Executive Summary – Diwali Sales Analysis

This analysis was carried out on the Diwali Sales dataset to uncover purchasing patterns, customer behavior, and product performance during the festive season. The workflow involved structured data cleaning, transformation, and exploratory data analysis (EDA), followed by generating actionable insights through visualizations.

Data Preparation & Cleaning

- **Checked and removed null values** to ensure consistency.

- **Dropped irrelevant/blank columns** to streamline the dataset.

- **Standardized data types** (e.g., converted categorical and numerical fields appropriately).

- **Transformed values** for clarity (e.g., converting marital status 0/1 into Yes/No).

- Ensured dataset quality and reliability before analysis.

Exploratory Data Analysis (EDA)

1. Overall Sales & Revenue

- Computed total sales amount and transaction counts to establish baseline festive performance.

2. Customer Demographics

- **Gender:** Female customers dominated both in purchases and spending, making them the **primary revenue drivers**.

- **Age Group:** Majority of sales came from the **26–35 age group**, led by women.

3. Regional Insights

- **Top-performing states:** Uttar Pradesh, Maharashtra, and Karnataka accounted for the highest orders and revenue.

- Indicates strong markets in northern and western India.

4. Marital Status

- Unmarried women formed a major segment of the buyers, actively engaging in festive shopping.

5. Occupation & Income Segments

- Professionals in **IT, Healthcare, and Aviation** showed higher spending capacity.

- **Middle-income groups (₹5–10 Lakhs)** contributed most significantly to sales.

6. Product Categories

- High-performing categories: **Clothing & Apparel, Food, Footwear, Electronics, and Home Appliances.**

- Reflects festive demand patterns toward lifestyle and household items.

Key Insights

- Women, especially **unmarried females aged 26–35**, are the **core customer base**.

- States like **UP, Maharashtra, and Karnataka** should be priority markets.

- **Middle-income professionals** drive the majority of sales.

- **Lifestyle and household products** are the most sought-after during Diwali.

Strategic Implications

1. **Target Marketing:** Design festive campaigns aimed at women (26–35 age group) with personalized offers.

2. **Regional Focus:** Enhance promotions and logistics in UP, Maharashtra, and Karnataka.

3. **Product Strategy:** Stock and promote apparel, electronics, and home appliances.

4. **Customer Segmentation:** Tailor discounts for middle-income professionals to boost loyalty.