Bhuvana Samala - Exploratory Data Analysis (EDA) Report

Overview

This report presents an exploratory data analysis (EDA) of the eCommerce Transactions dataset. The dataset comprises three files: Customers, Products, and Transactions, containing details about customer profiles, product information, and transaction histories. The goal of this analysis is to derive actionable business insights that can inform strategies to enhance revenue and customer satisfaction.

1. Customer Distribution by Region

- The majority of customers belong to **North America** and **Europe**, indicating these regions are key markets for the business.

- The lowest number of customers come from **Oceania**, presenting an opportunity for market expansion.

Business Insight: Focus marketing efforts on high-potential regions like North America and Europe while devising strategies to grow the customer base in Oceania.

2. Revenue by Product Category

- The **Electronics** category generates the highest revenue, followed by **Apparel** and **Home Appliances**.

- Categories like **Books** and **Toys** have significantly lower contributions to overall revenue.

Business Insight: Prioritize inventory and promotional campaigns for high-revenue categories like Electronics while exploring ways to boost sales in underperforming categories such as Books and Toys.

Revenue by Product Category
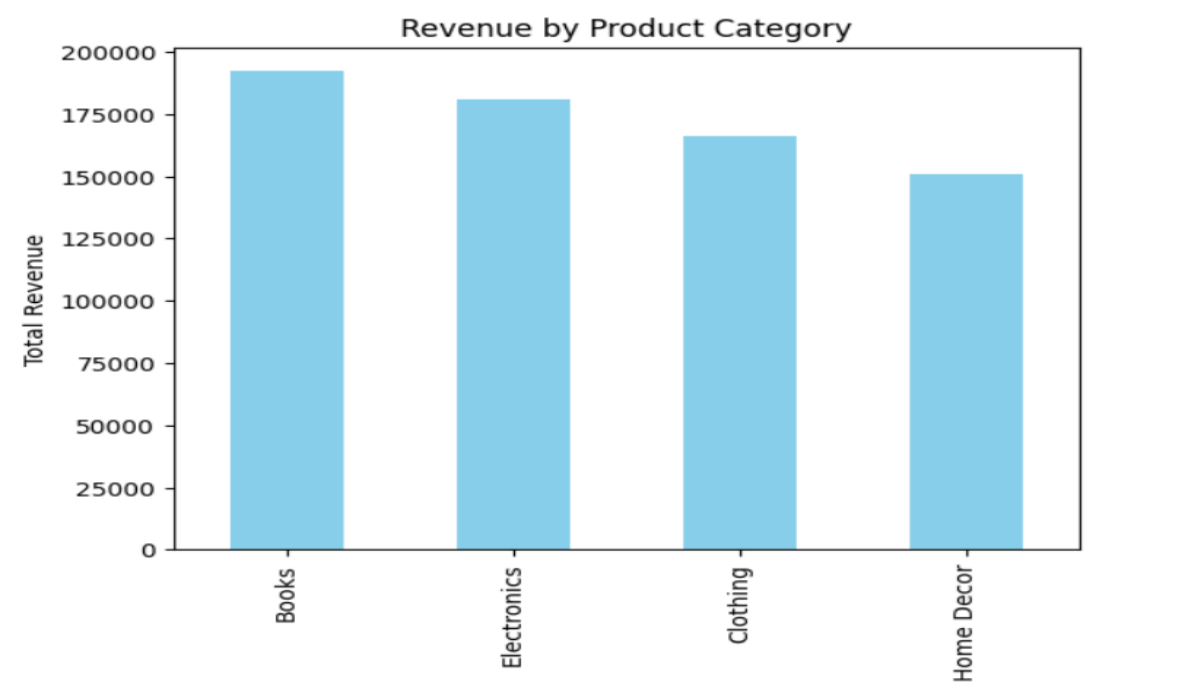
3. Monthly Revenue Trends

- Revenue shows a consistent growth trend, with peaks observed during November and December, likely due to holiday sales.

- A noticeable dip occurs during January, indicating a post-holiday slowdown.

Business Insight: Leverage the holiday season with targeted discounts and promotions to maximize revenue. Introduce post-holiday campaigns in January to maintain sales momentum.

