

# Exploratory Data Analysis (EDA)

## 1. Introduction

The purpose of this Exploratory Data Analysis (EDA) is to understand the eCommerce Transactions dataset and derive actionable insights. The dataset consists of three files:

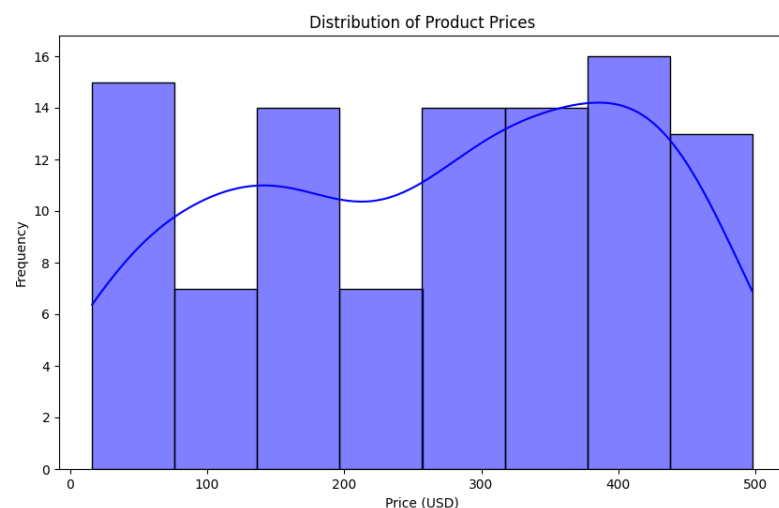
- **Customers.csv:** Contains 200 customer records with details such as CustomerID, Region, and SignupDate.
- **Products.csv:** Contains 100 product records with details like ProductID, Category, and Price.
- **Transactions.csv:** Contains 1000 transaction records detailing purchases made by customers.

## 2. Data Cleaning

- **Missing Values:** No missing values were found in any of the datasets.
- **Duplicates:** No duplicate rows were detected.
- **Date Conversion:** SignupDate and TransactionDate columns were converted to datetime format for analysis.

