# Clustering Group T4-2

1.0

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# Chapter 1

# Hierarchical Index

## 1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

# Chapter 2

# Class Index

## 2.1 Class List

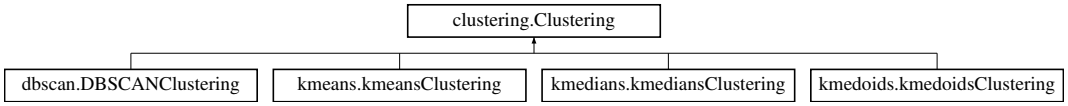
Here are the classes, structs, unions and interfaces with brief descriptions:

# Chapter 3

# Class Documentation

## 3.1 clustering.Clustering Class Reference

Inheritance diagram for clustering.Clustering:




### Public Member Functions

- def **__init__** (self, metric, dataset)
- def pyc_metric (self, metric)
- def load_data (self)
- def house_load (self, path, skip=1)
- def cluster (self)

### Public Attributes

- **data**
- **dataset**
- **labels**

### 3.1.1 Member Function Documentation

#### 3.1.1.1 cluster()

```
def clustering.Clustering.cluster (
              self )
```

```
does nothing in the meta class.
needs to be implemented in the inheriting cluster algorithm classes
```

#### 3.1.1.2 house_load()

```
def clustering.Clustering.house_load (
              self,
              path,
              skip = 1 )
```

```
loads the housevotes dataset and encodes it using One-Hot-Encoding
@param path filepath to the dataset
@param skip number of lines that get skipped when reading in a file
@return One-Hot-Encoded housevotes dataset
```

#### 3.1.1.3 load_data()

```
def clustering.Clustering.load_data (
              self )
```

```
loads in a dataset, standardises it and sets it as self.data attribute
```

#### 3.1.1.4 pyc_metric()

```
def clustering.Clustering.pyc_metric (
              self,
              metric )
```

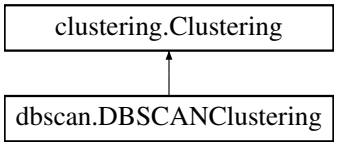
```
returns a distance metric which is usable by the pyclustering algorithms
@param distance metric string. allowed: "euclidean", "manhattan", "chebyshev", "cosine"
@returns pyclustering distance_metric object, None when distance is not supported
```

The documentation for this class was generated from the following file:

- clustering.py

## 3.2 dbscan.DBSCANClustering Class Reference

Inheritance diagram for dbscan.DBSCANClustering:



## Public Member Functions

- def **__init__** (self, metric, dataset)
- def cluster (self, eps, minPts)
- def package (self, labels)

## Public Attributes

- **metric**

### 3.2.1 Member Function Documentation

#### 3.2.1.1 cluster()

```
def dbscan.DBSCANClustering.cluster (
              self,
              eps,
              minPts )
```

```
clustering method. Will execute clustering on the data saved in self.data with the metric
given in self.metric
params are the same as in the DBSCAN paper
@param eps Distance for the Eps-Neighbourhood
@param minPts Minmal number of points in a cluster
@returns formatted clustered data
```

#### 3.2.1.2 package()

```
def dbscan.DBSCANClustering.package (
              self,
              labels )
```

```
rearranges the result to a format similar to the one of the pyclustering algorithms
allows for easier access in the streamlit interface
@param labels cluster labels DBSCAN assigns to a point
@returns clusters as list of lists of indices of points and noise as list of indices of points
```

The documentation for this class was generated from the following file:

- dbscan.py

## 3.3 indices.Indices Class Reference

### Public Member Functions

- def **__init__** (self, cluster_calc, cluster_label)
- def **index_external** (self, index)
- def **index_internal** (self, index)

### Public Attributes

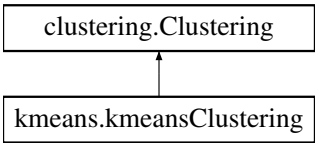
- **cluster_calc**
- **cluster_label**

The documentation for this class was generated from the following file:

- indices.py

## 3.4 kmeans.kmeansClustering Class Reference

Inheritance diagram for kmeans.kmeansClustering:




### Public Member Functions

- def **__init__** (self, metric, dataset)
- def cluster (self, k, plusplus=True)

### Public Attributes

- **data**
- **metric**

### 3.4.1 Member Function Documentation

#### 3.4.1.1 cluster()

```
def kmeans.kmeansClustering.cluster (
              self,
              k,
              plusplus = True )
```

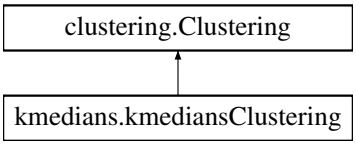
```
clustering method. Will execute clustering on the data saved in self.data with the metric
given in self.metric
@param k number of clusters that are generated
@param plusplus will use k++ initialiser if true
@returns clusters as list of lists of indices of points and final cluster centers
```

The documentation for this class was generated from the following file:

- kmeans.py

## 3.5 kmedians.kmediansClustering Class Reference

Inheritance diagram for kmedians.kmediansClustering:




### Public Member Functions

- def **__init__** (self, metric, dataset)
- def cluster (self, k)

### Public Attributes

- **data**
- **metric**

### 3.5.1 Member Function Documentation

#### 3.5.1.1 cluster()

```
def kmedians.kmediansClustering.cluster (
              self,
              k )
```

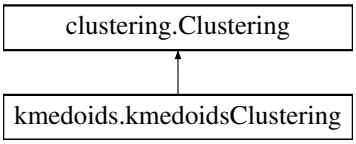
```
clustering method. Will execute clustering on the data saved in self.data with the metric
given in self.metric
@param k number of clusters that are generated
@returns clusters as list of lists of indices of points and final cluster medians
```

The documentation for this class was generated from the following file:

- kmedians.py

## 3.6 kmedoids.kmedoidsClustering Class Reference

Inheritance diagram for kmedoids.kmedoidsClustering:




### Public Member Functions

- def **__init__** (self, metric, dataset)
- def cluster (self, k, init="k-medoids++")
- def package (self, labels)

### Public Attributes

- **data**
- **metric**

### 3.6.1 Member Function Documentation

#### 3.6.1.1 cluster()

```
def kmedoids.kmedoidsClustering.cluster (
              self,
              k,
              init = "k-medoids++" )
```

```
clustering method. Will execute clustering on the data saved in self.data with the metric
given in self.metric
@param k number of clusters that are generated
@param init initialisation parameter. Standard: "k-medoids++"
@returns clusters as list of lists of indices of points, final cluster centers
```

#### 3.6.1.2 package()

```
def kmedoids.kmedoidsClustering.package (
              self,
              labels )
```

```
rearranges the result to a format similar to the one of the pyclustering algorithms
allows for easier access in the streamlit interface
@param labels labels returned from the KMedoids algorithm
@returns clusters formated similarly to the pyclustering algorithms
```

The documentation for this class was generated from the following file:

- kmedoids.py

# Index