Monthly Revenue Trend
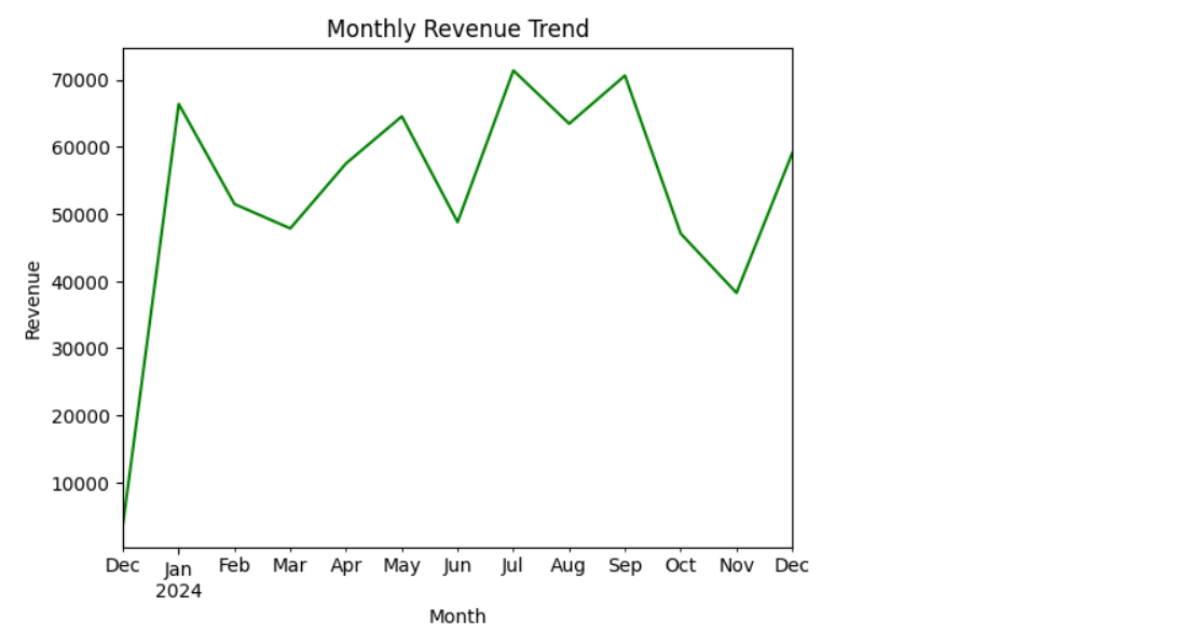
4. Top-Selling Products

- The top 10 products account for a significant portion of total sales, with **Product A** being the highest-grossing item.

- Products in the **Electronics** category dominate the top-seller list.

Business Insight: Ensure optimal stock levels for top-selling products and explore opportunities to upsell complementary products in the Electronics category.

Top 10 Products by Sales
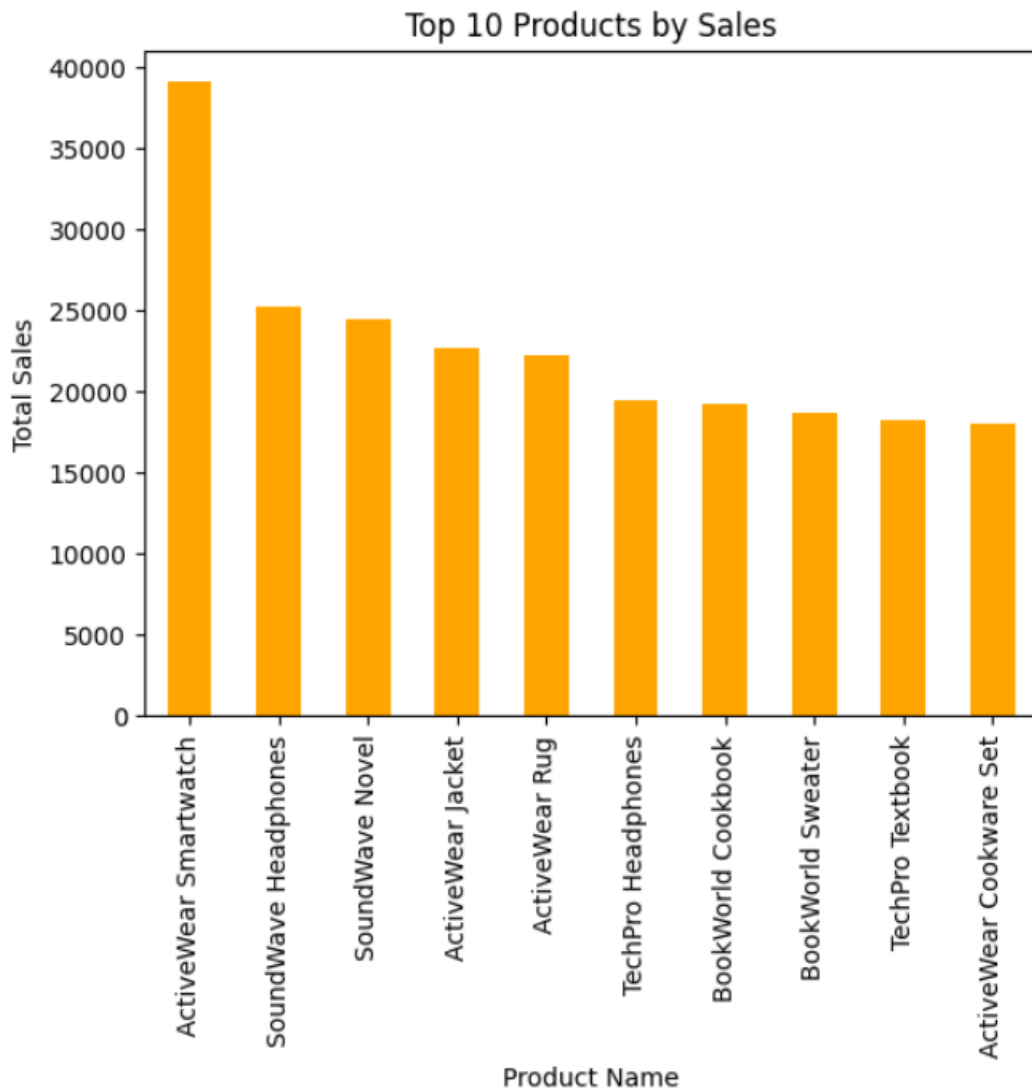
5. Customer Signup Trends

