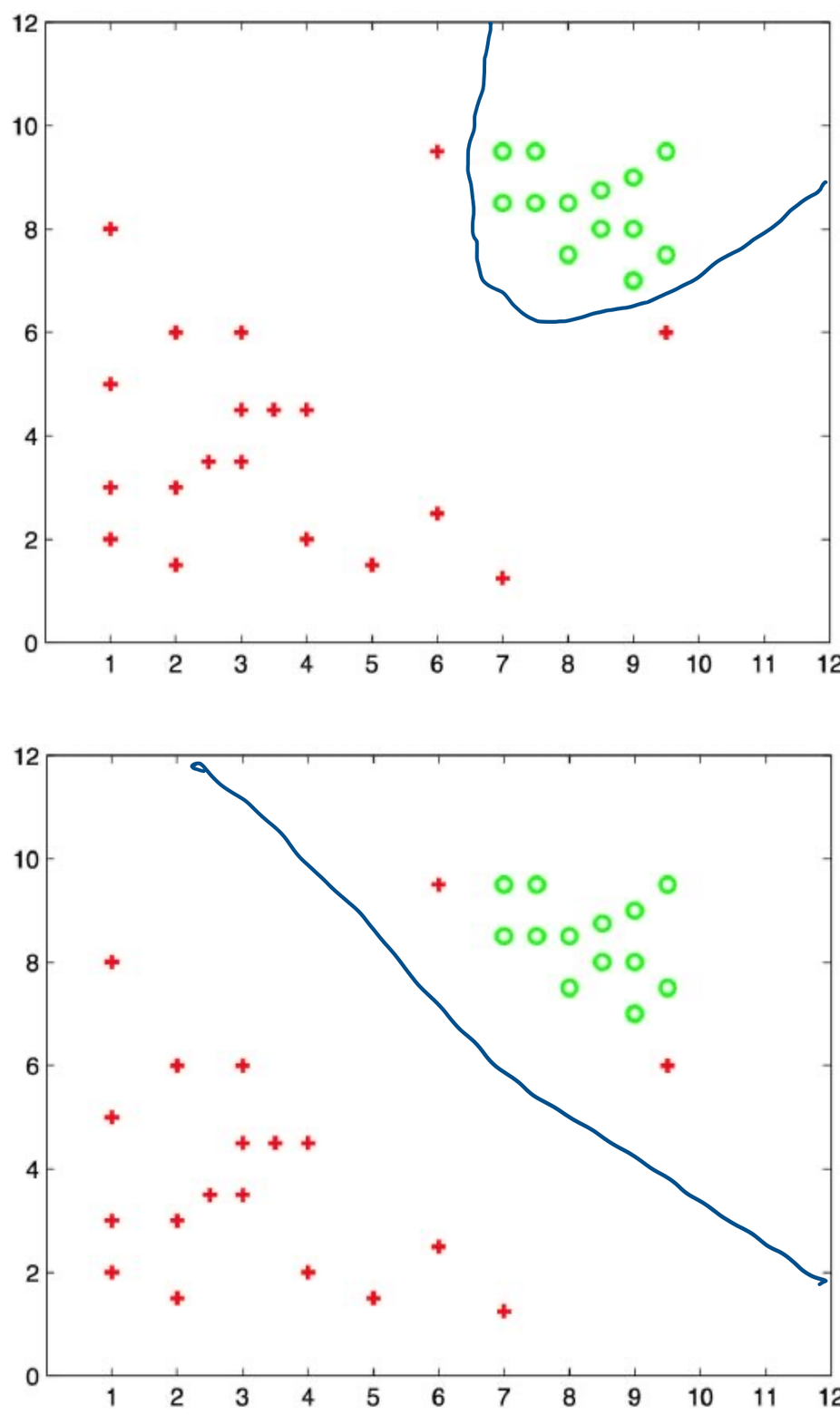
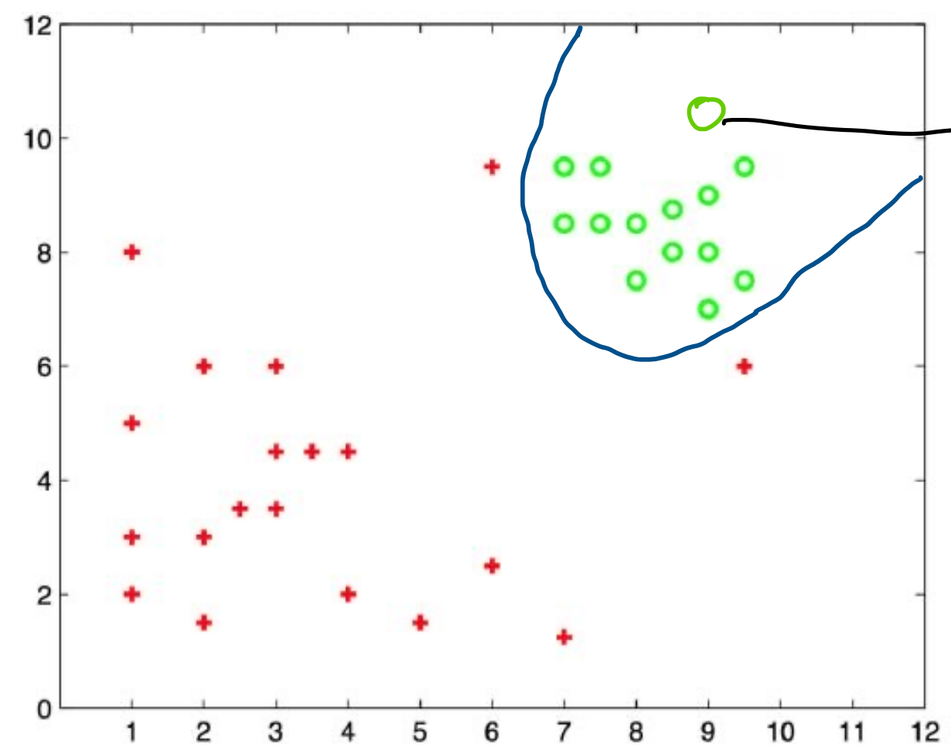
Friday, March 22, 2024 15:01



