Q3-2: Which two extreme points show the best performance and the worst performance respectively on the ROC curve?

1. (1, 1), (0, 0)
2. (0, 1), (1, 0)
3. (1, 0), (0, 1)
4. (0, 1), (1, 1)

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A ROC curve plots the TP-rate vs. the FP-rate, so usually the x-axis is for FP-rate and y-axis is for TP.-rate When TP-rate = 1 and FP-rate = 0, all instances are correctly classified thus achieving the best result. When TP-rate = 0 and FP-rate = 1, all instances are wrongly classified thus achieving the worst result.

Q2-1: Suppose you find that your linear regression model is under fitting the data. In such situation which of the following options would you consider?

A. *Add more variables*

B. *Start introducing polynomial degree variables*

C. *Use L1 regularization*

D. *Use L2 regularization*

1. A, B, C

2. A, B, D

3. A, B

4. A, B, C, D

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In case of under fitting, you need to induce more variables in variable space or you can add some polynomial degree variables to make the model more complex to be able to fit the data better. No regularization methods should be used because regularization is used in case of overfitting.