Take-Home Assignment: Product Analytics and Customer Insights

Background:

Imagine you're joining our product team at Leap Tools, Roomvo is our augmented reality product that allows users to visualize home renovation and decor products in their room (e.g., see how different hardwood floors will look in your room). Roomvo is sold as a subscription to businesses, the visualizer made available on their website for their users to utilize. Usage and engagement data is collected through interactions with the visualizer and you've been tasked to analyze this dataset and derive insights to improve the company's product strategy and understand customer behavior.

The Roomvo application allows a user to upload a picture of their room to visualize products in their own rooms. It also provides existing sample rooms that they can use if they do not wish to upload a product.

Dataset:

Access instructions: Download the .csv files provided to you.
Datasets: This dataset contains two tables:

1) Customer data - Containing metadata about the customer
2) Customer metrics - Aggregated monthly customer usage and engagement data. The unique identifier is the customerID + date fields.

Data Dictionary:

Table 1: Customer Data	
Data Field	**Description**
customerID	customer's unique ID
customer_industry	industry in which the customer primarily does business
customer_type	the type of company that the customer functions as primarily (retailer, manufacturer or other)
customer_region	the region in which the customer's headquarter is located

Table 2: Monthly Metrics by Customer	
Data Field	**Description**
customer_ID	customer's unique ID
date	month and year that this record represents
usage_rate	percent of all website visitors who used the roomvo app
num_sessions	number of roomvo sessions started, during which one or more products are viewed
num_product_views	total number of products viewed across all sessions
uploaded_room_view_rate	percent of users who used the roomvo app and uploaded their own image (vs. using sample rooms available)
total_time_spent_in_seconds	total time spent in roomvo app in seconds
mobile_uploaded_room_view_rate	percent of mobile users who uploaded their own room image
desktop_uploaded_room_view_rate	percent of desktop users who uploaded their own room image
product_conversion_rate	percent of users who used the roomvo app and bought a product from the roomvo customer

Assignment:

Prepare a concise presentation (4-6 slides) summarizing your analysis, key insights, and recommendations. Visualizations and clear explanations are encouraged. Please also submit your code used (SQL, Python and/or R) to conduct this analysis. Outlined below are tasks that should be performed and included in your presentation.

1. Data Exploration and Descriptive Analysis:
- Load and explore the dataset. Provide a summary of the data, including key statistics, data types, missing values and any initial observations.

2. Product Performance Analysis:
    A. Analyze the dataset, propose and calculate your recommended top 2-3 KPIs to represent the utilization of the product over a period of time
    B. Derive the two metrics below and describe the relationship between the two metrics. Does the relationship make sense? Why or why not?
        a. Average time spent per product view
        b. Average number of product views per session
    C. Analyze the uploaded room view rate on mobile devices and desktops. Visualize and share any insights from your analysis

3. Customer Insights:
- Analyze the usage rate by the customer demographics provided. Visualize and share your findings. (HINT: use both tables provided)

4. Recommendations and Insights
- Based on your analysis, provide any recommendations you have to target specific customer segments or drive higher conversion rates

Submission Guidelines:
- Use SQL, Python and/or R for data preparation and analysis.
- Use any tool of your choice for visualizations.
- Submit your findings in a document or presentation format along with the code/scripts used for analysis.
- Please ensure your submission is well-organized, clear, and includes any assumptions made during analysis.

Evaluation Criteria:
Your submission will be evaluated based on:
- Clarity and structure of your analysis.
- Ability to derive insights from the data.
- Quality of visualizations and their relevance to the analysis.
- Actionable recommendations supported by your findings.

Additional Information:
- Feel free to make assumptions where data might be incomplete or missing. Ensure to document any assumptions used.
- The focus is on your approach, analysis, and ability to derive insights rather than the perfection of your analysis.
- We expect you to spend no more than 3-5 hours to complete this analysis