

Customer Analysis

1. Distribution of Customers by Region

- **Why this graph?** Understanding the regional distribution helps identify where most of the customers are located and if there are regions that need more targeted marketing efforts.
- **Insights:** If the majority of customers are concentrated in a specific region, you could consider tailoring marketing campaigns or expanding services to underserved regions.

2. Customer Signup Trends Over Time

- **Why this graph?** Analyzing signup trends over time helps identify seasonality, growth trends, or events that led to spikes in customer acquisition.
- **Insights:** For instance, if a significant spike is noticed during a particular period, it could be tied to promotional campaigns or seasonal demand.

3. Distribution of Customer Lifetime Value

- **Why this graph?** Understanding the lifetime value (LTV) of customers highlights which customers contribute the most to revenue, aiding in targeted retention strategies.
 - **Insights:** The histogram indicates whether revenue is primarily driven by a few high-value customers or is evenly distributed.
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Product Analysis

1. Distribution of Products by Category

- **Why this graph?** It provides insights into the diversity and balance of the product portfolio across categories.
- **Insights:** If one category dominates, it might indicate dependency, while underrepresented categories could be opportunities for growth.

2. Price Distribution by Category

- **Why this graph?** Analyzing the price ranges within categories helps understand pricing strategies and identify outliers.
- **Insights:** Categories with broad price ranges might have diverse customer segments, while narrow ranges suggest standardization.

3. Top Selling Products

- **Why this graph?** Highlighting top-performing products helps prioritize inventory and promotional strategies.
 - **Insights:** If a small group of products generates the majority of sales, these should be the focus for marketing and stock optimization.
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Transaction Analysis

1. Daily Sales Trends

- **Why this graph?** To understand how sales vary over time and identify trends or anomalies.
- **Insights:** A moving average smooths out short-term fluctuations, revealing seasonal patterns or steady growth/decline trends.

2. Distribution of Order Values

- **Why this graph?** It helps in understanding the purchasing power and behavior of customers.
- **Insights:** A high average order value might suggest luxury products or bulk purchases.

3. Purchase Frequency

- **Why this graph?** To assess customer engagement and repeat purchasing behavior.
 - **Insights:** If most customers have low purchase frequency, loyalty programs or campaigns might be needed to increase retention.
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Advanced Analysis

1. Seasonal Trends in Sales

- **Why this graph?** To analyze how sales vary throughout the year and align business strategies with seasonal demand.
- **Insights:** Peaks in specific months indicate when to stock up or promote seasonal products.

2. Category Preferences

- **Why this graph?** To understand customer preferences and how different categories contribute to overall engagement.
- **Insights:** Categories with high preference ratios are critical to revenue, suggesting a focus on their development.

3. Customer Profiles

- **Why this analysis?** Segmenting customers based on behavior helps in personalizing marketing strategies.
 - **Insights:** Knowing which category a customer prefers or their spending pattern allows for targeted upselling.
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Key Metrics Analysis

- **Average Customer Lifetime Value (\$3467.31):** Indicates the revenue an average customer brings. Focus on retaining high-value customers to boost profits.
- **Average Order Value (\$690.00):** Reflects purchasing behavior and product pricing strategy. A high value might mean fewer but bulk or high-priced purchases.
- **Average Purchase Frequency (5.03):** Helps understand engagement. Strategies to improve this include loyalty programs or email campaigns.
- **Average Customer Lifespan (224 days):** Highlights retention strength. A longer lifespan is a sign of strong customer relationships.