

# Python Diwali Sales Analysis

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



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# 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

6,518

Married Customers

Higher purchase volume than unmarried  
(4,721)

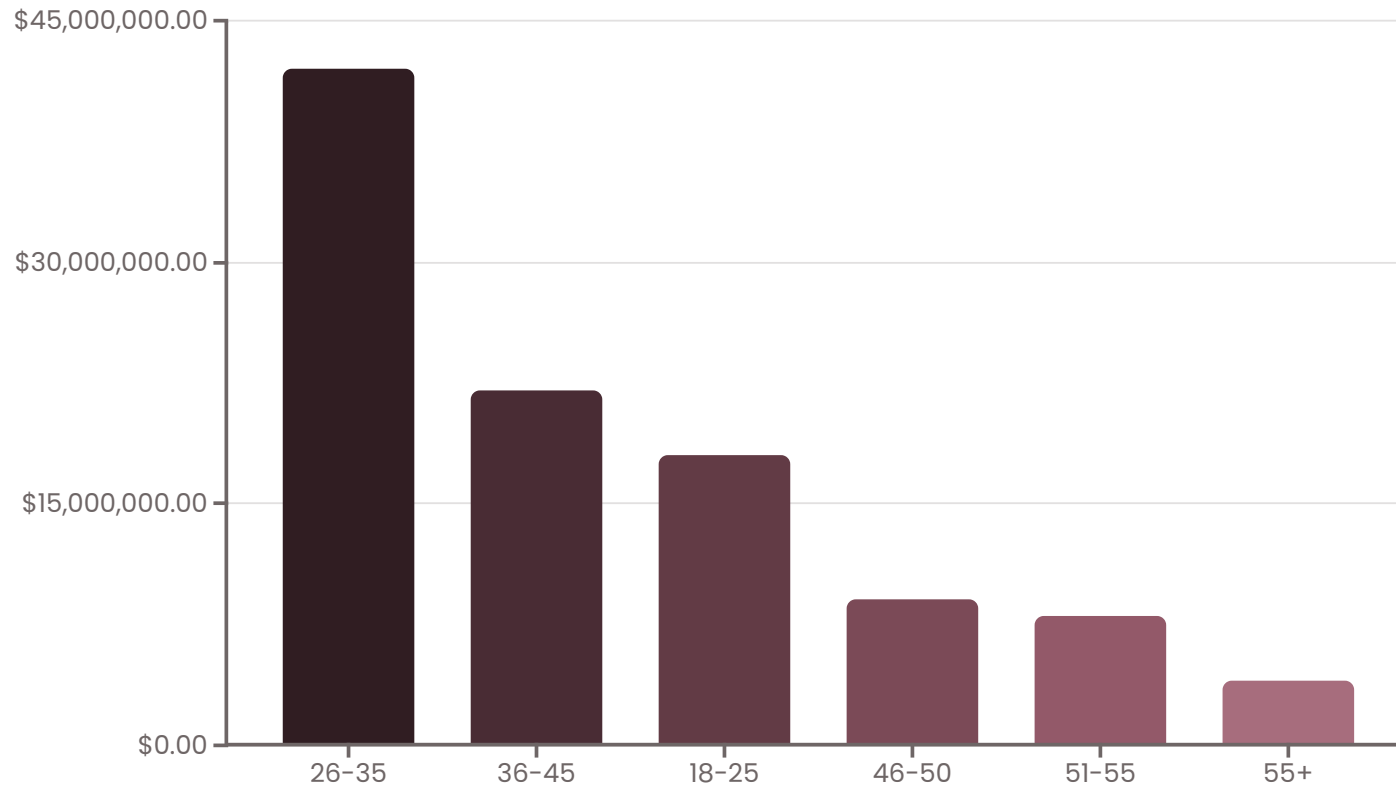
70%

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

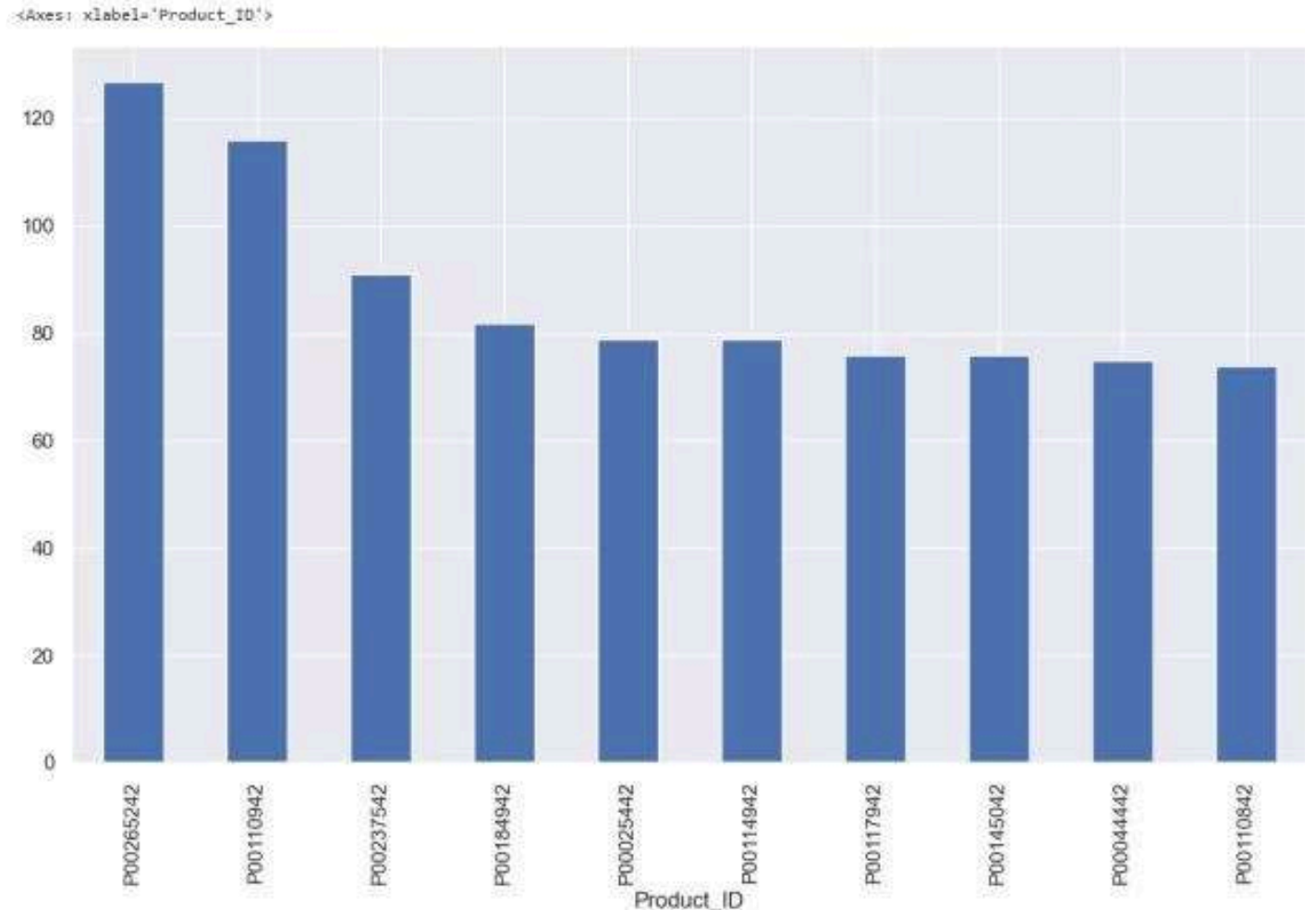
