

# Package ‘lsdbc’

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**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

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betaCV	<i>BetaCV</i>
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**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-cluster 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 <- lsdbsc(dataset, 7,3,"euclidean")

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

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get_spectral	<i>Generate Spectral Data</i>
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**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)
```

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lsdbc	<i>Locally Scaled Density Based Clustering</i>
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**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](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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