**Lab Report K-means**

1. **Use sepal\_length and sepal\_width as features from the iris\_dataset and apply K-mean clustering.**

**Attach the code and graph.**

**Code:**

import matplotlib.pyplot as plt

from sklearn.datasets import load\_iris

from sklearn.cluster import KMeans

# Load the Iris dataset

iris = load\_iris()

data = iris.data[:, :2] # Using only sepal\_length and sepal\_width as features

# Applying K-means clustering with 3 clusters (as there are 3 types of iris in the dataset)

kmeans = KMeans(n\_clusters=3)

kmeans.fit(data)

labels = kmeans.labels\_

# Scatter plot to visualize the clusters

plt.figure(figsize=(8, 6))

# Plotting points with color-coded clusters

plt.scatter(data[:, 0], data[:, 1], c=labels, cmap='viridis', edgecolor='k')

plt.title('K-means Clustering on Iris Dataset')

plt.xlabel('Sepal Length')

plt.ylabel('Sepal Width')

# Plotting the centroids of the clusters

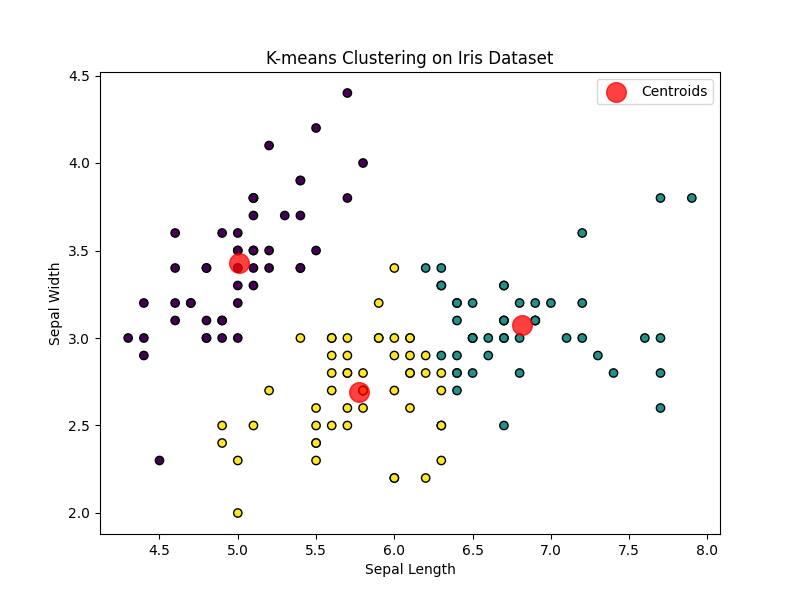
centers = kmeans.cluster\_centers\_

plt.scatter(centers[:, 0], centers[:, 1], c='red', s=200, alpha=0.75, label='Centroids')

plt.legend()

plt.show()

**Graph:**

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