

DIWALI SALES ANALYSIS

Business Problem:

Context: Diwali is one of the most celebrated festivals in India, and sales during this period tend to spike across various categories. Retailers often launch promotions, discounts, and marketing campaigns to attract customers.

Problem: The business needs to understand customer purchasing behavior and key factors driving sales during Diwali. This includes identifying which product categories, customer segments, and marketing channels contribute the most to revenue.

Goal: To enhance marketing, inventory management, and pricing strategies for future Diwali seasons.



Objective:

- ✚ Analyze sales data to identify key customer demographics, popular products, and the effect of promotional activities.
- ✚ Provide insights on the most profitable customer segments, products, and regions.
- ✚ Offer actionable recommendations for improving future Diwali sales campaigns.

Assumptions:

- ✚ Sales are strongly influenced by the festive season and the discounts/promotions offered.
- ✚ Different customer segments (based on gender, age, location) may exhibit varying purchasing patterns.
- ✚ Product categories such as electronics, fashion, and home decor see higher sales during this period.
- ✚ Online shopping plays a significant role in driving sales during the Diwali season.

Hypothesis:

- ✚ **Hypothesis 1:** Female customers spend more during Diwali compared to male customers.
- ✚ **Hypothesis 2:** Customers aged between 25-35 are the most active segment in terms of sales.
- ✚ **Hypothesis 3:** Electronics and fashion categories will have the highest sales.
- ✚ **Hypothesis 4:** Higher discount rates (above 30%) will lead to a significant increase in sales.

Analysis & Findings:

1. Demographic Analysis:

- ✚ Analyze sales by gender, age group, and region.
- ✚ Visualize this data using bar charts to show customer contribution by each segment.

2. Product Category Performance:

- ✚ Compare sales across different product categories (e.g., Electronics, Fashion, Home Decor).
- ✚ Bar charts showing revenue generated by each category.

3. **Sales Channel:**

- ✚ Compare the sales performance of online vs. offline channels.
- ✚ Line or bar charts showing sales trends by channel.

4. **Impact of Discounts:**

- ✚ Analyze the correlation between discount percentage and sales volume.
- ✚ Scatter plot showing discount percentage vs. sales.

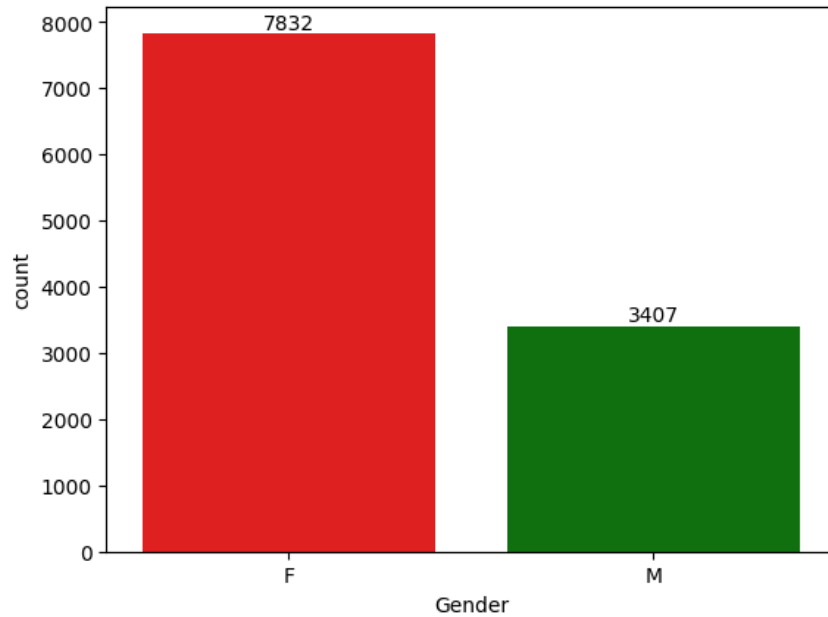
5. **City-wise Analysis:**

- ✚ Heatmap to show top-performing cities during Diwali sales.

