ScalerMart

Data Analytics Case Study

Solving this case study will showcase your analytical skills, problem-solving abilities, and communication expertise, making you a strong contender for any consulting position.

Tips for Candidates:

- Take your time to understand the business problem before diving into data analysis.
- Document your thought process and assumptions clearly throughout your analysis.
- Use clear and concise language in your report, avoiding technical jargon where possible.
- Focus on actionable insights and data-driven recommendations that can be implemented to improve user engagement.

Problem Statement

ScalerMart, a leading global electronics retailer, has experienced a significant downturn in sales, with a nearly **50% decline in revenue in 2020** compared to the previous year.

In response to this challenge, the company is actively seeking a sharp Data Analyst to join their growing team.

You have been assigned the task of analyzing the customer-level transactional data to identify potential reasons behind the decline in sales.

Your objective is to recommend data-driven strategies aimed at improving sales performance.

Data Provided:

- [Customers](#) Table: Contains information about customers, including customer

key, demographics (age, gender, location), and last purchase date.
- **Products** Table: Contains information about products, including product key, category, unit price, and brand.
- **Sales** Table: Contains information about orders placed, including order number, order date, and quantity.

1. **Data Exploration and Cleaning:**
   - Describe the data cleaning steps you would take to ensure data quality before analysis. *(This assesses understanding of data pre-processing)*
   - How would you explore the distribution of customer demographics? What visualization techniques would you employ? *(This assesses proficiency in data exploration and visualization)*

2. **User Segmentation:**
   - What customer segmentation techniques would you recommend to group users with similar characteristics? Why is segmentation crucial for this analysis? *(This assesses knowledge of segmentation and its benefits)*
   - Segment customers based on factors that might influence purchase behavior. Analyze purchase patterns within each segment. Are there any significant differences?

3. **Engagement Analysis:**
   - Stakeholders have noted that a substantial portion of the company's revenue is attributed to repeat purchases from our loyal customer base. Devise a metric to quantify customer loyalty and analyze trends over time? *(This assesses understanding of customer loyalty metrics)*
   - Correlate user demographics with purchase behavior. Do you observe any patterns? Formulate and test hypotheses to identify statistically significant relationships. *(This assesses ability to perform hypothesis testing and identify correlations)*

4. **Recommendations:**
   - Based on your analysis, what are some potential explanations for the decline in sales?
   - Recommend specific, data-driven strategies to improve sales across different customer segments. *(This assesses problem-solving skills and ability to translate insights into actionable recommendations)*

Deliverables:

- A well-structured report (slide deck) with clear explanations of your analysis process, visualizations of key findings, and a concise summary of your recommendations.
- Code snippets (Python / SQL) used for data exploration and analysis (demonstrates technical skills).