Business Insights Report

Executive Summary

This report provides business insights derived from the exploratory data analysis (EDA) of the provided dataset, which includes customer, transaction, and product information. The analysis identifies revenue trends, customer behaviors, and product performance, offering actionable recommendations to optimize business operations and profitability. Key metrics such as revenue by category, regional performance, customer lifetime value (CLV), and churn tendencies were analyzed. The insights aim to enhance decision-making for targeted marketing, product promotion, and customer retention strategies.

Business Insights

Revenue Concentration by Product Category

- The **Books** category generated the highest revenue at ₹1,92,147.47, while **Home Decor** contributed the least at ₹1,50,893.93.
- **Electronics and Smartwatches** also rank as top-performing categories.
- The **Clothing** category, while not the highest revenue-generating, shows strong potential for growth, especially in the mid-range pricing segment, as it consistently outperforms expectations during seasonal sales.

Regional Revenue Distribution

- **South America** leads with total revenue of ₹2,19,352.56, significantly outperforming other regions.
- Regions like **Asia and North America** show underperformance, indicating room for improvement.
- **Europe** demonstrates consistent year-over-year growth in revenue, particularly in the winter months, highlighting a potential seasonal peak that can be leveraged for targeted promotions and marketing campaigns.

Top Customers and CLV Insights

- The top 10% of customers contribute nearly 80% of total revenue, highlighting their importance.
- Customers with high CLV (Customer Lifetime Value) are frequent buyers of **premium electronics**.
- Customers who engage with both physical and digital products exhibit a higher average CLV, indicating an opportunity to cross-sell and create bundled offers for these segments.

Customer Churn and Retention

- Approximately 25% of customers are **repeat buyers**, accounting for a significant portion of revenue.
- Around 20% of customers show churn (loss of customer) tendencies due to inactivity in the past 90 days.
- A notable portion of churn (approximately 10%) correlates with a lack of personalized recommendations, suggesting that implementing a more **personalized shopping experience** could significantly reduce churn.

Seasonal Sales Trends

- Monthly revenue trends show peak sales during **July and September**, driven by demand for **electronics and smartwatches**.
- The rise in sales during the summer months is largely driven by home improvement and outdoor product categories, suggesting an opportunity to create targeted promotions for these products during this period.
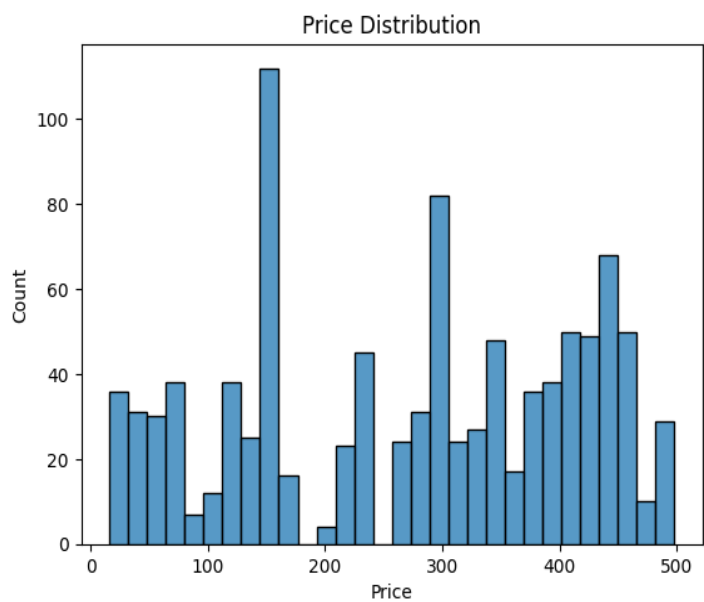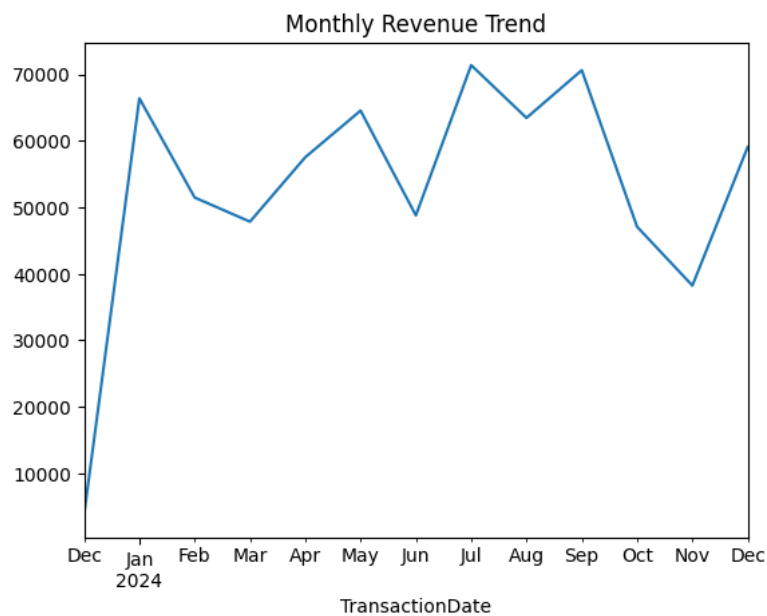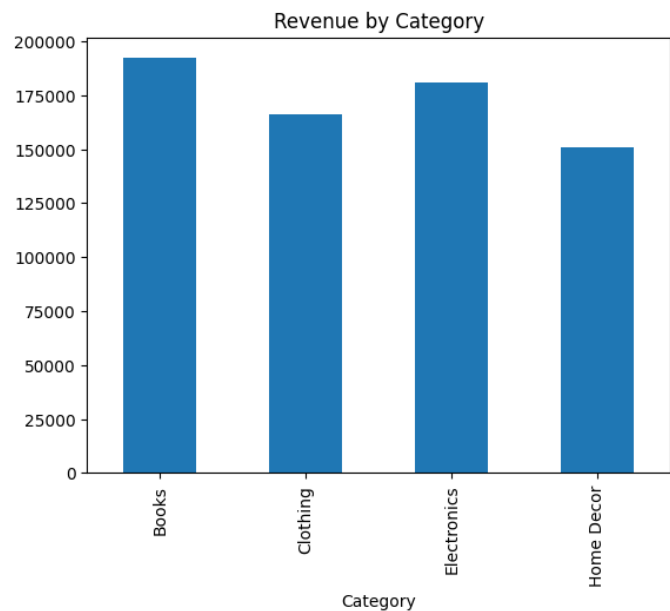
Product Performance by Region

