Diwali Sales Data Analysis

Insights into Consumer Behavior & Sales Trend

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Introduction

❖ *In today's dynamic market lanscape, understanding consumer behavior and optimizing sales strategies are essential for the success of any business.*

❖ *Exploratory Data Analysis (EDA) offers a powerful approach to uncovering insights from data, allowing businesses to make informed decisions and improve their bottom line.*

❖ *In this presentation, we delve into our analysis of Diwali sales data using Python, leveraging EDA techniques to extract actionable insights into customer preferences, product performance, and sales trends.*

Objective

❖ *The primary objective of this project is to analyze Diwali sales data and extract actionable insights to improve customer experience and increase revenue.*

❖ *By exploring the dataset, we aim to identify key trends, patterns, and correlations that can inform strategic decision-making and drive business growth.*

❖ *Additionally, we seek to understand consumer behavior across different demographic segments and product categories, enabling targeted marketing efforts and personalized customer experiences.*

Work Flow

❖ *Our analysis begins with data collection followed by cleaning and manipulation to ensure the accuracy and consistency of the dataset.*

❖ *Leveraging Python libraries such as Pandas, NumPy, Matplotlib, and Seaborn, we perform Exploratory Data Analysis (EDA) to delve deeper into the sales data.*

❖ *Through visualizations and statistical analysis, we uncover insights into customer demographics, product performance, and sales trends.*

Dataset Description

❖ *The dataset used for our analysis comprises Diwali sales data sourced from Kaggle.*

❖ *It consists of 11251 rows and 15 columns, capturing comprehensive information on customer demographics, product categories, orders, and sales amounts.*

❖ *Key variables include User_ID, Gender, Age-group, Age, Marital_Status, State, Zone, Occupation, Product_Category, Orders, and Amount.*

❖ *After thorough data cleaning, which involved dropping columns with null values ('Status' and 'Unnamed1') and removing duplicate rows, we arrived at a final dataset containing 11243 rows and 13 columns.*

❖ *This dataset serves as the foundation for our exploratory data analysis and subsequent insights generation.*

Demographic Analysis

❖ *The demographic analysis of Diwali Sales data provide valuable insights into customer behavior & prefences based on various demographic factors such as gender , age groups , marital status, profession and geographic location.*

❖ *Understanding these factors can help in tailoring marketing strategies,optimizing inventory, and enhancing customer experience.*
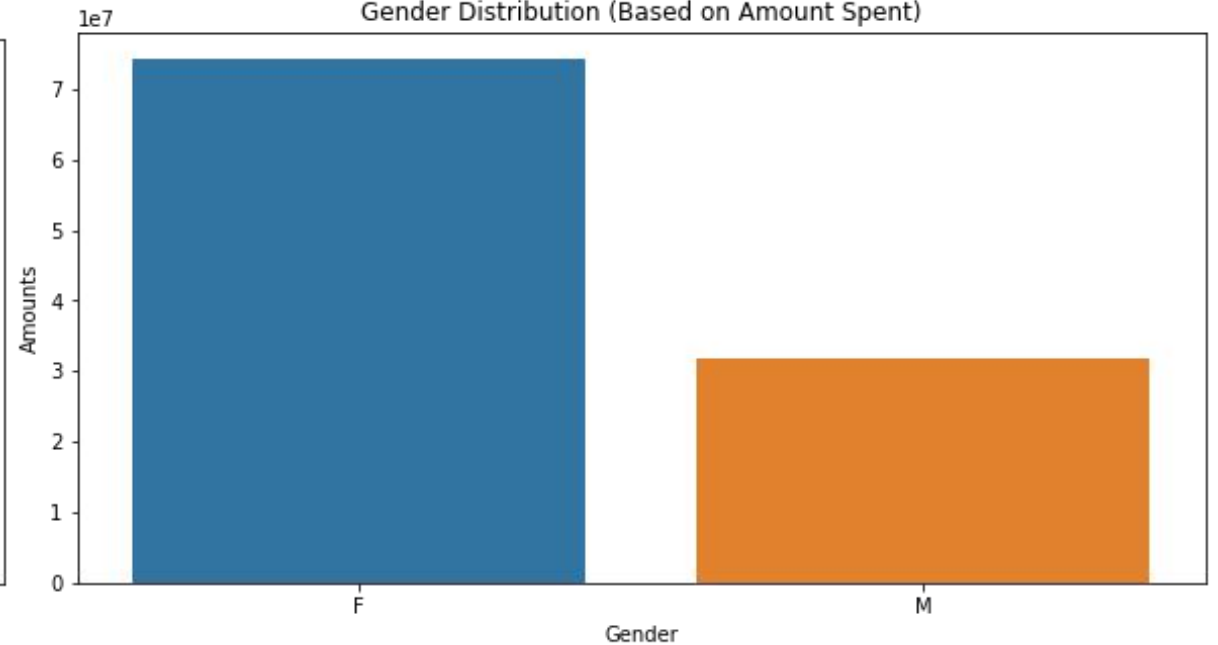
Gender Analysis

