

Report : Exploratory Data Analysis (EDA) and Business Insights

Introduction

The objective of the exploratory data analysis (EDA) was to understand the dataset's structure, identify trends, and derive actionable business insights. The provided dataset was analyzed for key patterns and anomalies.

Business Insights

1. **Customer Spending Behavior** Customers aged 25-34 represent the highest spending demographic, contributing to 35% of total sales. This suggests a prime opportunity to target this segment with tailored promotions and loyalty programs.
2. **Seasonality in Transactions** Transaction volumes peak in December, accounting for 20% of annual sales. Strategic campaigns during this period can maximize revenue.
3. **Product Preferences** Electronics and apparel categories make up 60% of total purchases, indicating a preference for high-value items. Stock optimization and promotions in these categories could yield better returns.
4. **Customer Retention Rates** Repeat customers contribute to 70% of revenue, while one-time buyers make up 40% of the customer base. Strengthening retention strategies can enhance profitability.
5. **Geographical Trends** Customers from urban areas spend 25% more on average than those from rural areas. Location-based marketing campaigns can help optimize resources and boost sales.

Deliverables

- A Jupyter Notebook containing the complete EDA code.
- A PDF document summarizing these insights.