

Report on EDA

Overview

This report summarizes the exploratory data analysis (EDA) conducted on the customer, transaction and product dataset. The primary objective of this analysis is to understand customer signup trends and identify any underlying patterns in the data.

Dataset Overview

1. **Dataset Name:** Customers.csv, Transactions.csv, Products.csv
2. **Data Quality:**
 - **Missing Values:** No null values were found in the dataset.
 - The dataset appears clean and ready for analysis.

Key Findings

1. Signup Trends Over Time

- The number of customer signups was analyzed year by year.
- A line plot was generated to observe trends in signups:
 - **X-Axis:** Year
 - **Y-Axis:** Number of Signups
- Key Observations:
 - Some years showed significant increases in signups, which might indicate successful marketing campaigns or external factors driving growth.
 - Periods of stagnation or decline may signal a need for targeted customer acquisition strategies.

2. Temporal Patterns

- The dataset allowed for deeper temporal analysis:
 - Breakdown by **month** and **day** (if applicable) could highlight seasonal trends or peak signup periods.

Visualizations

The following visualizations were generated:

1. Signups Over the Years:

- A line plot with markers to represent yearly signup counts.
- This visualization helps identify growth trends and anomalies over time.

Insights from the EDA:

- South America is the key region for high value-sales, especially in Home décor
- Books consistently perform well across all regions and lead in overall sales
- Seasonal or Promotional Patterns(eg. January and December spikes) are evident and should be targeted for marketing efforts
- Categories like Clothing and Electronics can benefit from additional focus to increase their shares in underperforming regions.
- The Decline in signups from 2022 to 2023 and a good recovery in 2024 Suggests a good strategy implementation it should be continued
- Can focus more on High Valued Customers