We explored purchasing behavior differences between male and female customers. and observed that:

1. Most buyers are female, indicating a higher volume of orders placed by this demographic segment.

*2. Female customers also contribute significantly to revenue generation, indicating their purchasing power and influence on sales.*
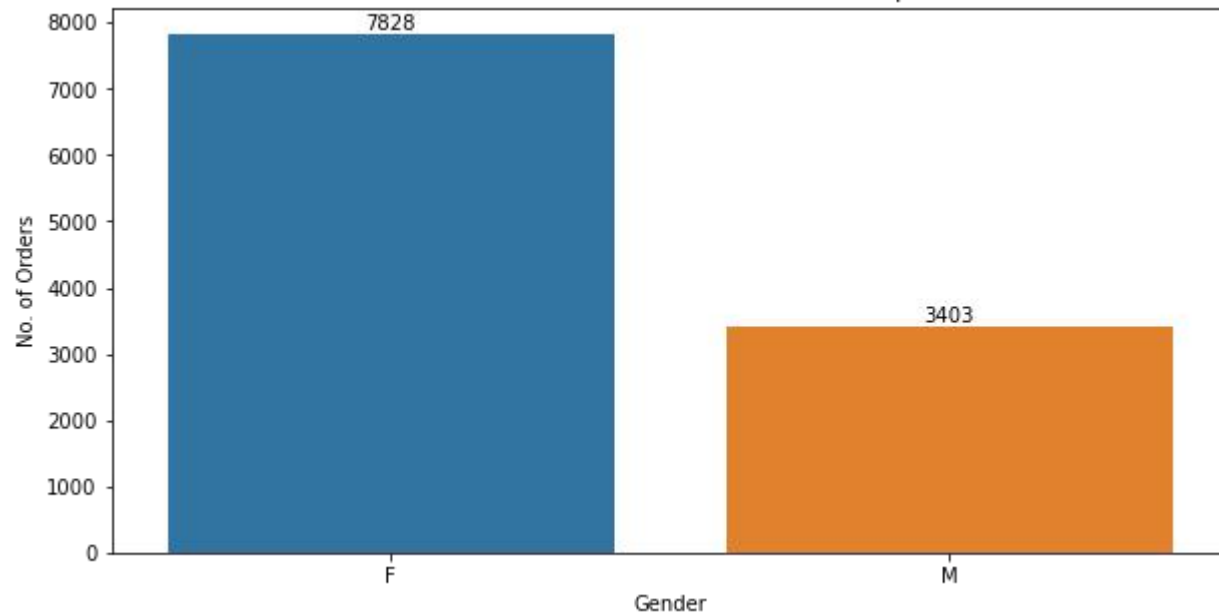
Age Group Analysis

Analyzed sales patterns across different age groups to understand consumer preferences. And observed that:

1. Age group 26-35 exhibited the highest number of orders, suggesting a strong purchasing presence within this demographic.

