PROJECT REPORT

Group Details
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Problem Description XYZ Bank wants to send personalized Christmas offers to different customer groups instead of sending the same offer to all. The goal is to create no more than 5 customer segments using machine learning to improve the efficiency of the campaign.

Business Understanding The goal is to identify patterns in customer data and group customers into segments for targeted offers. Success means:
- Grouping customers into 5 segments or fewer.
- Finding patterns that help with personalized offers.
- Ensuring the solution is scalable and actionable.

Project Lifecycle
1. Business Understanding
   o Define goals and success metrics for customer segmentation.
2. Data Understanding
   o Explore the dataset for customer demographics, behavior, and history.
3. Exploratory Data Analysis (EDA)
   o Analyze data patterns like age, income, and account usage.
   o Handle missing data and outliers.
4. Feature Engineering
   o Transform data (e.g., encode categories, create new features, and normalize income).
5. Model Building
   o Use clustering methods (like K-Means) to create up to 5 customer groups.
6. Model Evaluation
   o Use metrics like the Silhouette Score to check the quality of clusters.
   o Ensure clusters make sense for marketing.
7. Presentation
   o Show insights on each segment and recommend targeted offers.
8. Documentation
   o Record challenges such as handling missing data and creating useful clusters.

Timeline
- Week 1-2: Data understanding and EDA
- Week 3: Feature engineering and model building
- Week 4: Model evaluation and presentation