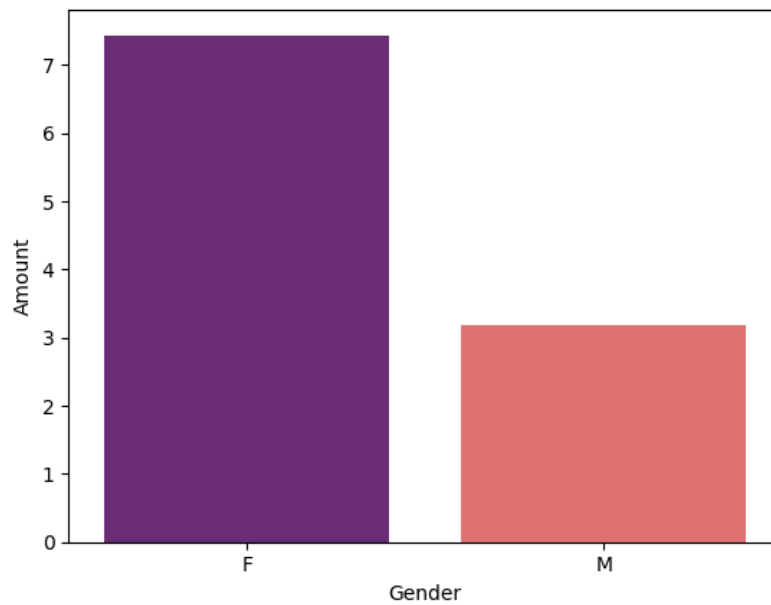
Exploratory Data Analysis:

A. Gender

1. Gender and it's count



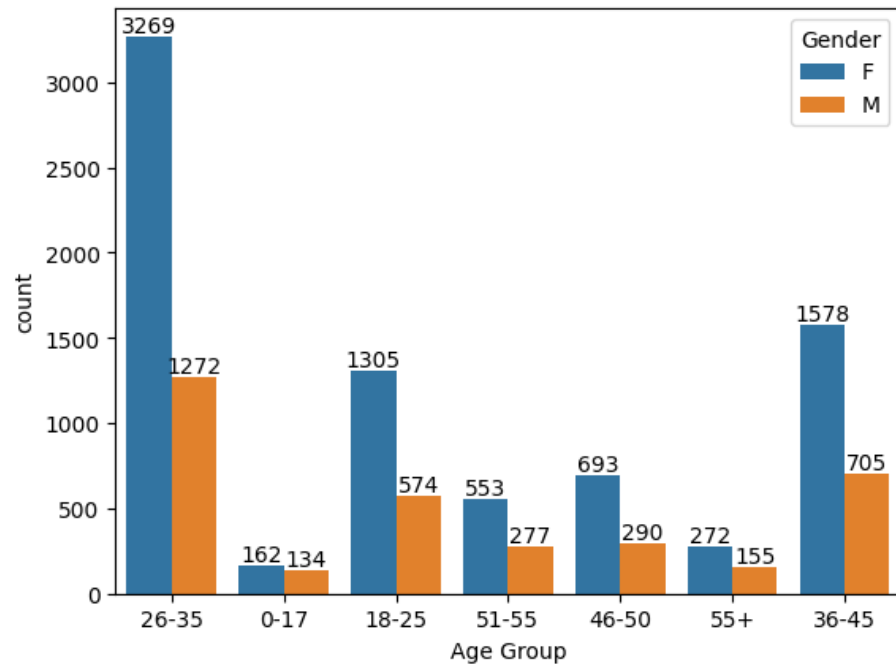
2. Gender Vs Total Amount



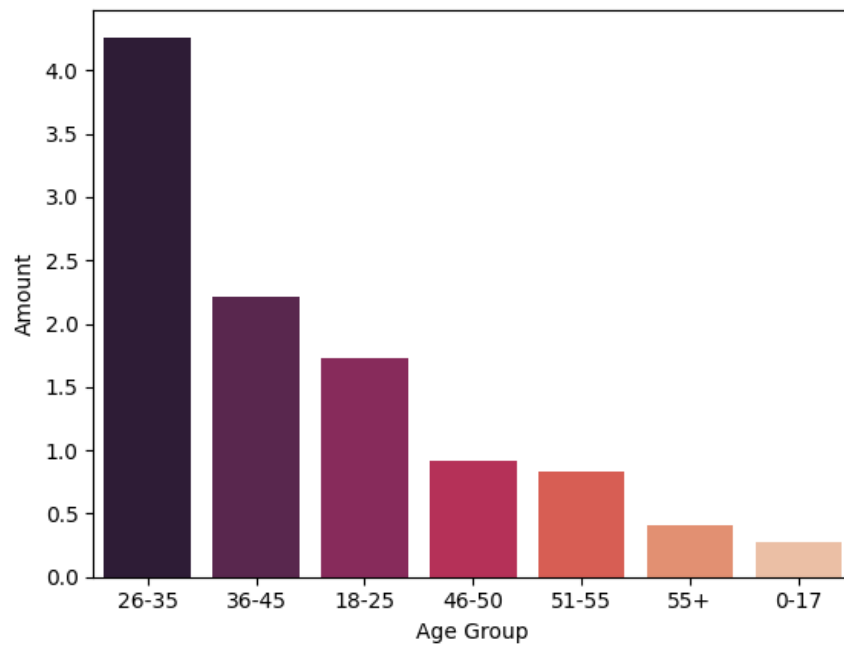
Conclusion: From above graphs we can see that most of the buyers are females and even the purchasing power of females are greater than men

