

Project Title: A Short, Descriptive Title

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ABSTRACT

A brief summary of your project. Mention the dataset, goal (e.g., clustering/classification/EDA), and key findings in 4–5 sentences.

1. EXPLORATORY DATA ANALYSIS (EDA)

1.1 Data Inspection

Describe your dataset: number of rows, columns, types of variables, missing values, and summary statistics. Include a short table or paragraph summarizing key properties.

Table 1: Dataset Overview		
Feature	Type	Missing (%)
Age	Numerical	2.3
Gender	Categorical	0.0
Income	Numerical	5.1

1.2 Visualisations

Include key plots to explore distributions or relationships:

- Histogram of key numerical features
- Boxplot to show outliers
- Pairplot / Correlation heatmap for relationships

1.3 Insights

Summarize interesting patterns:

- Which variables correlate strongly?
- Any skewed distributions or outliers?
- Early hypotheses about clusters or classes

2. DATA PREPROCESSING

2.1 Handling Missing Data

Explain how you dealt with missing data (imputation, deletion, etc.) and justify your choice.

2.2 Feature Engineering

List any new variables or transformations you applied (e.g., encoding, log transforms, ratios).

2.3 Standardisation / Normalisation

Discuss any scaling applied (e.g., z-score, min–max) and why it was necessary.

3. DATA MINING METHODS AND ANALYSIS

3.1 Methods

Describe which algorithms or analytical methods were applied:

- Clustering (e.g., K-Means, DBSCAN)
- Dimensionality Reduction (e.g., PCA, t-SNE)
- Classification/Regression (if applicable)

3.2 Results

Summarize the main results. Use figures/tables for clarity:

- Cluster quality metrics (e.g., silhouette score)
- Feature importances
- Visualizations of clusters or decision boundaries

3.3 Discussion

Interpret the results:

- What patterns or groups emerged?
- Were the methods appropriate?
- Any limitations or anomalies?

4. CONCLUSION AND REFLECTION

Summarize what you found and learned:

- Key insights from data mining
- Challenges faced and how you overcame them
- Potential future work or improvements

Acknowledgements

(Optional) Acknowledge any data sources, collaborators, or funding.

5. ADDITIONAL AUTHORS

6. REFERENCES