**Practical 8**

**Aim:**

**Write a program to implement K-means clustering on iris dataset.**

**Code:**

from sklearn.mixture import GaussianMixture

import matplotlib.pyplot as plt

from mpl\_toolkits.mplot3d import Axes3D

import numpy as np

%matplotlib inline

from sklearn import datasets#Iris Dataset

iris = datasets.load\_iris()

X = iris.data#Gaussian Mixture Model

gmm = GaussianMixture(n\_components=3)

gmm.fit(X)

proba\_lists = gmm.predict\_proba(X)#Plotting

colored\_arrays = np.matrix(proba\_lists)

colored\_tuples = [tuple(i.tolist()[0]) for i in colored\_arrays]

fig = plt.figure(1, figsize=(7,7))

ax = Axes3D(fig, rect=[0, 0, 0.95, 1], elev=48, azim=134)

ax.scatter(X[:, 3], X[:, 0], X[:, 2],

c=colored\_tuples, edgecolor="k", s=50)

ax.set\_xlabel("Petal width")

ax.set\_ylabel("Sepal length")

ax.set\_zlabel("Petal length")

plt.title("Gaussian Mixture Model", fontsize=14)

**Output:**