B. Age

1. Amount vs Age Group



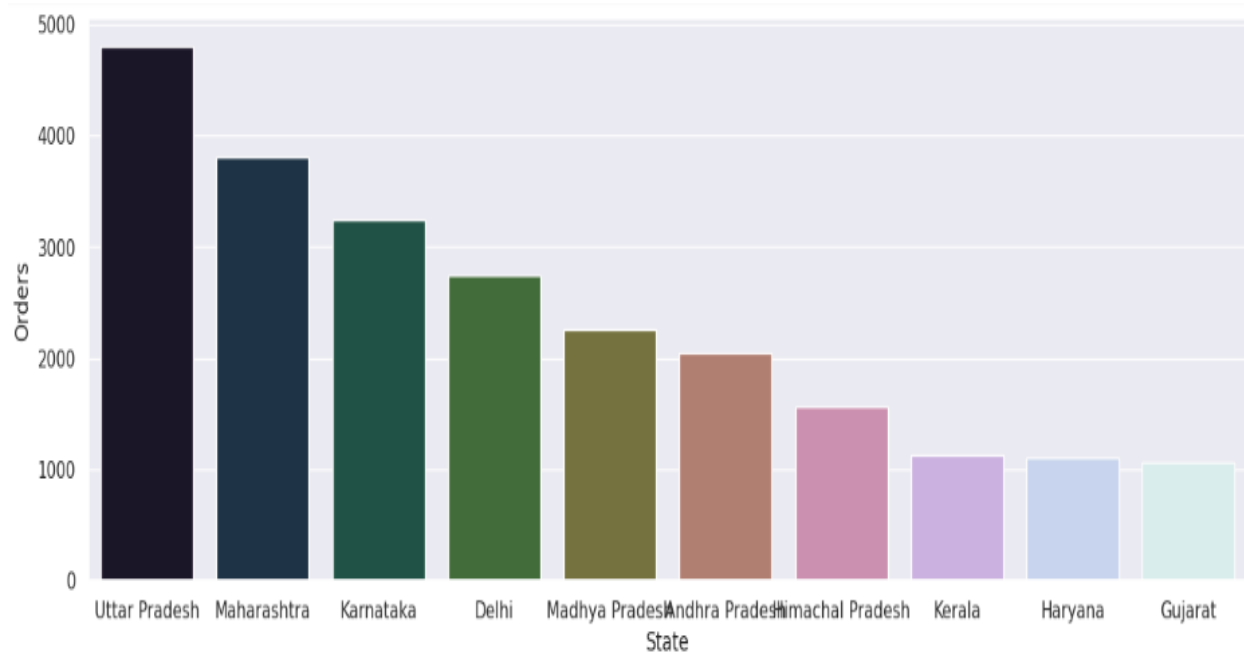
2. Total Amount vs Age Group



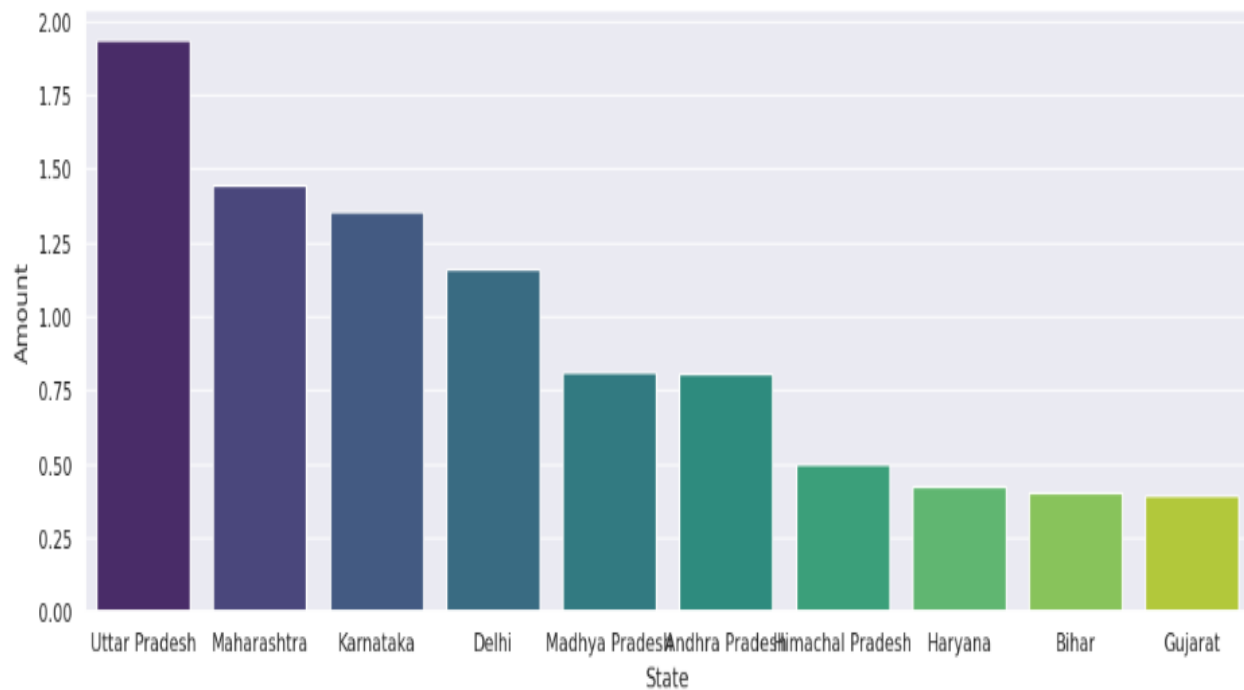
Conclusion: From above graphs we can see that most