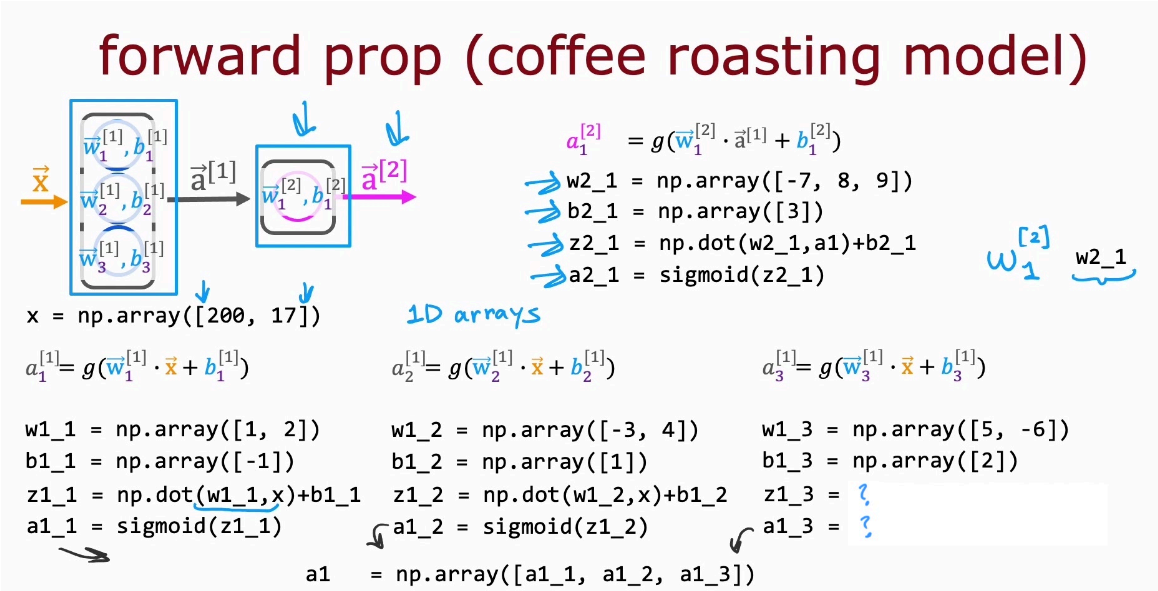
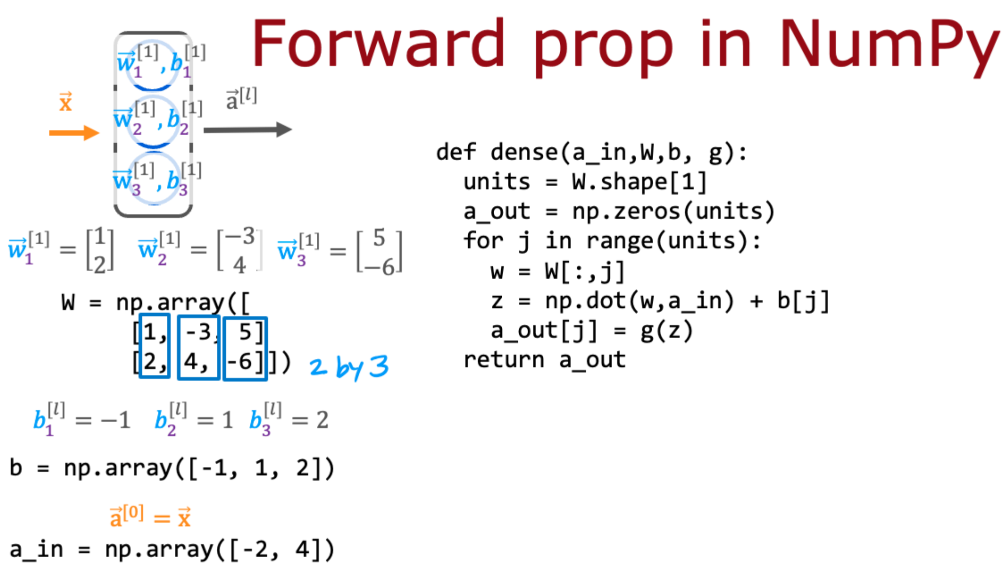
1 point



According to the lecture, how do you calculate the activation of the third neuron in the first layer using NumPy?

- [ ] layer_1 = Dense(units=3, activation='sigmoid')
  a_1 = layer_1(x)
- [x] z1_3 = np.dot(w1_3, x) + b1_3
  a1_3 = sigmoid(z1_3)
- [ ] z1_3 =w1_3 * x + b
  a1_3 = sigmoid(z1_3)

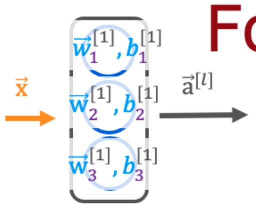
1 point



2.According to the lecture, when coding up the numpy array W, where would you place the w parameters for each neuron?

- [x] In the columns of W.
- [ ] In the rows of W.

Forward prop in NumPy



$\vec{w}_1^{[1]} = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$ $\vec{w}_2^{[1]} = \begin{bmatrix} -3 \\ 4 \end{bmatrix}$ $\vec{w}_3^{[1]} = \begin{bmatrix} 5 \\ -6 \end{bmatrix}$

```
W = np.array([
        [1, -3, 5]
        [2, 4, -6]])
```

2 by 3

```
def dense(a_in,W,b, g):
  units = W.shape[1]
  a_out = np.zeros(units)
  for j in range(units):
    w = W[:,j]
    z = np.dot(w,a_in) + b[j]
    a_out[j] = g(z)
  return a_out
```

3.

$b_1^{[l]} = -1$ $b_2^{[l]} = 1$ $b_3^{[l]} = 2$

```
b = np.array([-1, 1, 2])
```

$\vec{a}^{[0]} = \vec{x}$

```
a_in = np.array([-2, 4])
```

For the code above in the "dense" function that defines a single layer of neurons, how many times does the code go through the "for loop"? Note that W has 2 rows and 3 columns.

- ( ) 6 times
- ( ) 2 times
- (•) 3 times
- ( ) 5 times