Support Vector machines (SVM)

What is support vector machine?

→ The objective of the support vector machine algorithm is to find a hyperplane in an N-dimensional space (N- Number of features) that distinctly classifies the data points.

→ To seperate the two classes of data points, there are many possible hyperplanes that could be chosen.

— Our objective is to find a plane that has the maximum margin (i.e the maximum distance between data points of both classes)

— Maximizing the margin distance provides some reinforcement so that future data points can be classified with more confidence.

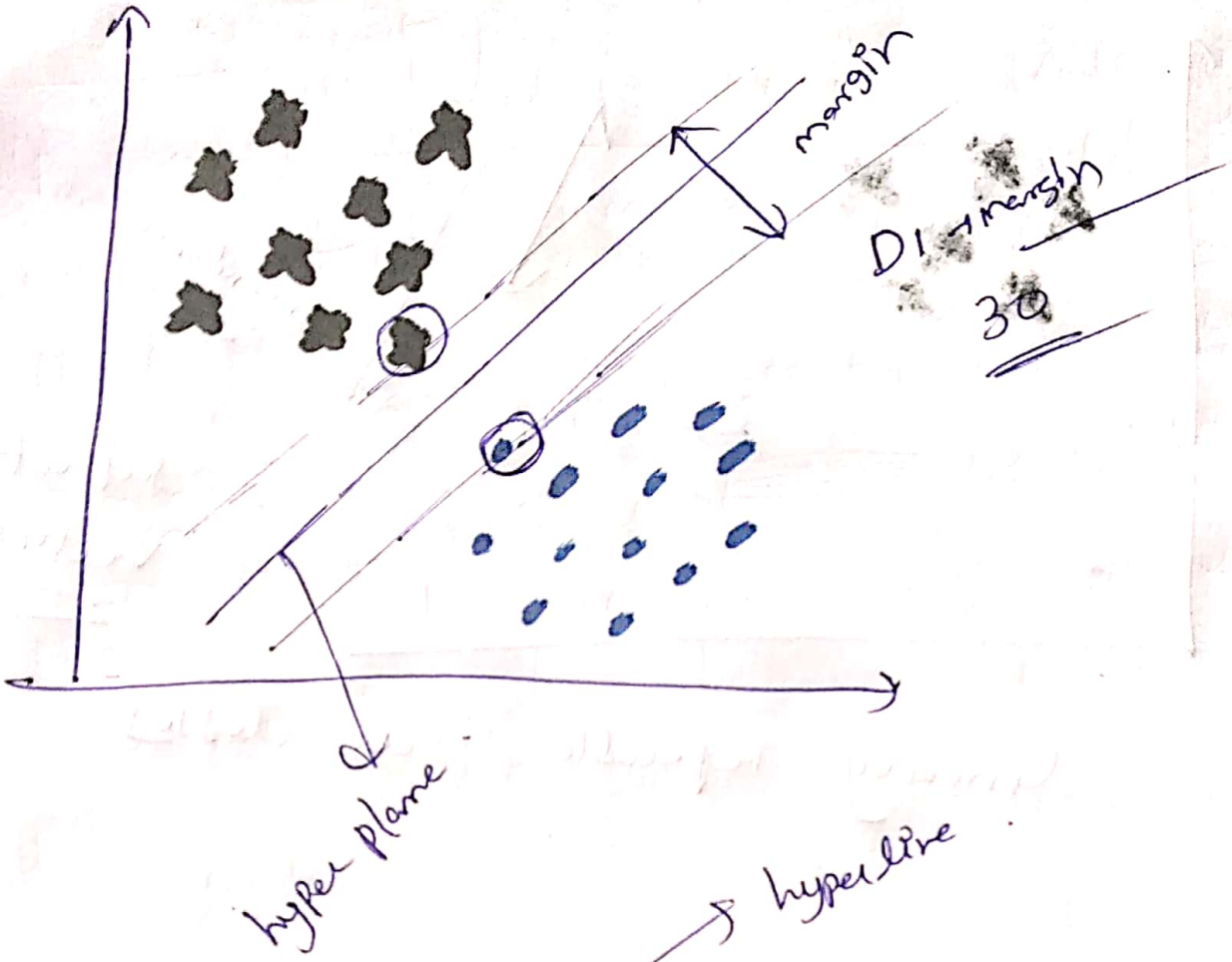
Hyperplane :- It is decision boundaries that help classify the data points. Data points falling either side of hyperplane can be attributed to different classes.

— Dimensions of hyperplane depends upon the the number of features.

— If the number of input feature 2 then the hyperplane is line.