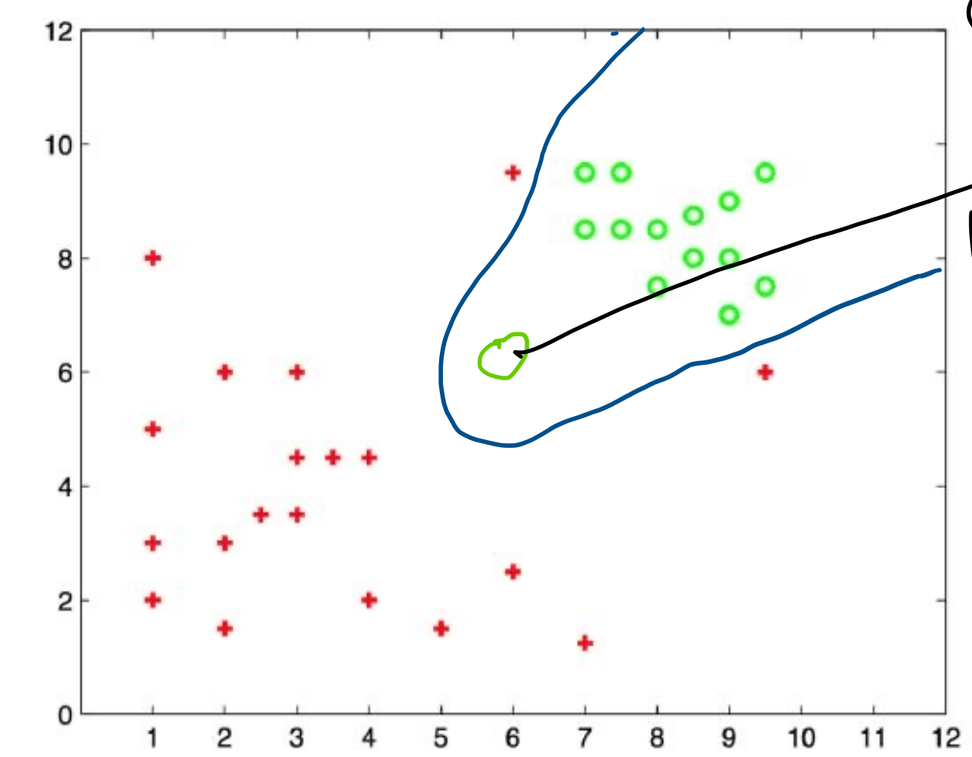
[a] When the slack penalty [C] is large the decision boundary tries to perfectly separate the data.

[b] when the slack penalty [C] is low, we don't need slack variables to be very small. The classifier can maximize the margin while misclassifying a few points, because penalty is low.

[C] Slack penalty small; will give better results in terms of classification as it maximizes the margin between the points and for more data points and outliers the 'C'[slack penalty] value being small will give better results in long term.



[d] → This added point will not alter the learnt decision boundary, as it was correctly classified by the previous classifier in [a].



[C] → This added point will alter the decision boundary, as it was incorrectly classified by the previous classifier. As 'C' value is large the original boundary will be forced to move to correctly classify this point.