

# **Project Report: Diwali Sales Analysis**

## **Introduction**

In this project, we analyzed a sales dataset to uncover patterns, trends, and insights about customer behavior and sales performance. The dataset includes information such as customer demographics, product categories, sales amounts, and purchase details. By cleaning the dataset and performing various analyses, we aimed to identify key factors contributing to sales and provide actionable recommendations for improvement.

## **Data Cleaning and Preparation**

### **Initial Dataset Inspection**

The initial dataset contained several columns, including Status and unnamed1, which were found to contain no values. These columns were dropped to streamline the analysis process. After removing these columns, we checked for null values in the remaining dataset. The column Amount was identified to have 12 null values. These rows were removed to ensure the dataset was clean and ready for analysis.

After cleaning, the dataset contained 11,239 records with no null values in any column. This ensured the data was complete and reliable for further analysis.

# Analysis and Insights

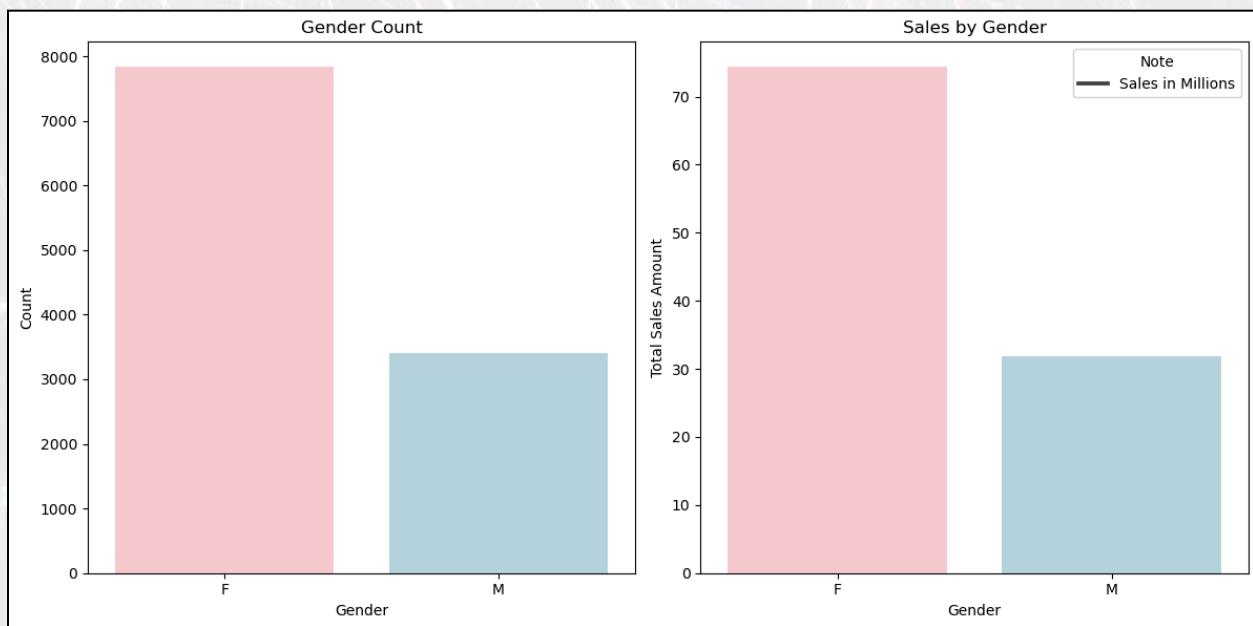
## 1. Number of Customers Based on Gender and Sales Made by Them

### Gender Distribution:

- **Females:** 7,832 customers (69.7%)
- **Males:** 3,407 customers (30.3%)

### Sales Contribution:

- **Females:** ₹7,43,35,856 (approx. 69.98% of total sales)
- **Males:** ₹3,19,13,276 (approx. 30.02% of total sales)



This analysis reveals that females not only make up the majority of customers but also contribute the most to total sales revenue. Female customers contributed more than double the sales revenue compared to male customers.

