



Diwali Sales Data Analysis

Uncovering customer behavior and spending patterns during India's biggest festive shopping season

Project Overview

Understanding Festive Shopping Behavior

India witnesses massive sales spikes during Diwali. This analysis explores customer demographics, state-wise contributions, and product performance using Python-based EDA.

Key Focus Areas:

- Customer demographics & behavior
- Geographic sales distribution
- Product category performance
- Age, gender & marital status patterns



Analysis Objectives



Analyze Sales Data

Perform comprehensive EDA using Python techniques



Study Demographics

Understand customer buying behavior patterns



Identify Top Performers

Find revenue-generating categories and locations



Generate Insights

Create visual reports for business decisions

Technical Stack

1

Python

Core programming language

2

Pandas & NumPy

Data manipulation & numerical operations

3

Matplotlib & Seaborn

Data visualization

4

Jupyter & ReportLab

Development & PDF automation



Analysis Methodology



Data Loading

Import dataset using Pandas



Data Cleaning

Remove nulls, duplicates & irrelevant columns



EDA

Visual analysis by demographics & categories



Visualization

Create charts for insights



Report

Compile findings into PDF



Key Findings: Customer Demographics

26-35

Age Group

Highest spending demographic during Diwali



Gender

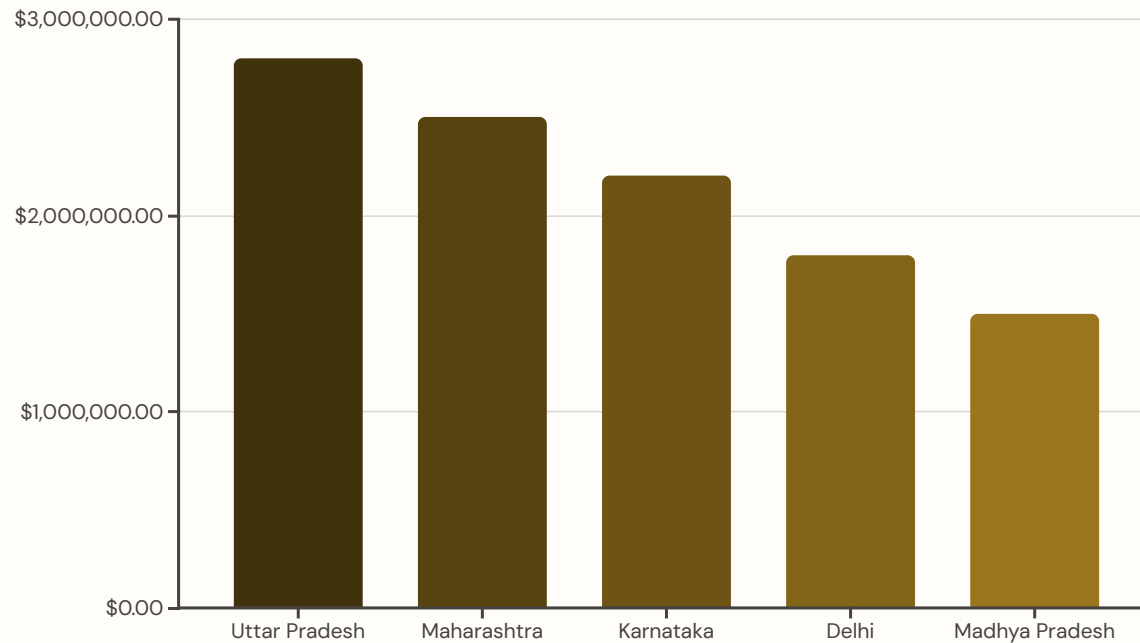
Female customers placed more orders & contributed higher sales



