

Graded Quiz: Test your Project understanding

LATEST SUBMISSION GRADE
100%

1. Why was Exploratory Data Analysis useful for our project?

1 / 1 point

- ☒ It showed us that there are some samples that existed to multiple classes.

✓ **Correct**

Correct. The BERT finetuning approach we undertook required a sample to belong to a single class.

- ☒ It showed us the severe class imbalance in our dataset.

✓ **Correct**

Correct! This helped us to use a stratified approach when splitting our dataset.

- ☐ It gave us hints as to what learning rate to use.

2. Why did we use a stratified approach to split out dataset for training and validation?

1 / 1 point

- ☒ To ensure that each class had some representation in each resulting set.

✓ **Correct**

Correct! Not using this approach could have catastrophic repercussions on our model.

- ☐ To avoid having samples fall into both the training and validation splits.

- ☒ Our dataset comprised severe class imbalances, and we had to address it by splitting each class's samples into one of the two sets.

✓ **Correct**

Correct. This addressed the class imbalance in the eyes of evaluation.

3. What does BERT's attention mask refer to?

1 / 1 point

- ☐ It tells BERT which words in an input sentence are important and which are insignificant.
- ☐ It allows for one word to look back at different words to gather additional context.
- ☒ It marks whether or not a dimension in the input vector is text or padding.

✓ **Correct**

Correct. Since BERT needs a fixed-size input, padding is necessary to ensure this holds.

4. Why do we use a RandomSampler for training, but not necessarily for validation?

1 / 1 point

- ☐ It's an insignificant artifact of BERT's training.
- ☒ For each epoch, we want our dataset to be randomly sorted to improve generalization and prevent the model from learning common sequences of input.

✓ **Correct**

Correct. It's just a method of adding good 'noise' to training.

5. Why do we use random seed values in machine learning projects?

1 / 1 point

- ☐ To make sure that our model is not biased.
- ☒ For the sake of reproducibility.

✓ **Correct**

Correct. Claims of amazing performance mean nothing without being able to reproduce them.

6. What is the point of using `torch.zero_grad()` when training a PyTorch model?

1 / 1 point

- ☒ It sets all gradients to zero for each new batch gradient change.
- ☐ It allows for our model's weights to begin from 0.
- ☐ It halts model training for evaluation.

✓ **Correct**

Correct. We don't want gradient accumulation which is usually useful for Recurrent Neural Networks (RNNs).

7. What does `model.train()` do?

1 / 1 point

- ☐ It commences model training.
- ☒ It sets the model mode to enter training mode, wherein backpropagation can occur.

✓ **Correct**

Correct. Just like `model.eval()` sets us up for backpropagation to not occur and freezes all weights.

8. Large-scale models are incredibly powerful since they have access to such huge chunks of data from which to learn. Can you think of another task you could finetune BERT to learn, and secondly, do you see any potential problems with using such a model in production?

1 / 1 point

BERT model can be used in any task that utilizes sequential data for training.
BERT model training can be time-consuming.

✓ **Correct**

BERT can be adapted to do question answering, multiple choice, sentence completion, and predicting missing words.

Firstly, one clear problem with BERT is its speed. It can be very slow for production. Secondly, we have a more philosophical problem. What kind of biases do you think a large scale language model will have if it's trained on data from the internet which represents wealthier people and countries more than poorer ones? Sure, if we are just detecting sentiment in Tweets, maybe this isn't an issue. What if we're using it to screen and monitor perception of people though?

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