✓ **Congratulations! You passed!**

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

[Go to next item]

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1.   1 / 1 point

Which of these is a way to do error analysis?

○ Calculating the test error J_{test}

◉ Manually examine a sample of the training examples that the model misclassified in order to identify common traits and trends.

○ Collecting additional training data in order to help the algorithm do better.

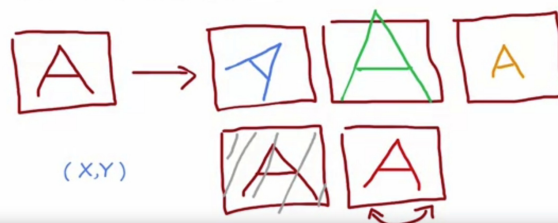○ Calculating the training error J_{train}

✓ **Correct**
Correct. By identifying similar types of errors, you can collect more data that are similar to these misclassified examples in order to train the model to improve on these types of examples.

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2.   1 / 1 point

We sometimes take an existing training example and modify it (for example, by rotating an image slightly) to create a new example with the same label. What is this process called?

○ Bias/variance analysis

○ Machine learning diagnostic

○ Error analysis

◉ Data augmentation

✓ **Correct**
Yes! Modifying existing data (such as images, or audio) is called data augmentation.

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3.   1 / 1 point

Option 1: only train output layers parameters.
Option 2: train all parameters.

What are two possible ways to perform transfer learning? Hint: two of the four choices are correct.

- [x] You can choose to train just the output layers' parameters and leave the other parameters of the model fixed.

  ⊘ **Correct**
  Correct. The earlier layers of the model may be reusable as is, because they are identifying low level features that are relevant to your task.

- [ ] Download a pre-trained model and use it for prediction without modifying or re-training it.

- [ ] Given a dataset, pre-train and then further fine tune a neural network on the same dataset.

- [x] You can choose to train all parameters of the model, including the output layers, as well as the earlier layers.

  ⊘ **Correct**
  Correct. It may help to train all the layers of the model on your own training set. This may take more time compared to if you just trained the parameters of the output layers.