of the buyers are of age group between 26-35 years female

C. State

1. Total number of orders from top 10 states



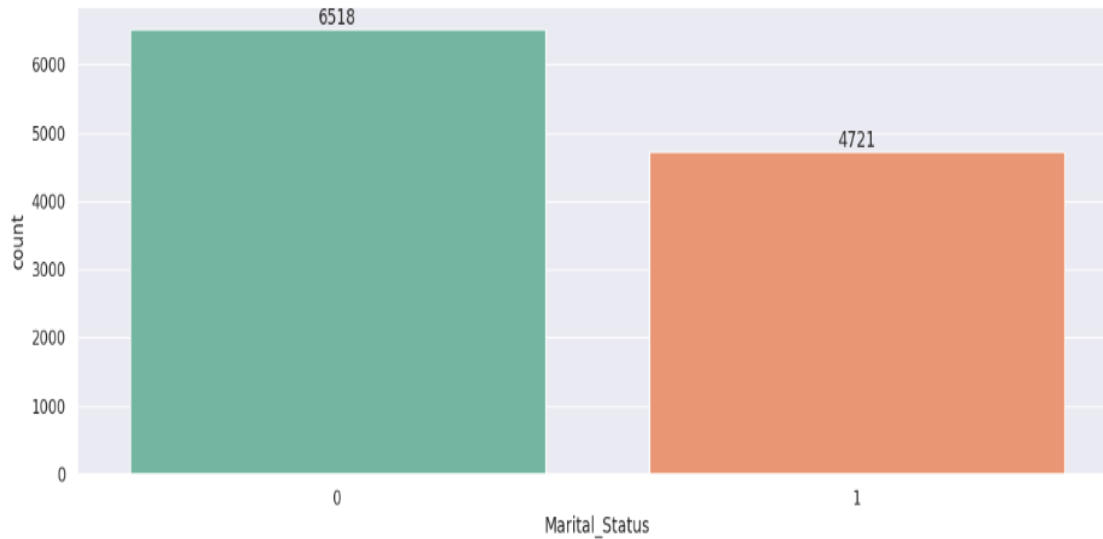
2. Total amount/sales from top 10 states



