ASSIGNMENT-3

Subject: **ADS**

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Section: **CS-6-2**

Riphah International University
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Project Title: Customer Segmentation for an E-commerce Platform

Project Description:

In this data science project, we will focus on customer segmentation for an e-commerce platform. Customer segmentation is the process of dividing a customer base into groups or segments based on different characteristics such as demographics, purchasing behavior, and preferences. By identifying distinct customer segments, businesses can tailor their marketing strategies and offerings to better meet the needs of each group, leading to improved customer satisfaction and increased sales.

Dataset Description:

For this project, we will utilize a dataset obtained from the e-commerce platform, which contains anonymized customer information and their purchase history. The dataset includes the following features:

➢ Customer ID: A unique identifier for each customer.

➢ Age: The age of the customer.

➢ Gender: The gender of the customer (e.g., Male, Female, Other).

➢ Location: The geographic location of the customer.

➢ Purchase History: Information about the customer's past purchases, including purchase amount, date, and category of products bought.

Project Goals:

The main objectives of this project are as follows:

➢ Exploratory Data Analysis (EDA): Perform an exploratory analysis of the dataset to gain insights into the distribution of customer demographics, purchase patterns, and other relevant variables.

➢ Customer Segmentation: Apply clustering techniques, such as K-means or hierarchical clustering, to segment the customers based on their attributes and purchase behavior.

➢ Profile Creation: Analyze each customer segment to create profiles that capture the common characteristics and preferences of the customers within the segment.

➢ Segment Evaluation: Evaluate the effectiveness of the customer segmentation by analyzing the differences in purchasing behavior, customer lifetime value, and other relevant metrics across the identified segments.

➢ **5.** Recommendation System: Build a recommendation system that suggests personalized product recommendations for each customer based on their segment and historical purchase data.

Expected Deliverables:

➢ Exploratory data analysis report summarizing the key findings and insights.

➢ Customer segmentation analysis, including the identified customer segments and their profiles.

➢ Evaluation metrics comparing the performance of different customer segments.

➢ Recommendation system prototype with personalized product recommendations.

By completing this project, we aim to provide the e-commerce platform with actionable insights that can enhance their marketing strategies, improve customer satisfaction, and drive business growth.