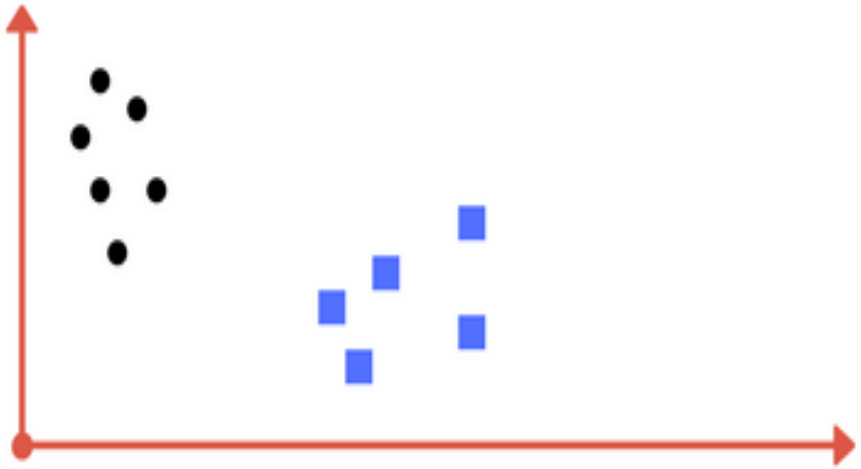
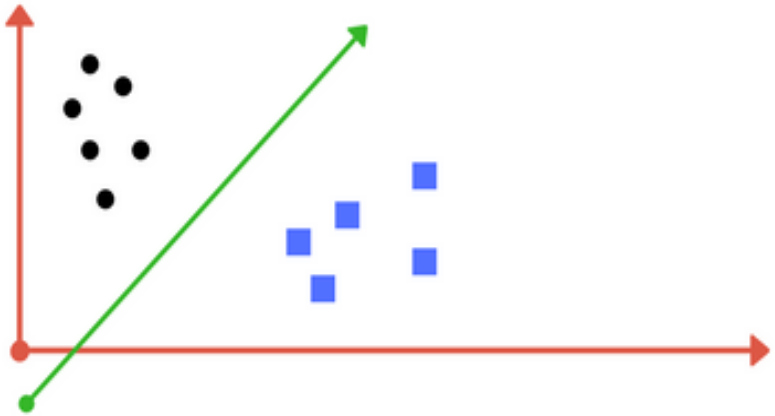
SVM

What is SVM ?

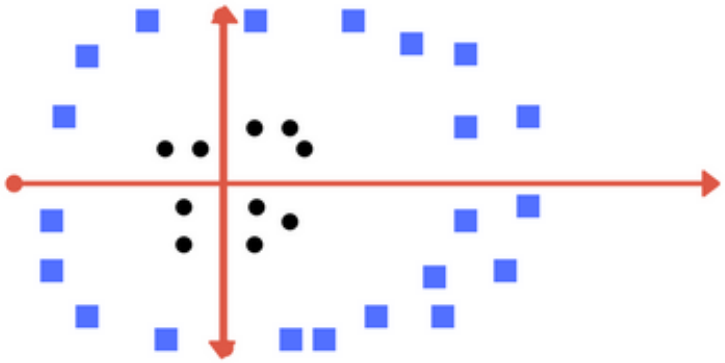
- SVM: Support Vector Machines.
- Supervised Learning Models used for classification and regression analysis
- Linear Classifier
- Can perform non linear Classification.

