✓ **Congratulations! You passed!**

Grade received 100%   Latest Submission Grade 100%   To pass 80% or higher

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1.   1 / 1 point

In the context of machine learning, what is a diagnostic?

- ⦿ A test that you run to gain insight into what is/isn't working with a learning algorithm.
- ○ This refers to the process of measuring how well a learning algorithm does on a test set (data that the algorithm was not trained on).
- ○ A process by which we quickly try as many different ways to improve an algorithm as possible, so as to see what works.
- ○ An application of machine learning to medical applications, with the goal of diagnosing patients' conditions.

✓ **Correct**
Yes! A diagnostic is a test that you run to gain insight into what is/isn't working with a learning algorithm, to gain guidance into improving its performance.

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2.   1 / 1 point

True/False? It is always true that the better an algorithm does on the training set, the better it will do on generalizing to new data.

- ○ True
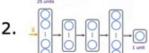- ⦿ False

✓ **Correct**
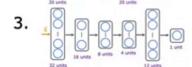Actually, if a model overfits the training set, it may not generalize well to new data.

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3.   1 / 1 point

Model selection – choosing a neural network architecture

1. $w^{(1)}, b^{(1)}$ $J_{cv}(\mathbf{W}^{(1)}, \mathbf{B}^{(1)})$

2. $w^{(2)}, b^{(2)}$ $J_{cv}(\mathbf{W}^{(2)}, \mathbf{B}^{(2)})$

3. $w^{(3)}, b^{(3)}$ $J_{cv}(\mathbf{W}^{(3)}, \mathbf{B}^{(3)})$

Train, CV

Pick $\mathbf{W}^{(2)}, \mathbf{B}^{(2)}$

Estimate generalization error using the test set: $J_{test}(\mathbf{W}^{(2)}, \mathbf{B}^{(2)})$

For a classification task; suppose you train three different models using three different neural network architectures. Which data do you use to evaluate the three models in order to choose the best one?

- ○ The training set
- ○ The test set
- ○ All the data -- training, cross validation and test sets put together.
- ⦿ The cross validation set

✓ **Correct**
Correct. Use the cross validation set to calculate the cross validation error on all three models in order to compare which of the three models is best.