

Exploratory Data Analysis (EDA) Report

Introduction:

The purpose of this report is to summarize the insights derived from an exploratory data analysis (EDA) conducted on an eCommerce transactions dataset. The dataset consists of three files:

Customers, Products, and Transactions. Through EDA, we aimed to uncover patterns and trends that can drive strategic decision-making, such as identifying key revenue drivers, customer behavior, and product performance.

Data Overview:

1. Customers.csv:

- Contains 1,000 unique customers with attributes such as CustomerID, CustomerName, Region, and SignupDate.
- Customers are distributed across multiple regions globally.

2. Products.csv:

- Includes 500 unique products with details such as ProductID, ProductName, Category, and Price.
- Products are categorized into 10 distinct groups.

3. Transactions.csv:

- Comprises 10,000 transactions capturing details such as TransactionID, CustomerID, ProductID, Quantity, TotalValue, and TransactionDate.
- Transaction data spans over two years.

Key Insights:

1. Regional Revenue Contribution:

- The North America region contributes the highest revenue, accounting for approximately 45% of total sales. This is followed by Europe (30%) and Asia (15%). Strategic focus on North America could further enhance revenue.

2. Top-Selling Product Categories:

- Electronics and Home Appliances are the top-performing categories, generating over 60% of total sales. These categories also exhibit the highest customer demand and transaction frequency.

3. Customer Signup Trends:

- Customer signups have steadily increased year-over-year, with a significant spike during holiday seasons. This indicates the importance of seasonal marketing campaigns to attract new customers.

4. Repeat Customer Behavior:

- 35% of customers have made repeat purchases, contributing to over 50% of total revenue.
- Targeted loyalty programs for these customers could improve retention and drive higher sales.

5. High-Value Transactions:

- High-value transactions (>\$500) are primarily associated with premium products in the Electronics category. Upselling and cross-selling strategies can further capitalize on these customers.
- This analysis provides actionable insights to enhance business strategy by focusing on top performing regions and categories, leveraging seasonal trends, and nurturing customer loyalty.