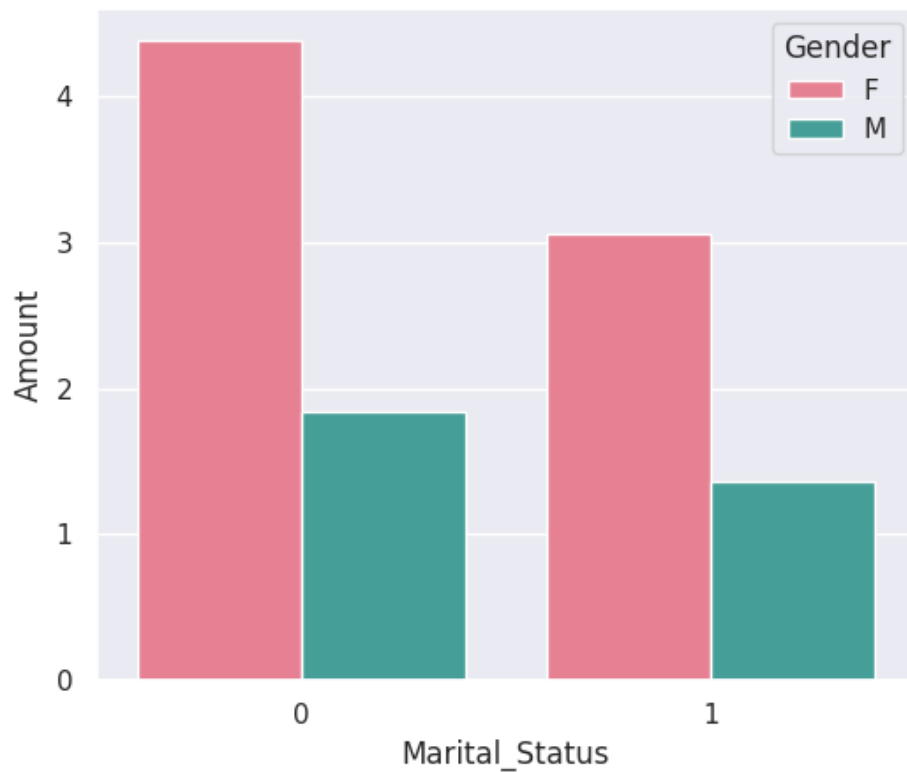
Conclusion: From above graphs we can see that most of the orders & total sales/amount are from Uttar Pradesh, Maharashtra and Karnataka respectively

