The objective is to group customers with similar purchasing behaviors and demographics for targeted marketing and business decision-making.

Clustering Approach

- Numerical values were standardized using `StandardScaler`.
- K-Means was chosen due to its efficiency and scalability for large datasets.
- **Elbow Method** was used to determine the optimal number of clusters.

Results

- The optimal number of clusters was determined to be **5**.
- The DB Index value for the clustering model was **1.3292**
- **Cluster**:
    - **Cluster 0**: Low-spending, infrequent customers (potential churn risk).
    - **Cluster 1**: High-spending, frequent customers (loyal customers).
    - **Cluster 2**: Medium to High Spenders (Very high growth potential).
    - **Cluster 3**: Medium spenders with moderate frequency (moderate growth potential).