✓ **Congratulations! You passed!**

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

[**Go to next item**]

---

1.   1 / 1 point

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

○ 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).

○ An application of machine learning to medical applications, with the goal of diagnosing patients' conditions.

○ A process by which we quickly try as many different ways to improve an algorithm as possible, so as to see what works.

◉ A test that you run to gain insight into what is/isn't working with a learning algorithm.

  ✓ **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.

---

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.
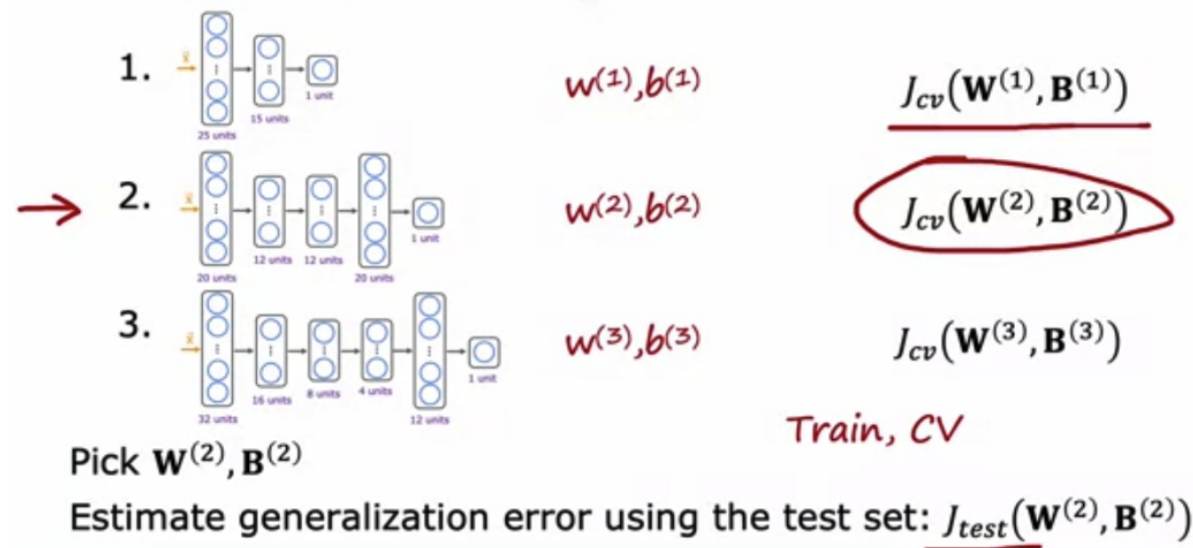
○ True

◉ False

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

---

3.   1 / 1 point

Model selection – choosing a neural network architecture

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

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

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 cross validation set

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

○ The test 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.