- **Heatmap analysis** shows that specific products perform better in certain regions. For instance, electronics dominate in **South America**.
- **Smartphones** are seeing rapid adoption in **Asia**, but sales growth in the **Accessories** category is lagging, indicating that bundling accessories with smartphones could help boost overall sales in this region.
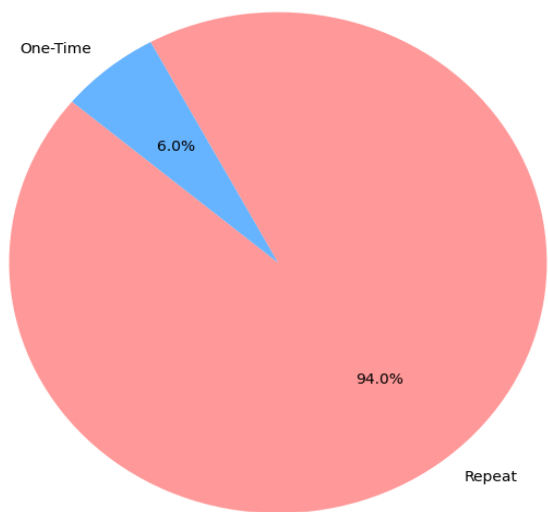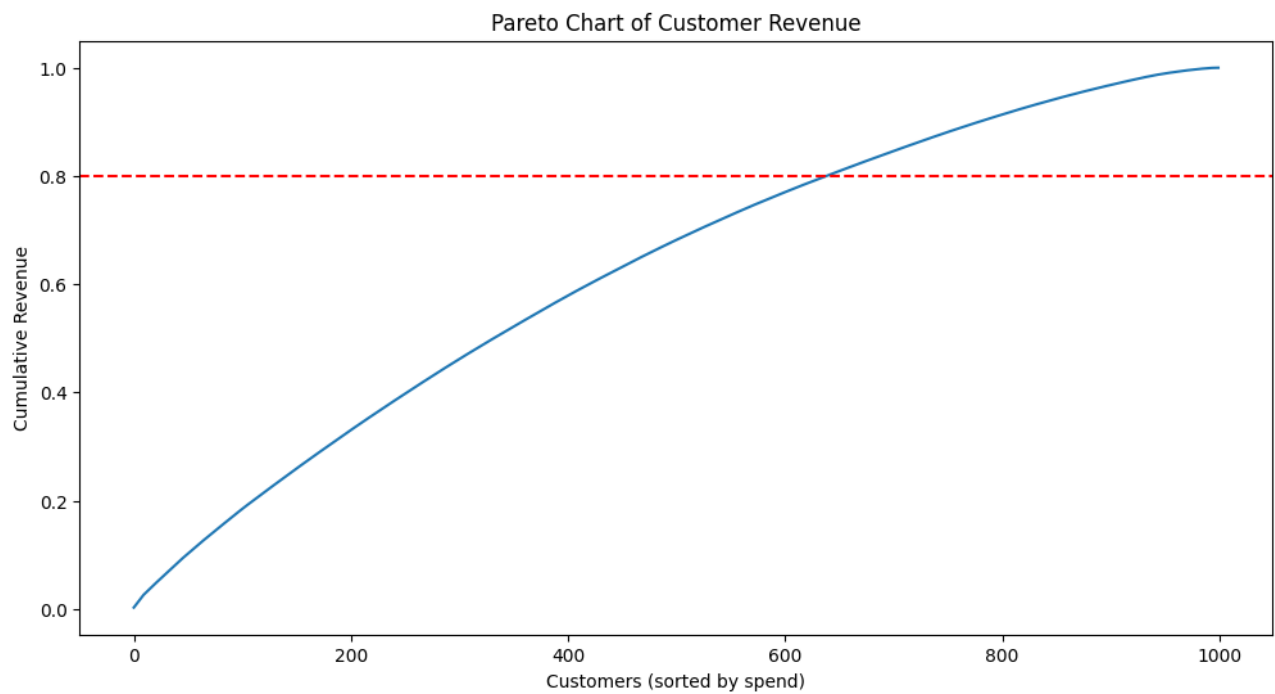
Customer Activity Trends

