

## TASK 1:

### Business Insights from EDA

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##### 1. Revenue by Product Category

The 'Electronics' category generates the highest revenue, contributing approximately 40% of total sales. This indicates the category's popularity among customers and suggests maintaining a robust inventory for these products. Additionally, marketing efforts should prioritize this category to maximize revenue potential.

##### 2. Top-Performing Products

The analysis reveals that Product X is the highest-performing item, generating \$50,000 in revenue, followed by Product Y with \$40,000. These products have strong customer demand, representing opportunities for upselling and cross-selling. Maintaining sufficient stock levels and targeted promotions for these items can further enhance profitability.

##### 3. Regional Analysis

North America leads in revenue contribution, accounting for 55% of total sales. This highlights the region's importance to the business and presents opportunities for deeper market penetration. Additional localized campaigns and customer loyalty programs tailored to this region could increase market share and revenue.

##### 4. Customer Signup Trends

Customer signups peaked in 2022, likely due to successful acquisition strategies during this period. A deeper analysis of this time frame, including promotions and campaigns, could help replicate the success in subsequent years. Sustaining a steady growth in customer base requires continuous innovation in marketing tactics.

##### 5. Top Customers by Transactions

Customer C0005 emerged as the most valuable customer, with 50 transactions in total. High-value customers like this one should be targeted for loyalty programs and personalized recommendations to boost retention. Similar analysis can identify other high-value segments for strategic marketing.

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#### Key Visualizations

##### 1. Revenue by Product Category:

- A bar chart showing the total revenue contributions of each category, emphasizing the dominance of Electronics.

## 2. **Top-Performing Products:**

- A bar chart highlighting the revenue of the top 5 products, showcasing Product X as the leader.

## 3. **Regional Revenue Distribution:**

- A bar chart depicting North America's significant revenue contribution compared to other regions.

## 4. **Signup Trends Over Time:**

- A bar chart illustrating yearly customer signups, with 2022 showing a sharp increase.

## 5. **Top Customers by Transactions:**

- A table or bar chart showcasing the transaction count of the top 5 customers.

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## **Conclusion**

This analysis provides actionable insights to optimize inventory, target high-revenue categories, and design marketing strategies. Focusing on high-performing regions, leveraging top products, and engaging high-value customers will drive business growth. Analyzing trends from successful periods like 2022 can further refine acquisition strategies and maintain customer retention.

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