Data Visualisation

COS30045

Process Book

Australia Migration & COVID-19

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# 1. Introduction

## 1.1 Background and Motivation

Since the earliest times, humanity has been on the move. Some people move in  
search of work or economic opportunities, to join family, or to study. Others move  
to escape conflict, persecution, terrorism, or human rights violations. Still others  
move in response to the adverse effects of climate change, natural disasters, or  
other environmental factors. (UN-Migration)

Increasingly more and more people are being displaced from their homes due to world events. Where these people go and what happens to them is a highly politicized issue in many countries. This project will explore the issue of migration to Australia with focus on the recent Covid-19 pandemic.

## 1.2 Visualisation Purpose

The project aims to analyze the impacts of Covid-19 on migration to Australia by illustrating and comparing Australian migration data before, during, and after Covid-19.

The websites will let users:

+ Interact with visualizations by buttons, hovering the mouse

+ Understand the migration trends to Australia

## 1.3 Project Schedule

* Week 2: Initialization
  + Arrange weekly meeting schedule
  + Create a GitHub repository
  + Create communication channels (Discord, Facebook)
  + Create Google Drive folder for sharing documentations
* Week 3-4: Start working on the project
  + Complete Section 1 of the Project Process Book
  + Discuss some approaches for the visualization
  + Discuss the progress with tutor in the Project Stand Up 1
* Week 5-6: Data research and analysis
  + Research and from multiple sources
  + Process data to be ready for use in the visualizations
  + Complete Section 2 of the Project Process Book
* Week 7:
  + Draw design sketches for the visualizations
* Week 8: Start of the implementation phase
  + Start building the website
  + Integrate the visualizations into the website
  + Complete Section 3 of the Project Process Book
* Week 9-11: Improvements & Adjustments
  + Add CSS to style the website
  + Discuss some improvements for the visualization design in Project Stand Up 2, 3.
  + Implement extra features in the visualization
  + Complete Section 4, 5, 6 of the Project Process Book
* Week 12: Project finalization
  + Final feedback from the tutor in Project Stand Up 4
  + Review the source codes to ensure it is well-formatted and commented
  + Review the Project Process Book to ensure it is properly styled and has no typos or grammatical errors.

# 2. Data

## 2.1 Data Source

Source:

<https://www.abs.gov.au/statistics/people/population/overseas-migration/latest-release?fbclid=IwAR2OYGNIUeyPvTDCCul5qXju-TH2_9ywwTkwqSvXiETLkYtm_4A9hsS48rg#data-downloads> (ABS)

<https://geojson-maps.ash.ms/> (World Geo Json)

## 2.2 Data Processing

The data is already cleaned as it came from the Australian Government (Australian Bureau of Statistics). A screenshot of a computer

Description automatically generated with medium confidence

However, there was a lot of data, and we could not represent everything in our visualizations, we only chose the top 5 – 10 for each category and extract them as .csv files as shown below:

A picture containing text, screenshot, font

Description automatically generated  
*Fig. Overseas migrant arrivals by top 5 major Visa groups*

A screenshot of a computer

Description automatically generated with medium confidence  
*Fig. Overseas migration arrivals by top 5 countries of birth*

# 3. Requirements

## 3.1 Must-Have Features

The visualizations in the project must include these features:

**1) Axes & Labels:** Help clarify data values used in the visualizations

**2) Legends:** List of labels for each colour

**3) Color:** Simple, contrast colour to distinguish data values

**4) Interactivity:** Buttons allowing users to modify the visualizations or hovering effects

**5) Brief explanations:** Explain the context around the visualizations

**6) Insights:** Analyze trends and interesting outcomes based on the visualizations

## 3.2 Optional Features

The following features are nice to have but not critical:

1. **Feedback Form:** A form allowing users to submit their feedback on the visualizations.
2. **Prediction Visualization:** Illustrate the migration trends in the next 5-10 years based on past data
3. **Animation:** Include some fancy animations in the visualizations

# 4. Visualisation Design

1. Global Heat Map

A notebook with writing on it

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1. Multiple Lines Chart

A picture containing background pattern

Description automatically generated

1. Stacked bar chart

A piece of paper with writing on it

Description automatically generated with medium confidence

After revision, we decided to merge graph 2 and 3 together into a parallel graph:

A picture containing text, handwriting, number, notebook

Description automatically generated

# 5. Validation

# 6. Conclusion

# References