Pam clustering

# library link

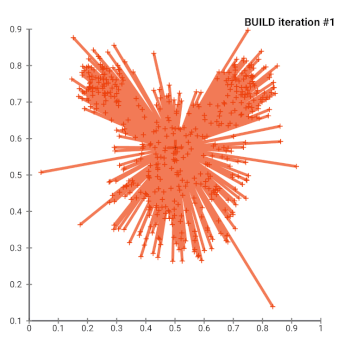
**install :**

https://scikit-learn-extra.readthedocs.io/en/stable/install.html

**source :**

https://scikit-learn-extra.readthedocs.io/en/stable/\_modules/sklearn\_extra/cluster/\_k\_medoids.html#KMedoids

# basic description



**(gif image :** [**https://upload.wikimedia.org/wikipedia/commons/thumb/e/e1/K-Medoids\_Clustering.gif/350px-K-Medoids\_Clustering.gif**](https://upload.wikimedia.org/wikipedia/commons/thumb/e/e1/K-Medoids_Clustering.gif/350px-K-Medoids_Clustering.gif) **)**

PAM( Partitioning Around Medoids ) is a heuristic solutions of k-medoids problem (NP-hard).

It uses a greedy search which may not find the optimum solution, but it is faster than exhaustive search.

Decision tree learning or induction of decision trees is one of the predictive modelling approaches used in statistics, data mining and machine learning. It uses a decision tree (as a predictive model) to go from observations about an item (represented in the branches) to conclusions about the item's target value (represented in the leaves).

# version

* NumPy >= 1.14.6 (pip install numpy)
* Scipy >= 1.1.0 (pip install scipy)
* Joblib >= 0.11 (pip install joblib
* Threadpoolctl >= 2.0.0 (pip install threadpoolctl)
* pandas >= 1.2.4 (pip install pandas)
* sklearn == 1.0.2 (pip install sklearn)

# dataset

* segmentation data.scv: Customer Segmentation is the subdivision of a market into discrete customer groups that share similar characteristics. Customer Segmentation can be a powerful means to identify unsatisfied customer needs. Using the above data companies can then outperform the competition by developing uniquely appealing products and services.
* You are owing a supermarket mall and through membership cards, you have some basic data about your customers like Customer ID, age, gender, annual income and spending score. You want to understand the customers like who are the target customers so that the sense can be given to marketing team and plan the strategy accordingly.

<https://www.kaggle.com/dev0914sharma/customer-clustering?select=segmentation+data.csv>

# code description

* Data is read from the dataset, data on age and income are separately extracted, entered into the PAM clustering model, and the results are displayed in a graph.

# validation

* x