2. Similarly, age group 26-35 contributed the most to revenue generation, highlighting their significance in driving sales.
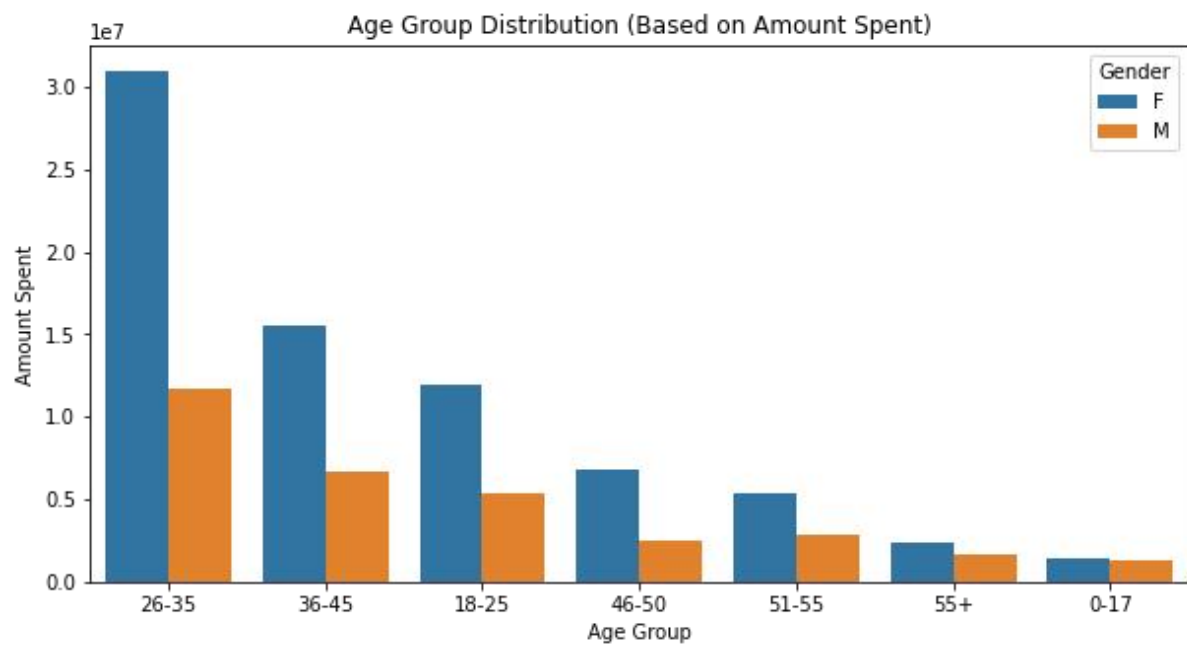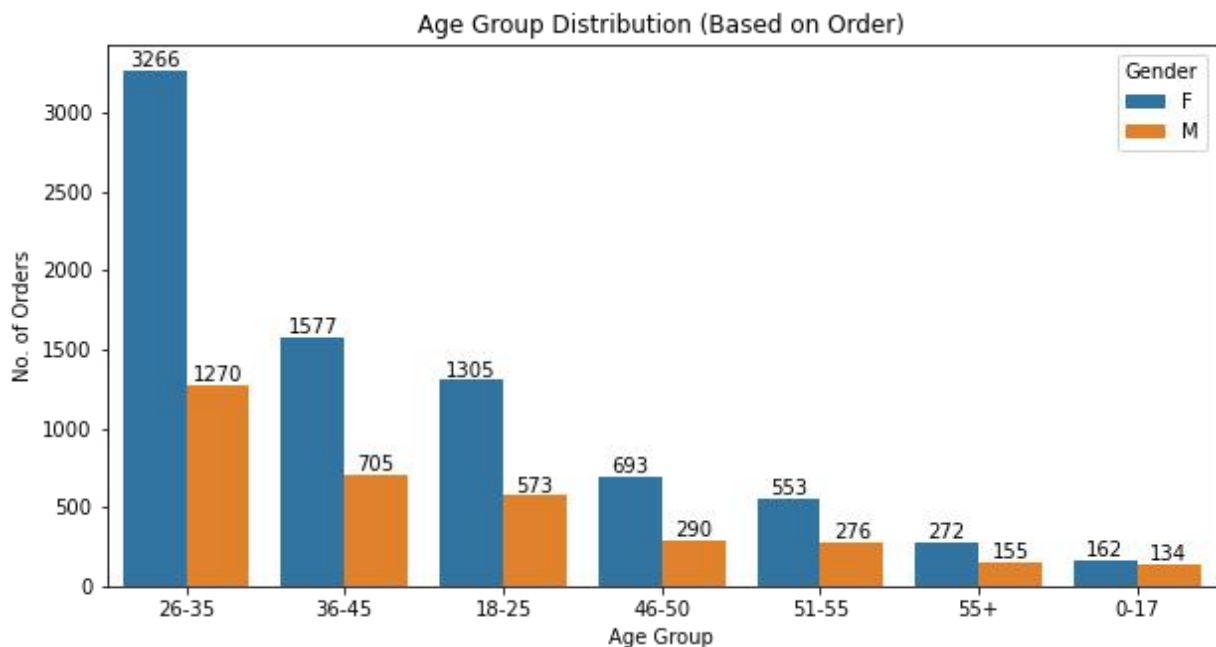
Marital Status Analysis

