Practical aspects of deep learning

LATEST SUBMISSION GRADE

90%

1. If you have 10,000,000 examples, how would you split the train/dev/test set?

1 / 1 point

○ 33% train . 33% dev . 33% test

● 98% train . 1% dev . 1% test

○ 60% train . 20% dev . 20% test

✓ Correct

2. The dev and test set should:

1 / 1 point

● Come from the same distribution

○ Come from different distributions

○ Be identical to each other (same (x,y) pairs)

○ Have the same number of examples

✓ Correct

3. If your Neural Network model seems to have high bias, what of the following would be promising things to try? (Check all that apply.)

1 / 1 point

☑ Increase the number of units in each hidden layer

✓ Correct

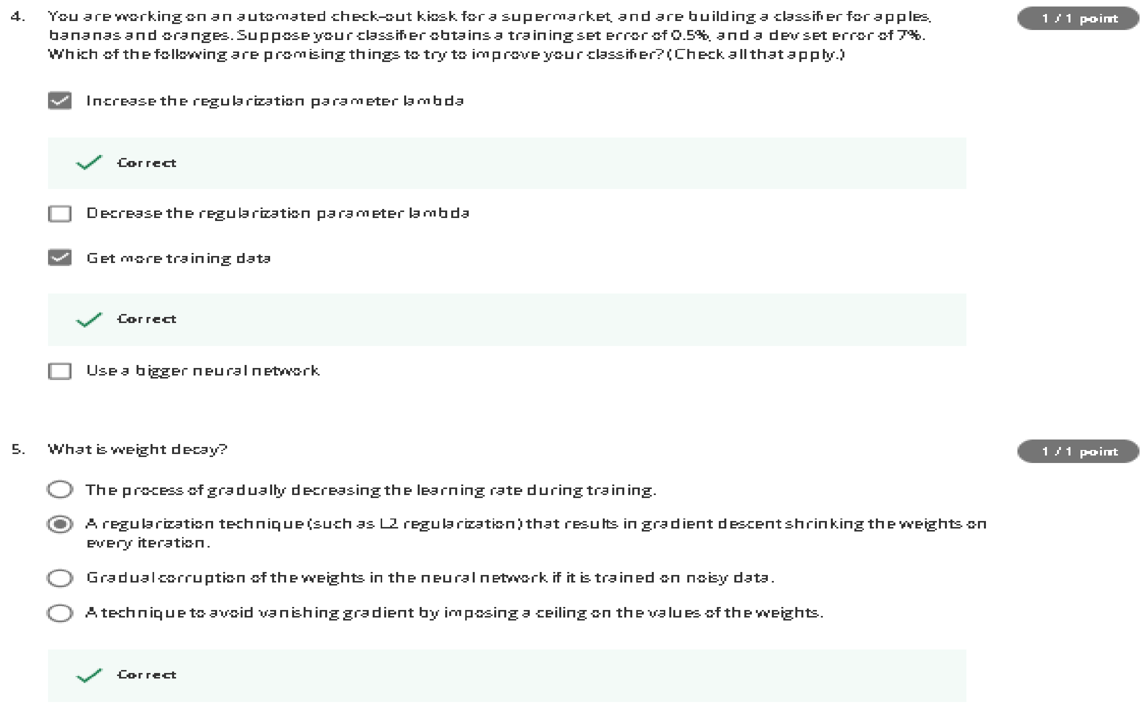
☑ Make the Neural Network deeper

✓ Correct

□ Get more test data

□ Add regularization

□ Get more training data



4. You are working on an automated check-out kiosk for a supermarket, and are building a classifier for apples, bananas and oranges. Suppose your classifier obtains a training set error of 0.5%, and a dev set error of 7%. Which of the following are promising things to try to improve your classifier? (Check all that apply.)

