Week 5 Quiz

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Q1

10.0/10.0 points (graded)

Suppose you derived a classification model. The performance you obtained on the training set and the test set are both poor (large error). Check all that apply.

- [x] The model suffers from high-bias.
- [ ] The model overfits the data.
- [x] Adding more complex features may help derive a better model.

✔

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Q2

10.0/10.0 points (graded)

The in-sample error (error of a learning algorithm on the training set) is typically lower than the out-sample error on a test set.

- (•) True ✔
- ( ) False

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Q3

10.0/10.0 points (graded)

We can get multiple local optima if we perform a linear regression by minimizing the mean square error.

- True
- False ✔

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Q4

10.0/10.0 points (graded)

With K-NN, one can represent only linear decision boundaries (that is the entire shape of the boundary is linear).

- True
- False ✔

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Q5

10.0/10.0 points (graded)

If the performance of a classification model on the test set is poor (high out-of-sample error), one should re-calibrate the model parameters to achieve a better model.

- True
- False ✔

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Q6

10.0/10.0 points (graded)

In a classification setting, and during the model selection stage, the validation examples in validation set (or the remaining one of the K folds when using cross-validation) are also used as training examples:

- True
- False ✔

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Q7

10.0/10.0 points (graded)

To build a linear regression model, you can either use gradient descent or normal equation.

- True ✔
- False

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Q8

10.0/10.0 points (graded)

Because it is straightforward to calculate in just one step, using normal equation is the preferred method when the feature space is large (e.g., 10,000 features).

- True
- False ✔

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Q9

10.0/10.0 points (graded)

If the learning rate α is too small, gradient descent converges quickly.

- True
- False ✔

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Q10

10.0/10.0 points (graded)

What is the difference between classification and regression? Check all that apply.

- Classification requires labeled data, while regression requires unlabeled data.

- [ ] Classification has numerical values as labels while regression has categorical (discrete) labels.
- [x] Regression has numerical values as labels while classification has categorical (discrete) labels.

✔

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