

ITD112 – Data Visualization Techniques

Case Study #2 Output Journal Article Writing

Journal Paper (Introduction, Methodology, Results and Discussion, Conclusion and Recommendations)

Journal Format Template

Your journal should follow a structured format with the following sections:

Abstract

Summarize your entire study in 150–250 words.

Must include:

- Purpose of the system/project
- Methods (Firebase, React, visualization techniques)
- Key findings/insights from data
- Implications or importance of the visualization output

1 Introduction

- Provide background on Filipino emigration trends.
- Discuss the importance of data visualization in understanding population mobility.
- State the purpose of your web application.
- Clearly present:
 - Research problem or question
 - Objectives of the study
 - Significance (who will benefit from this visualization system)

2 Methodology

Explain your development process clearly and technically:

2.1 System Architecture

- Describe Firebase backend configuration, Firestore setup, and data structure.
- Explain how React and Firebase were integrated.

2.2 Data Preparation

- Source of Filipino Emigrants dataset

- Fields used: year, single, married, widower, separated, divorced, notReported, etc.
- Data uploading process into Firebase (manual or via CSV upload)

2.3 Visualization Tools & Techniques

- State the libraries used (e.g., Recharts).
- Identify which chart type was used per visualization objective

3 Results and Discussion

(THIS IS THE MOST IMPORTANT SECTION)

- Present each graph/chart and interpret what the data means.
- For each visualization:
 - Insert chart image/screenshot (with label and figure number)
 - Explain trends, patterns, and insights
 - Discuss what the visualization reveals about Filipino emigrants (e.g., which civil status trends are increasing, relationship between year and number of emigrants)
- Highlight implications or potential policy/research recommendations based on data.

4 Conclusion and Recommendations

- Summarize your findings.
- State how the use of Firebase and visualization tools helped in data-driven insight discovery.
- Mention any limitations.
- Provide recommendations or suggestions for improvement (technical or analytical).

References

Use **IEEE citation style (numeric referencing format)**. Cite sources within the text using bracketed numbers (e.g., [1]). List all references numerically in the References section according to the order they appear in the paper.