Lab Assignment – Naïve Bayes and K-NN

Problem Statement:

Build a decision tree classifier to predict the species of iris flowers based on the sepal length, sepal width, petal length, petal width, and other features.

Dataset:

The dataset consists of 150 records with 5 features (sepal length, sepal width, petal length, petal width, and other features) and a target variable (species). The data is stored in a CSV file named 'iris.csv'. You can download the dataset from the following link: https://archive.ics.uci.edu/ml/datasets/Iris.

Requirements:

- Load the dataset using the panda's library.
- Split the dataset into training and testing sets.

Naïve Bayes

A. Train the Naïve Bayes Classifier using the training data.

B. Predict the target variable for the test data using the trained classifier.

C. Evaluate the performance of the classifier using the confusion matrix.

K-NN

A. Train the k-NN Classifier (with varying k value) using the training data.
B. Predict the target variable for the test data using the trained classifier.
C. Determine the optimal value of k.
D. Evaluate the performance of the classifier using the confusion matrix.