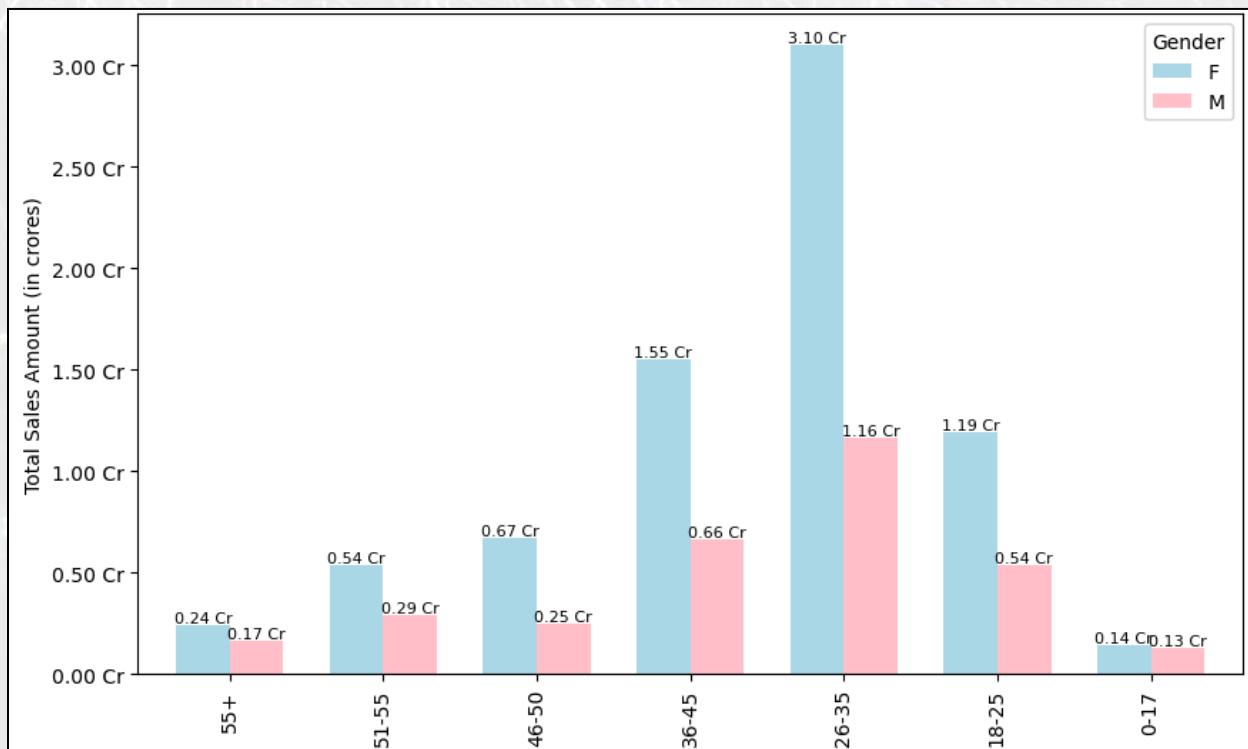
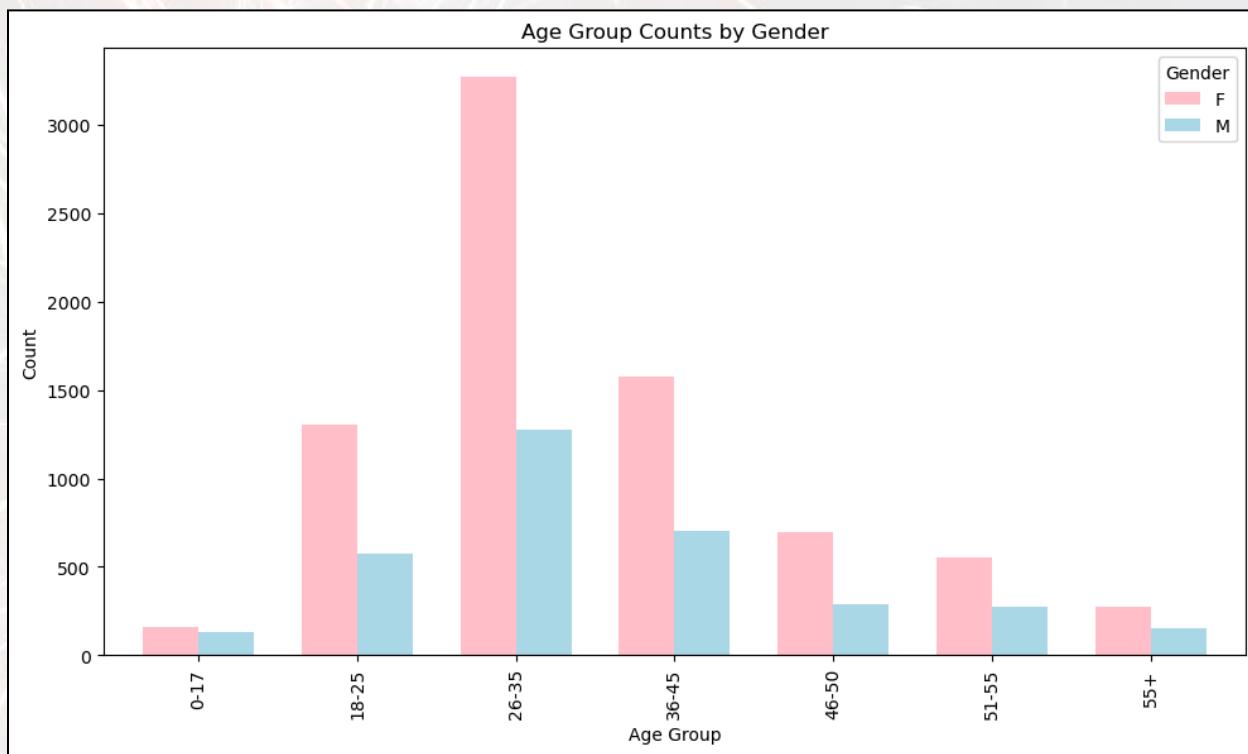
## 2. Number of Customers Based on Age Group and Sales Made by Them

### Age Group Distribution and Gender Breakdown:

Age Group	Female Customers	Male Customers	Total Customers
0-17	162	134	296
18-25	1305	574	1879
26-35	3269	1272	4541
36-45	1578	705	2283
46-50	693	290	983
51-55	553	277	830
55+	272	155	427

### Sales Contribution by Age Group:

Age Group	Female Sales (₹)	Male Sales (₹)	Total Sales (₹)
0-17	14,41,409	12,58,244	26,99,653
18-25	1,18,87,003	53,53,729	1,72,40,732
26-35	3,09,63,955	1,16,49,489	4,26,13,444
36-45	1,55,09,957	66,35,038	2,21,44,995
46-50	67,43,393	24,64,451	92,07,844
51-55	53,85,208	28,76,269	82,61,477
55+	24,04,931	16,76,056	40,80,987



The 26-35 age group accounts for the highest sales revenue, contributing 42.5% of

total sales. This is followed by the 36-45 age group with 22.1% of sales. The 0-17 age group makes the least contribution at just 2.7% of total sales.

