

A PYTHON PROGRAM TO IMPLEMENT K-MEANS MODEL

Aim:

To implement a python program using a K-Means Algorithm in a model.

Algorithm:

1. Import Necessary Libraries:

Import required libraries like numpy, matplotlib.pyplot, and sklearn.cluster.

2. Load and Preprocess Data:

Load the dataset.

Preprocess the data if needed (e.g., scaling).

3. Initialize Cluster Centers:

Choose the number of clusters (K).

Initialize K cluster centers randomly.

4. Assign Data Points to Clusters:

For each data point, calculate the distance to each cluster center.

Assign the data point to the cluster with the nearest center.

5. Update Cluster Centers:

Calculate the mean of the data points in each cluster.

Update the cluster centers to the calculated means.

6. Repeat Steps 4 and 5:

Repeat the assignment of data points to clusters and updating of cluster centers until convergence (i.e., when the cluster assignments do not change much between iterations).

7. Plot the Clusters:

Plot the data points and the cluster centers to visualize the clustering result.