Marital Status

Married individuals bought significantly more

Geographic Performance



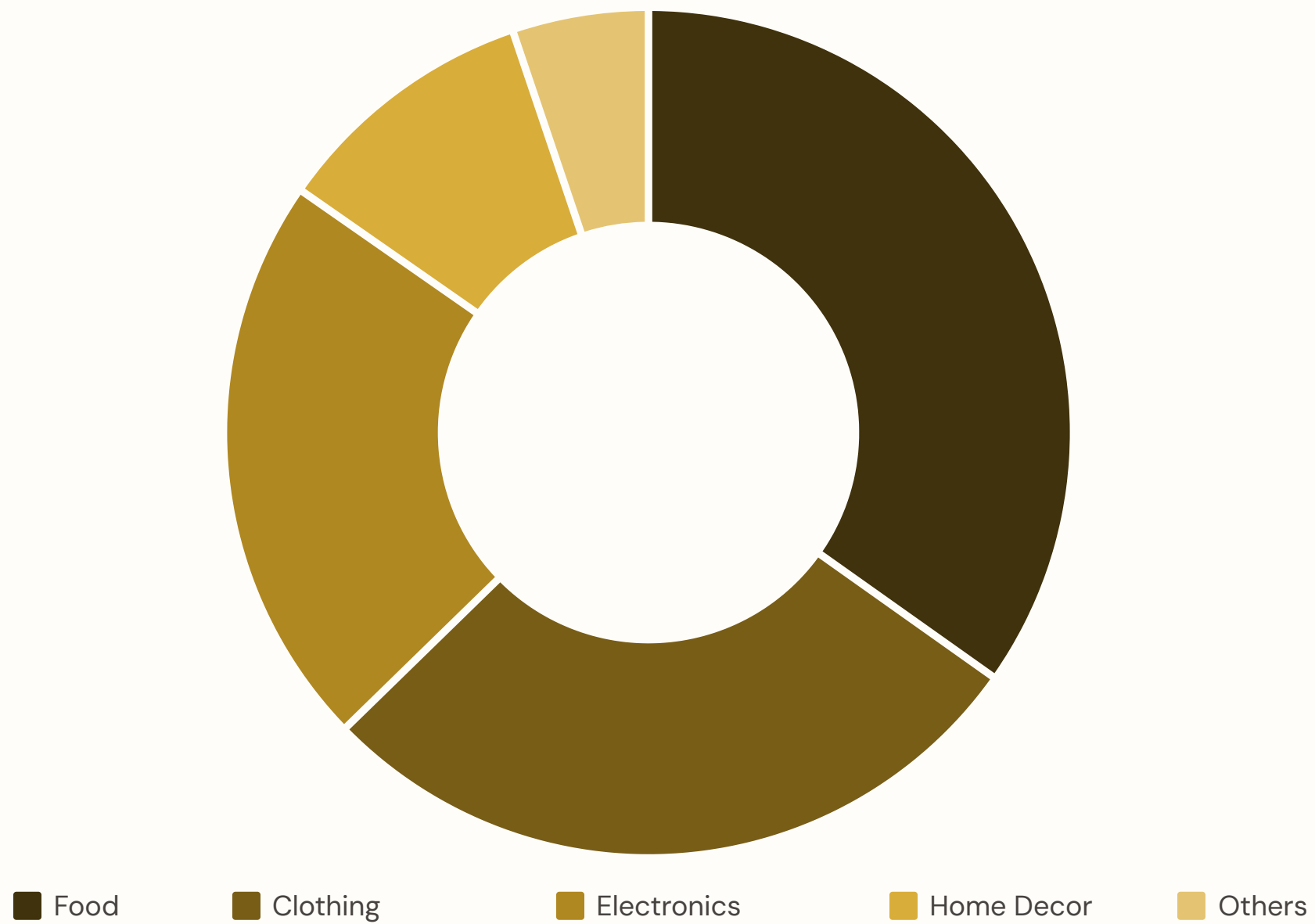
Top Performing States

Three states dominate Diwali sales:

- **Uttar Pradesh** — Highest revenue
- **Maharashtra** — Strong urban markets
- **Karnataka** — Tech-savvy consumers

