

Python Diwali Sales Analysis

Understanding customer demographics, purchasing behavior, and regional performance through data-driven insights



 PROJECT GOALS

Analysis Objectives

Data Preparation

Load, inspect, and clean sales dataset

Exploratory Analysis

Perform EDA to uncover patterns

Customer Insights

Identify key segments and trends

Visualization

Present findings using Python libraries

Dataset & Technology Stack

Dataset Overview

- **11,239 records** after cleaning
- **13 columns** including demographics, location, products
- Key attributes: Gender, Age Group, State, Product Category, Amount

Data Cleaning

- Removed empty columns
- Handled missing values in Amount
- Converted data types for consistency

Tools Used

Python – Core language

Pandas & NumPy – Data transformation

Matplotlib & Seaborn – Visualization

Jupyter Notebook – Analysis environment

Customer Demographics Drive Sales

6518

Married Customers

Higher purchase volume than unmarried
(4,721)

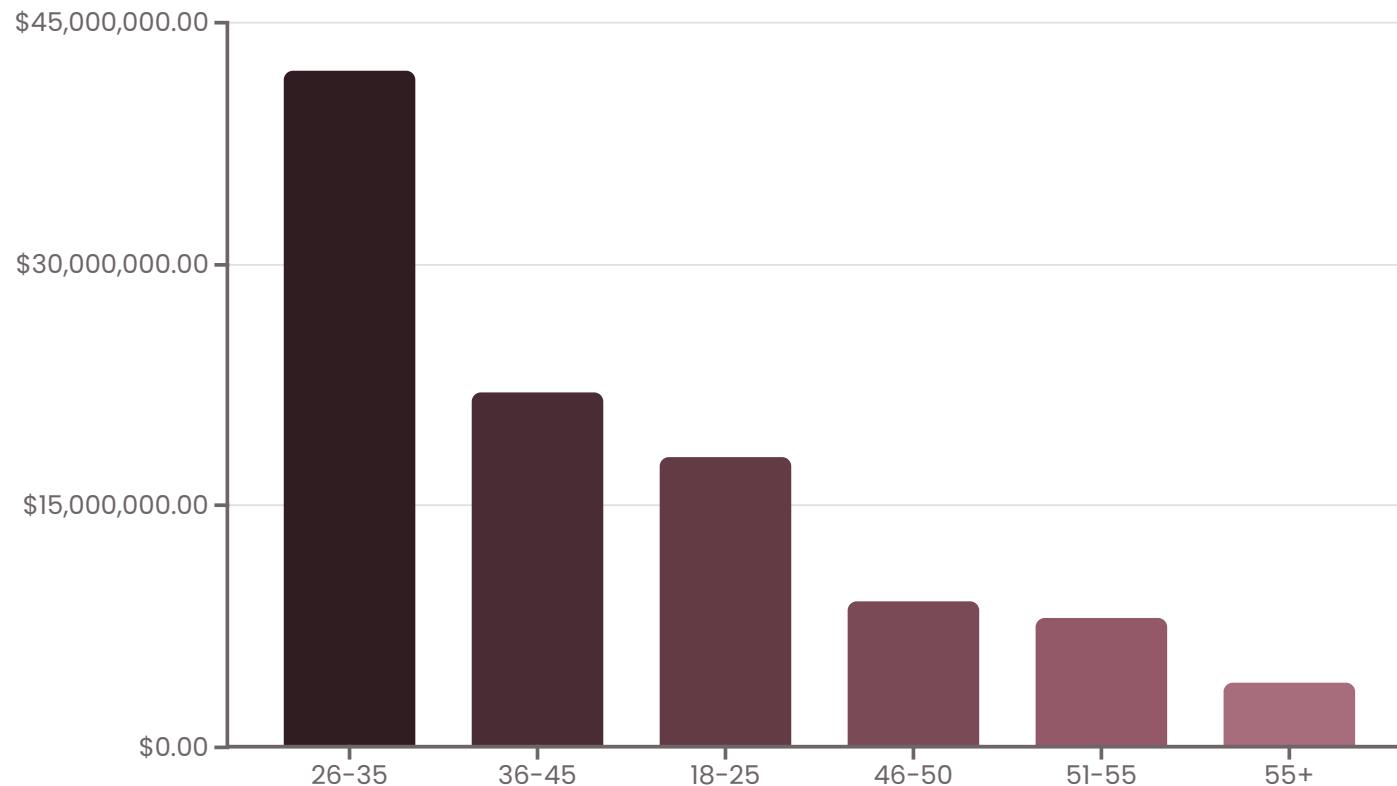
70%

Female Shoppers

Dominate across all age groups



Age Group 26-35 Leads Spending



Most Valuable Segment

The **26-35 age group** contributed the highest sales revenue, nearly double the next segment.

