Clustering Report

Optimal Number of Clusters: 5

Here's a summary of the clustering results based on the DB Index and the number of clusters:

- **Number of Clusters: 2**
  - **DB Index**: 1.0072
- **Number of Clusters: 3**
  - **DB Index**: 0.9578
- **Number of Clusters: 4**
  - **DB Index**: 1.0604
- **Number of Clusters: 5**
  - **DB Index**: 0.8525 (Optimal)
- **Number of Clusters: 6**
  - **DB Index**: 0.8694
- **Number of Clusters: 7**
  - **DB Index**: 0.8553
- **Number of Clusters: 8**
  - **DB Index**: 0.9125
- **Number of Clusters: 9**
  - **DB Index**: 0.8848
- **Number of Clusters: 10**
  - **DB Index**: 0.8630

Key Insights:

- **DB Index**: The optimal number of clusters, based on the DB Index, is 5, where the DB Index value is 0.8525. Lower DB Index values typically indicate better clustering, so 5 clusters produced the best result in this case.
- **Cluster Quality**: The DB Index starts high at 1.0072 for 2 clusters, decreases to 0.8525 at 5 clusters, and then slightly increases again for

larger numbers of clusters. This suggests that clustering results are most effective when there are 5 clusters.

- **Cluster Range**: A smaller number of clusters (2 or 3) might be oversimplified, while increasing clusters beyond 5 doesn't lead to a significant improvement, but could complicate the model with less meaningful distinctions

Number of Clusters: 2, DB Index: 1.0072

Number of Clusters: 3, DB Index: 0.9578

Clustering values

Number of Clusters: 4, DB Index: 1.0604

Number of Clusters: 5, DB Index: 0.8525

Number of Clusters: 6, DB Index: 0.8694

Number of Clusters: 7, DB Index: 0.8553

Number of Clusters: 8, DB Index: 0.9125

Number of Clusters: 9, DB Index: 0.8848

Number of Clusters: 10, DB Index: 0.8630

Optimal Number of Clusters: 5, Best DB Index: 0.8525

jupyter Untitled15 Last Checkpoint: 1 hour ago

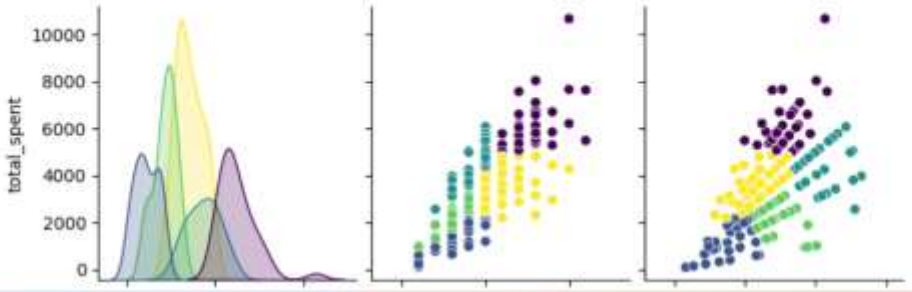
File Edit View Run Kernel Settings Help

Code

```
if __name__ == "__main__":
    main()
```

```
Number of Clusters: 2, DB Index: 1.0072
Number of Clusters: 3, DB Index: 0.9578
Number of Clusters: 4, DB Index: 1.0604
Number of Clusters: 5, DB Index: 0.8525
Number of Clusters: 6, DB Index: 0.8694
Number of Clusters: 7, DB Index: 0.8553
Number of Clusters: 8, DB Index: 0.9125
Number of Clusters: 9, DB Index: 0.8848
Number of Clusters: 10, DB Index: 0.8630

Optimal Number of Clusters: 5, Best DB Index: 0.8525
```



jupyter Untitled15 Last Checkpoint: 1 hour ago

File Edit View Run Kernel Settings Help

Code

JupyterLab