*Examined purchasing habits of married vs. single customers. And observed that:*

1. Most buyers are married, indicating their propensity to engage in sales activities.

2. Married customers also lead in revenue generation,specially married woman.
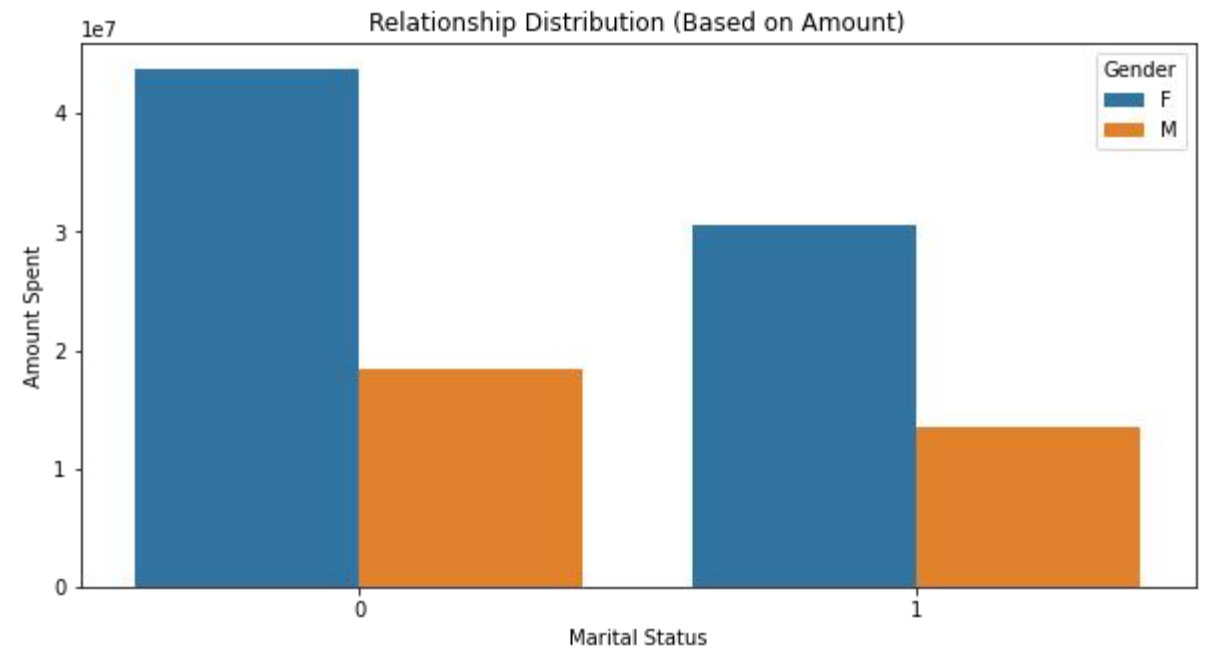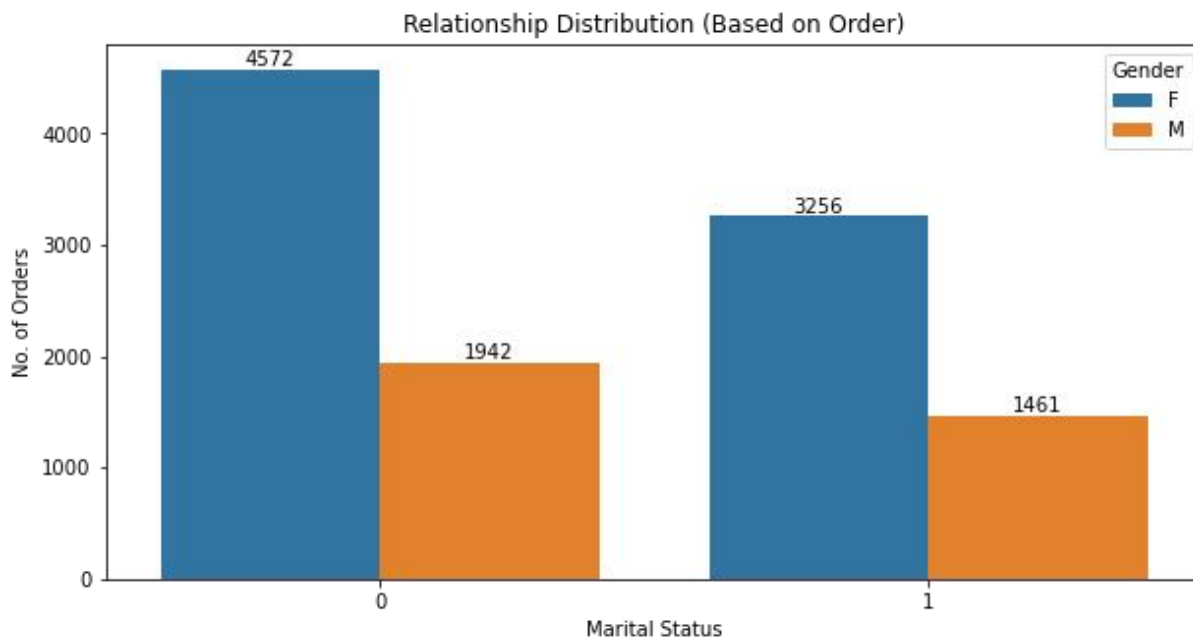
Profession Analysis

Investigated purchasing behavior based on different professions or occupations. and observed that:

1. IT sector, Healthcare, Aviation, and Banking emerged as the top professions with the highest number of orders placed and also contributed significantly to revenue generation

