

Summary and Recommendations



Executive Summary: Diwali Sales Data Analysis

This project analyzes consumer purchasing behavior during the **Diwali festival season**, using retail transactional data. The goal is to derive business insights that can help improve marketing strategies, product placement, and customer targeting for future festive sales campaigns.

The analysis covers customer demographics, purchase amounts, and product categories, using data visualizations and statistical techniques to extract patterns in consumer behavior during the festive period.



Dataset Overview

- **Total records:** ~11,000+ transactions
- **Data source:** Diwali sales CSV (from a retail chain)
- **Key columns:**
 - Gender, Age, State, Marital_Status
 - Occupation, Product_Category

- Amount (purchase value), Orders

Data Cleaning Steps:

- Removed null or missing values
 - Converted Amount and Orders columns to appropriate numeric types
 - Dropped irrelevant or duplicate columns (Status, unnamed columns, etc.)
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Detailed Analysis Summary

1. Gender-Based Analysis


- **Males contributed more to overall sales**, both in terms of total revenue and number of orders.
- Visualized using bar plots and pie charts.



Example:

Gen der	Total Orders	% of Total
Male	~60%	60%

Fem ~40% 40%
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 **Insight:** Marketing efforts could be optimized by focusing product offerings toward male shoppers during Diwali.

2. Age Group Analysis

- Age groups **26–35** and **18–25** made the **highest number of purchases**.
- Age group **26–35** spent the most on average per transaction.

 Example:


Age Group	Avg. Purchase Amount	Rank
26–35	₹15,000+	1
18–25	₹10,000+	2

 **Insight:** Young adults are key spenders; promotions should be tailored to their preferences.

3. State-Wise Sales Contribution


- Top 5 contributing states:

- **Uttar Pradesh**
 - **Maharashtra**
 - **Karnataka**
 - **Delhi**
 - **West Bengal**
- These states generated the **highest sales volume**.

 **Insight:** Regional advertising and state-specific offers should be concentrated in these locations.


4. Marital Status & Occupation

- **Married individuals** made slightly more purchases than singles.
- **Working professionals** and **IT sector employees** contributed the most in spending.

 **Insight:** Target promotions around couples and working professionals.

5. Product Category Analysis

- **Electronics, Clothing, and Household items** were the top-selling categories.
- Some categories had higher average order values than others.


 **Insight:** Consider inventory boosts and strategic discounts on high-performing categories during Diwali.





6. Total Revenue & High-Value Orders

- The top contributors to total revenue were:
 - **Men aged 26–35**
 - **From urban/metropolitan states**
 - **Professionals in IT/Tech fields**

 These are ideal **target customer personas** for next season's marketing funnel.

Final Recommendations

1.  **Focus on men aged 26–35** in major urban states like Maharashtra, UP, Karnataka, and Delhi.

2.  Promote **electronics and apparel**, especially to working professionals.
 3.  Use **digital advertising** and **targeted social media campaigns** to attract the 18–35 age group.
 4.  Ensure sufficient inventory for top product categories before the festive season.
 5.  Repeat this analysis **quarterly or annually** to track changing customer patterns.
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