Retail Customer Clustering Using Spectral, KMeans, and Agglomerative Clustering

Upload Online Retail II CSV

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| 📄 | online_retail_II.csv 90.5MB | ✕ |

Dataset loaded: 1067371 rows, 8 columns

Data Preprocessing

Rows after cleaning: 468353

Feature Engineering: Customer-Product Matrix

Sampled matrix shape: (2000, 500)

Clustering

Select Number of Clusters

9

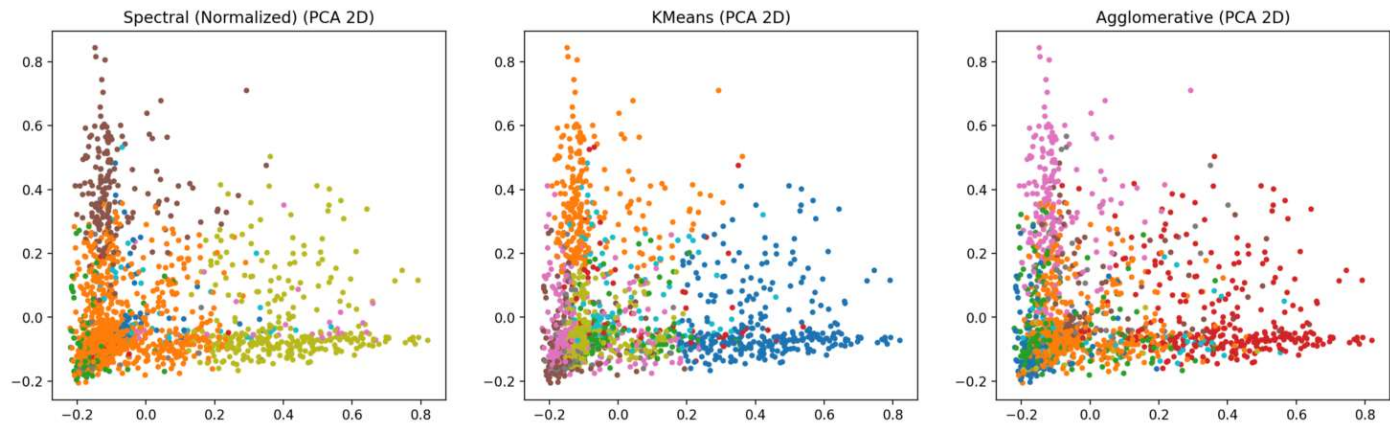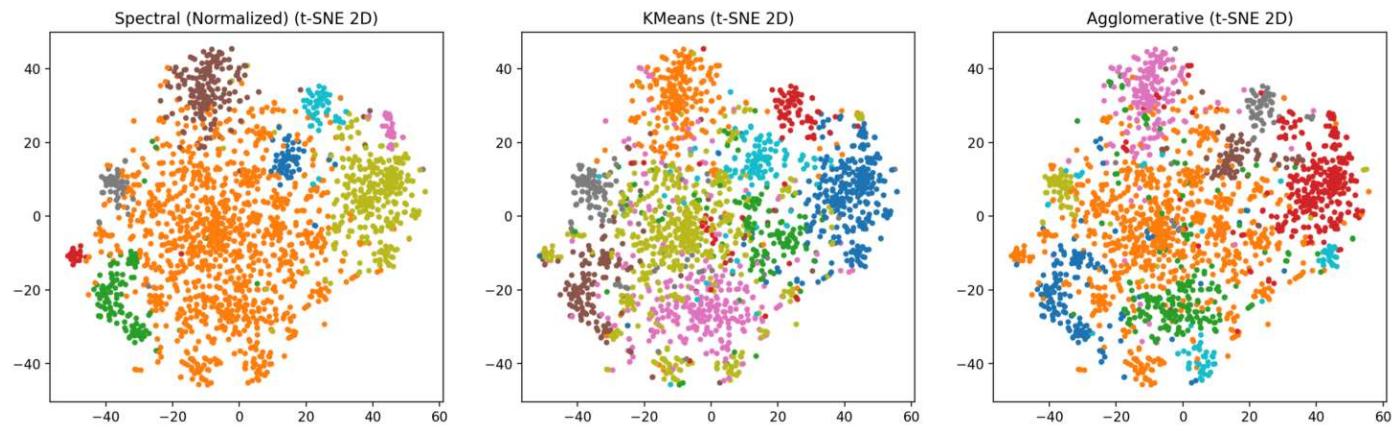2   10

Evaluation Metrics

	Method	Silhouette	Davies-Bouldin	Calinski-Harabasz	Cluster Sizes							
0	Spectral (Normalized)	0.0577	2.3349	61.8281	55	1168	124	21	184	27	51	314
1	KMeans	0.085	2.9224	79.8859	309	236	138	96	152	283	118	54
2	Agglomerative	0.0576	2.8847	63.1854	165	846	207	303	89	190	63	60

Visualizations

Spectral (Normalized) (PCA 2D)   KMeans (PCA 2D)   Agglomerative (PCA 2D)

Spectral (Normalized) (t-SNE 2D)   KMeans (t-SNE 2D)   Agglomerative (t-SNE 2D)

Cluster Size Distribution

Cluster Size Distribution

Legend:
- Spectral (Normalized)
- KMeans
- Agglomerative