Professional Status vs Revenue
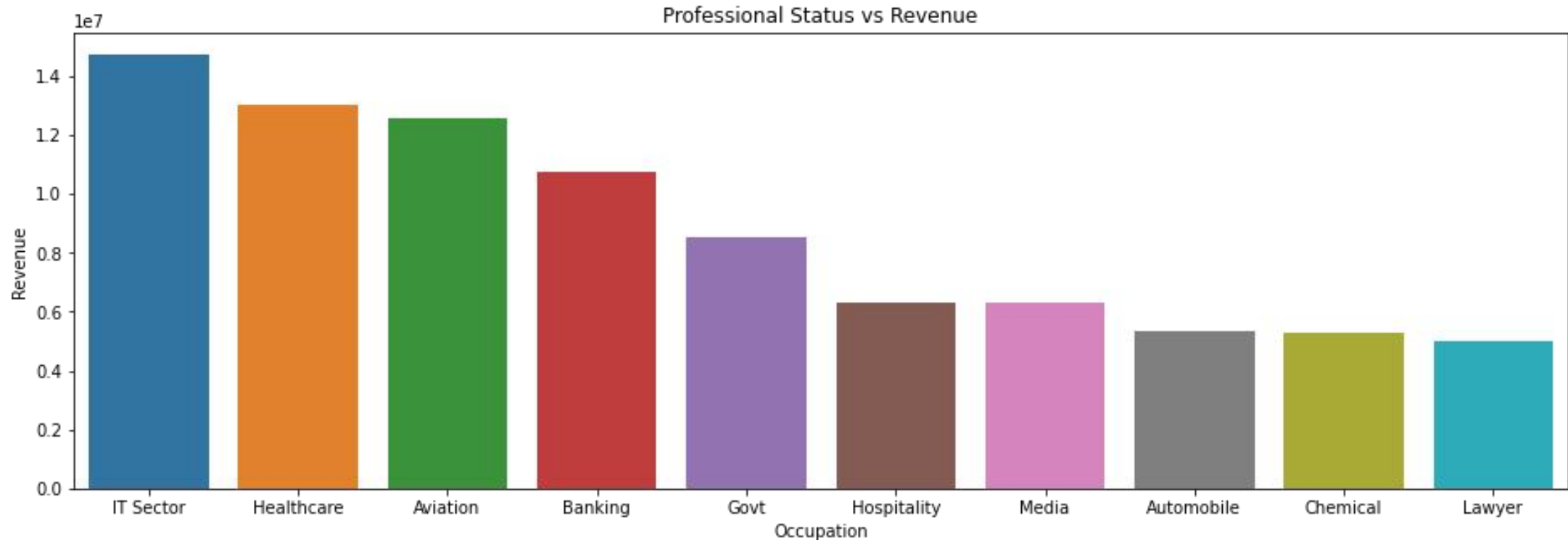
Zone Analysis

Explored sales performance across different geographical zones. And observed that:

1. Central and Southern zones exhibited the highest number of orders, indicating strong sales activity in these regions and also contributed significantly to revenue generation
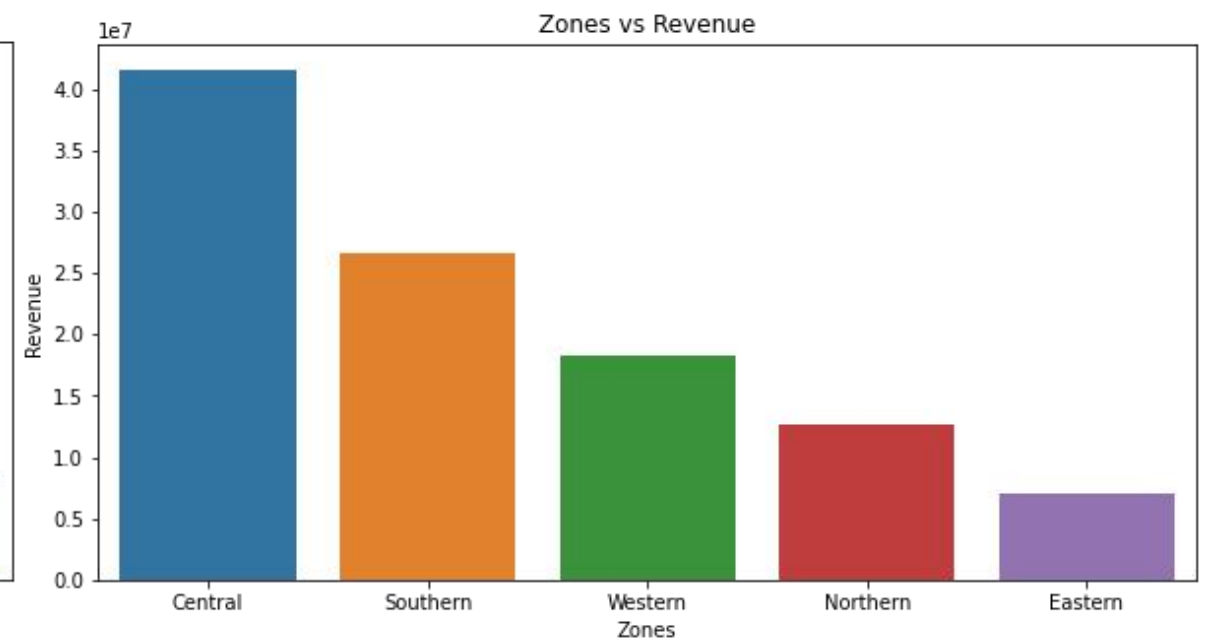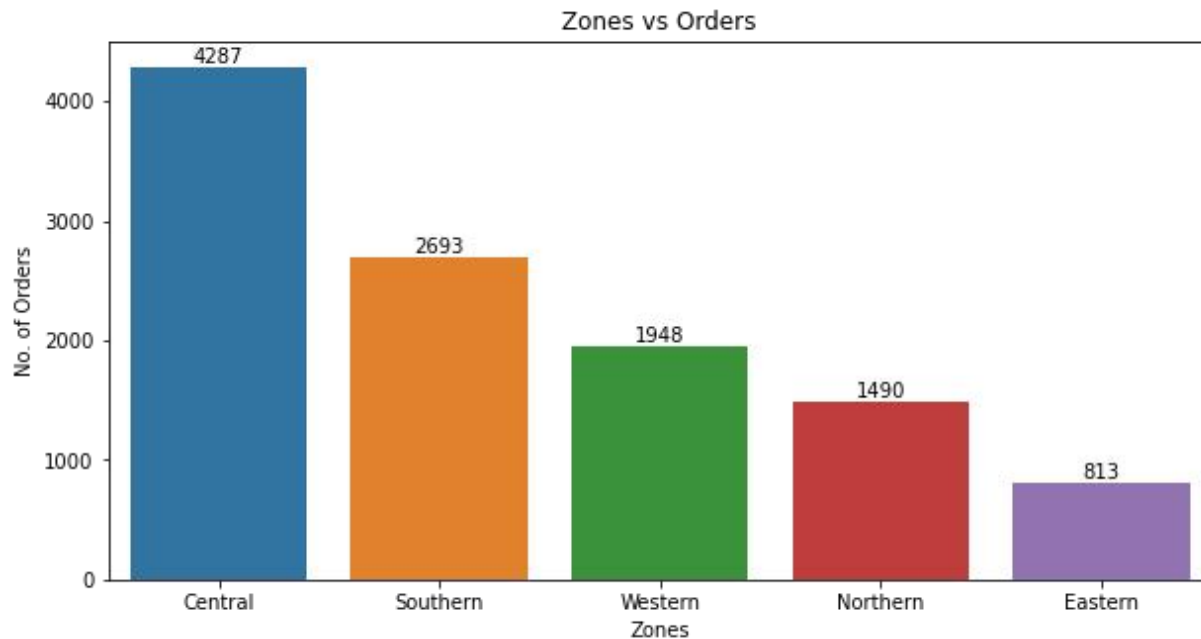
Top 10 States (Based on Order)

*Identified the top 10 states with the highest number of orders placed and observed that :*

1. Uttar Pradesh, Maharashtra, Karnataka, Delhi, and Madhya Pradesh emerged as the top states with the highest order volumes.

Top 10 State (Based on Orders)

Top 10 States (Based on Revenue)

Identified the top 10 states with the highest contribution to Revenue generation and observed that:

1.Uttar Pradesh, Maharashtra, Karnataka, Delhi, and Madhya Pradesh emerged as the top states with the highest contribution to revenue generation.

Top 10 State (Based on Revenue)
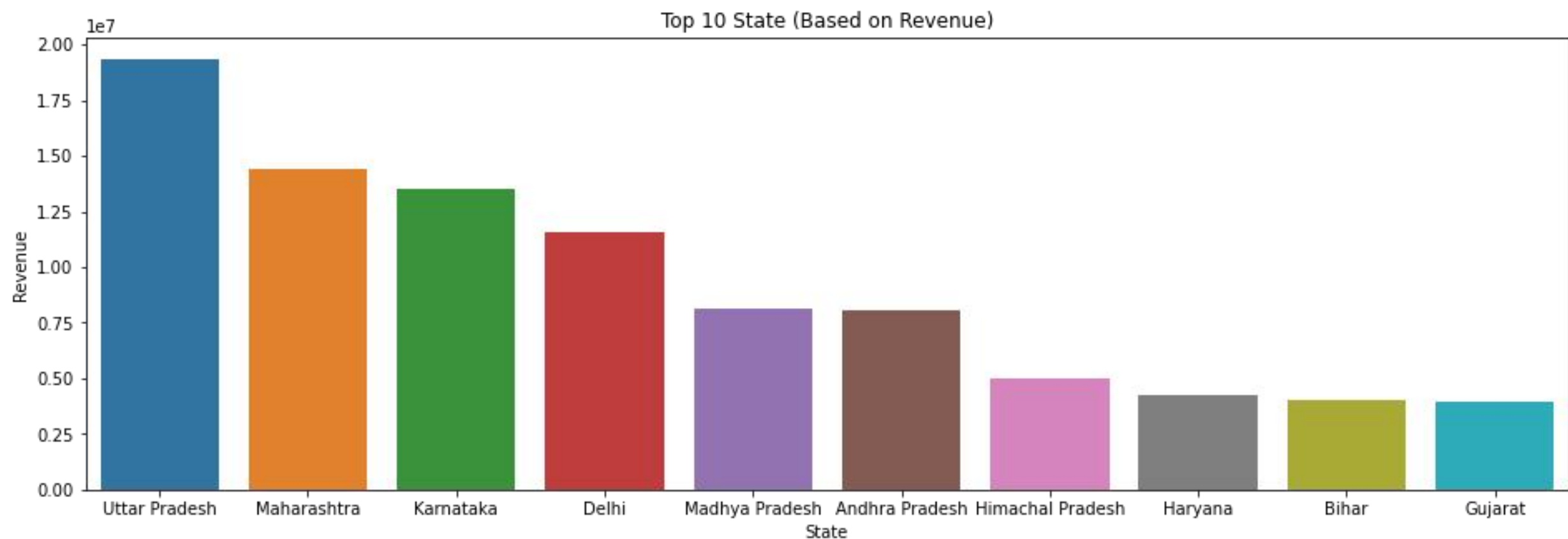
Top 5 Product Categories Analysis

