Assignment 1

K Nearest Neighbors (KNN) is a simple, yet powerful, machine learning algorithm used for classification and regression tasks. It works by finding the **k** nearest data points in the feature space and making predictions based on their labels or values. KNN is a non-parametric method, meaning it does not make any assumptions about the underlying data distribution, making it versatile for various applications.

1. It is particularly effective for problems where the decision boundary is complex and non-linear, as it relies on local information rather than global patterns.

Question 1

Explain the K Nearest Neighbors algorithm and its applications in machine learning. Discuss its advantages and limitations, and provide an example of how it can be used for classification tasks.

Solution

K Nearest Neighbors (KNN) is a simple, yet powerful, machine learning algorithm used for classification and regression tasks. It works by finding the **k** nearest data points in the feature space and making predictions based on their labels or values. KNN is a non-parametric method, meaning it does not make any assumptions about the underlying data distribution, making it versatile for various applications.