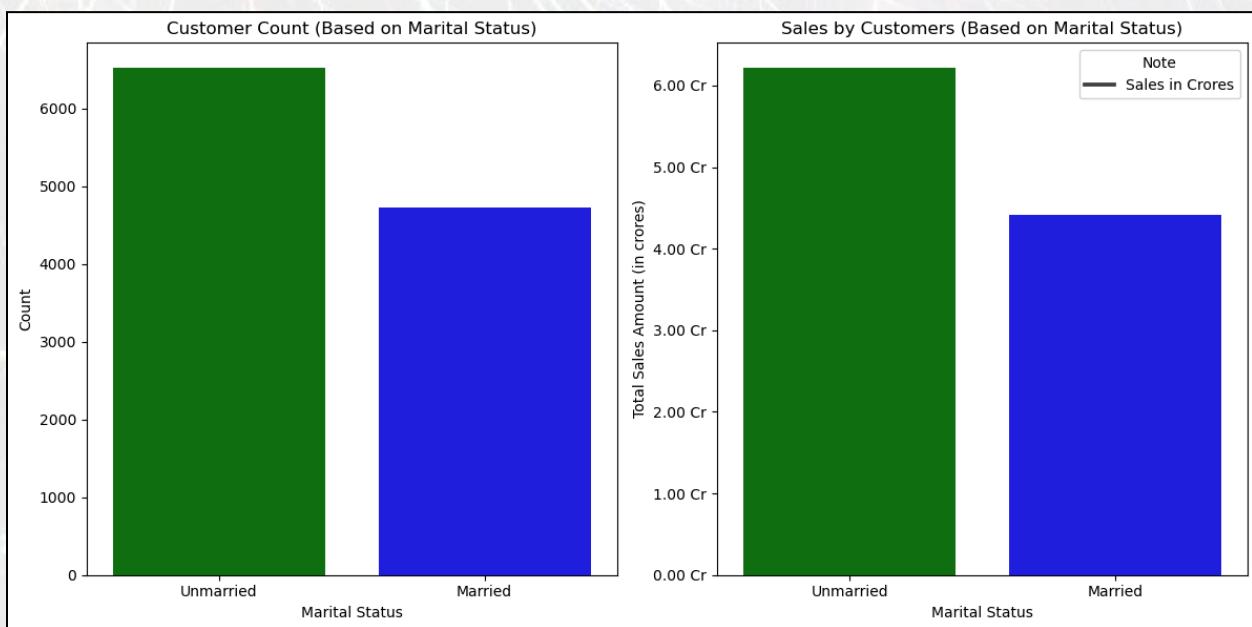
### 3. Number of Customers Based on Marital Status and Sales Made by Them

#### Marital Status Distribution:

- **Unmarried Customers:** 6,518 (58%)
- **Married Customers:** 4,721 (42%)

#### Sales Contribution:

- **Unmarried Customers:** ₹6,21,25,386 (58.5%)
- **Married Customers:** ₹4,41,23,746 (41.5%)



Unmarried customers make up a higher proportion of both the customer base and sales revenue. They contribute nearly 17% more to overall sales than married customers.

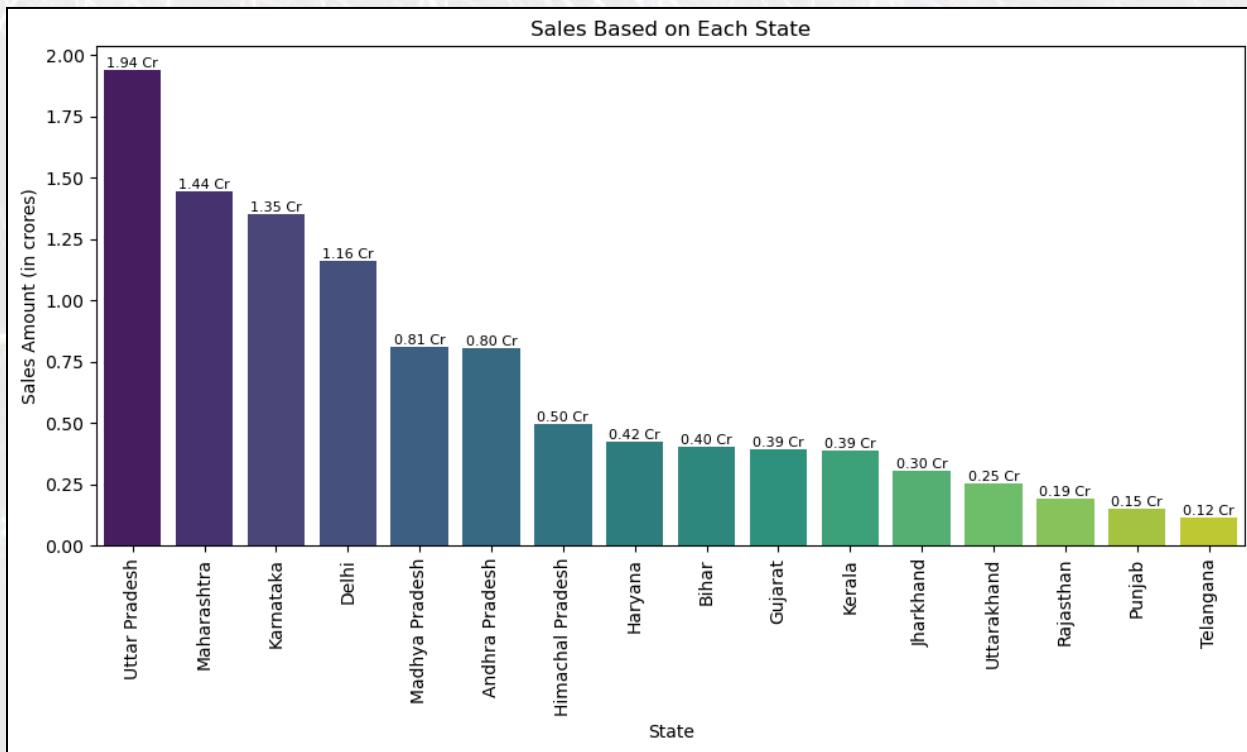
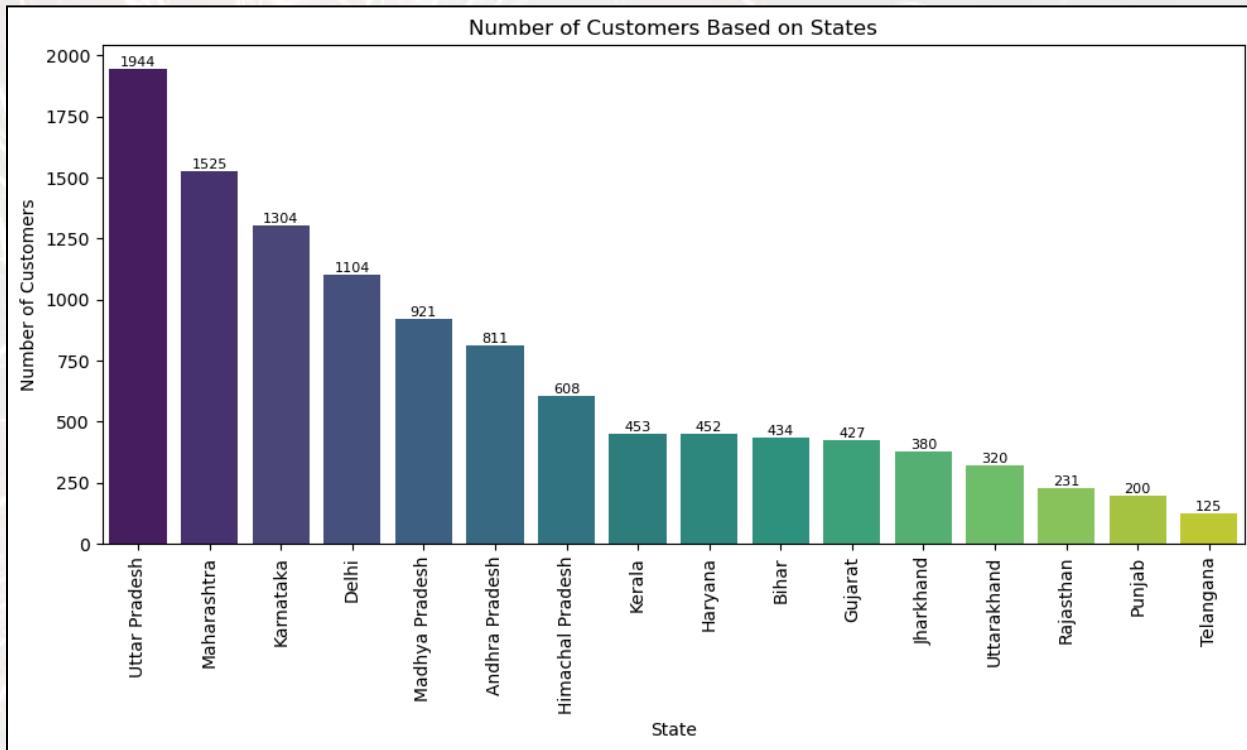
## **4. Number of Customers by State and Sales Contribution of Each State**