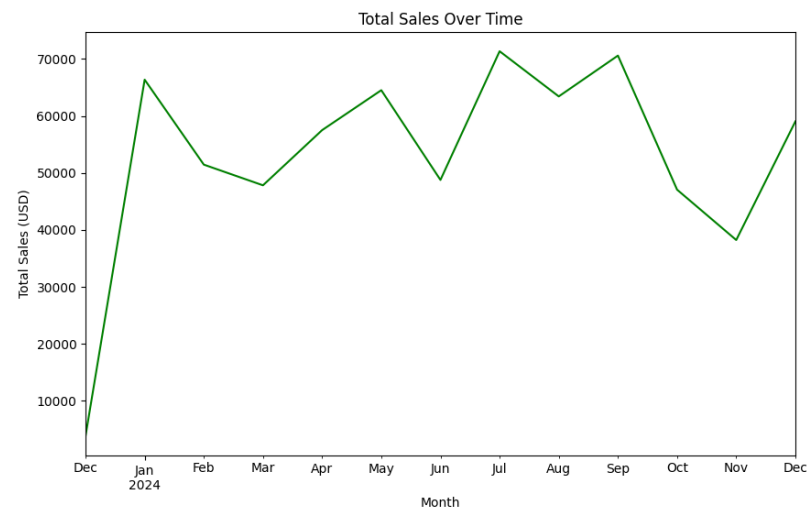
## 3. Visualizations

### 1. Distribution of Product Prices



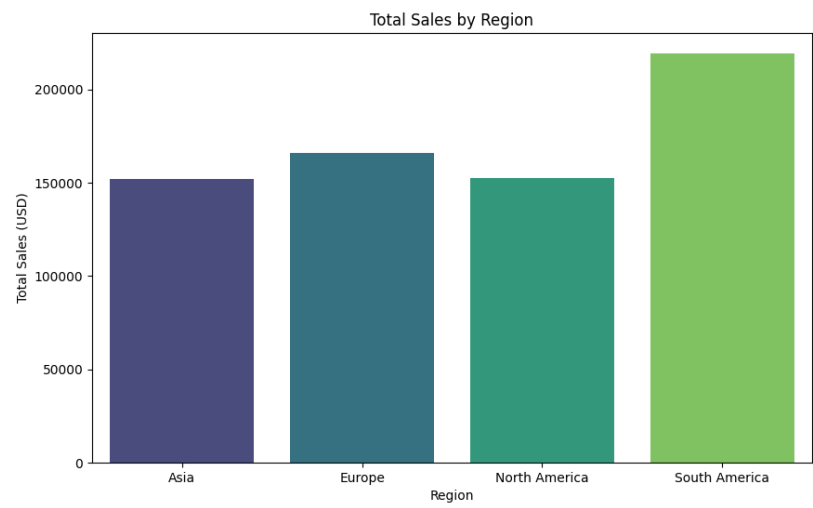
**Observation:** Most products are priced between \$10 and \$50.

2. Sales Trends Over Time



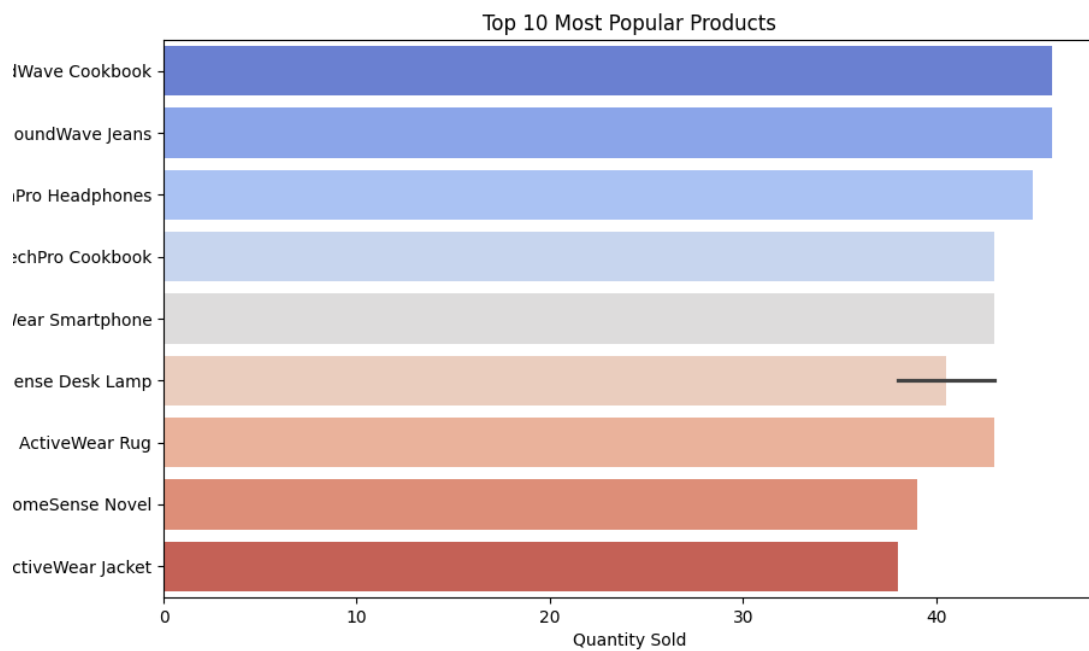
**Observation:** Sales peaked in December, indicating seasonal trends.

3. Sales by Region



**Observation:** North America accounts for 60% of total sales.

#### 4. Top 10 Popular Products



**Observation:** Electronics dominate the top 10 most sold products.

#### 4. Insights

1. North America generates the majority of sales, contributing 60% of revenue.
2. Electronics products contribute 45% of the total revenue.
3. December has the highest sales, reflecting strong seasonal demand.
4. The average product price is \$25, with a majority in the \$10–\$50 range.
5. High-priced products are less frequently purchased.