D. Marital Status

1. Marital Status and it's count



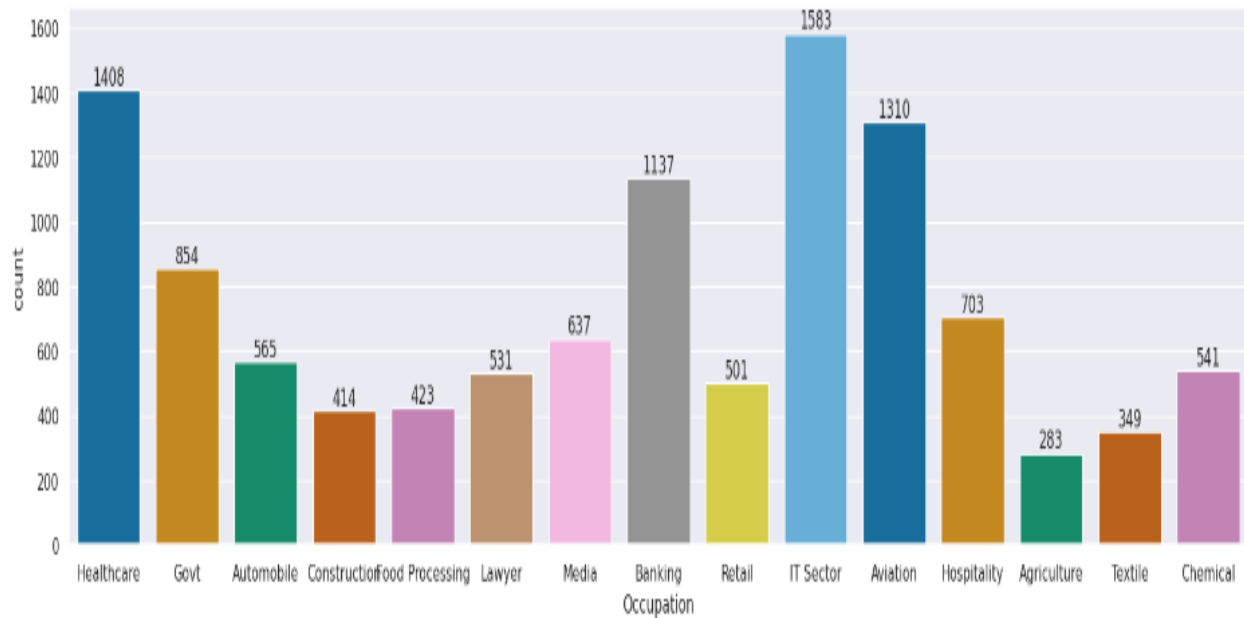
2. Marital Status Vs Total Amount



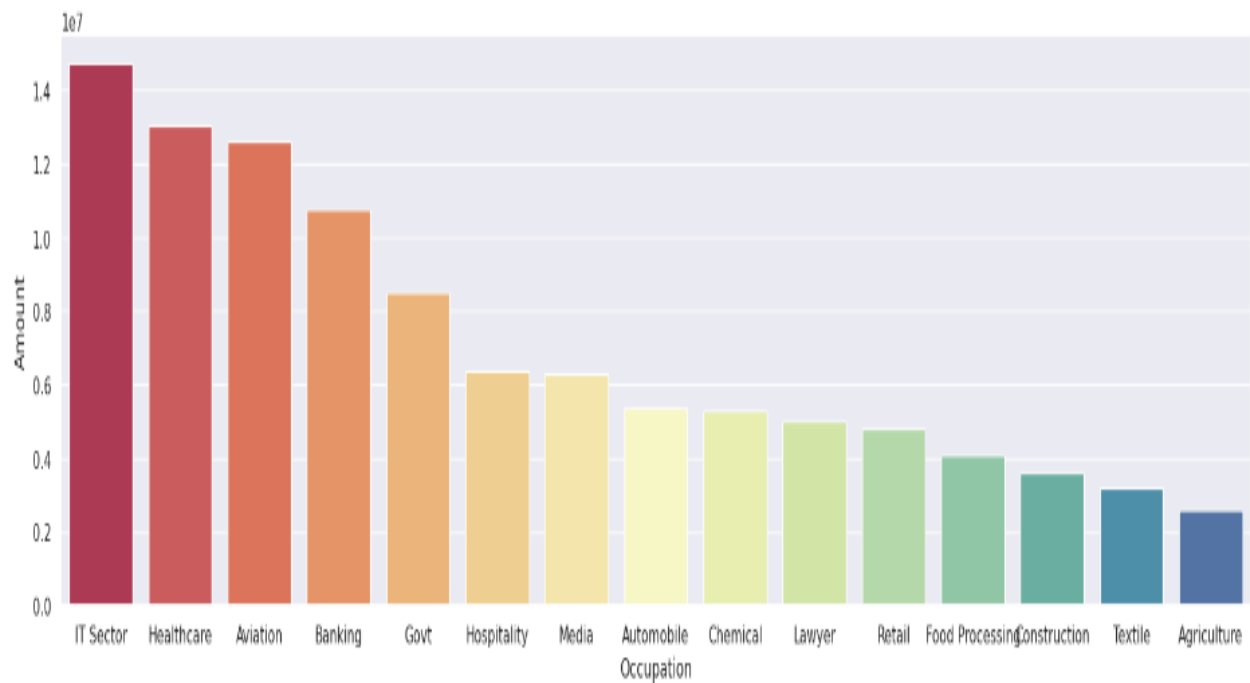
Conclusion: From above graphs we can see that most of the buyers are married (women) and they have high purchasing power

