Support Vector Machine

“Support Vector Machine” (SVM) is a supervised machine learning algorithm which can be used for classification challenges. Each data item is plotted in n-dimensional space (where n represents the number of features) where the value of each feature is the value of the particular coordinate. Classification is performed by finding the hyper-plane that differentiates the two classes the best.

There are two objectives of a SVM classifier:

i. Finding the best hyper-plane

ii. Maximise the distances between nearest data points (from either class) from the hyper-plane

Advantages:

It works really well with clear margin of separation

It is effective in high dimensional spaces

It is effective in cases where number of dimensions is greater than number of samples

It uses a subset of training points in the decision function, so it is memory efficient

Disadvantages:

It doesn’t perform well, when we have large data set because the required training time is higher

It also doesn’t perform very well when the data set has more noise i.e. target classes are overlapping

Application of SVM:

1. Face detection

2. Text and hyper-text categorization:

3. Bioinformatics

4. Protein fold and remote homology detection

5. Handwriting recognition