### **Top 5 States by Customer Count:**

1. Uttar Pradesh: 1,944 customers (17.3%)
2. Maharashtra: 1,525 customers (13.6%)
3. Karnataka: 1,304 customers (11.6%)
4. Delhi: 1,104 customers (9.8%)
5. Madhya Pradesh: 921 customers (8.2%)

### **Top 5 States by Sales Contribution:**

1. Uttar Pradesh: ₹1,93,74,968 (18.2%)
2. Maharashtra: ₹1,44,27,543 (13.6%)
3. Karnataka: ₹1,35,23,540 (12.7%)
4. Delhi: ₹1,16,03,819 (10.9%)
5. Madhya Pradesh: ₹81,01,142 (7.6%)



Uttar Pradesh leads in both the number of customers and sales revenue, contributing over 18% of total sales. This highlights the state's importance as a key market, driven by its large customer base and strong demand. It plays a crucial role in the business's overall performance and growth.

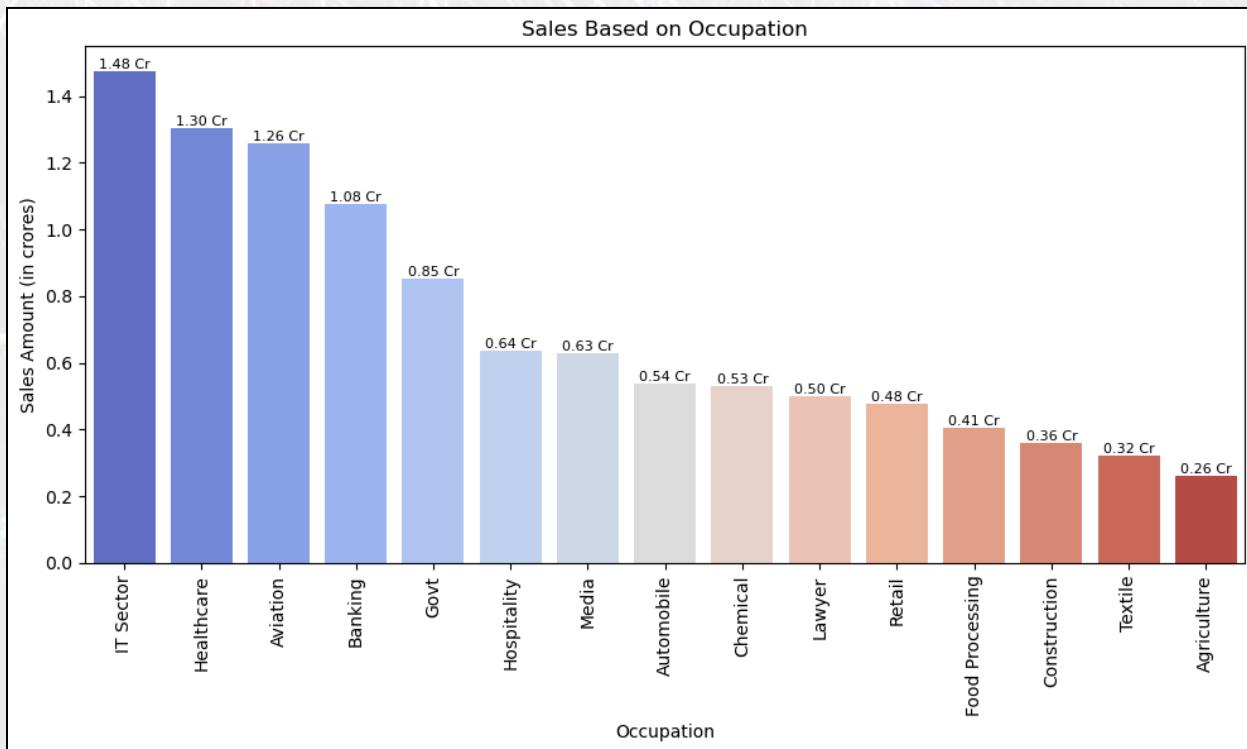
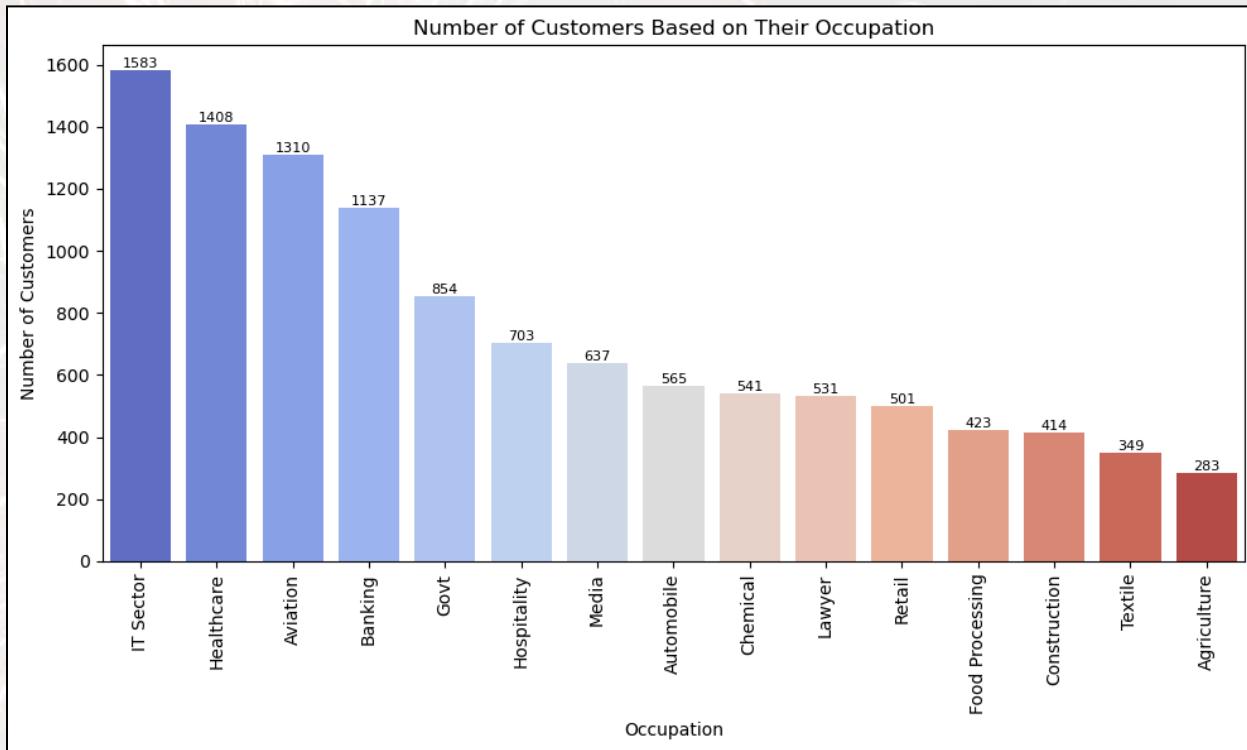
## **5. Number of Customers Based on Occupation and Sales Made by Them**

