# Diwali Sales Analysis using Python - Exploratory Data Analysis (EDA) Project for Data Analysts

## 🔍 Problem Statement:

A retail company wants to analyze its sales data during the Diwali festival season to better understand customer behavior, optimize marketing strategies, and increase revenue during future festive sales. The goal is to identify trends and insights that can help drive business decisions.

## 📌 Objective:

Perform **Exploratory Data Analysis (EDA)** on Diwali sales data using Python to:

* Clean and preprocess the dataset.
* Explore customer demographics (gender, age, state, occupation).
* Analyze product categories and purchase behaviors.
* Identify high-performing regions, products, and customer segments.
* Derive actionable insights for business improvement during Diwali sales.

❓ Key Business Questions**:**

1. **Which gender contributes more to Diwali sales?**
2. **Which age group has the highest number of orders and revenue?**
3. **How does marital status affect purchasing behavior?**
4. **Which states generate the most revenue during Diwali?**
5. **What are the top-performing occupations in terms of sales?**
6. **Which product categories are the most purchased?**
7. **How many items (orders) do customers typically buy?**

## 🔍 Exploratory Data Analysis (EDA) - Results:

1. 🧍‍♂️ Gender-Based Analysis:

Females made more purchases than males during Diwali.

Revenue generated by female customers was higher than males.

2. 🧓 Age Group Analysis:

The 26–35 age group dominates both in:

Number of orders.

Total revenue.

Young adults are the most active buyers during Diwali.

3. 💍 Marital Status Insights:

Married customers tend to purchase more.

Higher engagement in festive shopping among families.

4. 🗺️ Top States by Sales:

Uttar Pradesh, Maharashtra, and Karnataka are the highest contributors.

Indicates where to focus regional marketing efforts.

5. 👩‍🏭 Occupation Analysis:

Top occupations with most sales:

IT Sector

Healthcare

Aviation

Targeting working professionals can boost sales.

6. 📦 Product Category Insights:

Most frequently purchased categories include:

Food, Clothing, Electronics

These should be prioritized in Diwali campaigns.

7. 📊 Order Trends:

Many customers made multiple purchases.

Indicates the potential for bundle deals and loyalty programs.

📈 Tools & Libraries Used:

Python (Jupyter Notebook)

Pandas

Matplotlib

Seaborn

## ✅ Findings & Business Insights:

* Focus marketing on females aged 26–35 in high-performing states.
* Customize offers for married customers and working professionals.
* Stock and promote trending product categories (Food, Clothing, Electronics).
* Consider bundling offers for multi-order shoppers.

# **Link File:** https://colab.research.google.com/drive/1\_0G4IoOwMeL5Z2Vf1hL2p5jgow7\_zo\_8?usp=sharing