**Retail Sales Data Analysis**

**Project Overview**

This project performs an exploratory data analysis (EDA) on a retail sales dataset to uncover patterns, trends, and insights that can help the retail business make informed decisions.

**Dataset**

The dataset contains information about retail sales transactions including:

- Transaction details (ID, Date, Total Amount)

- Customer information (ID, Gender, Age)

- Product information (Category, Quantity, Price per Unit)

**Key Analysis Areas**

1. \*\*Descriptive Statistics\*\*: Basic statistics of sales data

2. \*\*Time Series Analysis\*\*: Sales trends over time

3. \*\*Customer Analysis\*\*: Demographics and purchasing behaviour

4. \*\*Product Analysis\*\*: Performance across different categories

5. \*\*Visualizations\*\*: Various charts and graphs to illustrate insights

**Tools & Libraries**

- Python

- Pandas

- NumPy

- Matplotlib

- Seaborn

- Jupyter Notebook

**How to Run**

1. Clone the repository

2. Install required packages: `pip install -r requirements.txt`

3. Run the Jupyter notebook or Python script

**Key Findings**

- Electronics is the highest revenue-generating category

- Male customers have higher average transaction values

- Sales peak during certain months of the year

- Specific age groups prefer different product categories

**Recommendations**

1. Focus marketing efforts on high-performing product categories

2. Develop targeted campaigns for different customer segments

3. Implement strategies to boost sales during low-performing periods

4. Create loyalty programs for high-value customers

**Future Work**

- Predictive modelling for sales forecasting

- Customer lifetime value analysis

- Market basket analysis for product recommendations

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