

# Exploratory Data Analysis and Business Insights

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**TASK** - Exploratory Data Analysis and Business Insights for eCommerce Dataset

## 1. Overview

This report summarizes the findings from the exploratory data analysis (EDA) of the provided eCommerce Transactions dataset. The dataset consists of customer profiles, product details, and transaction records. The analysis focuses on uncovering trends, identifying high-performing segments, and generating actionable insights for business improvement.

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## 2. Data Description

The dataset includes three files:

1. Customers.csv: Contains customer profiles (ID, name, region, signup date).
  2. Products.csv: Contains product details (ID, name, category, price).
  3. Transactions.csv: Contains transaction data (ID, customer ID, product ID, date, quantity, total value).
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## 3. Business Insights

Insight 1: Regional Sales Performance

- Finding: The region with the highest total sales is [Region Name], generating \$[X] in revenue.
- Recommendation: Focus marketing efforts on this region to maximize sales and customer engagement.

Insight 2: Popular Product Categories

- Finding: The most purchased product category is [Category Name], accounting for [X]% of total sales.
- Recommendation: Promote top-performing products in this category through targeted campaigns and discounts.

Insight 3: High-Value Customers

- Finding: The top-spending customer is [Customer Name], with a total expenditure of \$[X].
- Recommendation: Implement a loyalty program to retain high-value customers and encourage repeat purchases.

Insight 4: Sales Trends

- Finding: Sales show a seasonal peak during [Months/Seasons], with a significant increase in total revenue.
- Recommendation: Optimize inventory and advertising during these peak periods to capture the increased demand.

#### Insight 5: Average Order Value (AOV) by Region

- Finding: The region with the highest AOV is [Region Name], with an average transaction value of \$[X].
  - Recommendation: Introduce premium products and services in this region to maximize revenue per transaction.
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## 4. Key Visualizations

- Regional Sales: Bar chart showing total sales by region.
  - Popular Categories: Bar chart of quantities sold by product category.
  - Top Customers: Bar chart displaying the top 10 customers by spending.
  - Sales Trends: Line chart visualizing monthly sales trends.
  - AOV by Region: Bar chart comparing average order values across regions.
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## 5. Conclusion

The analysis highlights key areas for strategic focus, including high-performing regions, product categories, and customer segments. By implementing the recommendations, the business can optimize revenue generation, enhance customer satisfaction, and improve overall operational efficiency.