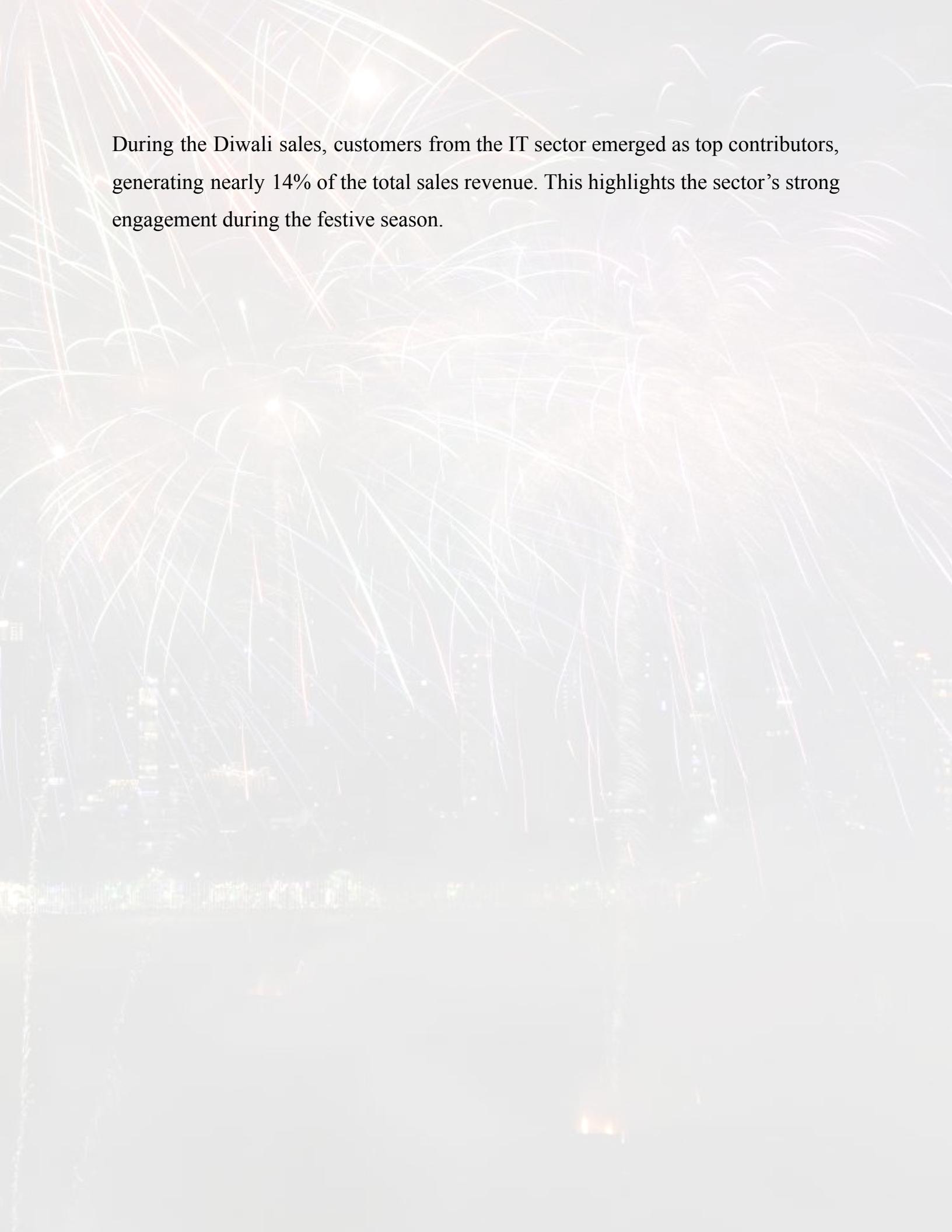
### **Top 5 Occupations by Customer Count:**

1. IT Sector: 1,583 customers (14.1%)
2. Healthcare: 1,408 customers (12.5%)
3. Aviation: 1,310 customers (11.7%)
4. Banking: 1,137 customers (10.1%)
5. Government: 854 customers (7.6%)

### **Top 5 Occupations by Sales Contribution:**

1. IT Sector: ₹1,47,55,079 (13.7%)
2. Healthcare: ₹1,30,34,587 (12.1%)
3. Aviation: ₹1,26,02,298 (11.7%)
4. Banking: ₹1,07,70,611 (10%)
5. Government: ₹85,17,212 (7.9%)



The background of the page is a soft-focus photograph of a Diwali celebration. It features numerous bright, colorful sparks and streaks of light against a dark sky, resembling fireworks or traditional oil lamps (diyas). In the lower portion of the image, there are faint outlines of what appear to be people, buildings, and trees, all bathed in the warm glow of the surrounding light.

During the Diwali sales, customers from the IT sector emerged as top contributors, generating nearly 14% of the total sales revenue. This highlights the sector's strong engagement during the festive season.

