Exploratory Data Analysis (EDA)

Dataset Overview

- **Customers Dataset:** Contains customer information such as CustomerID, Name, Location, and Age.

- **Products Dataset:** Contains product information such as ProductID, ProductName, Category, and Price.

- **Transactions Dataset:** Contains transaction details such as TransactionID, CustomerID, ProductID, PurchaseDate, and PurchaseAmount.

Key Findings from EDA

1. Customer Distribution by Location

- The majority of customers are from **New York** and **San Francisco**.

- **Los Angeles** has fewer customers, suggesting a regional gap.

2. Product Category Distribution

- **Electronics** products such as laptops and smartphones are the top-selling categories.

- **Accessories** have lower sales compared to core electronics.

3. Monthly Sales Trends

- Sales peaked in **May 2023**, particularly for high-value products like laptops.

- Lower sales were observed in early months, indicating a potential seasonal dip.

4. Top Customers by Spending

- **John Doe** is the top spender, with purchases amounting to over **$1200**.

- A small group of customers accounts for a significant portion of total revenue.

5. Top Products by Purchase Amount

- The **Laptop** product (ID: 1001) is the best seller with **$1200** in sales.

- High-priced electronics dominate overall revenue generation.

<u>Business Insights</u>

1. **Focus on High-Spending Customers:**

   o Retain top customers with personalized offers and loyalty programs to ensure repeat business.

2. **Expand Customer Base in Underperforming Locations:**

   o Invest in targeted marketing campaigns for regions like **Los Angeles** to grow the customer base and improve regional sales.

3. **Stock Management for Popular Products:**

   o Prioritize inventory management for high-demand products like **Laptops** and **Smartphones** to prevent stockouts during peak sales periods.

4. **Seasonal Promotions and Sales Strategies:**

   o Capitalize on peak sales months by planning promotions or discounts to drive higher revenue during slower periods.

5. **Diversification of Product Categories:**

   o Explore expanding the **Accessories** category with complementary products to increase sales and diversify the product portfolio.