1 / 1 point

☑ Increase the regularization parameter lambda

✓ Correct

□ Decrease the regularization parameter lambda

☑ Get more training data

✓ Correct

□ Use a bigger neural network

5. What is weight decay?

1 / 1 point

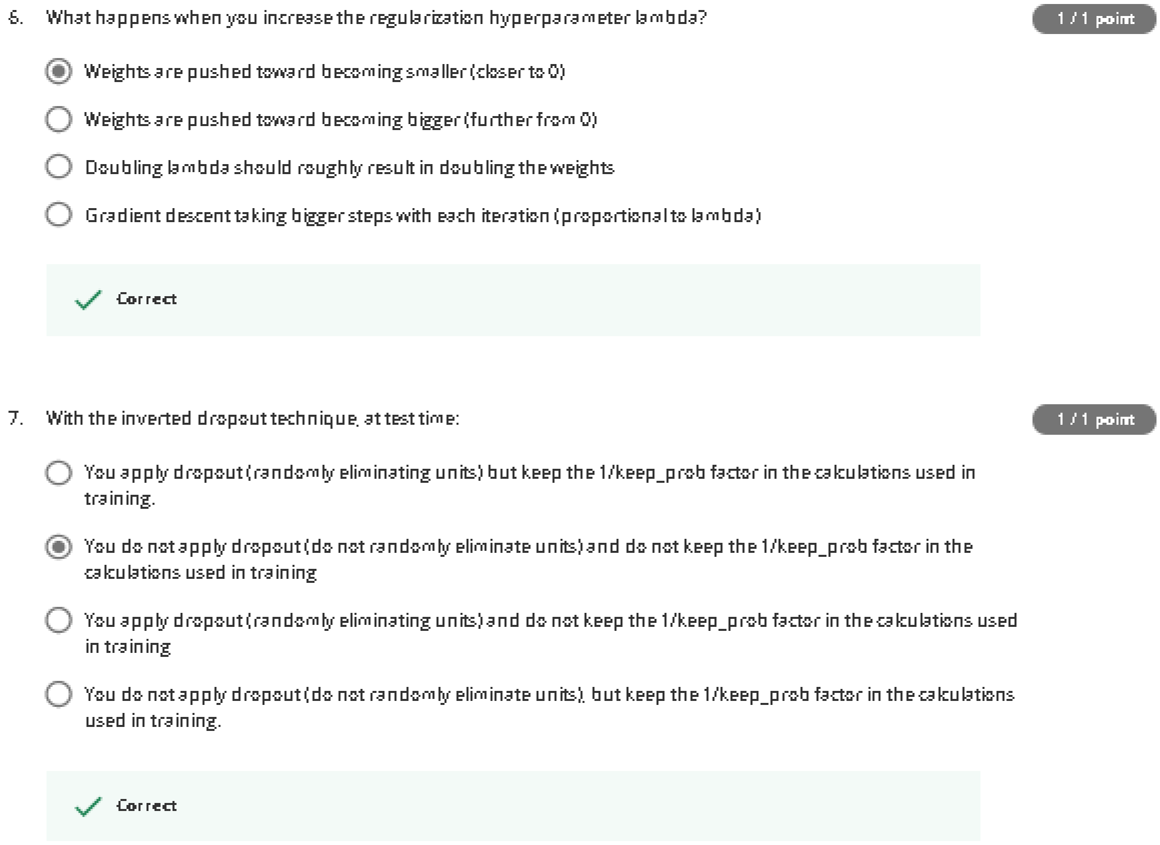
○ The process of gradually decreasing the learning rate during training.

● A regularization technique (such as L2 regularization) that results in gradient descent shrinking the weights on every iteration.

○ Gradual corruption of the weights in the neural network if it is trained on noisy data.

○ A technique to avoid vanishing gradient by imposing a ceiling on the values of the weights.

✓ Correct



6. What happens when you increase the regularization hyperparameter lambda?

1 / 1 point

● Weights are pushed toward becoming smaller (closer to 0)

○ Weights are pushed toward becoming bigger (further from 0)

○ Doubling lambda should roughly result in doubling the weights

○ Gradient descent taking bigger steps with each iteration (proportional to lambda)

✓ Correct

7. With the inverted dropout technique, at test time:

1 / 1 point

○ You apply dropout (randomly eliminating units) but keep the 1/keep_prob factor in the calculations used in training.

