Your grade: 100%

Your latest: **100%** • Your highest: **100%** • To pass you need at least 80%. We keep your highest score.

Next item →

1. Which of the following is stored in the 'cache' during forward propagation for latter use in backward propagation? **1 / 1 point**

- ( ) $W^{[l]}$
- (•) $Z^{[l]}$
- ( ) $b^{[l]}$

Correct
Yes. This value is useful in the calculation of $dW^{[l]}$ in the backward propagation.

2. Which of the following are "parameters" of a neural network? (Check all that apply.) **1 / 1 point**

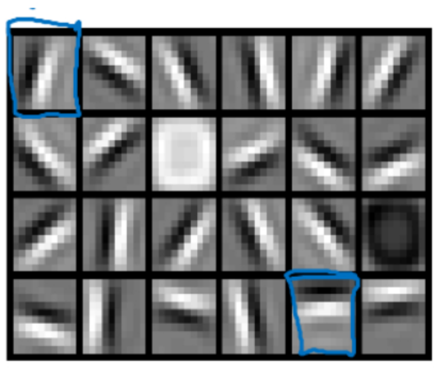
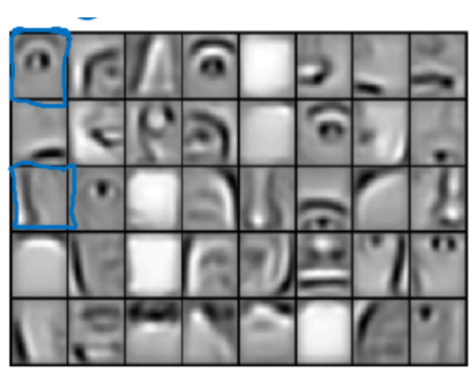
- [ ] L the number of layers of the neural network.
- [ ] $g^{[l]}$ the activation functions.
- [x] $b^{[l]}$ the bias vector.

Correct
Correct. The weight matrices and the bias vectors are the parameters of the network.

- [x] $W[l]$ the weight matrices.

Correct
Correct. The weight matrices and the bias vectors are the parameters of the network.

3. Which of the following is more likely related to the early layers of a deep neural network? **1 / 1 point**

- (•) 
- ( ) 
- ( ) 

Correct
Yes. The early layer of a neural network usually computes simple features such as edges and lines.

4. We can not use vectorization to calculate $da^{[l]}$ in backpropagation, we must use a for loop over all the examples. True/False? **1 / 1 point**

- ( ) True
- (•) False

Correct
Correct. We can use vectorization in backpropagation to calculate $dA^{[l]}$ for each layer. This computation is done over all the training examples.

5. Suppose W[i] is the array with the weights of the i-th layer, b[i] is the vector of biases of the i-th layer, and g is the activation function used in all layers. Which of the following calculates the forward propagation for the neural network with L layers. **1 / 1 point**

( )

```
for i in range(L):
 Z[i+1] = W[i+1]*A[i+1] + b[i+1]
 A[i+1] = g(Z[i+1])
```

( )

```
for i in range(L):
 Z[i] = W[i]*X + b[i]
 A[i] = g(Z[i])
```

( )

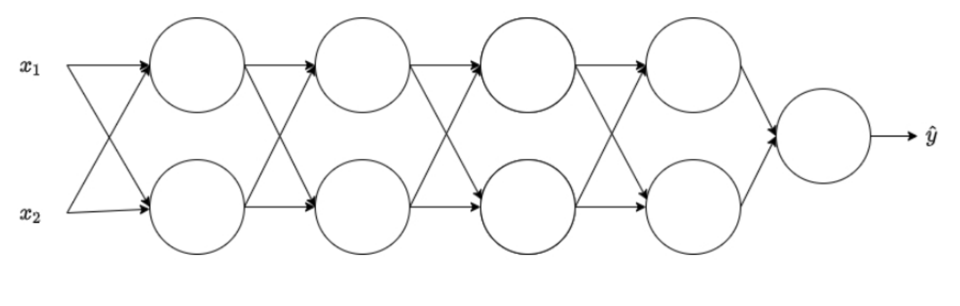
```
for i in range(1, L):
 Z[i] = W[i]*A[i-1] + b[i]
 A[i] = g(Z[i])
```

(•)

```
for i in range(1, L+1):
 Z[i] = W[i]*A[i-1] + b[i]
 A[i] = g(Z[i])
```

Correct
Yes. Remember that the range omits the last number thus the range from 1 to L+1 gives the L necessary values.

6. Consider the following neural network: **1 / 1 point**



How many layers does this network have?

- ( ) The number of layers L is 2.
- ( ) The number of layers L is 6
- (•) The number of layers L is 5.
- ( ) The number of layers L is 4.

Correct
Yes. The number of layers is the number of hidden layers + 1.

