**National University of Computer and Emerging Sciences**



**Lab Manual 06**

**CL461-Artificial Intelligence Lab**

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**Lab Task:**

You have been given a Google Colab starter code and a shape folder, you must perform the following tasks:

**Coding Exercise 1: Drawing the Map**

1. Upload Shapes file in the colab

Run the loader cell and load all the 40 files from the shape folder into google colab.

2. Consider the random points as diseased people

Place random points and display them with ‘x’ symbol on the map.

**Coding Exercise 2: Classification and Evaluation**

**Implement KNN algorithms on the data points**

NearestNeighborClassifierManual:

Initialize X\_train and y\_train as None

Fit(X\_train, y\_train):

Set X\_train and y\_train to the provided input

Predict(X\_test):

Initialize an empty list for predictions

For each sample x\_test in X\_test:

Calculate the distances between x\_test and all samples in X\_train

Find the index of the nearest neighbor in X\_train

Append the corresponding y\_train label to the predictions list

Return the predictions list

Remember:

Nearest Neighbor Classifier primarily relies on computing distances between points.

Instructions:

1. Implement the above-mentioned algorithm
2. Find N clusters and the radius of the clusters
3. Draw the clusters as circles on the already plotted map