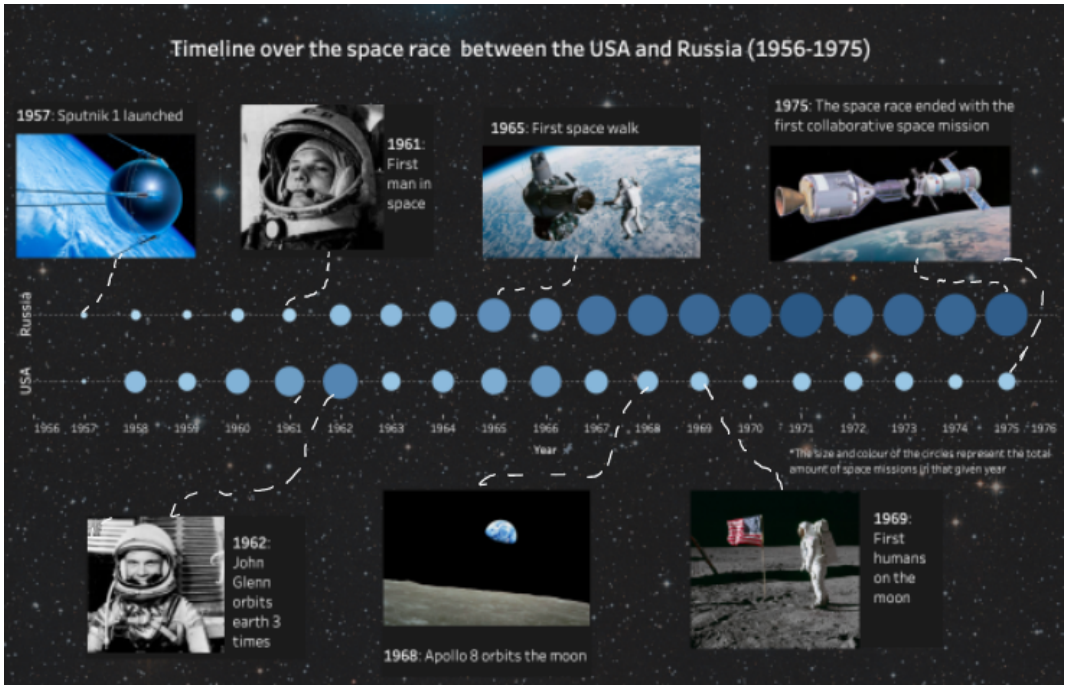

Figure 5: Dashboard 2