<u>Executive Summary of the analysis based on plots and code</u>

1. Data Cleaning

● **Dropped irrelevant columns**: *Status*, *unnamed1* (contained null values).
● **Handled missing values**: Dropped rows with null values.
● **Changed data types**: Converted the *Amount* column to integer for calculations.

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2. Exploratory Data Analysis (EDA) & Visualizations

a) Gender-wise Sales Analysis

● **Visualization**: Bar plot showing the total revenue contribution by gender.
● **Insight**:
  ○ **Males contribute more to total sales** compared to females.
  ○ Suggests that **targeted marketing towards male customers** could be beneficial.

b) Age Group Analysis

● **Visualization**: Bar plot showing purchases by different age groups.
● **Insight**:
  ○ The **26-35 age group has the highest number of purchases and spends the most**.
  ○ Young adults are the **primary target audience** for Diwali sales.

c) State-wise Sales Distribution

● **Visualization**: Bar plot showing sales from different states.
● **Insight**:
  ○ **Highest sales come from Maharashtra, Uttar Pradesh, and Karnataka**.
  ○ These states are **key markets for promotional campaigns**.

d) Occupation-wise Purchase Analysis

● **Visualization**: Bar plot analyzing purchases by occupation.
● **Insight**:
  ○ Customers from **IT, Healthcare, and Government sectors** make the most purchases.
  ○ Targeting **working professionals** may increase revenue.

e) Product Category Analysis

- **Visualization**: Bar plot showing revenue contribution by product categories.
- **Insight**:
  - **Electronics and Apparel are the top-selling product categories**.
  - These categories should be **prioritized in sales promotions**.

f) Orders vs. Amount Relationship

- **Visualization**: Scatter plot to analyze how order quantity impacts total amount spent.
- **Insight**:
  - Customers who order **more frequently tend to spend higher amounts**.
  - Encouraging repeat purchases through **loyalty programs or discounts** can increase revenue.

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3. Conclusion & Business Insights

1. **Target male customers & working professionals** for better conversion rates.
2. **Focus on the 26-35 age group**, as they are the biggest spenders.
3. **Maharashtra, Uttar Pradesh, and Karnataka drive the highest sales**—regional promotions can be effective.
4. **Electronics and Apparel should be prioritized** for discounts and marketing.
5. **Encourage bulk orders & repeat purchases** using offers and discounts.
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🔑 Key Recommendations for Diwali Sales Strategy

1️⃣ Target High-Spending Customer Segments

🎯 Focus on Male Customers

- Males contribute more to total sales.
- Personalized offers & product recommendations for male shoppers.

🎯 Prioritize the 26-35 Age Group

- This age group spends the most.
- Use social media ads and influencer marketing to engage them.

🎯 Work Professionals (IT, Healthcare, Govt.)

- They are the highest spenders.
- Introduce **corporate discounts** or **exclusive work-hour deals**.

2️⃣ Expand Market Reach in High-Sales States

🌏 **Top-performing states: Maharashtra, UP, Karnataka**

- Increase advertising & special discounts in these regions.
- Offer **state-specific promotions & festival bundles**.

🌏 **Boost Sales in Low-Performing States**

- Identify **why sales are low** (logistics, demand, competition).
- Run **localized campaigns** to increase awareness.

3️⃣ Optimize Product Strategy

🛍️ **Electronics & Apparel Drive Most Sales**

- Feature these categories in **prominent promotions & discount deals**.
- Introduce **Diwali-exclusive bundles** to increase cart size.

🛍️ **Cross-Sell & Upsell**

- Recommend **related products** at checkout (e.g., Phone + Accessories).
- Provide **"Frequently Bought Together" offers** to boost AOV (Average Order Value).