7. During forward propagation, to calculate $A^{[l]}$, you use the activation function $g^{[l]}$ with the values of $Z^{[l]}$. **1 / 1 point**

True/False: During backward propagation, you calculate $dA^{[l]}$ from $Z^{[l]}$.

- ( ) True
- (•) False

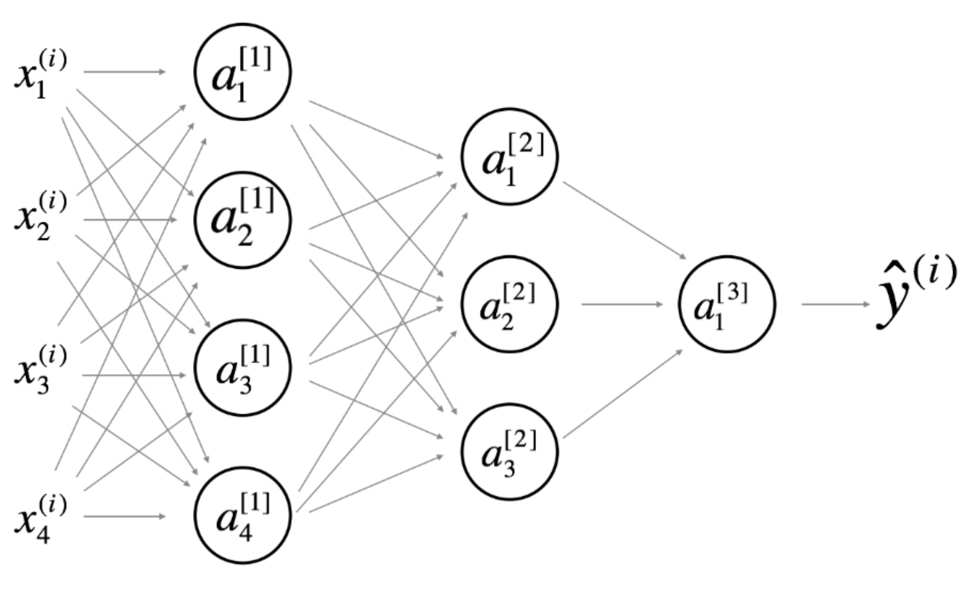
Correct
Correct. During backward propagation we are interested in computing $dW^{[l]}$ and $db^{[l]}$. For that we use g'^{L}, $dZ^{[l]}$, $Z^{[l]}$, and $W^{[l]}$.

8. A shallow neural network with a single hidden layer and 6 hidden units can compute any function that a neural network with 2 hidden layers and 6 hidden units can compute. True/False? **1 / 1 point**

- (•) False
- ( ) True

Correct
Correct. As seen during the lectures there are functions you can compute with a "small" L-layer deep neural network that shallower networks require exponentially more hidden units to compute.

9. Consider the following 2 hidden layer neural network: **1 / 1 point**



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

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

Correct
Yes. More generally, the shape of $W^{[l]}$ is $(n^{[l]}, n^{[l-1]})$.

- [x] $W^{[3]}$ will have shape (1, 3)

Correct
Yes. More generally, the shape of $W^{[l]}$ is $(n^{[l]}, n^{[l-1]})$.

- [ ] $W^{[3]}$ will have shape (3, 1)
- [x] $W^{[2]}$ will have shape (3, 4)

Correct
Yes. More generally, the shape of $W^{[l]}$ is $(n^{[l]}, n^{[l-1]})$.

- [ ] $b^{[3]}$ will have shape (3, 1)
- [ ] $b^{[1]}$ will have shape (3, 1)
- [x] $b^{[3]}$ will have shape (1, 1)

Correct
Yes. More generally, the shape of $b^{[l]}$ is $(n^{[l]}, 1)$.

- [x] $b^{[2]}$ will have shape (3, 1)

Correct
Yes. More generally, the shape of $b^{[l]}$ is $(n^{[l]}, 1)$.

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

Correct
Yes. More generally, the shape of $b^{[l]}$ is $(n^{[l]}, 1)$.

- [ ] $b^{[2]}$ will have shape (1, 1)
- [ ] $W^{[2]}$ will have shape (3, 1)
- [ ] $W^{[1]}$ will have shape (3, 4)

10. Whereas the previous question used a specific network, in the general case what is the dimension of $b^{[l]}$, the bias vector associated with layer l? **1 / 1 point**

- ( ) $b^{[l]}$ has shape $(1, n^{[l]})$
- ( ) $b^{[l]}$ has shape $(n^{[l+1]}, 1)$
- ( ) $b^{[l]}$ has shape $(1, n^{[l-1]})$
- (•) $b^{[l]}$ has shape $(n^{[l]}, 1)$

Correct
True. $b^{[l]}$ is a column vector with the same number of rows as units in the respective layer.