

Project Summary: Diwali Sales Data Analysis

Introduction

The Diwali Sales dataset provides insights into customer purchasing behavior during the Diwali festival. The data includes information on customer demographics, product preferences, and spending patterns. By performing Exploratory Data Analysis (EDA), we aim to uncover meaningful trends that businesses can leverage for better decision-making. This project explores the relationship between customer profiles and their purchasing habits, helping to identify high-value customers and popular products.

Key Steps and Findings

1. **Data Cleaning:**
 - Removed irrelevant columns and handled missing values.
 - Ensured consistent data types for accurate analysis (e.g., converting **Amount** to integers).
2. **Demographic Analysis:**
 - **Gender:**
 - Female customers were more prevalent in both purchase frequency and total amount spent, indicating a significant purchasing power.
 - **Age Group:**
 - The age group 26-35 emerged as the highest contributors to sales, suggesting this demographic is the primary target audience.
3. **Geographical Insights:**
 - **State:**
 - Uttar Pradesh, Maharashtra, and Karnataka were the top-performing states in terms of orders and revenue.
 - These states represent key regions for future marketing and inventory focus.
4. **Marital Status:**
 - Married customers, particularly women, contributed the most to total sales, emphasizing their role in family purchases during festive seasons.
5. **Occupation Analysis:**
 - Buyers from IT, Healthcare, and Aviation professions were the highest spenders, likely due to their higher disposable income.
 - Businesses can tailor marketing campaigns to these occupational groups.
6. **Product Preferences:**
 - **Top Product Categories:**
 - Food, Clothing & Apparel, and Electronics & Gadgets were the most popular categories, reflecting essential and giftable items for festive shopping.
 - **Product IDs:**

- Specific product IDs saw higher order volumes, providing insight into customer preferences for popular items.
-

Conclusions

The analysis of Diwali Sales data reveals significant insights that can guide businesses in making informed decisions:

- **Targeting High-Value Customers:** Focus marketing efforts on females aged 26-35, especially in urban areas of Uttar Pradesh, Maharashtra, and Karnataka.
 - **Product Strategy:** Prioritize stock and promotions for high-demand categories like Food, Clothing, and Electronics.
 - **Regional Campaigns:** Develop location-specific campaigns to maximize revenue from high-performing states.
 - **Occupation-Specific Marketing:** Tailor campaigns for professionals in IT, Healthcare, and Aviation sectors.
-

Recommendations

1. **Personalized Marketing:** Use targeted ads to engage married women and young professionals with curated offers.
2. **Festive Promotions:** Design Diwali-specific bundles for top-performing product categories to drive sales.
3. **Regional Expansion:** Strengthen distribution networks in top states and explore opportunities in regions showing growth potential.

This project showcases how EDA can uncover actionable insights, enabling businesses to optimize their strategies and enhance their performance during festive seasons like Diwali.