# Best-Selling Individual Products

## Order Volume Leaders

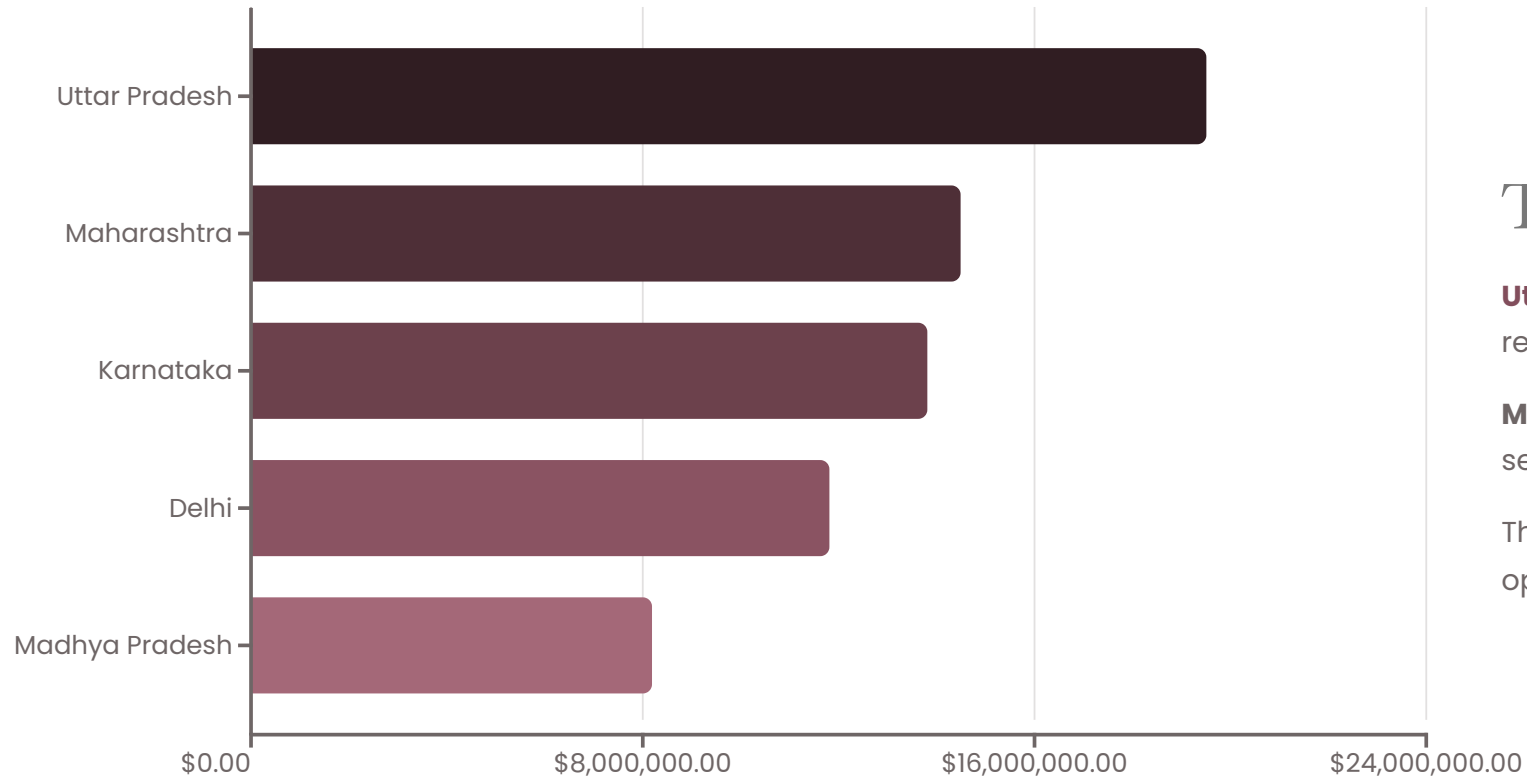
A concentrated group of products drove the majority of sales:

- **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