축하합니다! 통과하셨습니다!

받은 학점 100% 최신 제출물 학점 100% 통과 점수: 80% 이상

다음 항목으로 이동

1. Which of the following are true? (Check all that apply.) 1 / 1점

- [x] $a^{[2]}$ denotes the activation vector of the 2^{nd} layer.
  - ✓ Correct
- [x] X is a matrix in which each column is one training example.
  - ✓ Correct
- [ ] $a^{[2](12)}$ denotes activation vector of the 12^{th} layer on the 2^{nd} training example.
- [x] $a_4^{[2]}$ is the activation output by the 4^{th} neuron of the 2^{nd} layer
  - ✓ Correct
- [ ] X is a matrix in which each row is one training example.
- [x] $a^{[2](12)}$ denotes the activation vector of the 2^{nd} layer for the 12^{th} training example.
  - ✓ Correct
- [ ] $a_4^{[2]}$ is the activation output of the 2^{nd} layer for the 4^{th} training example

더 보기

맞습니다
Great, you got all the right answers.

2. The sigmoid function is only mentioned as an activation function for historical reasons. The tanh is always preferred without exceptions in all the layers of a Neural Network. True/False? 1 / 1점

- (•) False
- ( ) True

더 보기

맞습니다
Yes. Although the tanh almost always works better than the sigmoid function when used in hidden layers, thus is always proffered as activation function, the exception is for the output layer in classification problems.

3. Which of these is a correct vectorized implementation of forward propagation for layer l, where $1 \leq l \leq L$? 1 / 1점

- ( ) $Z^{[l]} = W^{[l-1]} A^{[l]} + b^{[l-1]}$
  $A^{[l]} = g^{[l]}(Z^{[l]})$
- ( ) $Z^{[l]} = W^{[l]} A^{[l]} + b^{[l]}$
  $A^{[l+1]} = g^{[l+1]}(Z^{[l]})$
- (•) $Z^{[l]} = W^{[l]} A^{[l-1]} + b^{[l]}$
  $A^{[l]} = g^{[l]}(Z^{[l]})$
- ( ) $Z^{[l]} = W^{[l]} A^{[l]} + b^{[l]}$
  $A^{[l+1]} = g^{[l]}(Z^{[l]})$

더 보기

맞습니다

4. The use of the ReLU activation function is becoming more rare because the ReLU function has no derivative for $c = 0$. True/False? 1 / 1점

- (•) False
- ( ) True

더 보기

맞습니다
Yes. Although the ReLU function has no derivative at $c = 0$ this rarely causes any problems in practice. Moreover it has become the default activation function in many cases, as explained in the lectures.

5. Consider the following code: 1 / 1점

A = np.random.randn(4,3)

B = np.sum(A, axis = 1, keepdims = True)

What will be B.shape? (If you're not sure, feel free to run this in python to find out).

- ( ) (4,)
- (•) (4, 1)
- ( ) (1, 3)
- ( ) (3,)

더 보기

맞습니다
Yes, we use (keepdims = True) to make sure that A.shape is (4,1) and not (4,). It makes our code more robust.

6. Suppose you have built a neural network. You decide to initialize the weights and biases to be zero. Which of the 1 / 1점

following statements is true?

- (●) Each neuron in the first hidden layer will perform the same computation. So even after multiple iterations of gradient descent, each neuron in the layer will be computing the same thing as other neurons.
- ( ) The first hidden layer's neurons will perform different computations from each other even in the first iteration; their parameters will thus keep evolving in their own way.
- ( ) Each neuron in the first hidden layer will perform the same computation in the first iteration. But after one iteration of gradient descent they will learn to compute different things because we have "broken symmetry".
- ( ) Each neuron in the first hidden layer will compute the same thing, but neurons in different layers will compute different things, thus we have accomplished "symmetry breaking" as described in the lecture.

더 보기

맞습니다

7. A single output and single layer neural network that uses the sigmoid function as activation is equivalent to the logistic regression. True/False

1 / 1점

- (●) True
- ( ) False

더 보기

맞습니다
Yes. The logistic regression model can be expressed by $\hat{y} = \sigma(W x + b)$. This is the same as $a^{[1]} = \sigma(W^{[1]} X + b)$.

8. Which of the following is true about the ReLU activation functions?

1 / 1점

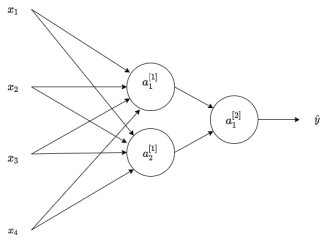
- ( ) They are increasingly being replaced by the tanh in most cases.
- ( ) They cause several problems in practice because they have no derivative at 0. That is why Leaky ReLU was invented.
- ( ) They are only used in the case of regression problems, such as predicting house prices.
- (●) They are the go to option when you don't know what activation function to choose for hidden layers.

더 보기

맞습니다

9. Consider the following 1 hidden layer neural network:

1 / 1점



Which of the following statements are True? (Check all that apply).

- [x] $b^{[1]}$ will have shape (2, 1).

  Correct
  Yes. $b^{[k]}$ is a column vector and has the same number of rows as neurons in the k-th layer.

- [ ] $W^{[1]}$ will have shape (4, 2).
- [ ] $W^{[2]}$ will have shape (2, 1)
- [x] $W^{[1]}$ will have shape (2, 4).

  Correct
  Yes. The number of rows in $W^{[k]}$ is the number of neurons in the k-th layer and the number of columns is the number of inputs of the layer.

- [x] $W^{[2]}$ will have shape (1, 2)

  Correct
  Yes. The number of rows in $W^{[k]}$ is the number of neurons in the k-th layer and the number of columns is the number of inputs of the layer.

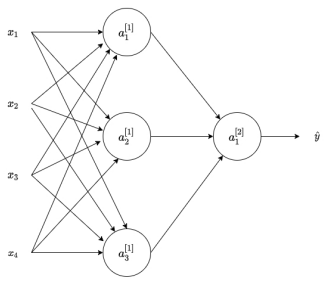
- [ ] $b^{[1]}$ will have shape (4, 2)

더 보기

맞습니다
Great, you got all the right answers.

10. Consider the following 1 hidden layer neural network:

1 / 1점



What are the dimensions of $Z^{[1]}$ and $A^{[1]}$?

- (●) $z^{[1]}$ and $a^{[1]}$ are (3, m)

- $Z^{[1]}$ and $A^{[1]}$ are (3, 1)
- $Z^{[1]}$ and $A^{[1]}$ are (4, 1)
- $Z^{[1]}$ and $A^{[1]}$ are (4, m)

더 보기

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Yes. The $Z^{[1]}$ and $A^{[1]}$ are calculated over a batch of training examples. The number of columns in $Z^{[1]}$ and $A^{[1]}$ is equal to the number of examples in the batch, m. And the number of rows in $Z^{[1]}$ and $A^{[1]}$ is equal to the number of neurons in the first layer.