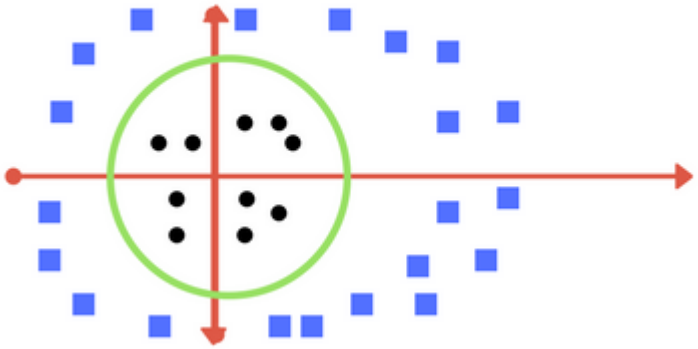
Linear Classification



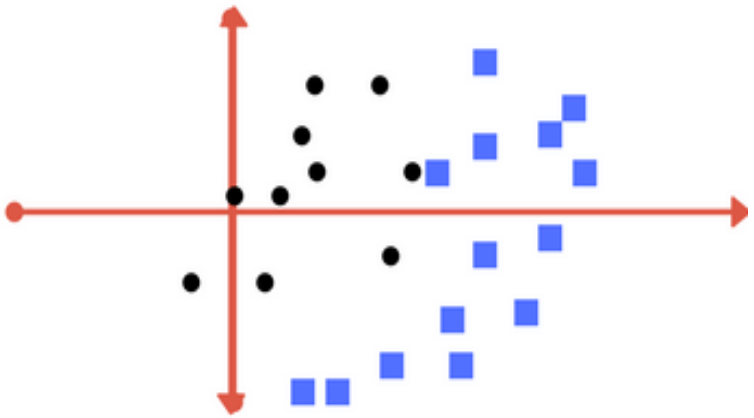


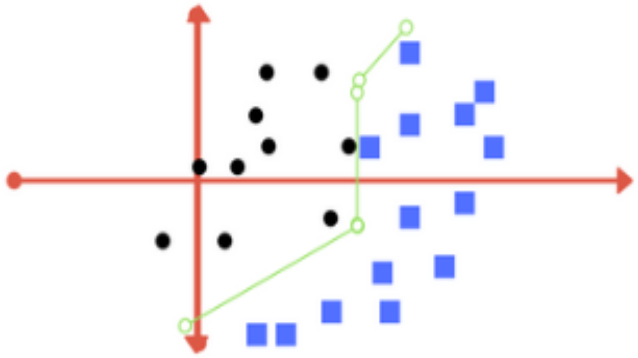
Non Linear Classification





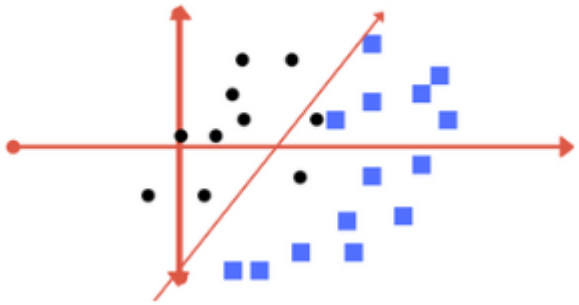
Complex Boundaries



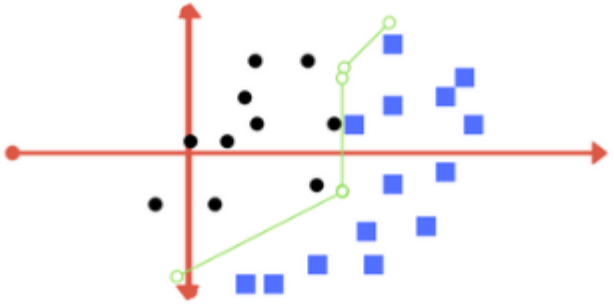


Regularization parameter

How much you want to avoid misclassifying each training example.