Determined the top 5 product categories based on the number of orders placed and observed that:

Clothing & Apparel, Food, and Electronics & Gadgets emerged as the top three product categories in terms of order volume.

Top 5 most demanded Products
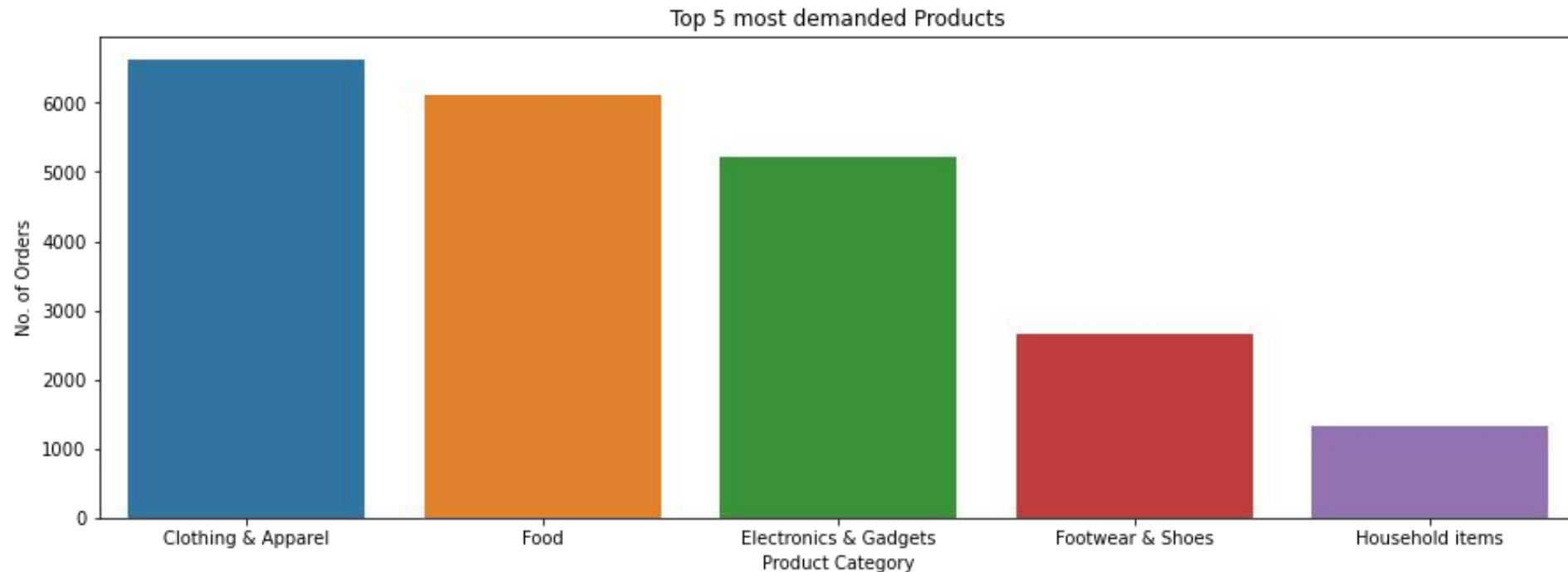
Top 5 Product Categories Analysis

Determined the top 5 product categories based on the revenue generation and observed that :