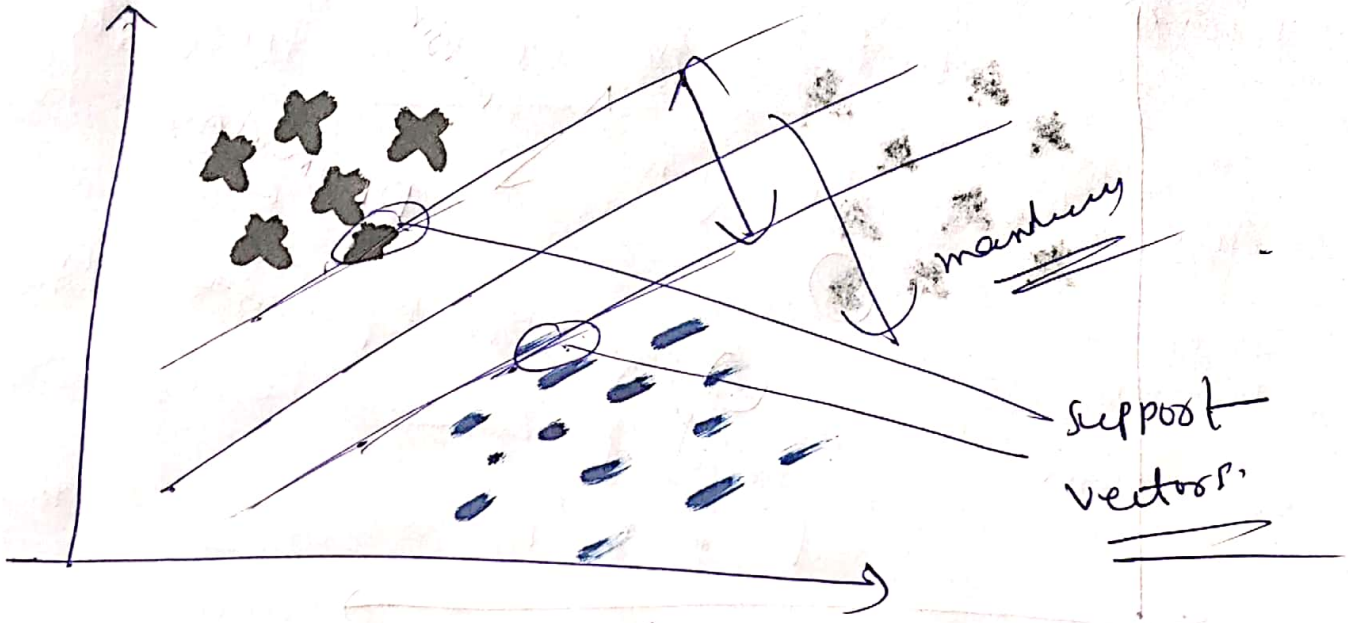
— If the " " " 3 then the hyperplane is 2-D plane.

— It difficult to imagine if no. of features exceeds 3.

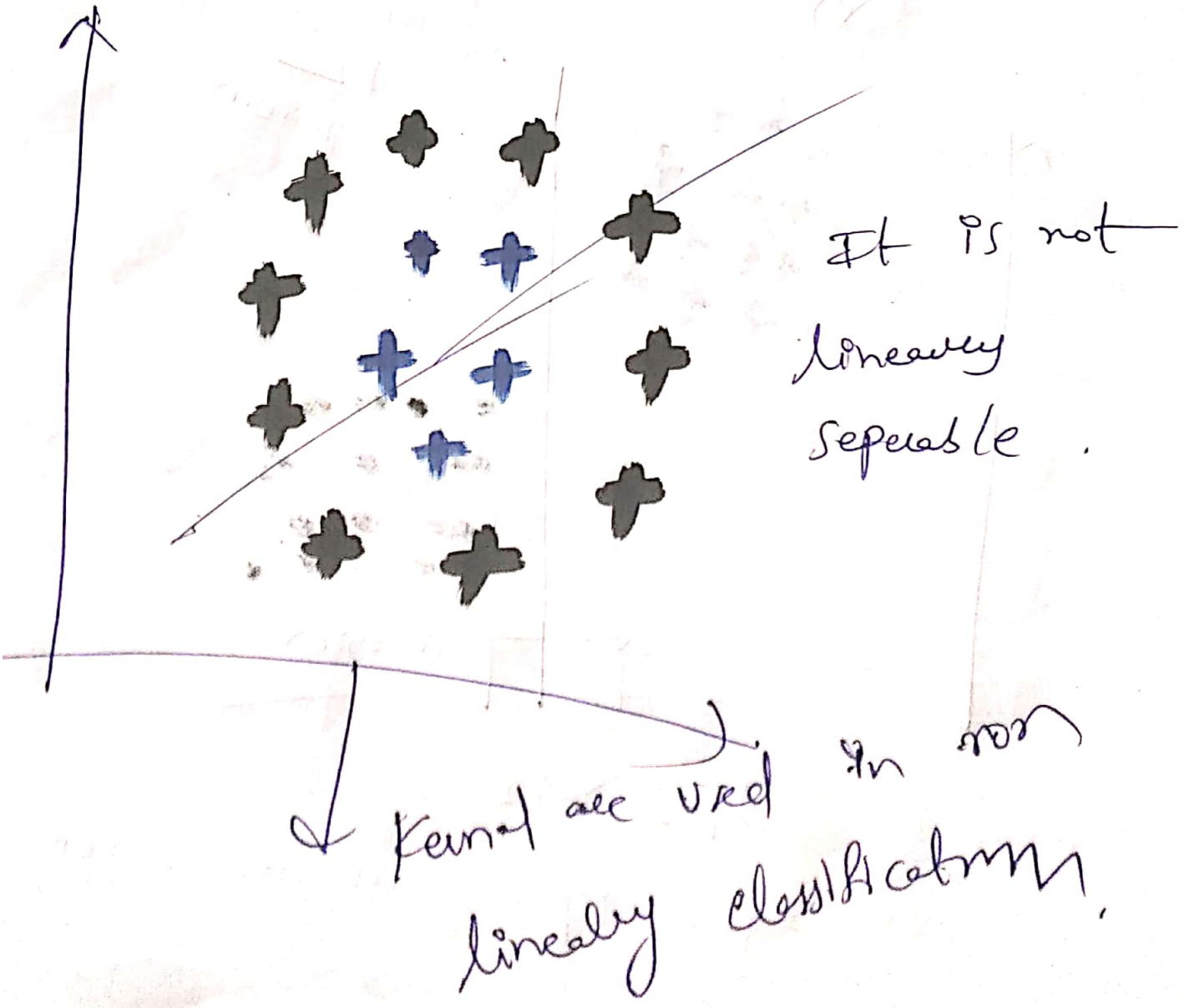


D1 >> D2

then D1 → You can choose.



linearly seperable two classes.



It is not linearly seperable.

Kernel are used in non linearly classification.