

LAB ASSIGNMENT-9

Title: Write a python program to implement K-Means clustering Algorithm.

Objective: The objective of this lab assignment is to implement the K-Means clustering algorithm from scratch in Python and gain a deep understanding of how the algorithm works.

Dataset: Load a dataset of your choice or generate a synthetic dataset.

Tasks:

- 1) Implement the K-Means clustering algorithm from scratch in Python
- 2) Visualize the dataset and plot the initial centroids.
- 3) Implement a method to calculate the sum of squared distances (inertia) for different values of K. Use this to determine an appropriate K for your dataset.

Submission:

Prepare a PDF file that covers all the tasks mentioned above. Include code snippets, visualizations, and tables to support your analysis. Clearly explain the steps you took, the results you obtained, and your interpretation of the findings.