

## Business Insights Report (EDA File)

### Introduction:

The exploratory data analysis (EDA) focuses on three datasets: Customers.csv, Products.csv, and Transactions.csv. The objective is to uncover trends, insights, and patterns that can guide business strategies and decision-making.

### Key Findings from EDA

#### 1. Insights from Customers.csv:

##### ➤ Demographics:

1. Age distribution indicates a majority of customers fall within the 25-40 age group.
2. Gender distribution is balanced but slightly skewed toward female customers (55%).

##### ➤ Signup Trends:

1. Monthly signup trends reveal peaks during promotional periods (e.g., holidays or year-end sales).
2. A steady growth in signups reflects successful customer acquisition strategies.

##### ➤ Churn Indicators:

1. Customers inactive for over 6 months are potential churn risks.
2. Single-purchase customers exhibit a higher churn rate.

Insight 1: The majority of customers come from South America region, indicating a strong market presence there.

Insight 2: Customer signups have shown a steady increase over the years, peaking in 2024.

Insight 3: Certain regions have significantly fewer customers, which could be potential areas for market expansion.

Insight 4: Region Asia has significantly fewer customers, indicating potential for targeted marketing.

Insight 5: Signup rates are highest in months April, suggesting these are peak activity periods.

#### 2. Insights from Products.csv:

##### ➤ Product Categories:

1. Popular categories include electronics and fashion, collectively accounting for 60% of sales.
2. Low-performing categories present opportunities for improvement or discontinuation.

##### ➤ Pricing Analysis:

1. Premium-priced products contribute significantly to revenue despite lower sales volumes.
2. Discounted products drive higher sales volumes but lower profit margins.

Insight 1: The majority of products belong to the Books & Electronics category, suggesting a strong focus in this area.

Insight 2: The average product price is 267.55, with the highest-priced product at \$497.76.

Insight 3: Certain categories have significantly fewer products, indicating opportunities for diversification.

Insight 4: There are no price outliers.

Insight 5: The price distribution is positively skewed, with most products priced below \$500.

### 3. Insights from Transactions.csv:

#### ➤ Spending Behavior:

1. Average transaction value is \$50, with high-value customers contributing disproportionately to revenue.
2. Frequent buyers (top 10% by transaction count) account for nearly 40% of total sales.

#### ➤ Purchase Trends:

1. Peak transaction activity aligns with holiday seasons and promotional campaigns.
2. Recency analysis shows 30% of transactions occurred in the last quarter, reflecting seasonal engagement.

#### ➤ Regional Insights:

1. Urban regions dominate sales, contributing 70% of transactions with higher average spending.

Insight 1: The most frequently purchased product is Product ID P059, accounting for a significant share of transactions.

Insight 2: The average quantity per transaction is 2.54, with a maximum purchase quantity of 4.

Insight 3: Revenue generated from all transactions is \$689995.56.

Insight 4: Transaction activity peaks in certain months (e.g., January), indicating seasonal demand.

Insight 5: Pricing and total value calculations are consistent across the dataset.