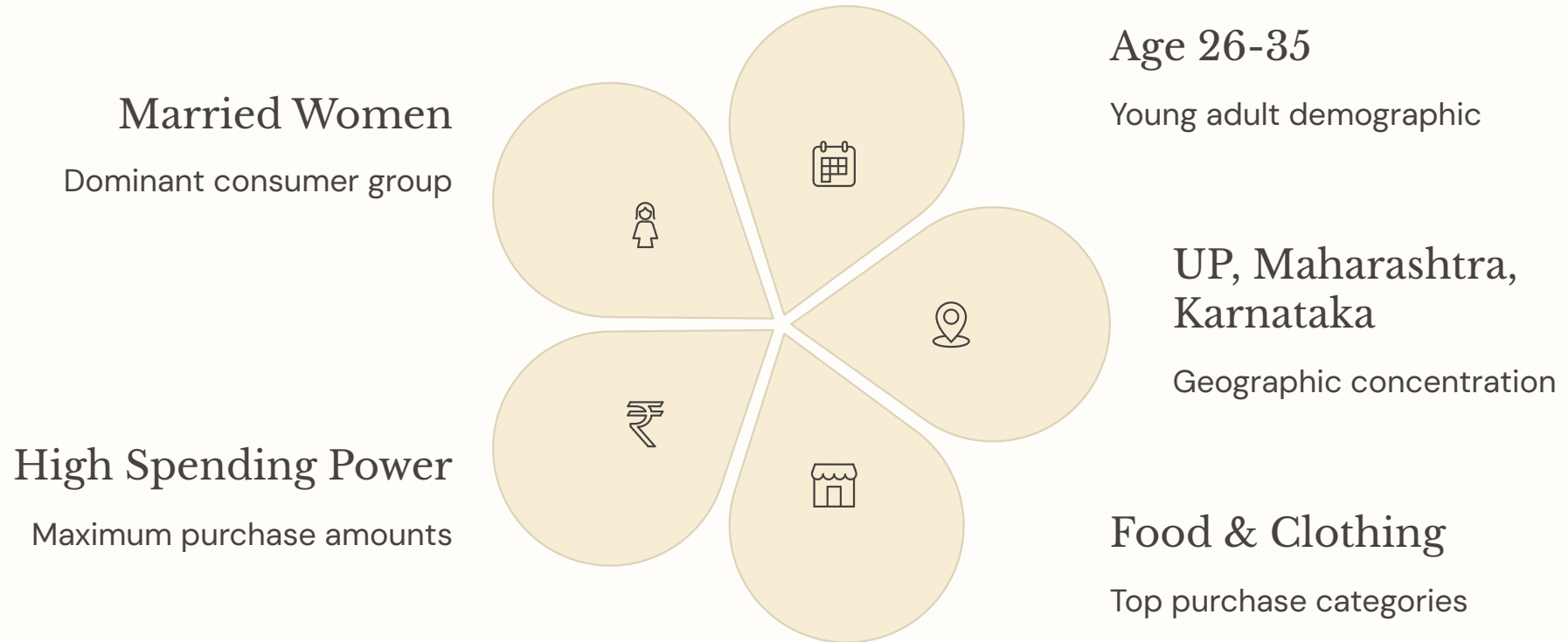
These regions show large customer base and higher purchasing capability.

Product Category Performance



Food leads purchases, followed by Clothing and Electronics — indicating where inventory and marketing focus should be applied.

Primary Target Segment



Business Implications & Recommendations

Marketing Focus

Target married women aged 26–35 with personalized campaigns

Inventory Planning

Stock more Food & Clothing items for Diwali offers

Regional Strategy

Concentrate marketing efforts in UP, Maharashtra & Karnataka

Conclusion: Analysis successfully extracted purchasing trends showing married women aged 26–35 as major buyers. These insights enable businesses to design targeted strategies and improve revenue generation during festive seasons.

