INSIGHTS FOR TASK-1

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Task 1: Exploratory Data Analysis (EDA) and Business Insights

1. Insight: Customer Lifetime Value (CLV) Segmentation

- **Analysis**: Segment customers based on their total lifetime value (CLV) and identify high-value, medium-value, and low-value customers.

- **Actionable Insight**: "Segmenting customers by lifetime value allows you to tailor marketing efforts, providing high-value customers with loyalty incentives while targeting low-value customers with retention campaigns."

- **Advanced Approach**: Use CLV formula based on transactional data (i.e., the total revenue each customer has brought).

2. Insight: Product Revenue and Profitability Analysis

- **Analysis**: Group products by category and calculate the revenue generated by each product category. Evaluate profitability by considering the cost of goods sold (if available) or inferred profit margins.

- **Actionable Insight**: "High-revenue categories like 'Electronics' can be further optimized by increasing product margins, while low-revenue categories can be analysed to improve sales performance through targeted promotions."

- **Advanced Approach**: Profitability analysis should also consider sales volume and margin for more actionable insights.

3. Insight: Regional Purchase Patterns and Targeted Marketing

- **Analysis**: Examine purchase patterns across different geographic regions and correlate the findings with product preferences and revenue generation.

- **Actionable Insight**: "Target regions with high purchase volumes for localized marketing campaigns and consider introducing new product categories based on regional preferences."

- **Advanced Approach**: Segment customers based on region and product category preferences.

4. Insight: Customer Acquisition and Retention Trends

- **Analysis**: Analyse trends in new customer acquisition (via Signup Date) and retention (repeat purchase frequency).

- **Actionable Insight**: "Focus on customer retention by offering personalized deals to customers who have made their first purchase in the last 3 months."

- **Advanced Approach**: Use a combination of first-time vs. repeat customer analysis and customer segmentation.

5. Insight: Transaction Frequency and Value Correlation

- **Analysis**: Investigate whether customers who make frequent smaller transactions are more valuable (in total revenue) compared to customers who make infrequent larger purchases.

- **Actionable Insight**: "Frequent smaller transactions could indicate customers who need more targeted communication, while larger purchases suggest more serious buyers. Tailor marketing to each segment."

- **Advanced Approach**: Analyse the relationship between Transaction Frequency (number of purchases) and Transaction Size.

6. Insight: Time Series Analysis of Sales Trends

- **Analysis**: Perform time series analysis to identify trends, seasonality, and any cyclic patterns in sales. Consider monthly or weekly revenue and number of transactions.

- **Actionable Insight**: "Sales peak during specific months (e.g., holiday season), so marketing campaigns should be ramped up ahead of those periods to maximize sales."

- **Advanced Approach**: Use time series decomposition or rolling averages to detect trends and seasonality.

7. Insight: Most Popular Product Categories

By analysing the product categories and their total sales, you can identify the most popular product categories among customers. This can help the business understand which product categories are driving revenue and customer interest.

Business Insight: "The top-selling product categories are [insert top categories], which should be prioritized for marketing and inventory expansion to maximize revenue."

8.Insight : Customer Acquisition Trend

By analysing the signup dates of customers, you can derive trends about how customer acquisition has changed over time. This can reveal seasonal trends or the impact of marketing campaigns.

Business Insight: "Customer acquisition has seen a significant spike in [insert months/years], indicating the success of marketing campaigns or seasonal trends."

9.Insight : High-Value Customers

By analysing total spending per customer, you can identify high-value customers (those who make large purchases). These customers can be targeted for loyalty programs or special promotions.

Business Insight: "The top 10 high-value customers contribute significantly to the overall revenue. Targeting them with exclusive offers could further increase their lifetime value.