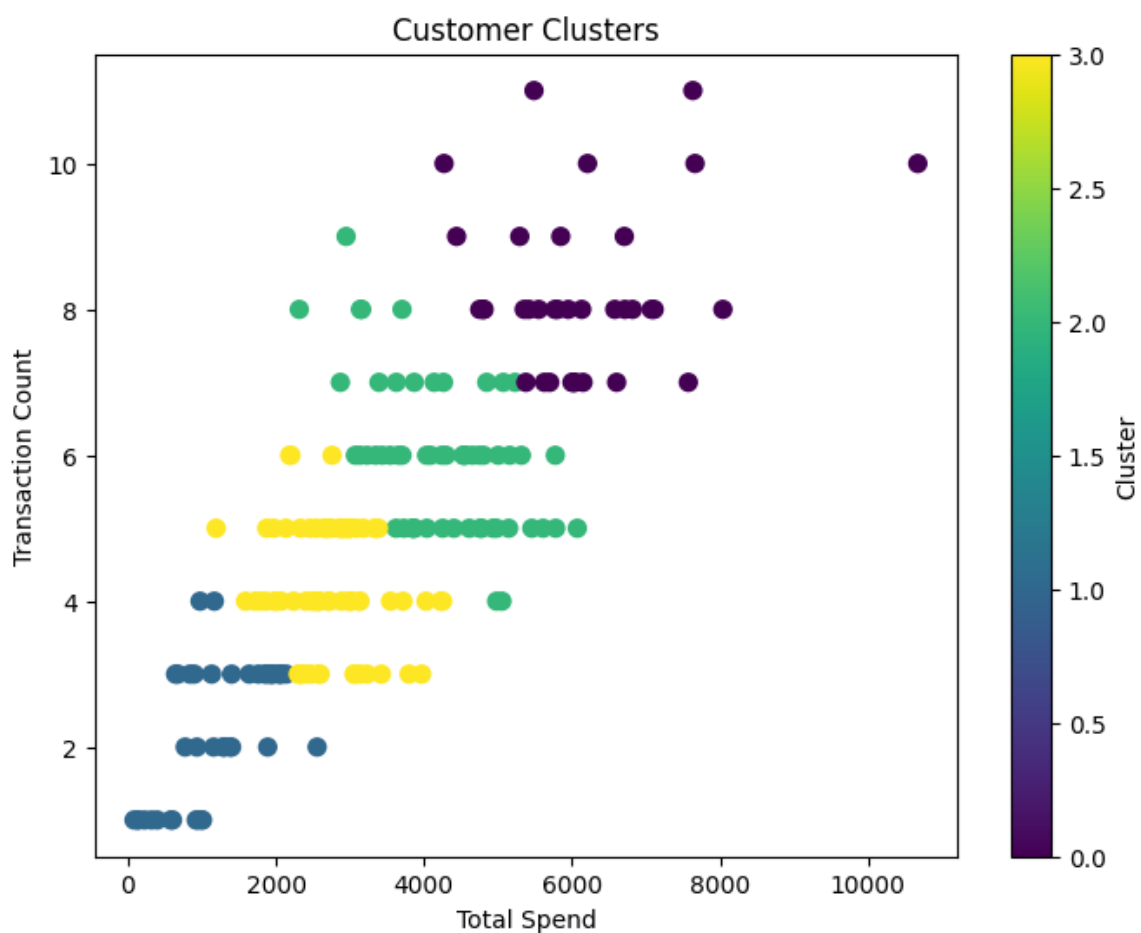


Clustering Report

- **Clustering Algorithm Used:** K-Means Clustering
- **Number of Clusters:** 4
- **Clustering Metric:** Davies-Bouldin Index (DB Index)
- **DB Index Value:** 0.8595340221510472
 - Lower values indicate better-defined clusters.
- **Visualization:**
 - Scatter plot created to show clusters based on key customer features.
 - Clusters are distinctly visible in the plot.



- **Steps Followed:**

1. **Data Used:**

- Profile information from Customers.csv
- Transaction details from Transactions.csv

2. **Feature Selection:**

- Included features such as total spend, average transaction value, and region.

3. **Preprocessing:**

- Encoded categorical data, scaled numerical features, and handled missing values.

4. **Clustering Execution:**

- K-Means was run with 4 clusters.

5. **Evaluation:**

- Calculated the Davies-Bouldin Index for cluster quality.

6. **Visualization:**

- Plotted clusters in a 2D scatter plot to depict separation.

- **Results File:**

- The customer segmentation results are saved in Customer_Clusters.csv.