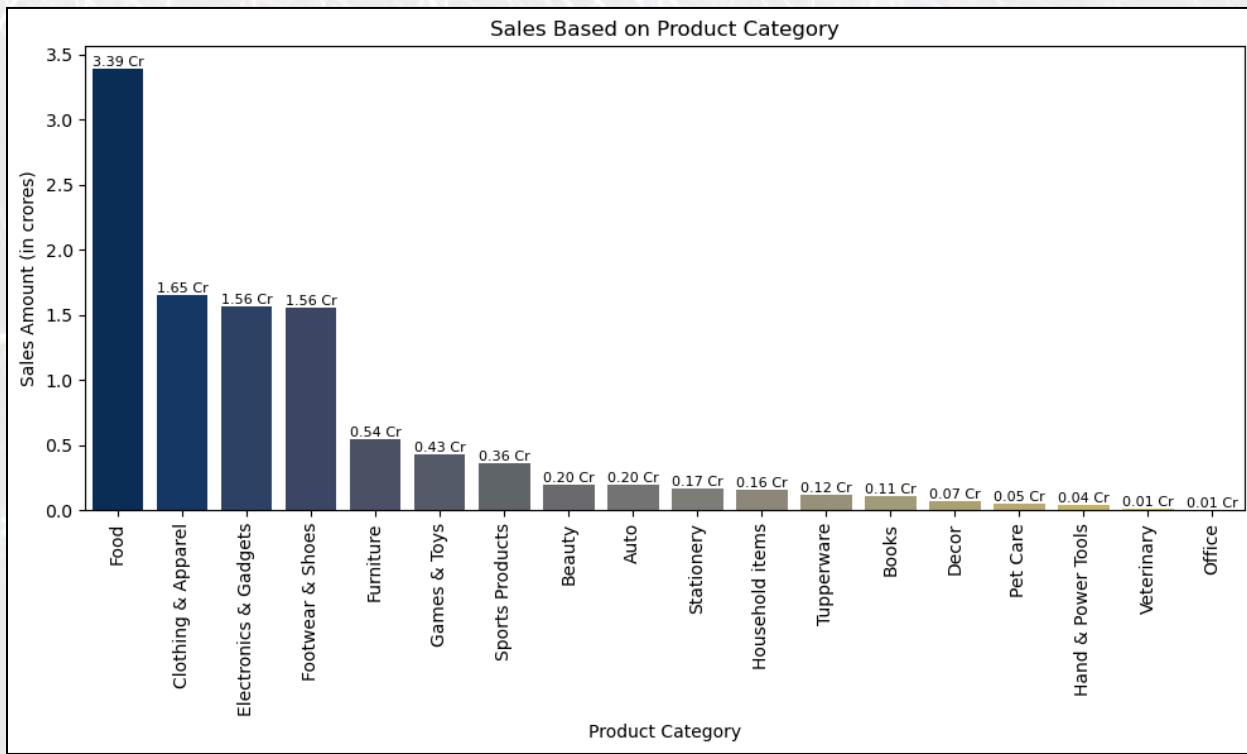
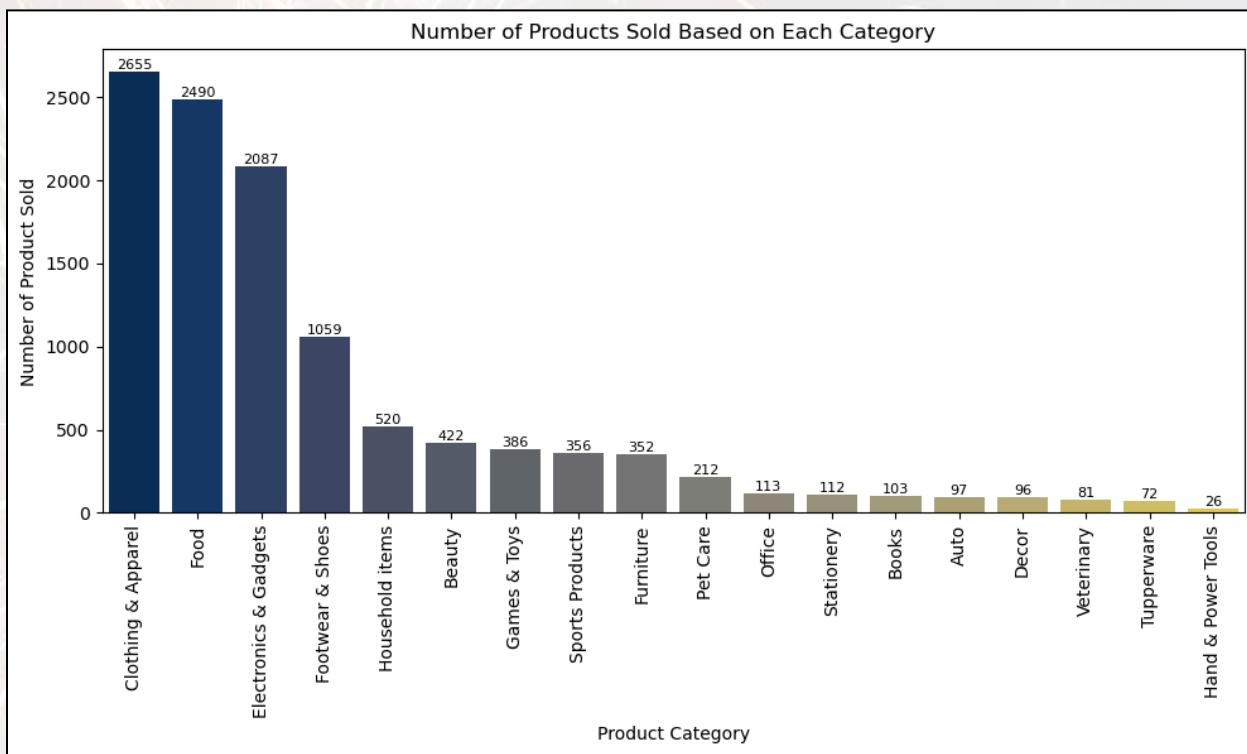
## **6. Number of Products Sold Based on Category