Swinburne University Of Technology

Semester 1, 2023

COS30045- Data Visualization

Impact of COVID-19 on Migration in Australia **Process Book**

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# 1. Introduction

## 1.1 Background and Motivation

The COVID-19 pandemic had created a significant disruption globally in every aspect of lives. As a result, millions of people lost their jobs, schools are closed, and cities are locked down, altering the socioeconomic flow of the world.

## 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

1. https://www.migrationdataportal.org/themes/migration-data-relevant-covid-19-pandemic