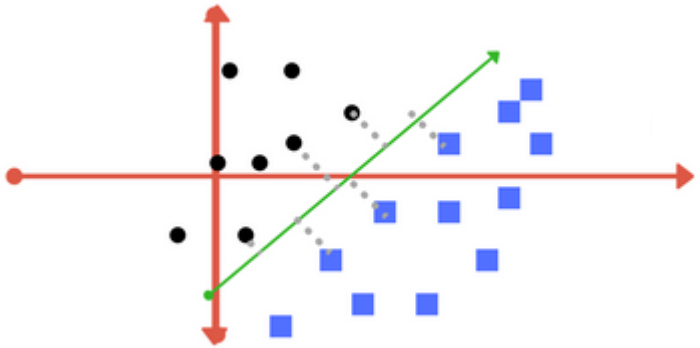
Low Value of Regularization



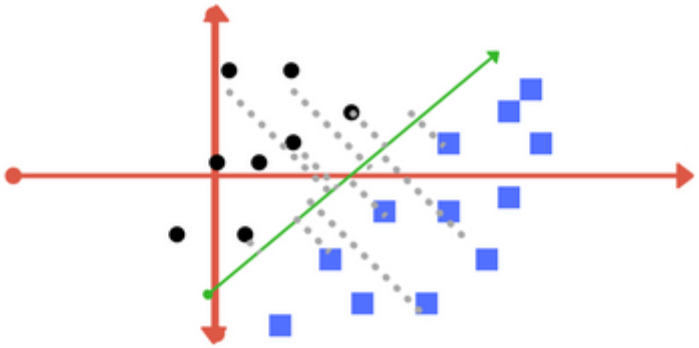
High Value of Regularization

Gamma

How far the influence of a single training example reaches

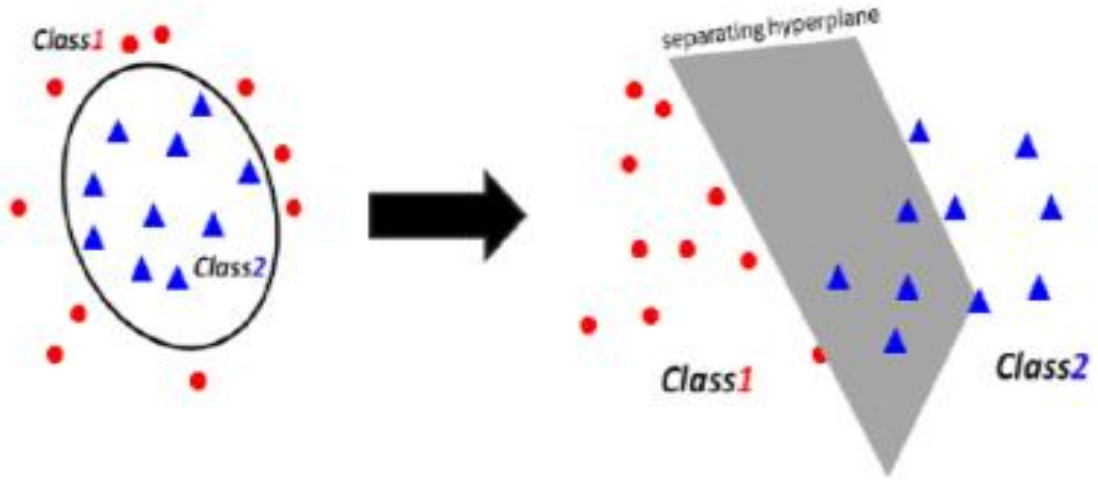


High Value of Gamma

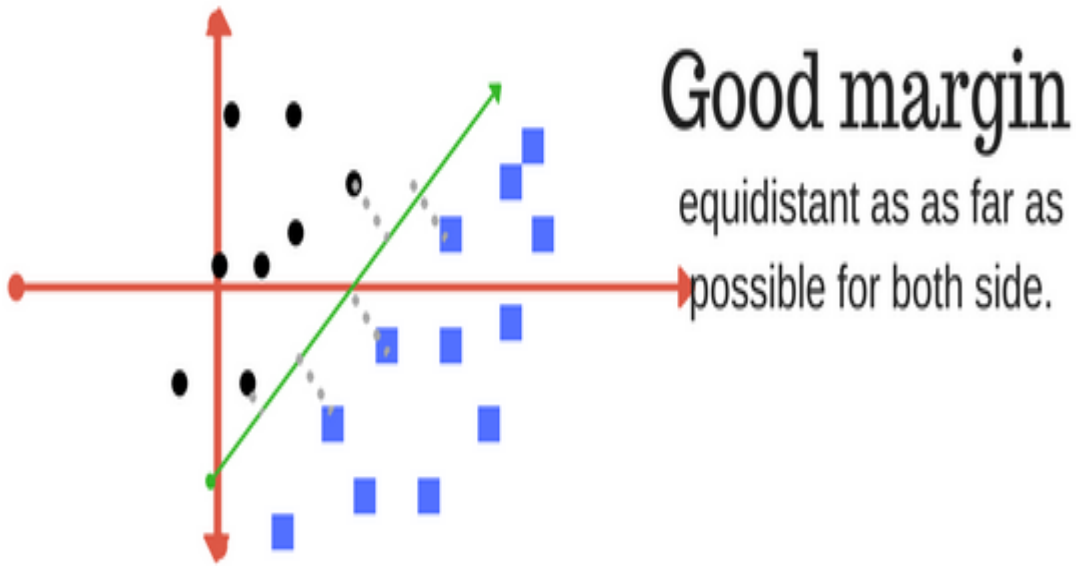


Low Value of Gamma

Conversion to high Dimensions

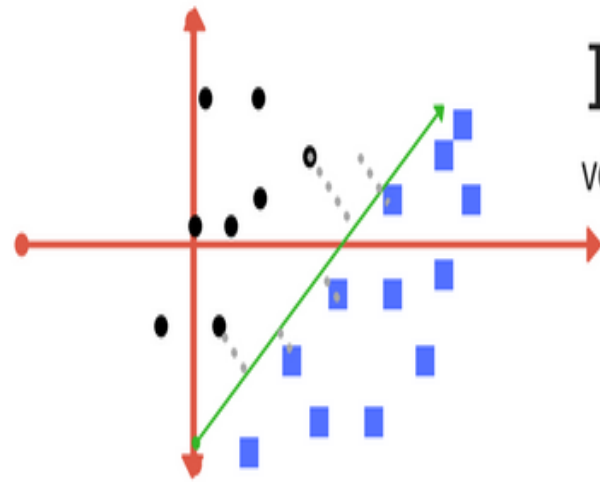


Margin



Good margin

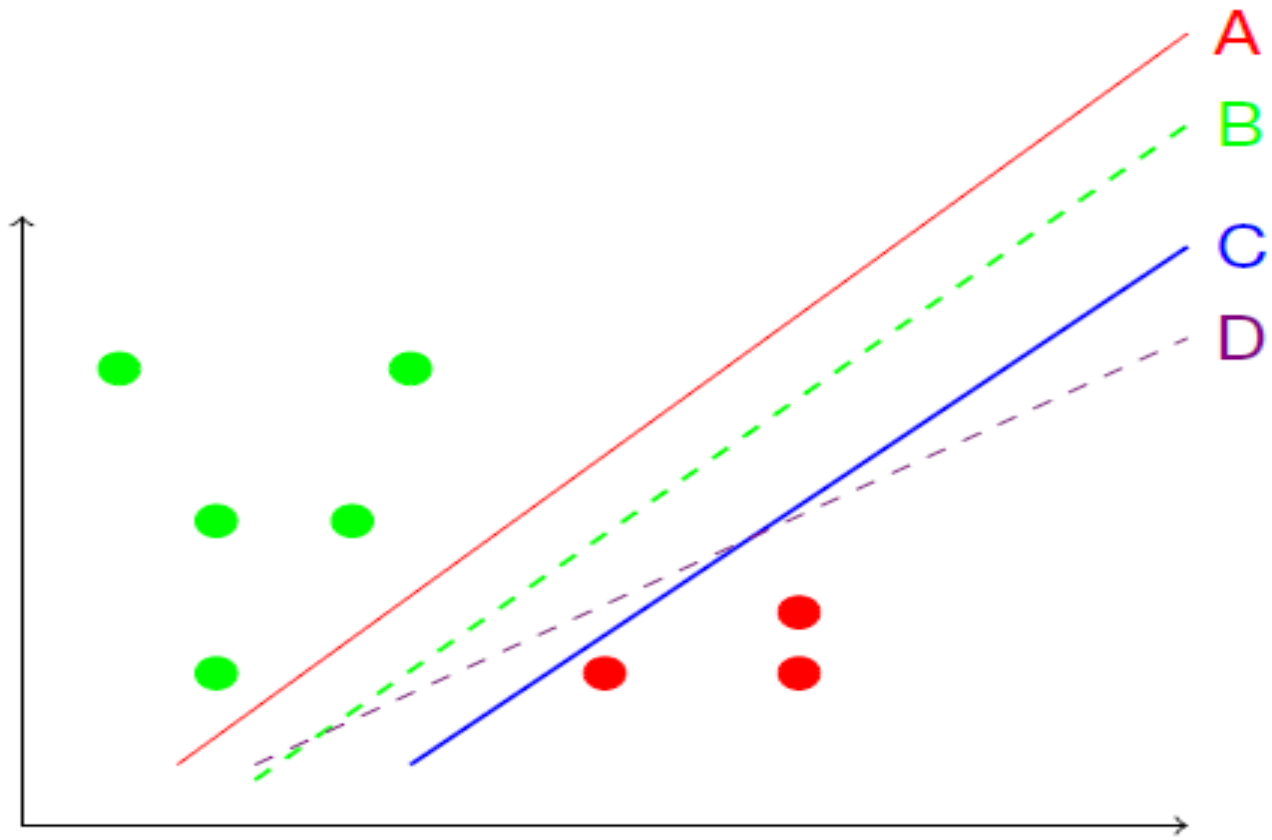
equidistant as as far as possible for both side.



Bad margin

very close to blue class.

Deciding the best Model



B is the best model

Advantages

- It works well with clear margin of separation
- Do not stuck to local minima
- Effective in high dimensional spaces
- Memory efficient as it uses a subset of training points in decision (called support vectors)

Disadvantages

- It doesn’t perform well, when data set is large as the training time is higher
- Doesn’t perform well when target classes are overlapping
- Does not directly provide probability estimates

Thank You!!!