and Sales Contribution of Each Product**

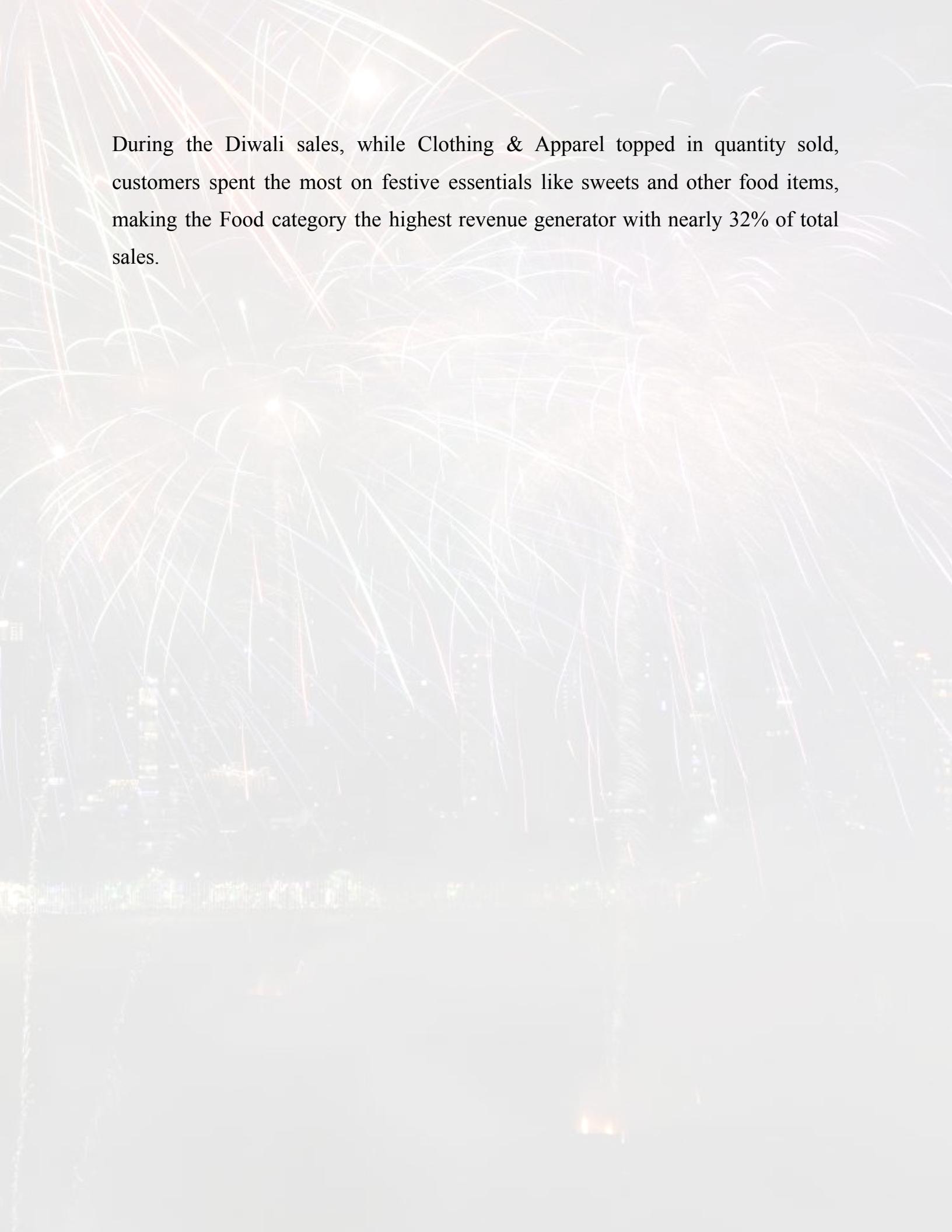
### **Top 5 Product Categories by Quantity Sold:**

