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

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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