National Institute of Technology

Tiruchirappalli, Tamil Nadu – 620 015

Assignment II   **Date: 12.04.2022**

1. Do the following for the given dataset:

    a. Visualize the dataset using a plot *(Library: Seaborn and Matplotlib)* and create Decision Tree Algorithm to its complete depth (visualize the tree after construction).

    - Calculate the following evaluation metrics → *Accuracy, Precision, Recall, F1 Score, Confusion Matrix* and discuss what you observe.

    b. Create Decision Tree Algorithm with hyperparameter tuning (visualize the tree after construction).

    - Calculate the following evaluation metrics → *Accuracy, Precision, Recall, F1 Score, Confusion Matrix* and discuss what you observe.

2. Do the following for the given dataset:

    a. Apply k-Nearest Neighbour algorithm on the given dataset *(Find the best value for "k" using the method explained in class)*.

    - Calculate the following evaluation metrics → *Accuracy, Precision, Recall, F1 Score, Confusion Matrix* and discuss what you observe.

    b. Apply Min-Max Normalization on the given dataset and visualize it using a plot; Then, repeat Section "2. a" fully on the Normalized dataset.

    c. Plot ROC curves and calculate the corresponding AUC values for Section "2. a" and "2. b" and discuss what you observe.

Deadline – 24.04.2022 by 05:00 PM