1. Clothing & Apparel: 2,655 units (23.6%)
2. Food: 2,490 units (22.2%)
3. Electronics & Gadgets: 2,087 units (18.6%)
4. Footwear & Shoes: 1,059 units (9.4%)
5. Household Items: 520 units (4.6%)

### **Top 5 Product Categories by Sales Contribution:**

1. Food: ₹3,39,33,884 (31.9%)
2. Clothing & Apparel: ₹1,64,95,019 (15.5%)
3. Electronics & Gadgets: ₹1,56,43,846 (14.7%)
4. Footwear & Shoes: ₹1,55,75,209 (14.6%)
5. Furniture: ₹54,40,052 (5.1%)





During the Diwali sales, while Clothing & Apparel topped in quantity sold, customers spent the most on festive essentials like sweets and other food items, making the Food category the highest revenue generator with nearly 32% of total sales.

## Key Takeaways and Recommendations

### Key Takeaways:

1. **Gender Insights:** Females dominate both customer count (69.7%) and sales contribution (69.98%). Focus on marketing campaigns targeting female customers to maximize revenue.
2. **Age Group Insights:** The 26-35 age group contributes the most to sales (42.5%). Tailor product offerings and promotions to appeal to this demographic.
3. **Marital Status Insights:** Unmarried customers contribute 58.5% of sales. Develop campaigns that cater to the preferences of unmarried individuals.
4. **Geographical Insights:** Uttar Pradesh leads in both customer count (17.3%) and sales contribution (18.2%). Invest in regional marketing efforts for this state.
5. **Occupational Insights:** Customers from the IT sector contributed the most to sales (13.7%). Explore partnerships and exclusive offers for professionals in this sector.
6. **Product Category Insights:** Food generates the highest revenue (31.9%), while Clothing & Apparel is the most purchased category (23.6%). Balance inventory and promotions to leverage these trends.

## **Recommendations:**

1. **Enhance Female-Centric Campaigns:** With females contributing nearly 70% of sales, consider launching exclusive products and discounts targeting this segment.
2. **Focus on the 26-35 Age Group:** Since this age group accounts for 42.5% of sales, introduce loyalty programs and personalized offers to retain these customers.
3. **Regional Marketing Strategies:** Allocate resources to states like Uttar Pradesh and Maharashtra, which together contribute over 31% of total sales.
4. **Occupation-Based Targeting:** Design special offers for IT and healthcare professionals, who collectively contribute more than 25% of sales.
5. **Diversify Product Offerings:** Increase the variety and availability of Food Clothing & Apparel products to capitalize on their popularity.

## Conclusion

This analysis has provided valuable insights into the Diwali sales patterns, shedding light on customer demographics and sales behavior. Through the evaluation of various factors such as gender, age groups, marital status, state, occupation, and product categories, we can identify key trends that contribute significantly to sales performance.

One of the most significant findings is the dominance of female customers, who not only make up the majority of the customer base (69.7%) but also account for nearly 70% of the total sales revenue. This highlights the importance of focusing marketing efforts on this segment, as they are the key drivers of the business.

Additionally, the 26-35 age group stands out for contributing 42.5% of total sales. This demographic is particularly influential and suggests that offering tailored products, loyalty programs, and personalized promotions could significantly enhance customer retention and increase sales within this group.

Marital status analysis reveals that unmarried customers contribute 58.5% of total sales, emphasizing the need for marketing campaigns that cater to their preferences and lifestyles. On the geographical front, Uttar Pradesh emerges as a key region, leading both in customer count and sales contribution. This insight suggests that regional marketing efforts, especially in high-performing states like Uttar Pradesh and Maharashtra, could drive further growth.

The analysis of occupational groups reveals that customers from the IT sector contribute the most to sales, making it a strategic segment for exclusive offers and partnerships. Furthermore, product categories such as Food and Clothing &

Apparel show strong performance, with Food generating the highest revenue. These insights should inform inventory management, promotional strategies, and product diversification.

In conclusion, businesses can refine their marketing and sales strategies by leveraging these demographic and behavioral insights. By focusing on high-performing segments—such as female customers, the 26-35 age group, and IT professionals—businesses can create more personalized, effective campaigns that resonate with their target audience.

Regional strategies should be developed to tap into high-contribution states, while product offerings should be aligned with popular categories like Food and Clothing & Apparel. With these strategic recommendations, businesses can enhance their market presence, optimize customer engagement, and drive long-term growth.