● You do not apply dropout (do not randomly eliminate units) and do not keep the 1/keep_prob factor in the calculations used in training

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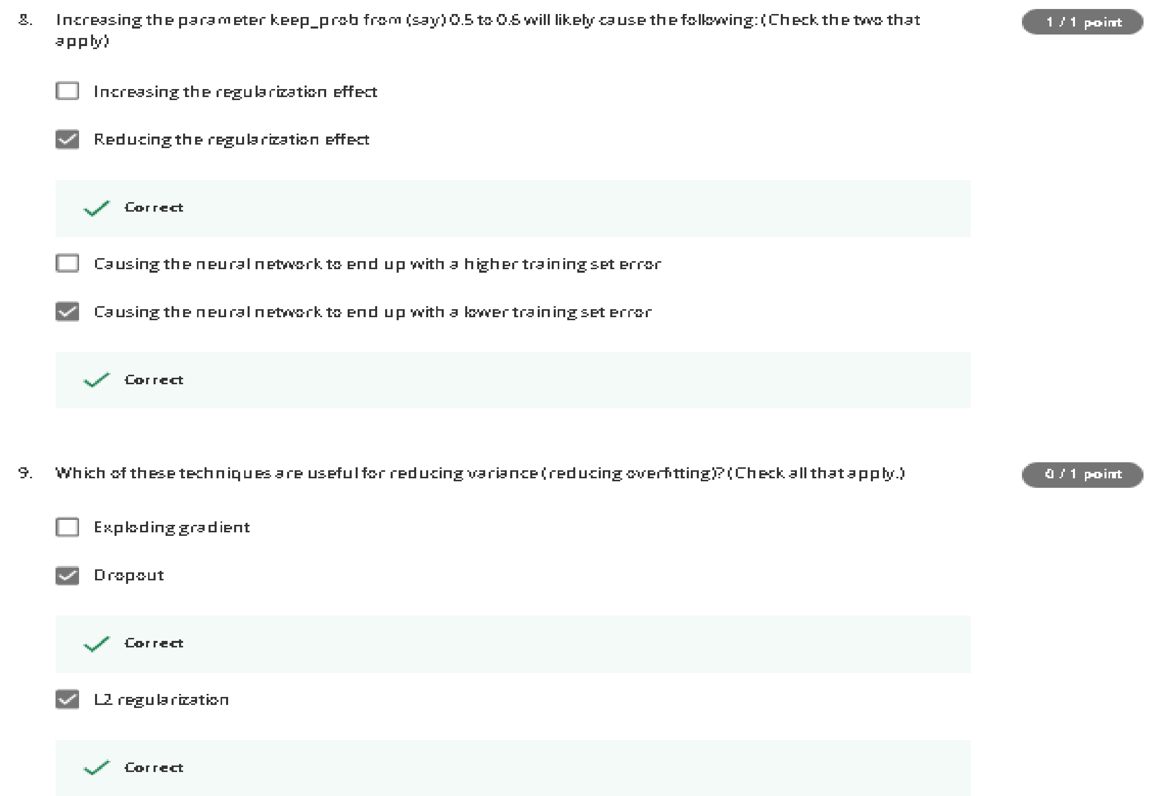
○ You do not apply dropout (do not randomly eliminate units), but keep the 1/keep_prob factor in the calculations used in training.

