

Milestone 2

Data Visualisation (COM-480)

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1 Project Description

This visualization project aims to analyze the patterns and trends of air travel departing from San Francisco International Airport, with a focus on the changes in passenger volume over time for various airlines and geographic regions.

To achieve this goal, we will go through data related to passenger volumes for various airlines departing from San Francisco over the past few years. We will use this data to identify trends and patterns in air travel, including seasonal fluctuations in passenger volume, popular airlines, and destinations.

2 Main visualisations

In this project, we will focus on these visualisations :

- **Air traffic heat map:** The idea here is to have a world map which will highlight the traffic density from San Francisco to various parts of the globe. It will include a time slider to navigate through the years.
- **Air traffic sankey diagram:** Since we have a yearly view of the air traffic density with the heat map, the main aim here is to highlight the most reached airports for the whole time period, in order to get a global view.
- **Ticket fares diagram (opt.):** This visualisation will be an interactive pie chart showcasing the proportion of low-fare tickets for each company by month, over the whole time period.
- **Number of passengers chart (opt.):** The chart will be a circle with an option to choose the year, month and company, highlighting the total number of passengers. It will act as a complementary chart to the other visualisations, showing the total flow of passengers in a more granular way.

As a more challenging idea, we imagined including a time-varying animation to the heatmap. The idea is to have the map changing for each year monthwise in order to visualise the "real-time" flow for each year.

3 Needed tools

The tools which will be necessary to implement the visualisations are the following:

- **D3.js:** JavaScript library for data visualisation
- **Leaflet.js:** JavaScript library for interactive maps
- **heatmap.js:** JavaScript library for heat region implementation
- **Pandas:** Data handling Python library

