Visualisation process book structure

* **Title page –** Your title page should include:
  + Title: Economic Surveys Australia 2023 – Employment and Demand Indices
  + Link to Mercury-hosted website
    - https://mercury.swin.edu.au/cos30045/s103422254/assignment3c/
  + Team 01B
    - Linh Doan - 104924340@student.swin.edu.au
    - Thang Truong – 103422254@student.swin.edu.au
  + TP2-2024
  + total word count (coming soon)
* **Table of contents**
* **Introduction**
  + **Background and motivation –** Who will use or be interested in this visualisation (users)? What kind of tasks will they want to do? Why is this important?

There is no doubt that the economy is one of the most crucial factors in boosting a country’s value and elevating its global ranking. A strong economy not only enhances a nation’s standing on the world stage but also plays a vital role in ensuring that its inhabitants enjoy a stable and prosperous life. In this report, we aim to present comprehensive data visualizations that illustrate the economic statistics of Australia up to the year 2023, following the global pandemic. The datasets, sourced from the OECD Health Statistics, reveal that while Australia’s economic growth recovered strongly and rapidly in the aftermath of the pandemic, this growth is now showing signs of slowing down. Our analysis will delve into these trends, providing insights into the factors contributing to the initial recovery and the subsequent deceleration.

We do believe that our data visualization will be playing a significant role in supporting inhabitants and also for organizations to have an overview insight of the Australia’s economic including Investor, Financial Analysts, Academics, Researchers, Businesses, Entrepreneurs, International Organizations, Media, Journalists and General public.

Obviously, various groups are interested in the Australian economy for different reasons, and data visualization plays a crucial role in this. Investors and financial analysts can use our charts to analyze market conditions, manage risks, and optimize investment portfolios. Businesses and entrepreneurs rely on our visual data to engage in strategic planning, financial forecasting, and improving operational efficiency. Academics and researchers utilize our visualizations to study economic trends, publish findings, and educate students. International organizations employ visual data to monitor economic performance, provide policy recommendations, and conduct comparative analyses. Media and journalists use visual aids to report on economic news, offer in-depth analysis, and raise public awareness. Meanwhile, the general public benefits from visual data to manage personal finances, plan careers, and keep track of the cost of living. Each group leverages data visualization to understand and influence the economic landscape of Australia effectively.

* + **Visualisation purpose** – What questions will the user be able to answer with your visualisation? List the possible benefits of the completed visualisation.

Data visualization enables users to answer a variety of questions by making complex data more accessible and understandable. From our understanding, the purpose of data visualisation will helps identify trends and patterns over time, compare performance across different products or regions, and understand the distribution of variables like age, trend, habits or income. Users can also explore relationships between the variables, detect outliers, and gain geographical insights. Additionally, visualization aids in resource allocation, performance tracking against targets, understanding customer behaviours, and identifying operational inefficiencies.

From our perspective, data visualization offers numerous benefits, including saving users significant time in reading and researching statistics. It enhances decision-making, increases productivity, fosters innovation, and improves communication. Additionally, it helps businesses and Financial Analysts quickly interpret complex data, streamline operations, and identify new growth opportunities. Effective visualization also supports economic resilience during crises by aiding critical decision-making and resource allocation. Finally, it creates job opportunities in data science and analytics, contributing to overall economic development.

* + **Project schedule –** Make sure that you plan your work so that you can avoid a big rush right before the final project deadline. Write this in terms of weekly deadlines.?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Verify and working on datasets | Updating Project process book | Updating Project process book (cont.…) and start coding | Updating Project process book (cont.) and coding (cont.…) | Review and submit |
| From: 01st -Sep-2024 | From: 09th-Sep-2024 | From: 24th-Sep-2024 | From: 30th-Sep-2024 | 6-7th/10/2024 |
| To: 06th-Sep-2024 | To: 20th-Sep-2024 | To: 27th-Sep-2024 | To: 04th-Oct-2024 |
| Contribution: 20%  on each team member | Contribution: 40%  on each team member | Contribution: 20%  on each team member | Contribution: 20%  on each team member | Review, combination tasks and ready to submit |

* **Data**
  + **Data source** – From where and how are you collecting your data? Provide a link to your data sources. What type of data set (table, network, field) is it? What are the attributes in your data set and what type of data are the values (categorical, ordinal, interval, ratio/quantitative)? Is there any data in the set that will not be included in your visualisation? Why?

