**Exercise 2 : CLUSTERING**

1. Load the **Iris dataset** from sklearn.datasets. Perform **K-Means Clustering** with k=3 clusters (since the dataset has 3 species). Plot the **cluster centroids** and compare the predicted labels with the actual labels of the Iris dataset. Use the **Elbow Method** to determine the optimal number of clusters for the **Iris dataset**. Plot the **inertia** (within-cluster sum of squares) for different values of k (e.g., from 1 to 10). Explain how to identify the optimal number of clusters based on the plot.
2. Using the **Mall Customers** dataset, apply **Hierarchical Clustering**. Plot the **dendrogram** to understand how the points are merged into clusters. Determine the number of clusters using the dendrogram's threshold.