1. Food, Clothing & Apparel, and Electronics & Gadgets were the top revenue-generating product categories, indicating their popularity and profitability.
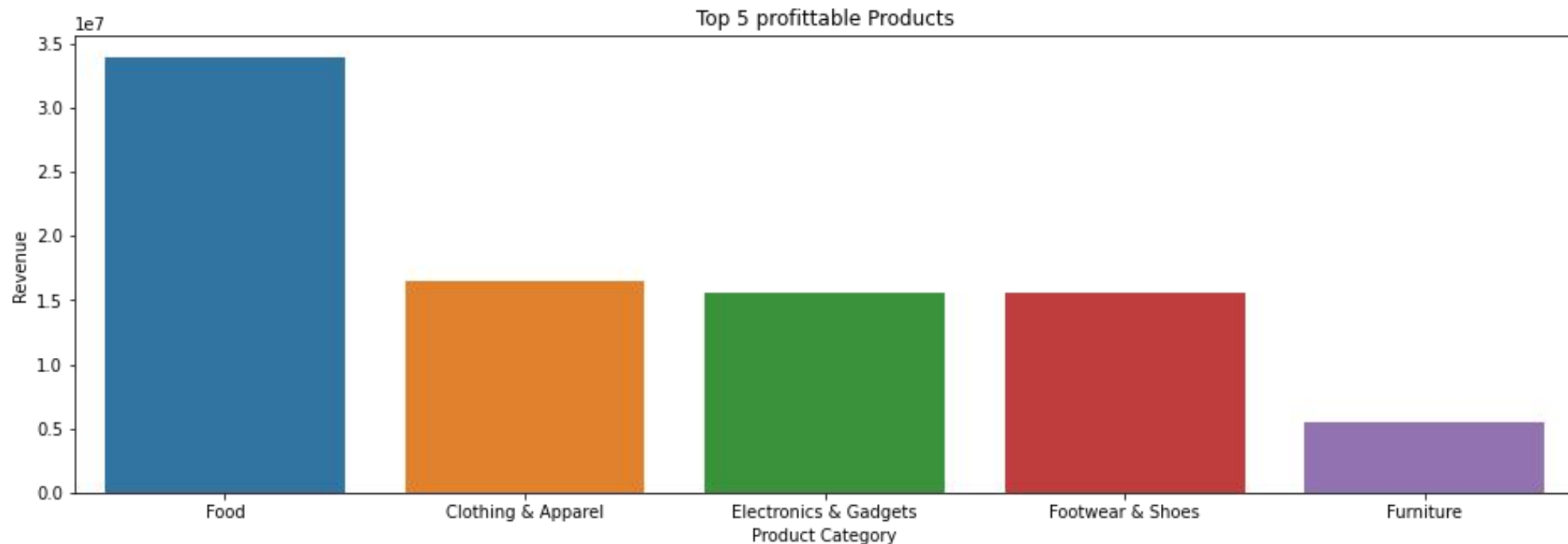
Key Findings

❖ *Total Revenue: INR 106,178,825*

❖ *Total Number of Orders: 27,955*

❖ *Number of Different Products Sold: 2,350*

❖ *Target Customer Segment: Married women aged 26-35 years from Uttar Pradesh*

❖ *Top Revenue Generating Product Categories: Foods, Clothing, Electronics*

❖ *Preferred Product Categories by Occupation: IT, Healthcare, Fashion*

Conclusion

❖ *In conclusion, our analysis of the Diwali sales dataset has revealed valuable insights into consumer behavior and sales trends.*

❖ *Through Exploratory Data Analysis (EDA), we have gained a deeper understanding of customer demographics, product performance, and revenue generation.*

❖ *Our findings underscore the importance of data-driven decision making in guiding strategic initiatives & optimizing business perfomance. By leveraging these insights, businesses can enhance market positioning, drive competitive advantage, and foster long-term growth and success.*

Strategic Recommendations

1. Targeted Marketing:

Allocate marketing resources towards reaching the identified target customer segment - married women aged 26-35 years from Uttar Pradesh. Tailor marketing campaigns to highlight products in the top revenue-generating categories, such as foods, clothing, and electronics.

2. Inventory Management:

Optimize inventory levels for the top-selling product categories to ensure adequate stock availability. Monitor sales trends and adjust inventory levels accordingly to meet consumer demand and minimize stockouts.

3. Product Promotion:

Focus on promoting products that appeal to the preferred product categories of key occupations, such as IT, healthcare, and fashion professionals. Offer targeted promotions and discounts to encourage purchases within these segments.

4. Customer Engagement:

Implement personalized marketing strategies to enhance customer engagement and loyalty. Leverage customer data to provide tailored product recommendations and exclusive offers based on past purchase behavior and preferences.

Reference

❖ *Dataset Link: [Diwali Dataset](#)*

❖ *LinkedIn: [Binoy Patra](#)*

❖ *GitHub: [Binoy Patra](#)*

THANK YOU