E. Occupation

1. Occupation and it's count



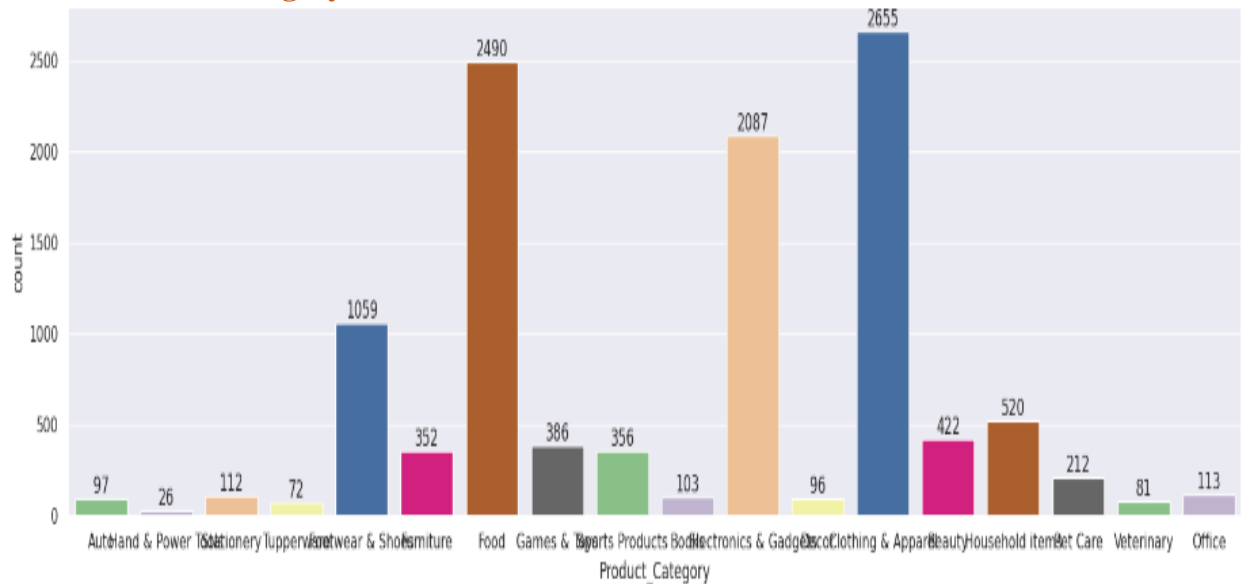
2. Occupation Vs Total Amount



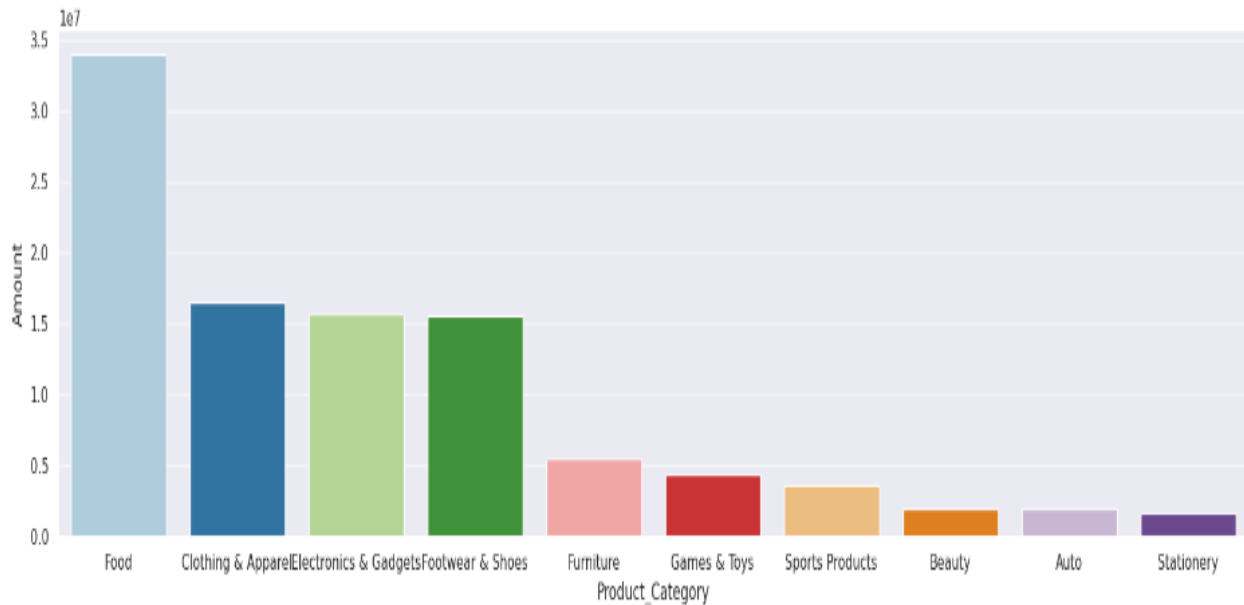
Conclusion: From above graphs we can see that most of the buyers are working in IT, Healthcare and Aviation sector

