**24.** Write a program in python to determine the “K” value for K-means clustering using Elbow method. Consider the “Iris” dataset available with Scikit Learn (with first 3 features as independent variables) and Euclidean Distance. Also provide the plots for Average Within Cluster Distance, and Percentage Variance, each against the number of clusters using Pyplot from Matplotlib.

**25.** Write a program in python to determine the “K” value for K-means clustering using Average Silhoutte method. Consider the “Iris” dataset available with Scikit Learn (with first 3 features as independent variables)and Euclidean Distance. Also provide the plot for the Number of Clusters(K) against Silhoutte Score, and Horizontal Bar Chart for different Clusters Distance against the Silhoutte Coefficient using Matplotlib.

**26.** Write a program in python to perform Hierarchical Agglomerative clustering on the “Iris” dataset available with Scikit Learn (with first 3 features as independent variables and species as the dependent variable) into 3 clusters. Calculate the Accuracy and Generate the Confusion Matrix. Also plot the actual values against the predicted values.

**27.** Write a program in python to implement the K-fold Cross validation technique on the Diabetes dataset using n=5. Use Scikit Learn and display the AUC scores for training and testing.