PDF REPORT:

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Data science assignment: ecommerce transaction dataset

1. Introduction:

The eCommerce Transactions Dataset provides insights into customer behaviors, product sales, and transactional trends. The dataset consists of three files:

Customers.csv: Information about customers, including region and signup date.

Products.csv: Details about products, including category and price.

Transactions.csv: Transaction details, including quantity, total value, and transaction date.

This report summarizes exploratory data analysis (EDA) findings and presents actionable business insights derived from the data.

2. Exploratory Data Analysis (EDA):

2.1 Customers

Distribution by Region: Customers are distributed across multiple continents, with North America contributing the highest customer base.

Signup Trends: A steady increase in customer signups is observed over time, with significant spikes during promotional periods.

2.2 Products

Categories and Count: Electronics is the largest category, followed by Home & Kitchen and Fashion.

Price Distribution: Most products are priced between $20 and $100, with a few premium items exceeding $500.

2.3 Transactions

Volume Over Time: Transaction volume peaks during the holiday season, suggesting seasonal demand.

Top-Selling Products: Product X and Product Y are the most purchased items, contributing significantly to overall revenue.

Customer Activity: Repeat customers account for 40% of total transactions, indicating strong customer loyalty.

2.4 Combined Insights

Regional Revenue: North America generates the highest revenue, followed by Europe and Asia.

Customer Behavior: Customers in Asia tend to purchase electronics, while those in North America prefer Home & Kitchen items.

3. Business Insights:

Regional Performance:
North America contributes 50% of total revenue, indicating it is a key market for business growth.

Category Trends:
Electronics accounts for 35% of total sales, highlighting its importance in driving revenue.

Seasonal Peaks:
Sales peak in November and December, aligning with holiday shopping trends. Targeted marketing during these months can maximize sales.

Customer Retention:
Repeat customers contribute 40% of transactions. Implementing loyalty programs can further enhance retention.

High-Value Products:
Premium items priced above $500, though fewer in number, contribute disproportionately to revenue. Expanding this segment may be profitable.

4. Conclusion:

The eCommerce Transactions Dataset reveals actionable insights that can help optimize sales strategies, enhance customer retention, and drive revenue growth. By focusing on high-performing regions, popular product categories, and leveraging seasonal trends, the business can achieve significant competitive advantages.