Package 'FastKNN'

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Type Package

Title Fast k-Nearest Neighbors

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Description Compute labels for a test set according to the k-
Nearest Neighbors classification. This is a fast way to do k-
Nearest Neighbors classification because the distance matrix -
between the features of the observations-
is an input to the function rather than being calculated in the function itself every time.

License GPL-3

Imports pdist, assertthat

NeedsCompilation no

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Contents

`Distance_for_KNN_test` *Distance for KNN Test The Distance_for_KNN_test returns the distance matrix between the test set and the training set.*

Description

Distance for KNN Test The Distance_for_KNN_test returns the distance matrix between the test set and the training set.

Usage

```
Distance_for_KNN_test(test_set, train_set)
```

Arguments

`test_set`	is a matrix where the columns are the features of the test set
`train_set`	is a matrix with the features of the training set

Value

a distance matrix

See Also

`knn_test_function`

`pdist`

`k.nearest.neighbors` *k-Nearest Neighbors the* `k.nearest.neigbors` *gives the list of points (k-Neigbours) that are closest to the row i in descending order.*

Description

k-Nearest Neighbors the `k.nearest.neigbors` gives the list of points (k-Neigbours) that are closest to the row i in descending order.

Usage

```
k.nearest.neighbors(i, distance_matrix, k = 5)
```

Arguments

`i`	is from the numeric class and is a row from the distance_matrix.
`distance_matrix`	is a nxn matrix.
`k`	is from the numeric class and represent the number of neigbours that the function will return.

Details

The output of this function is used in the knn_test_function function.

Value

a k vector with the k closest neigbours to the i observation.

See Also

order

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knn_test_function *KNN Test The knn_test_function returns the labels for a test set using the k-Nearest Neighbors Clasification method.*

Description

KNN Test The knn_test_function returns the labels for a test set using the k-Nearest Neighbors Clasification method.

Usage

```
knn_test_function(dataset, test, distance, labels, k = 3)
```

Arguments

dataset	is a matrix with the features of the training set
test	is a matrix where the columns are the features of the test set
distance	is a nxn matrix with the distance between each observation of the test set and the training set
labels	is a nx1 vector with the labels of the training set
k	is from the numeric class and represent the number of neigbours to be use in the classifier.

Value

a k vector with the predicted labels for the test set.

See Also

k.nearest.neighbors

sample

Examples

```
# Create Data for restaurant reviews
training <- matrix(rexp(600,1), ncol=2)
test  <- matrix(rexp(200,1), ncol=2)
# Label "Good", "Bad", "Average"
labelsExample <- c(rep("Good",100), rep("Bad",100), rep("Average",100))
# Distance Matrix
distanceExample<-Distance_for_KNN_test(test, training)
# KNN
knn_test_function(training, test, distanceExample,labelsExample, k = 3)
```

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knn_training_function *KNN Training The knn_training_function returns the labels for a training set using the k-Nearest Neighbors Clasification method.*

Description

KNN Training The knn_training_function returns the labels for a training set using the k-Nearest Neighbors Clasification method.

Usage

```
knn_training_function(dataset, distance, label, k = 1)
```

Arguments

dataset	is a matrix with the features of the training set
distance	is a nxn matrix with the distance between each observation of the training set
label	is a nx1 vector with the labels of the training set
k	is from the numeric class and represent the number of neigbours to be use in the classifier.

Details

This function is use to check the quality of the Classifier. Because then the predicted labels are compared with the true labels

Value

a k vector with the predicted labels for the training set. #'

See Also

k.nearest.neighbors

sample

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