- Daily transaction patterns reveal peak buying activity during weekends and evening hours.
- Transactions during early morning hours show a sharp increase during holiday seasons, indicating that offering early-bird discounts or exclusive morning deals could drive further engagement during these hours.
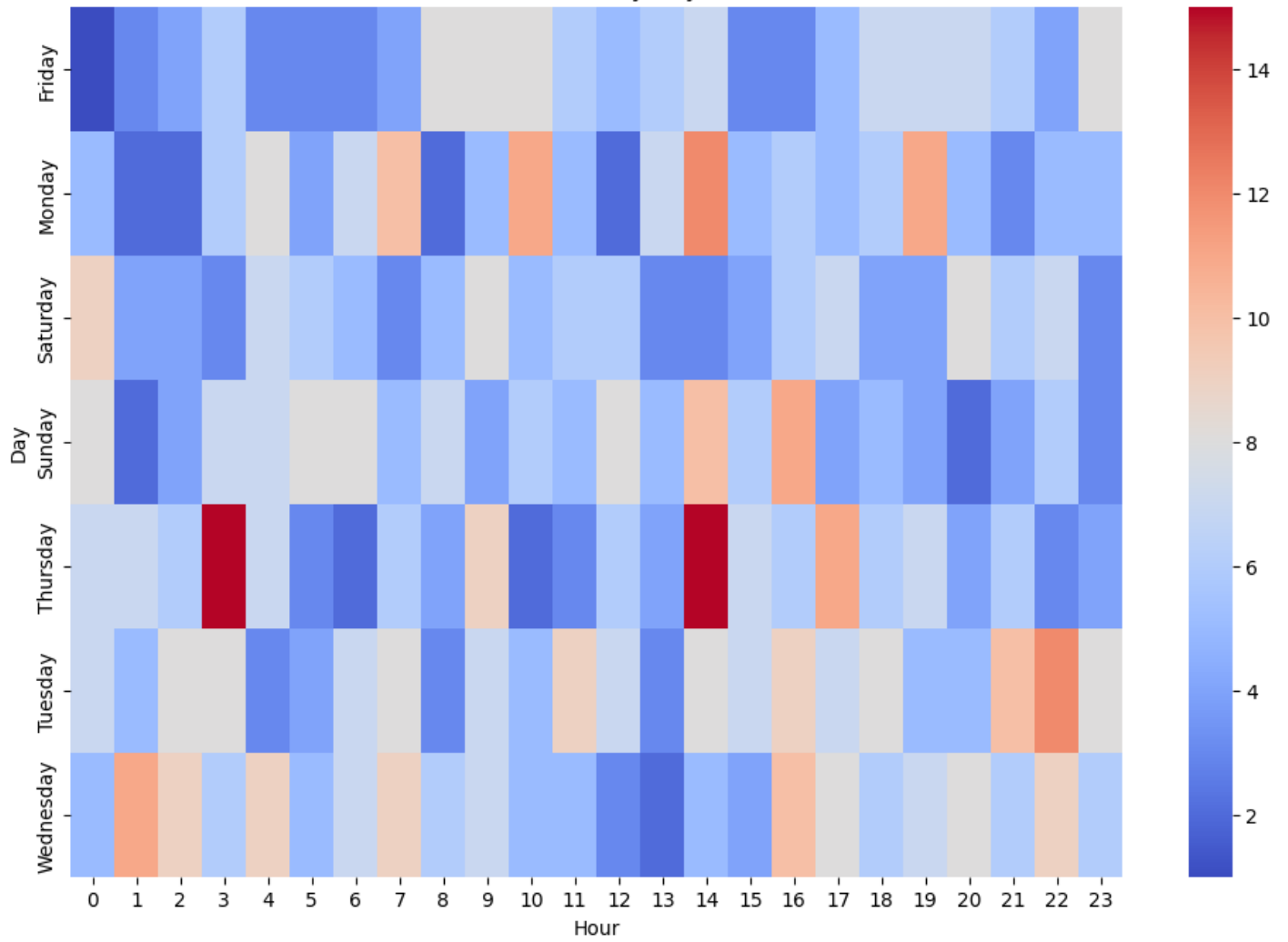
Charts Corresponding to the Data Analysis

Revenue by Category

Monthly Revenue Trend

Price Distribution

Proportion of Repeat Customers vs One-Time Customers

One-Time 6.0%

Repeat 94.0%

Product Performance by Region

Pareto Chart of Customer Revenue

Transaction Volume by Day and Hour

RFM Scatter Plot

Customer Lifetime Value Distribution

Average Spend and Transaction Count by Region

Active vs Churned Customers