Programming Assignment 4

Due Date: 23rd April 2019, Tuesday 11.59 pm IST

1. Task 1 :
   1. Use the 75% of the Fischer Iris dataset to train a K-Means based classifier. Use user defined function for K means clustering.
   2. Test and report the accuracy of the model using the remaining 25% data.
   3. Perform ***a***and ***b*** using the builtin function for k-means clustering.
   4. Write a note on the possible good methods in the literature to assume number of clusters (k) from given data if it unknown.
2. Task 2 :
   1. Perform fuzzy c-means clustering with controlling parameter b = 2.5. Write your own function for clustering
   2. Test and report the accuracy of the model using the remaining 25% data.
   3. Plot the accuracy for a range of b {2, 2.25, 2.5, 2.75, 3, 3.25, 2.5, 3.75, 4}
   4. Perform ***a***and ***b*** using the builtin function for fuzzy c-means clustering.
3. Task 3
   1. Take the first two classes (75%) of Fischer Iris dataset and design a single layer neural network and report accuracy on the remaining 25% data.
   2. How will you extend it for the three classes in the dataset? How will you avoid overfitting when training artificial neural network.
4. Perform 3a and 3b, but this time using SVM classifier. You may use the built-in function.
5. Submission Instructions : You should submit a zip/rar file containing 2 files (a & b)
   1. A pdf document: Each task and your answer/inference if any.
   2. A folder containing all the programs and the dataset used for the study.