Graduation Project:

Customer Segmentation

Objective:

The primary goal of this project is to divide customers into distinct groups based on their purchasing behavior using unsupervised learning techniques. These groups can then be used for personalized marketing, improving customer service, and product development.

Tasks:

1. Data Collection: Find a suitable dataset that includes customer purchasing data. This could be a dataset from an online retailer or a dataset like the UCI Machine Learning Repository's Online Retail II dataset.

2. Data Preprocessing: Clean the data by handling missing values, outliers, and categorical variables. Convert non-numeric data into a suitable numeric format for analysis.

3. Feature Engineering: : Understand your data by identifying patterns, relationships, or anomalies to guide your subsequent analysis.

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4. Model Building: Apply unsupervised learning methods (like K-means clustering, hierarchical clustering, or DBSCAN) to segment customers into distinct groups based on purchasing behavior.

5. Interpretation: Interpret the clusters by understanding their distinguishing features. This could involve examining the centroid of each cluster in the case of K-means or looking at the distribution of features within each cluster.

6. Deployment : Implement your solution in a simulated environment where it can segment new customers into the appropriate groups based on their purchasing data.

Outcome:

By the end of this project, you'll have a functional system that can segment customers into distinct groups based on their purchasing behavior. You will gain experience in handling real-world data, applying unsupervised machine learning algorithms, and deploying a machine learning model.

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Datasets:

You can start with the mentioned UCI Machine Learning Repository's Online Retail II dataset or find a similar dataset that's suitable for this project. Remember to ensure any data used complies with privacy and usage policies.

Deadline:

This project should be completed and submitted by [**15/07/2025**].

Best of luck! Excited to see your insights into customer behavior and how they can be used for business purposes.