2-July-2024

Training Day-15 Report:

Support Vector Machine (SVM) Algorithm:-

Support Vector Machine or SVM is one of the most popular Supervised Learning algorithms, which is used for Classification as well as Regression problems. However, primarily, it is used for Classification problems in Machine Learning.

The goal of the SVM algorithm is to create the best line or decision boundary that can segregate n-dimensional space into classes so that we can easily put the new datapoint in the correct category in the future. This best decision boundary is called a hyperplane.

SVM chooses the extreme points/vectors that help in creating the hyperplane. Theseextreme cases are called as support vectors, and hence algorithm is termed as Support Vector Machine. Consider the below diagram in which there are two different categories that are classified using a decision boundary or hyperplane:
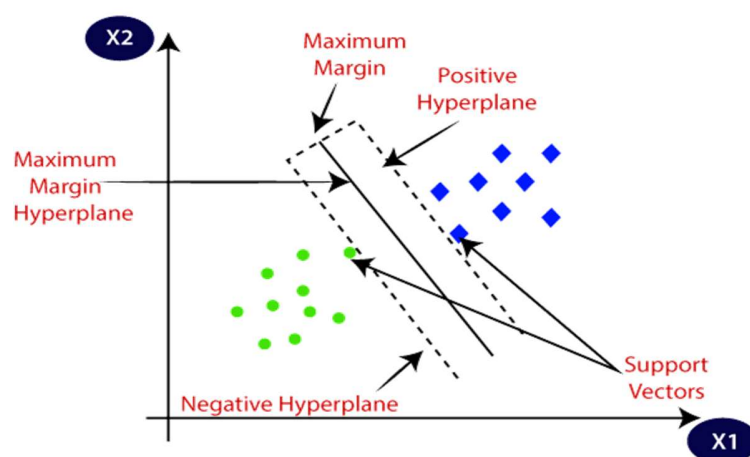
Types of SVM:-

SVM can be of two types:

- o **Linear SVM:** Linear SVM is used for linearly separable data, which meansif a dataset can be classified into two classes by using a single straight line,

then such data is termed as linearly separable data, and classifier is used called as Linear SVM classifier.

- o **Non-linear SVM:** Non-Linear SVM is used for non-linearly separated data, which means if a dataset cannot be classified by using a straight line, then such data is termed as non-linear data and classifier used is called as Non- linear SVM classifier.