We collect 2 sample datasets from OECD Health Statistics website in terms of After a robust and swift recovery from the pandemic, Australia’s economic growth is now beginning to decelerate.

Credit: <https://www.oecd-ilibrary.org/economics/oecd-economic-surveys-australia_19990146>

Dataset 1- Economic-growth-recovered-strongly

The datasets we had collected are being expressed in type of table format. It contains three attributes like Employment, Real domestic demand, and Nominal domestic demand. The values for these attributes are numerical and they are wonderful in terms of used trend analysis and forecasting in economic contexts.

Data from our datasets had been cleaned and customised in terms of attractive to users and enhances the role of storytelling. The reasons are there is not enough fields for the purpose of our data visualization.

Dataset 2- The-economy-recovered-rapidly-but-growth-is-now-slowing

**Note:** Make sure that the data can be used to answer the questions outlined under 'Visualisation purpose'.

* + **Data processing** – Do you expect to do substantial data cleanup? What quantities do you plan to derive from your data? How will data processing be implemented? Will you be deriving any variables? You should also describe the cleanup process that was implemented as well as an explanation and calculation of derived variables (if used).

According to the dataset 1we believe that it has a well structured with consistent formatting and no obvious errors, duplicates or missing values. Next, we are ensuring that all dates and numerical values were consistent. We also normalized the data to make comparisons between different attributes easier. For the derived variables we are going to derive quantities such as growth rates to calculate the percentage change over time for employment, real domestic demand, and nominal domestic demand. Secondly, we will identify long-term trends in each attribute, analyze correlations between these variables. Finally, we will used historical data to predict future values and perform comparative analysis to understand economic shifts by comparing different time periods.

According to the dataset 2

* **Requirements**
  + **Must-have features** – These are features without which you would consider your project to be a failure. Were you able to deliver all the promised features? If not, explain why.

Dataset 1:

From our perspective, the following features can make our project failed if dataset get involve with errors, duplicates, missing values and effective normalization.

Could not calculate the growth rate for employment, real domestic demand and nominal domestic demand.

Could not identify trend in terms of long-term trends to understand the overall direction of economic indicators.

Could not identify and analyzing seasonal patterns or cycles in order to accurate forecasting.

Could not using historical data to forecast future values in terms of planning.

Could not comparing different time periods to aware economic shifts for deriving meaningful insights.

To ensure the project is productive and effective, we are committed to delivering all the above features. This has necessitated the use of mathematical calculations to derive data from our dataset.

Dataset 2:

* + **Optional features** – Those features which you consider would be nice to have, but not critical. Were you able to deliver any of these extra features?

We do know that there are some optional features could make our data visualisation go to another level such as integration with external data sources Incorporating additional data sources for a more comprehensive analysis. Automated reporting in terms of regularly update stakeholders on key metrics and improving the user interface to support users in terms of accessibility and user experience. However, we may not be able to deliver these optional features due to our commitment to other assignments and work.

* **Visualisation design** – How will you display your data? Provide some general ideas that you have for the visualisation design. Include sketches of your design. Include at least 2–3 alternative ideas for your visualisation. Describe and justify your choice of visual encoding and idioms. Show the evolution of your design. How has it progressed? Justify the visualisation idioms you have chosen to represent your data. Description (including screenshots) and explanation of final design.

**Note:** You are encouraged to provide your own structure to this section.

* **Validation** (optional) – Test your visualisation with users and report the results.
* **Conclusion –** Provide a summary of the project and what you learned from doing it.
* **References** – Provide a complete list of references consulted (including blogs, books, academic papers, discussions/forums) using the APA 7th edition style referencing conventions.