축하합니다! 통과하셨습니다!

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다음 항목으로 이동

1. In logistic regression given $\mathbf{x}$ and parameters $w \in \mathbb{R}^{n_x}, b \in \mathbb{R}$. Which of the following best expresses what we want $\hat{y}$ to tell us? **0 / 1점**

- $P(y = \hat{y}|\mathbf{x})$
- $\sigma(W\mathbf{x} + b)$
- $\sigma(W\mathbf{x})$
- $P(y = 1|\mathbf{x})$

더 보기

✗ 틀립니다
No. We want the output $\hat{y}$ to tell us the probability that $y = 1$ given x.

2. Suppose that $\hat{y} = 0.9$ and $y = 1$. What is the value of the "Logistic Loss"? Choose the best option. **1 / 1점**

- 0.005
- $\mathcal{L}(\hat{y}, y) = -(\hat{y}\ \log y + (1 - \hat{y})\ \log(1 - y))$
- $+\infty$
- 0.105

더 보기

✓ 맞습니다
Yes. Since $\mathcal{L}(\hat{y}, y) = -(y\ \log \hat{y} + (1 - y)\ \log(1 - \hat{y}))$, for the given values we get $\mathcal{L}(\hat{y}, y) = -(1\ \log 0.9 + 0\ \log 0.1)$

3. Suppose x is a (8, 1) array. Which of the following is a valid reshape? **1 / 1점**

- x.reshape(-1, 3)
- x.reshape(1, 4, 3)
- x.reshape(2, 4, 4)
- x.reshape(2, 2, 2)

더 보기

맞습니다
Yes. This generates uses 2*2*2 = 8 entries.

4. Consider the following random arrays a and b, and c: **1 / 1점**

$a = np.random.randn(3, 4)\ \#\ a.shape = (3, 4)$

$b = np.random.randn(1, 4)\ \#\ b.shape = (1, 4)$

$c = a + b$

What will be the shape of c?

- (●) c.shape = (3, 4)
- ( ) The computation cannot happen because it is not possible to broadcast more than one dimension.
- ( ) c.shape = (1, 4)
- ( ) c.shape = (3, 1)

더 보기

맞습니다
Yes. Broadcasting is used, so row b is copied 3 times so it can be summed to each row of a.

5. Consider the two following random arrays a and b: **1 / 1점**

$a = np.random.randn(1, 3)\ \#\ a.shape = (1, 3)$

$b = np.random.randn(3, 3)\ \#\ b.shape = (3, 3)$

$c = a * b$

What will be the shape of c?

- ( ) c.shape = (1, 3)
- ( ) The computation cannot happen because it is not possible to broadcast more than one dimension.
- (●) c.shape = (3, 3)
- ( ) The computation cannot happen because the sizes don't match.

더 보기

맞습니다
Yes. Broadcasting allows row a to be multiplied element-wise with each row of b to from c.

6. 1 / 1점

Suppose you have n_x input features per example. If we decide to use row vectors $\mathbf{x}_j$ for the features and $X = \begin{bmatrix} \mathbf{x}_1 \\ \mathbf{x}_2 \\ \vdots \\ \mathbf{x}_m \end{bmatrix}$.

What is the dimension of X?

- $(1, n_x)$
- (m, n_x)
- (n_x, m)
- (n_x, n_x)

더 보기

맞습니다
Yes. Each $\mathbf{x}_j$ has dimension $1 \times n_x$, X is built stacking all rows together into a $m \times n_x$ array.

7. Consider the following array: 1 / 1점

$a = np.array([[2, 1], [1, 3]])$

What is the result of $np.dot(a, a)$?

- $\begin{pmatrix} 5 & 5 \\ 5 & 10 \end{pmatrix}$
- $\begin{pmatrix} 4 & 2 \\ 2 & 6 \end{pmatrix}$
- The computation cannot happen because the sizes don't match. It's going to be an "Error"!
- $\begin{pmatrix} 4 & 1 \\ 1 & 9 \end{pmatrix}$

더 보기

맞습니다
Yes, recall that * indicates the element wise multiplication and that np.dot() is the matrix multiplication. Thus $\begin{pmatrix} (2)(2)+(1)(1) & (2)(1)+(1)(3) \\ (1)(2)+(3)(1) & (1)(1)+(3)(3) \end{pmatrix}$.

8. Consider the following code snippet: 1 / 1점

$a.shape = (3, 4)$

$b.shape = (4, 1)$

for i in range(3):

for j in range(4):

c[i][j] = a[i][j]*b[j]

How do you vectorize this?

- (●) c = a*b.T
- ( ) c = a*b
- ( ) c = a.T*b
- ( ) c = np.dot(a,b)

더 보기

맞습니다
Yes. b.T gives a column vector with shape (1, 4). The result of c is equivalent to broadcasting a*b.T.

9. Consider the following arrays: **1 / 1점**

$a = np.array([[1, 1], [1, -1]])$

$b = np.array([[2], [3]])$

$c = a + b$

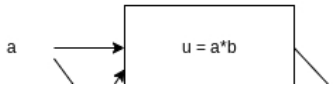
Which of the following arrays is stored in c?

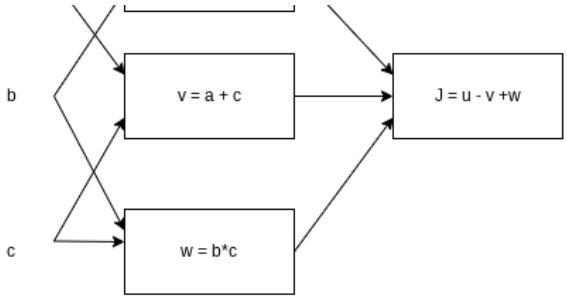
- (●) $\begin{matrix} 3 & 3 \\ 4 & 2 \end{matrix}$
- ( ) $\begin{matrix} 3 & 4 \\ 3 & 2 \end{matrix}$
- ( ) The computation cannot happen because the sizes don't match. It's going to be an "Error"!
- ( ) $\begin{pmatrix} 3 & 3 \\ 3 & 1 \\ 4 & 4 \\ 5 & 2 \end{pmatrix}$

더 보기

맞습니다
Yes. The array b is a column vector. This is copied two times and added to the array a to construct the array c.

10. Consider the following computational graph. **1 / 1점**





What is the output of J?

- $(a-1),(b+c)$
- $(a+c),(b-1)$
- $(c-1),(a+c)$
- $ab+bc+ac$

더 보기

맞습니다

Yes.

$$J=u-v+w=ab-(a+c)+bc=ab-a+bc-c=a\,(b-1)+c\,(b-1)=(a+c)\,(b-1)$$