Tensorflow-basics

April 28, 2022

[1]:
```
# Import TensorFlow

import tensorflow as tf
```

0.1 Create a Tensor of n-dimension

0.1.1 0-dimension Tensor

[2]:
```
t1 = tf.constant(1,tf.float32)
```

[3]:
```
print(t1)
```

```
tf.Tensor(1.0, shape=(), dtype=float32)
```

[5]:
```
t2 = tf.constant(1, tf.int16, name="scaler 1")
print(t2)
```

```
tf.Tensor(1, shape=(), dtype=int16)
```

[6]:
```
t3 = tf.constant("Tensorflow", tf.string)
print(t3)
```

```
tf.Tensor(b'Tensorflow', shape=(), dtype=string)
```

0.1.2 1 dimension tensor

[7]:
```
t4 = tf.constant([1,3,5],tf.float32)
print(t4)
```

```
tf.Tensor([1. 3. 5.], shape=(3,), dtype=float32)
```

0.1.3 2 dimension tensor

[8]:
```
t5 = tf.constant([[1,3,5],[2,4,6]]              ,tf.float32)
print(t5)
```

```
tf.Tensor(
[[1. 3. 5.]
 [2. 4. 6.]], shape=(2, 3), dtype=float32)
```

[10]:
```
t6 = tf.constant([[1,3,5],[2,4,6],[2,9,1]]              ,tf.float32)
print(t6)
```

```
tf.Tensor(
[[1. 3. 5.]
 [2. 4. 6.]
 [2. 9. 1.]], shape=(3, 3), dtype=float32)
```

0.1.4 3 dimension tensor

[13]:
```
t7 = tf.constant([ [[1,3,5],[2,4,6],[2,9,1]], [[1,1,1],[2,2,2],[3,3,3]]     ]
    ,tf.float32)
print(t7)
```

```
tf.Tensor(
[[[1. 3. 5.]
  [2. 4. 6.]
  [2. 9. 1.]]

 [[1. 1. 1.]
  [2. 2. 2.]
  [3. 3. 3.]]], shape=(2, 3, 3), dtype=float32)
```

0.1.5 Shape of tensor

[19]:
```
t7.shape
```

[19]:
```
TensorShape([2, 3, 3])
```

[20]:
```
print(tf.zeros(5))
```

```
tf.Tensor([0. 0. 0. 0. 0.], shape=(5,), dtype=float32)
```

[22]:
```
print(tf.ones([2,3]))
```

```
tf.Tensor(
[[1. 1. 1.]
 [1. 1. 1.]], shape=(2, 3), dtype=float32)
```

Type Conversion

[24]:
```
t8_float = tf.constant(3.824,tf.float32)
t9_int = tf.cast(t8_float,dtype=tf.int32)
print(t8_float)
print(t9_int)
```

```
tf.Tensor(3.824, shape=(), dtype=float32)
tf.Tensor(3, shape=(), dtype=int32)
```

[ ]: