

Try again once you are ready

Grade received 50%

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To pass 80% or higher

Try again

1.

0 / 1 point

Error analysis

$m_{cv} =$ ~~500~~⁵⁰⁰⁰ examples in cross validation set.
Algorithm misclassifies ~~100~~¹⁰⁰⁰ of them.
Manually examine 100 examples and categorize them based on common traits.

- Pharma: 21 *more data features*
- Deliberate misspellings (w4tches, med1cine): 3
- Unusual email routing: 7
- Steal passwords (phishing): 18 *more data features*
- Spam message in embedded image: 5

Which of these is a way to do error analysis?

- ☒ Calculating the test error J_{test}
- ☐ Calculating the training error J_{train}
- ☐ 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.

☒ **Incorrect**
Calculating the test error is useful for determining if a model generalizes well to new examples, but in the lectures, this is not what "error analysis" refers to.

2.

1 / 1 point

Data augmentation

Augmentation: modifying an existing training example to create a new training example.

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?

- ☐ Error analysis
- ☒ Data augmentation
- ☐ Bias/variance analysis
- ☐ Machine learning diagnostic

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

3.

0.5 / 1 point

Transfer learning

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.

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

☒ **This should not be selected**
Incorrect. Transfer learning usually includes downloading the parameters of a pre-trained model, and then modifying the output layers, as well as training it on your own dataset, in order to perform the desired task. Downloading and using a model "as is", is fine if it works, but is not an example of transfer learning.

- ☐ You can choose to train all parameters of the model, including the output layers, as well as the earlier layers.
- ☐ Given a dataset, pre-train and then further fine tune a neural network on the same dataset.
- ☒ 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.