F. Product Category

1. Product Category and it's count



2. Product Category Vs Total Amount

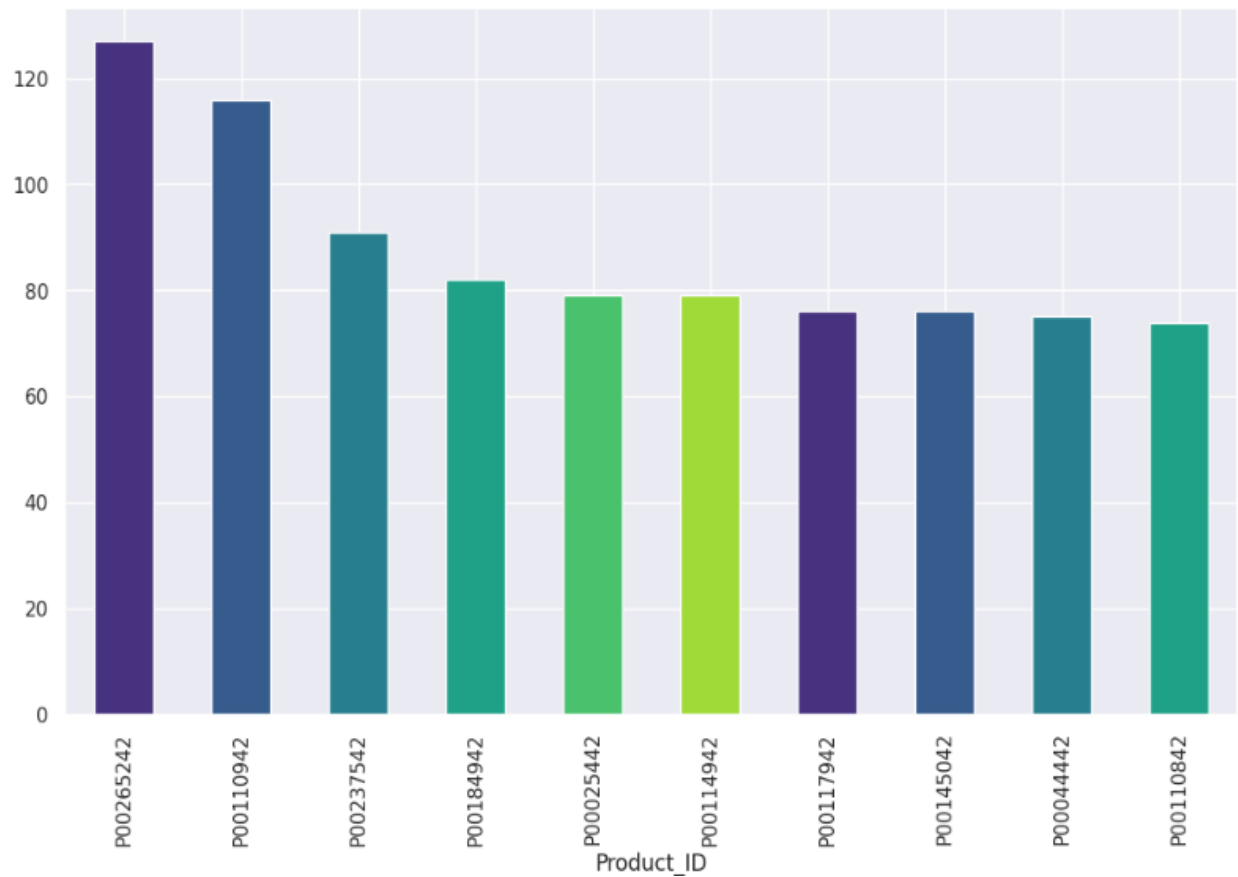


Conclusion: From above graphs we can see that most of the sold products are from Food, Clothing and Electronics category

3. Product Category Vs Total Orders



4. Top 10 most sold products



Suggestions:

- ✚ **Target Female Customers:** Since female customers contribute a significant portion of the revenue, design targeted promotions and product offerings.
- ✚ **Focus on Electronics & Fashion:** These categories show the highest sales, so increase inventory and marketing efforts in these areas.
- ✚ **Maximize Online Sales:** Given the trend of online shopping, ensure that online platforms are optimized for promotions and offer exclusive online deals.
- ✚ **Optimize Discounts:** Discounts around 30-40% are likely to maximize sales. Avoid excessively deep discounts unless they're part of a clearance strategy.

Results:

- ✚ A detailed understanding of which customer segments and products drive sales during Diwali.
- ✚ Clear evidence of how discounts impact overall sales performance.
- ✚ Strategic insights for enhancing marketing campaigns, targeting high-value customer segments, and optimizing inventory.

Conclusion:

- ✚ **Married women age group 26-35 years from UP, Maharashtra and Karnataka working in IT, Healthcare and Aviation are more likely to buy products from Food, Clothing and Electronics category**
- ✚ The data shows that Diwali sales are significantly driven by female customers and those in the 25-35 age group.
- ✚ Product categories like electronics and fashion are the top performers, indicating where marketing and stock replenishment should focus.
- ✚ Cities like Mumbai, Delhi, and Bangalore contribute the most to sales, making them key markets for future promotional efforts.
- ✚ Offering discounts above 30% significantly boosts sales, but deep discounts should be carefully managed to avoid eroding profit margins.