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# Benchmarking in cluster analysis: a study on Spectral Clustering, DBSCAN, and K-means

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This is an appendix for the paper:

Nivedha Murugesan, Irene Cho, and Cristina Tortora (2020) Benchmarking in cluster analysis: a study on Spectral Clustering, DBSCAN, and K-means. In *Studies in Classification, Data Analysis, and Knowledge Organization*.

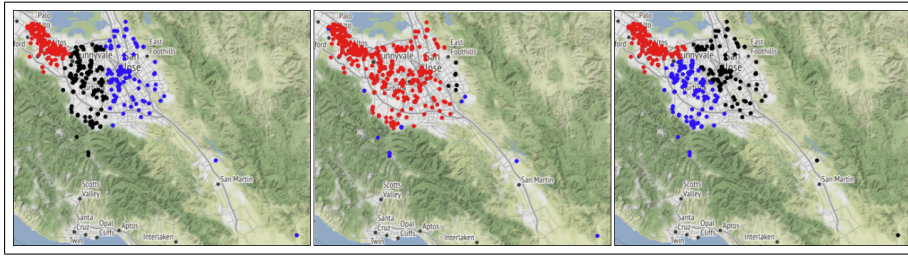
<https://irene1014.github.io/benchmarking-study-cluster-analysis/>

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Data set	Method	Index	$G = 2$	$G = 3$	$G = 4$	$G = 5$
<b>Bike</b>	K-Means	Silhouette	0.23	0.22	0.18	0.18
		CH Index	8.32	7.03	6.69	5.90
	SC	Silhouette	0.23	0.11	0.18	-0.01
		CH Index	8.32	5.14	6.69	2.38
<b>Forest Fire</b>	DBSCAN	Silhouette	—	0.16	—	—
		CH Index	—	3.67	—	—
	K-Means	Silhouette	0.55	0.43	0.40	0.39
		S-Dbw Index	1.12	1.61	1.79	2.10
<b>Airbnb</b>	SC	Silhouette	0.29	0.36	0.37	0.29
		S-Dbw Index	0.79	2.18	4.39	4.05
	DBSCAN	Silhouette	0.47	—	—	—
		S-Dbw Index	2.91	—	—	—
<b>Airbnb</b>	K-Means	Silhouette	0.52	0.46	0.47	0.46
		S-Dbw Index	1.10	1.48	1.86	4.31
	SC	Silhouette	0.52	0.46	0.35	0.38
		S-Dbw Index	1.08	1.48	2.72	5.52
<b>Airbnb</b>	DBSCAN	Silhouette	—	0.34	—	—
		S-Dbw Index	—	2.66	—	—

Table 1: Internal Indices for Empirical data sets



**Fig. 1:** Airbnb Clustering Results on Geographical Plot, colors represent the K-means (left), DBSCAN (middle), and SC partition (right)