4 Sketches

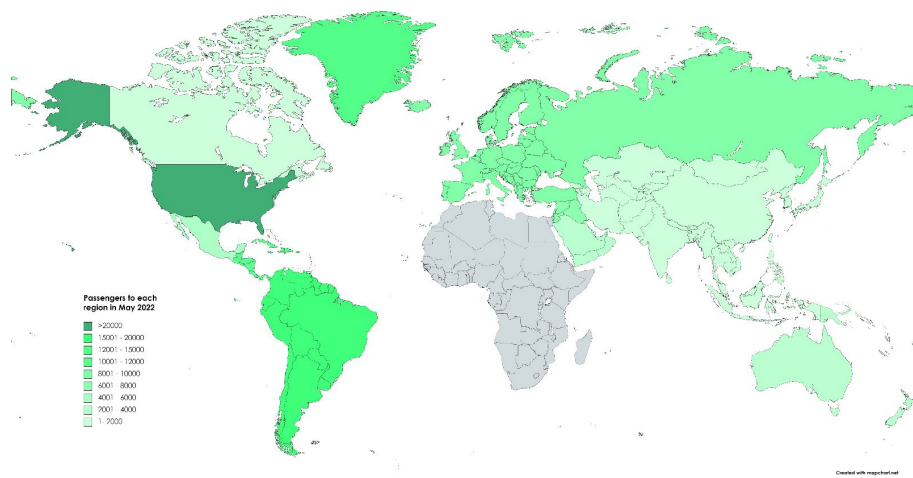


Figure 1: Heatmap sketch

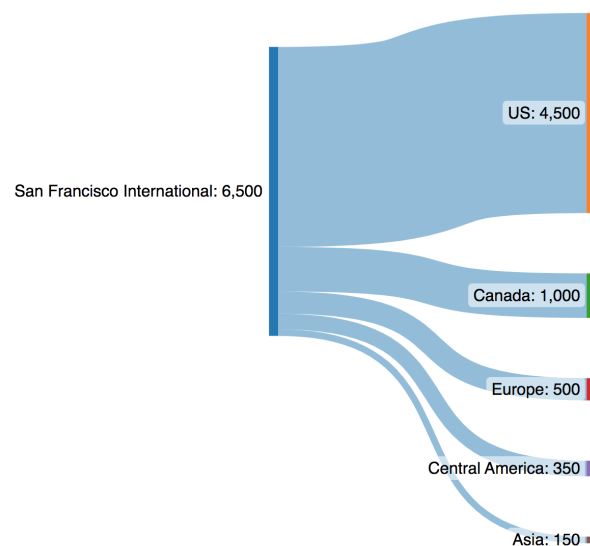


Figure 2: Sankey Diagram sketch

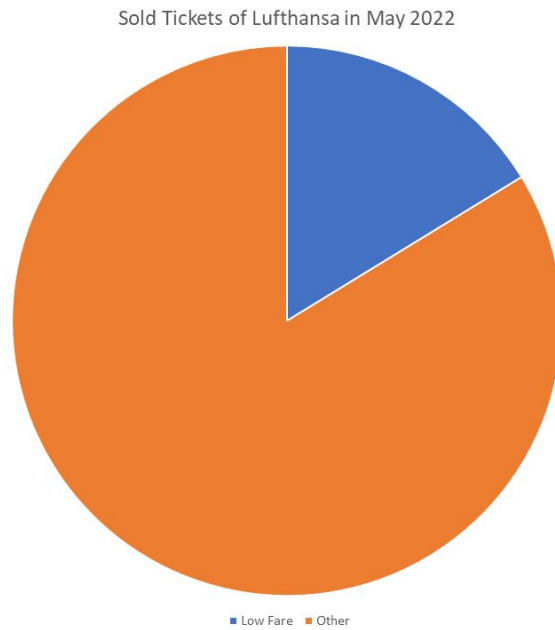


Figure 3: Ticket fares diagram sketch

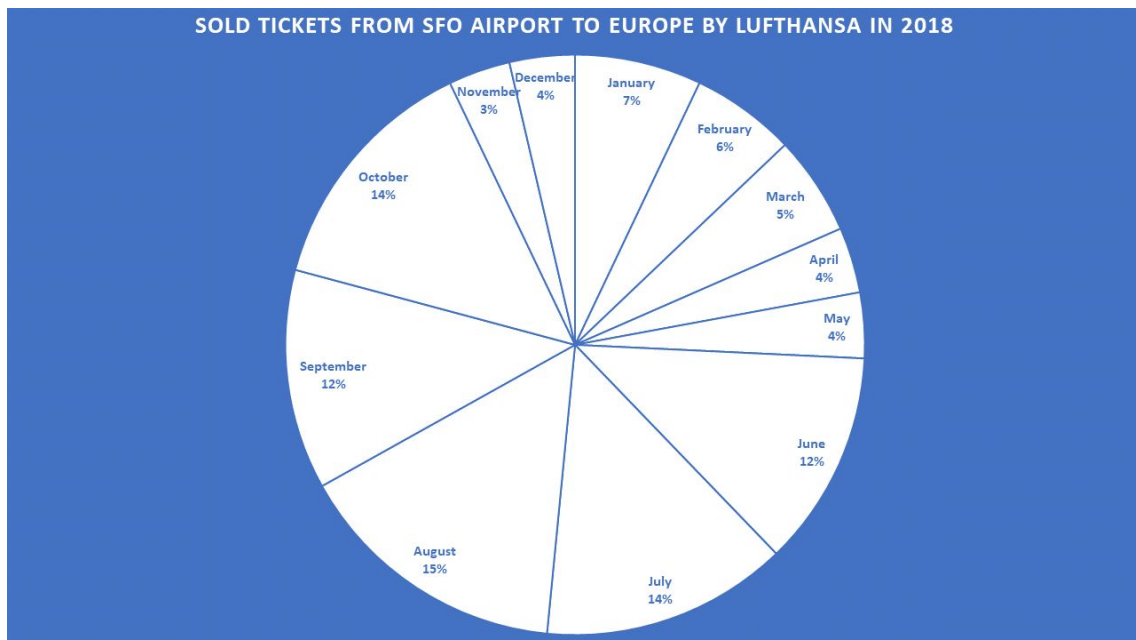


Figure 4: Number of passangers chart sketch