Package 'lsdbc'

October 13, 2022

Type Package

Title Locally Scaled Density Based Clustering

Version 0.1.0

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Description Implementation of Locally Scaled Density Based Clustering (LSDBC) algorithm proposed by Bicici and Yuret (2007) <doi:10.1007/978-3-540-71618-1_82>. This package also contains some supporting functions such as betaCV() function and get_spectral() function.

License GPL

Encoding UTF-8

LazyData true

Imports stats

RoxygenNote 7.1.0

NeedsCompilation no

Repository CRAN

Date/Publication 2020-06-29 15:30:13 UTC

R topics documented:

betaCV *BetaCV*

Description

function to calculates the BetaCV.

Usage

```
betaCV(clust,dist)
```

Arguments

clust	Determine in which cluster a data is belonged. clust should be a numeric, 0 indicates a noise and cluster start at 1.
dist	Distance matrix

Details

BetaCV measures how well the clusters based on compactness (intra-cluster distance) and separability (inter-cluster distance). BetaCV is the ratio between the average of intra-cluster distance to the average of inter-claster distance. The smaller BetaCV value indicates the better the clustering.

Value

This function returns the betaCV value.

Author(s)

Fella Ulandari and Robert Kurniawan

References

University of Illinois. (2020, January 10). 6.1 Methods for Clustering Validation. Retrieved from Coursera: https://www.coursera.org/lecture/cluster-analysis/6-1-methods-for-clustering-validation-k59pn

See Also

https://www.coursera.org/lecture/cluster-analysis/6-1-methods-for-clustering-validation-k59pn

Examples

```
x <- runif(20,-1,1)
y <- runif(20,-1,1)
dataset <- cbind(x,y)
l <- lsdbc(dataset, 7,3,"euclidean")

dmat <- as.matrix(dist(dataset,"euclidean"))
betaCV(l$cluster,dmat)
```

get_spectral *Generate Spectral Data*

Description

Generate a dataset with spectral distribution.

Usage

```
get_spectral(n)
```

Arguments

n	Number of data to be generated

Value

This function returns a dataframe with the spectral distribution

Author(s)

Fella Ulandari and Robert Kurniawan

References

Bicici, E., & Yuret, D. (2007). Locally Scaled Density Based Clustering. International Conference on Adaptive and Natural Computing Algorithms (pp. 739-748). Berlin: Springer.

Examples

```
##Generate 1000 data##

get_spectral(1000)
```

lsdbc *Locally Scaled Density Based Clustering*

Description

Generate a locally scaled density based clustering as proposed by Bicici and Yuret (2007).

Usage

```
lsdbc(data, k, alpha, jarak = c("euclidean", "manhattan", "canberra", "geodesic"))
```

Arguments

data	Dataset consists of two variables (x,y) indicating coordinates of each data (point)
k	Number of neighbor to be considered
alpha	Parameter for determining local maximum
jarak	Type of distance to be used, the options are c("euclidean", "manhattan", "canberra", "geodesic")

Value

This function returns a list with the following objects:

data	a dataframe of the dataset used.
cluster	an integer vector coding cluster membership, 0 indicates a noise and cluster start at 1.
parameter	consist of parameter k and alpha.

Author(s)

Fella Ulandari and Robert Kurniawan

References

Bicici, E., & Yuret, D. (2007). Locally Scaled Density Based Clustering. International Conference on Adaptive and Natural Computing Algorithms (pp. 739-748). Berlin: Springer.

See Also

https://doi.org/10.1007/978-3-540-71618-1_82

Examples

```
x <- runif(20,-1,1)
y <- runif(20,-1,1)
dataset <- cbind(x,y)
l <- lsdbc(dataset, 7,3,"euclidean")
l
```

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