Custom Layers
Graded Quiz • 30 min

Due Jun 19, 12:59 AM EEST

Congratulations! You passed!

Grade received 100%

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1. Lambda layer allows to execute an arbitrary function only within a Sequential API model. **1 / 1 point**

- ○ True
- ◉ False

Correct
Correct!

2. Which one of the following is the correct syntax for mapping an increment of 2 to the value of "x" using a Lambda layer? (tf = Tensorflow) **1 / 1 point**

- ◉ tf.keras.layers.Lambda(lambda x: tf.math.add(x, 2.0))
- ○ tf.keras.Lambda(x: tf.math.add(x, 2.0))
- ○ tf.keras.layers.Lambda(x: tf.math.add(x, 2.0))
- ○ tf.keras.layers(lambda x: tf.math.add(x, 2.0))

Correct
Correct!

3. One drawback of Lambda layers is that you cannot call a custom built function from within them. **1 / 1 point**

- ◉ False
- ○ True

Correct
Correct!

4. A *Layer* is defined by having "States" and "Computation". Consider the following code and check all that are true: **1 / 1 point**

```
class SimpleDense(Layer):

  def __init__(self, units=32):
    super(SimpleDense, self).__init__()
    self.units = units

  def build(self, input_shape):
    w_init = tf.random_normal_initializer()
    self.w = tf.Variable(name="kernel",
                         initial_value=w_init(shape=(input_shape[-1], self.units),
                                              dtype='float32'), trainable=True)

    b_init = tf.zeros_initializer()
    self.b = tf.Variable(name="bias",
                         initial_value=b_init(shape=(self.units,), dtype='float32'),
                                                              trainable=False)

  def call(self, inputs):
    return tf.matmul(inputs, self.w) + self.b
```

- [ ] After training, this class will return a w*X + b computation, where X is the input, w is the weight/kernel tensor with trained values, and b is the bias tensor with trained values.
- [x] You use def build(self, input_shape): to create the state of the layers and specify local input states.

  Correct
  Correct!

- [ ] def call(self, inputs): performs the computation and is called when the Class is instantiated.
- [ ] In def __init__(self, units=32): you use the *super* keyword to initialize all of the custom layer attributes

5. Consider the following code snippet. **1 / 1 point**

```
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  def __init__(self, units=32):
    super(SimpleDense, self).__init__()
    self.units = units

  def build(self, input_shape):
    w_init = tf.random_normal_initializer()
    self.w = tf.Variable(name="kernel",
                         initial_value=w_init(shape=(input_shape[-1], self.units),
                                              dtype='float32'), trainable=True)

    b_init = tf.zeros_initializer()
    self.b = tf.Variable(name="bias",
                         initial_value=b_init(shape=(self.units,), dtype='float32'),
                                                                   trainable=False)

  def call(self, inputs):
    return tf.matmul(inputs, self.w) + self.b
```

What are the function modifications that are needed for passing an activation function to this custom layer implementation?

- ◉ def __init__(self, units=32, activation=None):

  .

  .

  self.activation = tf.keras.activations.get(activation)

  def call(self, inputs):

  return self.activation(tf.matmul(inputs, self.w) + self.b)

Correct

Correct!