



## Quiz 1



**4/5** points  
earned (80%)

Quiz passed!

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0 / 1  
points

1.

Which of the following are components in building a machine learning algorithm? Check the correct answer(s).

☒

Asking the right question.



**Correct Response**

☒

Machine learning



**Correct Response**

☐

Statistical inference



**Incorrect Response**

☐

Training and test sets



**Incorrect Response**

☒

Artificial intelligence



**Correct Response**

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1 / 1  
points

2.

Suppose we build a prediction algorithm on a data set and it is 100% accurate on that data set. Why might the algorithm not work well if we collect a new data set?

- ☐ We may be using a bad algorithm that doesn't predict well on this kind of data.
- ☐ We have too few predictors to get good out of sample accuracy.
- ☐ We have used neural networks which has notoriously bad performance.
- ☒ Our algorithm may be overfitting the training data, predicting both the signal and the noise.



**Correct Response**



1 / 1  
points

3.

What are typical sizes for the training and test sets?

- ☐ 100% training set, 0% test set.
- ☒ 60% in the training set, 40% in the testing set.



**Correct Response**

- ☐ 20% test set, 80% training set.
- ☐ 90% training set, 10% test set

1 / 1  
points

4.

What are some common error rates for predicting binary variables (i.e. variables with two possible values like yes/no, disease/normal, clicked/didn't click)? Check the correct answer(s).

 $R^2$ 

Root mean squared error



Correlation



Sensitivity

**Correct Response**

Median absolute deviation

1 / 1  
points

5.

Suppose that we have created a machine learning algorithm that predicts whether a link will be clicked with 99% sensitivity and 99% specificity. The rate the link is clicked is 1/1000 of visits to a website. If we predict the link will be clicked on a specific visit, what is the probability it will actually be clicked?



99%



9%

**Correct Response**

0.009%



89.9%

