21BM681 Machine Learning and Embedded Programming Lab

Exercise 6 **Date: 27/09/2023**

Decision Making – K Nearest Neighbor

Two-Class Classification

1. Design a K-Nearest Neighbor classifier (K = 1, 2, 3) for the dataset using the distance metric; (i) Euclidean distance (ii) City block distance
   - Uniform weights
   - Non-uniform weights

   Performance comparison with each distance measure and the weights to be done. (Display the confusion matrix and the associated performance measures)

2. Perform k fold (k = 5) cross validation techniques for optimizing the K value. Using the optimal K value, design a K- Nearest Neighbor classifier for the dataset using Euclidean distance measure.
   - Uniform weights
   - Non-uniform weights

   Performance comparison with each distance measure and the weights to be done. (Display the confusion matrix and the associated performance measures)

Repeat the above tasks using **Three-Class Classification**