✓ Correct



8. Increasing the parameter keep_prob from (say) 0.5 to 0.6 will likely cause the following: (Check the two that apply)

1 / 1 point

☐ Increasing the regularization effect

☑ Reducing the regularization effect

✓ Correct

☐ Causing the neural network to end up with a higher training set error

☑ Causing the neural network to end up with a lower training set error

✓ Correct

9. Which of these techniques are useful for reducing variance (reducing overfitting)? (Check all that apply.)

0 / 1 point

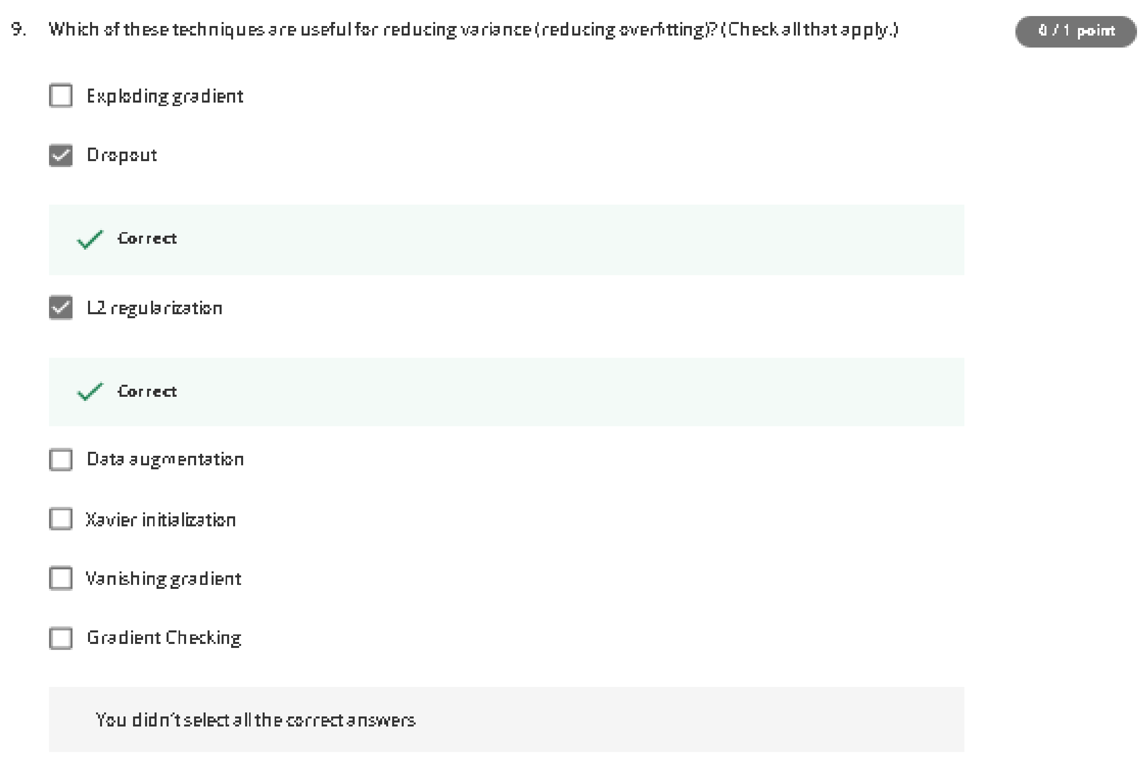
☐ Exploding gradient

☑ Dropout

✓ Correct

☑ L2 regularization

✓ Correct



9. Which of these techniques are useful for reducing variance (reducing overfitting)? (Check all that apply.)

0 / 1 point

☐ Exploding gradient

☑ Dropout

✓ Correct

☑ L2 regularization

✓ Correct

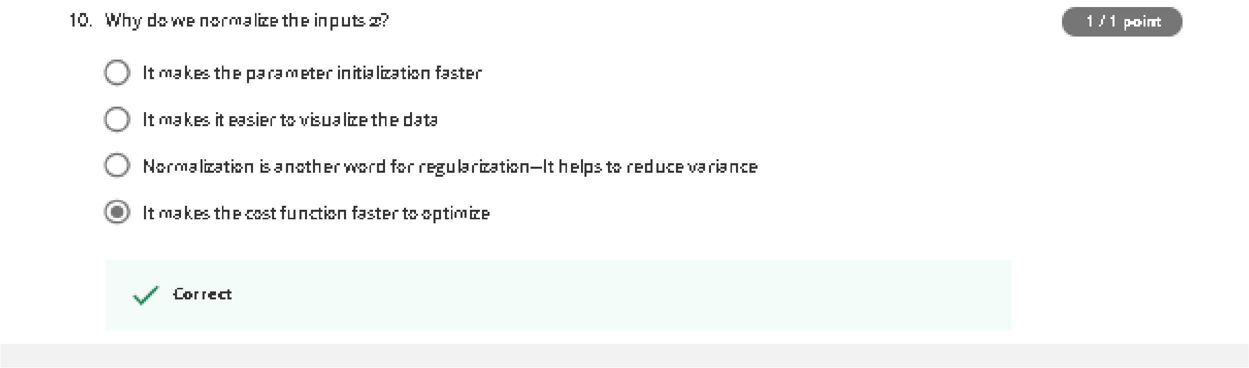
☐ Data augmentation

☐ Xavier initialization

☐ Vanishing gradient

☐ Gradient Checking

You didn't select all the correct answers



10. Why do we normalize the inputs x?

1 / 1 point

○ It makes the parameter initialization faster

○ It makes it easier to visualize the data

○ Normalization is another word for regularization—It helps to reduce variance

● It makes the cost function faster to optimize

✓ Correct