

Diwali Sales Analysis – Exploratory Data Analysis & Business Insights Report

Project Objective

The objective of this project was to perform **Exploratory Data Analysis (EDA)** on Diwali sales data using Python to identify customer purchasing patterns, product performance trends, and demographic-driven insights that can support business and marketing decisions.

Key Insights

1. Customer Demographics Drive Sales

- **Married customers**, particularly women, contribute significantly to overall sales volume.
- Customers in the **26–35 age group** show the highest purchasing activity, making them the most valuable demographic segment.

2. Regional Sales Concentration

- A small number of states contribute a **disproportionate share of total sales**, indicating strong regional demand pockets.
- These regions represent opportunities for targeted marketing and inventory optimization.

3. Occupation-Based Buying Patterns

- Customers working in **IT, Healthcare, and Aviation** sectors show higher purchasing behavior.
- Profession-based segmentation can improve campaign personalization and conversion rates.

4. Product Category Performance

- Certain product categories dominate sales volume, while others underperform.
- High-performing categories should receive priority placement and promotional focus during festive seasons.

5. Spending Behavior

- Customers tend to purchase **multiple items per transaction**, increasing average order value during festive sales periods.
- Festive shopping behavior indicates strong upselling and bundling opportunities.

Actionable Recommendations

1. Target High-Value Demographics

- Focus festive campaigns on **married women aged 26–35** for higher ROI.

2. Regional Marketing Optimization

- Allocate marketing budgets more aggressively toward top-performing states.

3. Profession-Based Campaigns

- Design occupation-specific offers for high-spending professional groups.

4. **Product Portfolio Optimization**

- Promote high-demand product categories and re-evaluate low-performing ones.

5. **Festive Bundling Strategy**

- Introduce curated bundles to increase average order value during peak seasons.