

# ■ Diwali Sales Analysis using Python

## ■ Project Overview

This project focuses on analyzing customer purchase behavior during the Diwali festival to uncover trends that can help improve marketing strategies and business decisions. Using Python's data analytics libraries, the project explores sales data, cleans and preprocesses it, and performs exploratory data analysis (EDA) to extract meaningful insights.

## ■ Objectives

- Analyze sales data to identify the top-performing states, occupations, and product categories during Diwali.
- Understand customer demographics (gender, age group, marital status, etc.) affecting sales.
- Visualize trends and draw actionable business conclusions.

## ■ Tech Stack

- Programming Language: Python
- Data Manipulation: Pandas, NumPy
- Data Visualization: Matplotlib, Seaborn
- Environment: Jupyter Notebook / Google Colab

## ■■ Steps to Run the Project

1. Clone the Repository  
`git clone https://github.com/yourusername/Diwali_Sales_Analysis.git`
2. Navigate to the Folder  
`cd Diwali_Sales_Analysis`
3. Install Required Libraries  
`pip install pandas numpy matplotlib seaborn`
4. Open the Jupyter Notebook  
`jupyter notebook Diwali_Sales_Analysis.ipynb`
5. Run All Cells to generate analysis and visualizations.

## ■ Key Insights

- Women buyers from the age group 26–35 years were the most contributing group to sales.
- Married women living in Tier 1 cities showed the highest purchasing power.
- Top states contributing to sales were Uttar Pradesh, Maharashtra, and Karnataka.
- IT, Healthcare, and Aviation sectors recorded the most buyers.
- Food, Clothing, and Electronics were the most sold product categories.

## ■ Visualizations

The notebook includes clear and attractive data visualizations such as:

- Gender vs. Purchase amount
- Age group vs. Purchase amount
- State-wise total sales
- Top product categories and occupations

## ■ Learnings

- Data cleaning and preprocessing using Pandas
- Performing EDA and data grouping
- Creating business insights from real-world data
- Building visual stories using Matplotlib and Seaborn

## ■ Dataset

The dataset used contains customer demographics and transaction details from a Diwali sales period. (Dataset source can be added here if available, e.g., Kaggle or company-provided.)

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## ■ License

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