

# E-commerce Data Analysis



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## **Introduction**

- Overview of E-commerce Data Analysis
- Importance of data-driven decision-making
- Objectives of the analysis

## **Dataset Overview**

- Description of dataset used
- Key attributes: Customer ID, Age, Gender, Item Purchased, Category, Purchase Amount, Location, Size, Color, Season, Review Rating, Subscription Status, Shipping Type, Discount Applied, Promo Code Used, Previous Purchases, Payment Method, Frequency of Purchases

## **Data Preprocessing**

- Handling missing values
- Removing duplicates and inconsistencies
- Standardizing data for analysis

## **Customer Demographics**

- Age group distribution
- Gender ratio
- Geographic insights

## **Sales Analysis**

- Total sales and revenue trends
- Seasonal sales variations
- Top-selling products and categories

## **Customer Behavior Analysis**

- Purchase frequency and patterns

- Average order value
- Customer retention vs. new customers

### Key Insights from Data Visualization

- Age and gender-based buying trends
- Popular product categories and colors
- Best-selling locations and customer preferences
- Influence of discounts and promo codes on purchases

### Business Insights & Recommendations

- Key takeaways from the analysis
- Strategies for revenue growth
- Enhancing customer experience
- Leveraging subscription models and promotions

### Questions:

#### 1. What trends can be observed in customer purchasing behavior?

- Customers prefer **Clothing** and **Footwear** categories the most.
- Males purchase more frequently than females.
- Medium-sized products are the most popular.
- Discounts and promo codes encourage more purchases.
- Customers with a subscription status tend to make frequent purchases.

#### 2. How does seasonality affect e-commerce sales?

- Sales are highest in the **Fall** and **Spring** seasons.
- Winter and Summer seasons show relatively lower sales.
- Seasonal trends impact the demand for clothing (e.g., coats in winter, sandals in summer).

#### 3. What strategies can be used to reduce customer churn?

- Offering **loyalty programs** and **discounts** for repeat customers.
- Personalized recommendations based on past purchases.
- Improving **customer service** and **fast shipping options**.
- Engaging customers through email campaigns and special deals.

#### 4. How can we improve marketing based on customer demographics?

- **Targeted advertising** based on age and gender.
- Using **location-based offers** to attract customers from high-sales regions.

- Running category-specific ads (e.g., more clothing promotions for male buyers).
- Highlighting reviews and ratings to build trust and attract new customers.

### 5. What role do discounts and promotions play in customer retention?

- Discounts significantly **boost sales** and encourage first-time buyers.
- Customers who use promo codes tend to return for repeat purchases.
- Exclusive offers for **subscribed customers** enhance loyalty.
- Flash sales and limited-time deals create a sense of urgency.

### 6. How does shipping type impact customer satisfaction and loyalty?

- **Free shipping** attracts the most buyers and boosts conversions.
- **Next-day delivery** increases customer satisfaction but may add extra costs.
- Customers prefer faster shipping when buying premium or expensive items.
- Shipping delays lead to **negative reviews** and potential churn.

### Conclusion

- Summary of findings
- Future scope for analysis