Female customers in this age range show especially strong purchasing behavior, making them a prime target for festive marketing.

Top Product Performance



Food Category

Highest revenue generator with
2,490 orders



Clothing & Apparel

Strong performer with 2,655 orders



Electronics

Popular category with 2,087 orders



Footwear

Solid demand with 1,099 orders

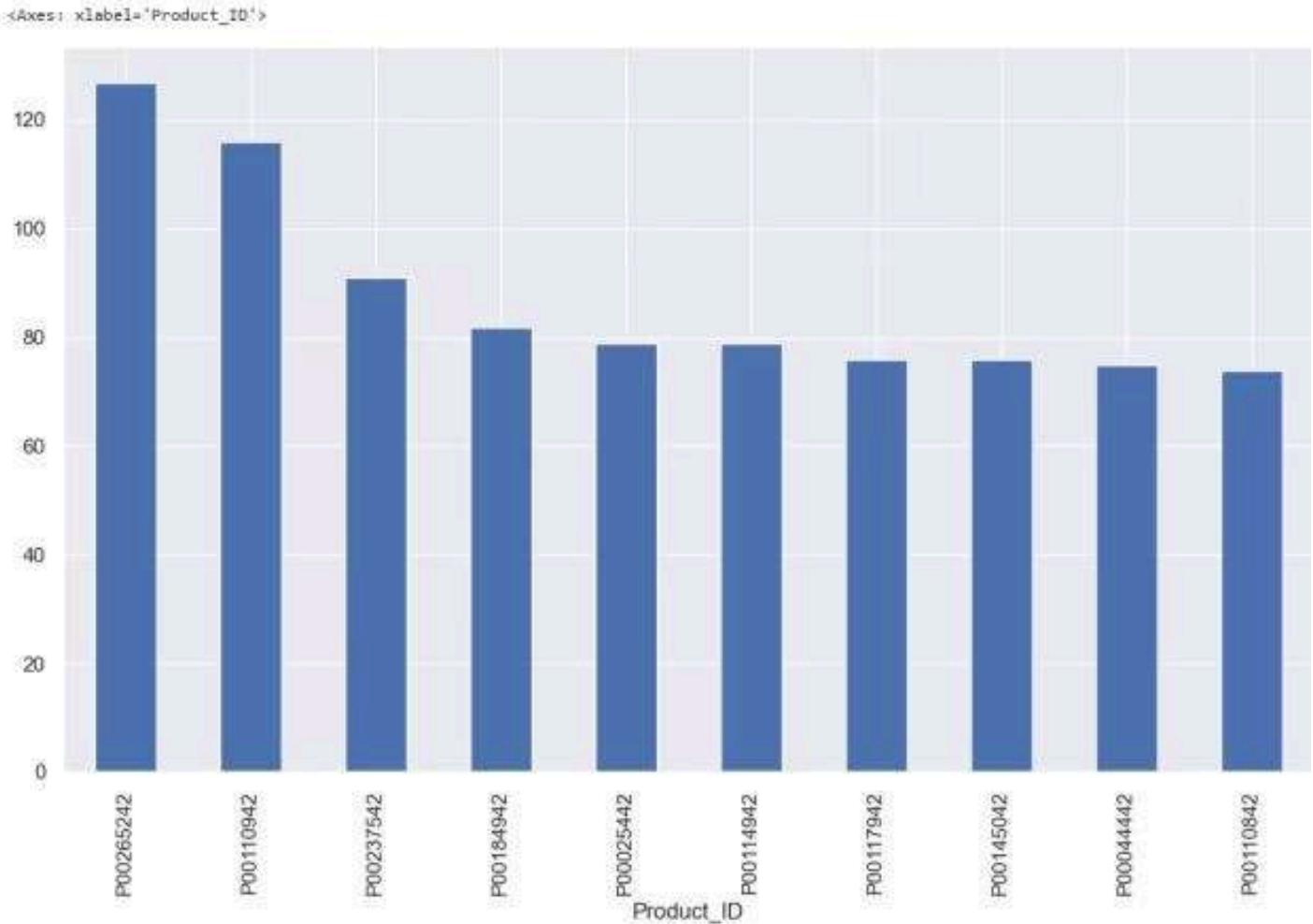
Best-Selling Individual Products

Order Volume Leaders

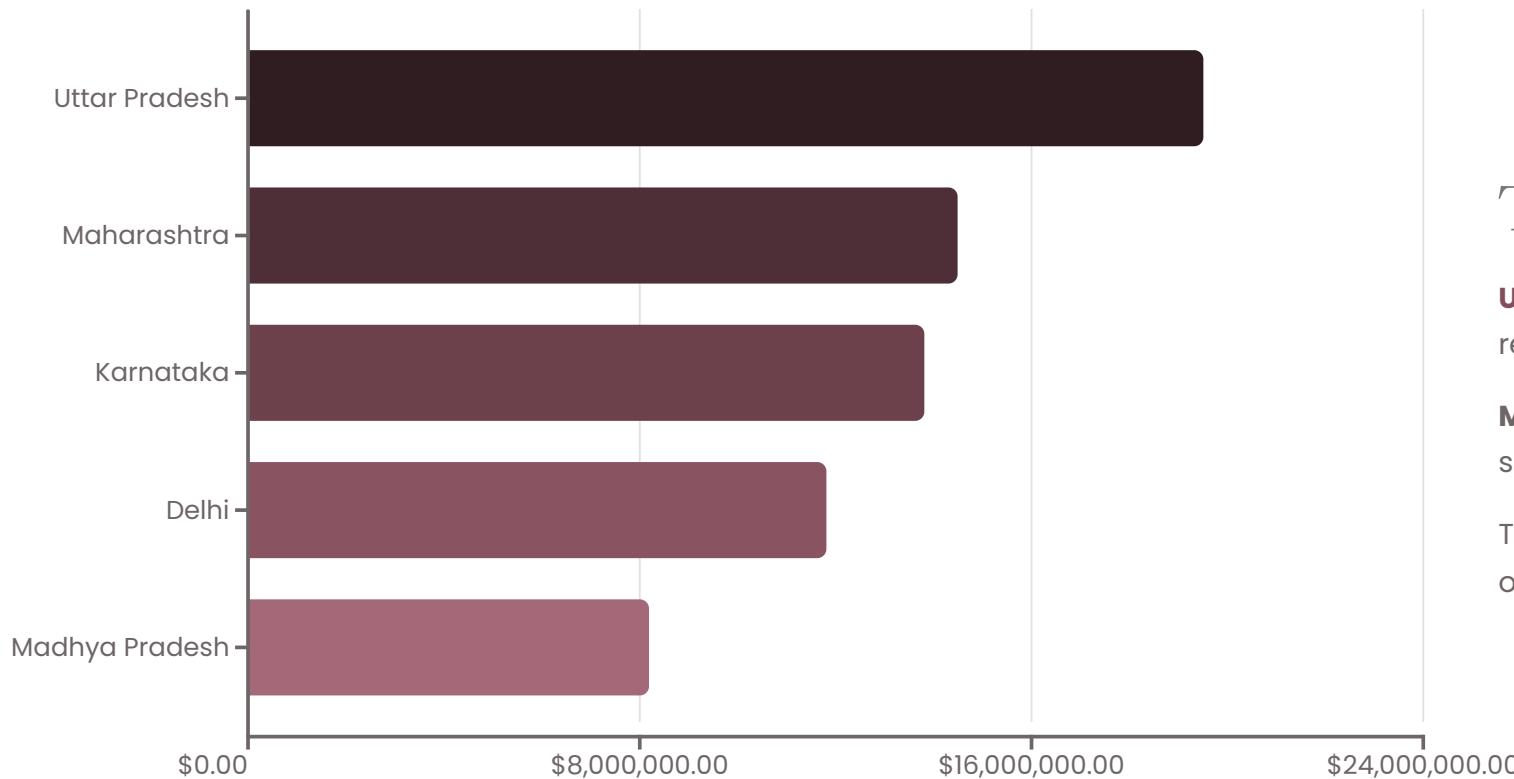
A concentrated group of products drove the majority of sales:

- **P00265242:** 125 orders
- **P00110942:** 115 orders
- **P00227542:** 90 orders
- **P001184942:** 82 orders

This concentration indicates strong product-market fit for specific items.



Regional Performance Analysis



Top Markets

Uttar Pradesh leads with 4,800 orders and highest revenue.

Maharashtra and **Karnataka** follow as strong secondary markets.

These three states represent the core geographic opportunity for festive campaigns.

Key Insights

Female Dominance

Women contribute 70% more revenue than men

Prime Age Segment

26-35 year-olds are most valuable customers

Category Winners

Food, Apparel, and Electronics lead sales

Geographic Focus

UP, Maharashtra, Karnataka drive revenue

Marital Status

Married customers place more festive orders

Business Applications

Strategic Value

Transform data into actionable marketing strategies

01

Target High-Value Segments

Focus on female customers aged 26-35

02

Optimize Inventory

Stock Food, Apparel, and Electronics heavily

03

Regional Marketing

Prioritize campaigns in UP, Maharashtra, Karnataka

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Python | SQL | Data Analysis | Data Visualization