

Regularization

Quiz, 5 questions

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1.

You are training a classification model with logistic

regression. Which of the following statements are true? Check

all that apply.

- ☐ Introducing regularization to the model always results in equal or better performance on examples not in the training set.
 - ☐ Adding a new feature to the model always results in equal or better performance on the training set.
 - ☐ Introducing regularization to the model always results in equal or better performance on the training set.
 - ☐ Adding many new features to the model helps prevent overfitting on the training set.
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2.

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Suppose you ran logistic regression twice, once with $\lambda = 0$, and once with $\lambda = 1$. One of the times, you got

parameters $\theta = \begin{bmatrix} 74.81 \\ 45.05 \end{bmatrix}$, and the other time you got

$\theta = \begin{bmatrix} 1.37 \\ 0.51 \end{bmatrix}$. However, you forgot which value of

λ corresponds to which value of θ . Which one do you

think corresponds to $\lambda = 1$?

☐ $\theta = \begin{bmatrix} 1.37 \\ 0.51 \end{bmatrix}$

☐ $\theta = \begin{bmatrix} 74.81 \\ 45.05 \end{bmatrix}$

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3.

Which of the following statements about regularization are

true? Check all that apply.

- ☐ Using a very large value of λ cannot hurt the performance of your hypothesis; the only reason we do not set λ to be too large is to avoid numerical problems.
 - ☐ Because regularization causes $J(\theta)$ to no longer be convex, gradient descent may not always converge to the global minimum (when $\lambda > 0$, and when using an appropriate learning rate α).
 - ☐ Using too large a value of λ can cause your hypothesis to underfit the data.
 - ☐ Because logistic regression outputs values $0 \leq h_{\theta}(x) \leq 1$, its range of output values can only be "shrunk" slightly by regularization anyway, so regularization is generally not helpful for it.
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Regularization¹

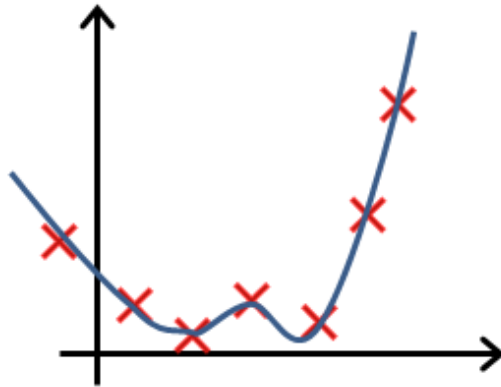
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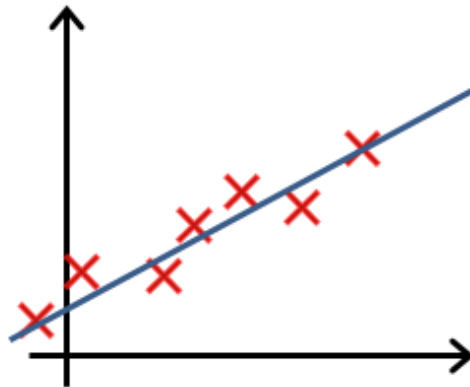
4.

In which one of the following figures do you think the hypothesis has overfit the training set?

☐ Figure:



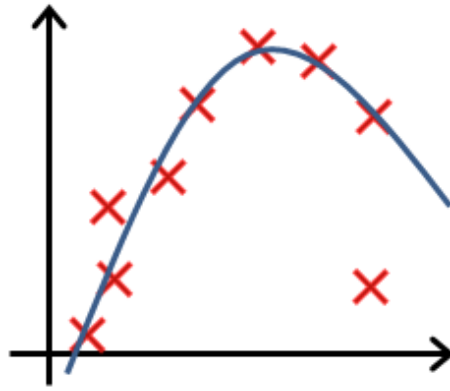
☐ Figure:



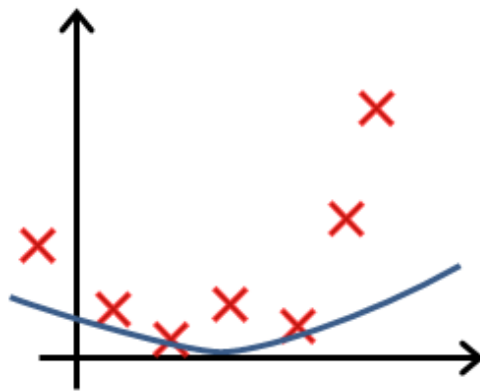
☐ Figure:

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☐ Figure:



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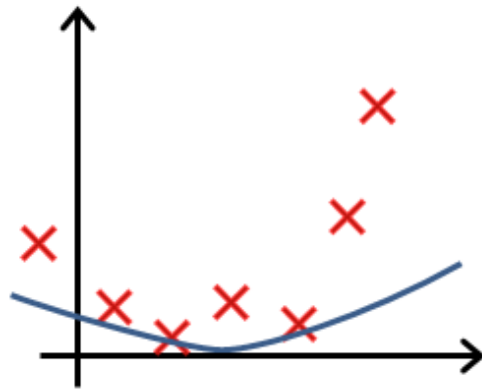
5.

In which one of the following figures do you think the hypothesis has underfit the training set?

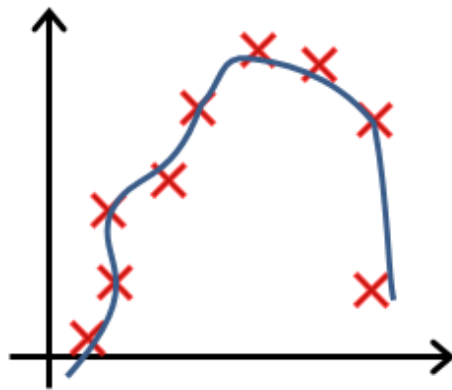
☐ Figure:

Regularization

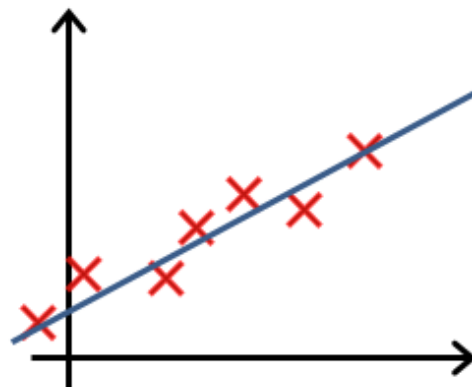
Quiz, 5 questions



☐ Figure:



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