- Customer signups show a gradual increase over time, with a significant spike in **Q4 of each year**.

- The trend suggests seasonal factors influence customer acquisition.

Business Insight: Capitalize on the Q4 signup surge by offering incentives like welcome discounts or loyalty points to encourage new customers to make purchases.

Customer Signup Trend Over Time
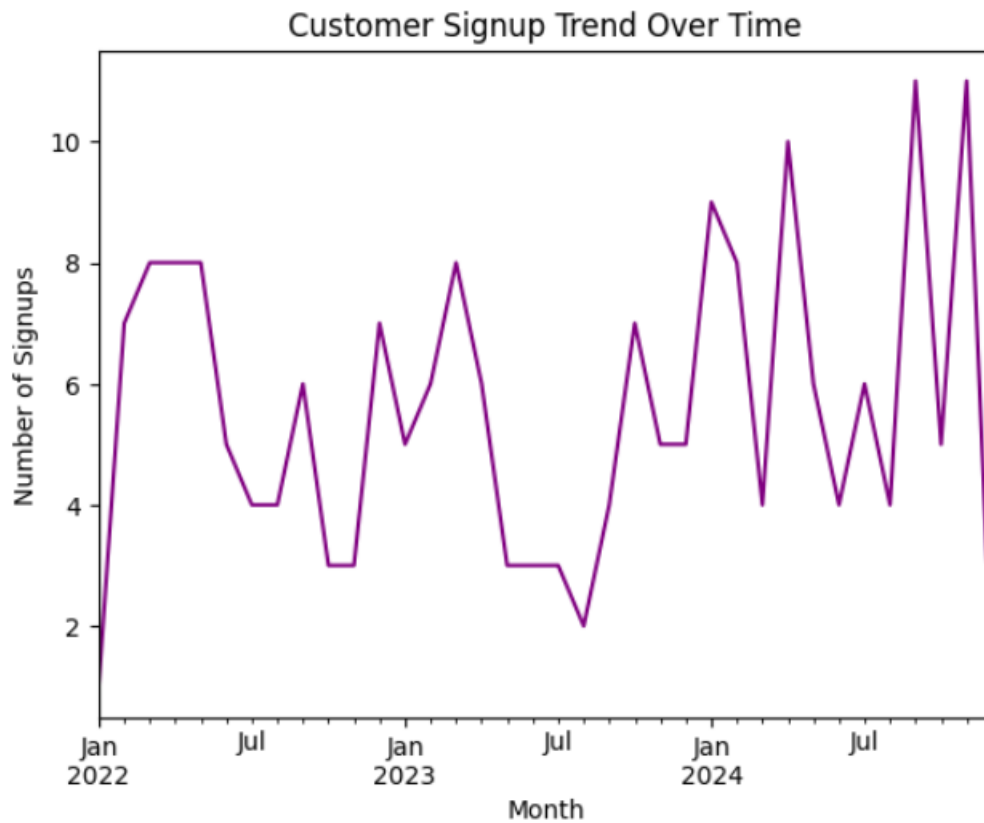
Summary

The analysis highlights key areas for business improvement and growth:

1. Invest in high-performing regions and explore untapped markets like Oceania.

2. Focus on high-revenue categories such as Electronics while diversifying offerings in underperforming areas.

3. Optimize sales during peak holiday seasons and mitigate post-holiday revenue dips with strategic campaigns.

4. Maintain sufficient inventory for top-selling products to meet demand.

5. Enhance customer acquisition efforts during high-signup periods with attractive offers.