Task

On

Tensor Flow

**Course**: Artificial Intelligence

(Machine Learning & Deep Learning)

Name: Abbas Shafi

Father Name: Dr Muhammad Shafi

Week: 21

Submitted to: Sir Syed Nazir Afridi



National Vocational & Technical Training Commission

National Center For Big Data & Cloud Computing

University of Engineering & Technology

Peshawar

# Tensor Flow

[1]:

**import tensorflow as tf**

[2]:

[2]: '2.6.1'

[3]:

WARNING:tensorflow:From <ipython-input-3-17bb7203622b>:1: is\_gpu\_available (from tensorflow.python.framework.test\_util) is deprecated and will be removed in a future version.

Instructions for updating:

Use `tf.config.list\_physical\_devices('GPU')` instead. [3]: False

[4]:

[5]:

tf.Tensor(10, shape=(), dtype=int32)

[6]:

1. : <tf.Tensor: shape=(), dtype=float32, numpy=10.2> [7]:
2. : <tf.Tensor: shape=(), dtype=string, numpy=b'NCBC UET'> [8]:
3. : <tf.Tensor: shape=(), dtype=bool, numpy=True> [9]:
4. : <tf.Tensor: shape=(4,), dtype=int32, numpy=array([1, 2, 3, 3])>

[10]:

1. : <tf.Tensor: shape=(3, 2), dtype=int32, numpy=

array([[1, 2],

[2, 3],

[3, 4]])>

[11]:

1. : <tf.Tensor: shape=(3, 2), dtype=int32, numpy=

array([[1, 2],

[3, 4],

[5, 6]])>

[12]:

1. : <tf.Tensor: shape=(1, 3, 2), dtype=int32, numpy=

array([[[1, 2],

[2, 3],

[3, 4]]])>

[13]:

1. : tensorflow.python.framework.ops.EagerTensor

[14]:

1. : TensorShape([1, 3, 2])

[15]:

1. : TensorShape([3, 2])

# TensorFlow Variables

[16]:

1. : <tf.Variable 'Variable:0' shape=(4,) dtype=int32, numpy=array([1, 2, 3, 4])>

[17]:

[17]: array([1, 2, 3, 4])

[18]:

1. : tensorflow.python.ops.resource\_variable\_ops.ResourceVariable

[19]:

1. : <tf.Variable 'Variable:0' shape=(4,) dtype=float32, numpy=array([1.1, 2.2, 3.3,

4.4], dtype=float32)>

[20]:

1. : <tf.Variable 'Variable:0' shape=(4,) dtype=string, numpy=array([b'a', b'b', b'c', b'd'], dtype=object)>

[21]:

1. : <tf.Variable 'Variable:0' shape=(2,) dtype=bool, numpy=array([ True, False])> [22]:
2. : <tf.Variable 'Variable:0' shape=(1,) dtype=complex128, numpy=array([3.+4.j])> [23]:
3. : <tf.Variable 'Variable:0' shape=(4,) dtype=int32, numpy=array([1, 2, 3, 4])>

[24]:

1. : <tf.Variable 'Variable:0' shape=(2, 2) dtype=int32, numpy= array([[2, 3],

[4, 5]])>

[25]:

1. : <tf.Variable 'Variable:0' shape=(2, 2) dtype=int32, numpy= array([[2, 3],

[4, 5]])>

[26]:

[26]:

[27]:

[27]:

[28]:

[28]:

[29]:

[29]:

[30]:

[30]:

[31]:

[31]:

[32]:

[32]:

[33]:

[33]:

<tf.Tensor: shape=(2, 2), dtype=int32, numpy= array([[1, 2],

[3, 4]])>

<tf.Tensor: shape=(2,), dtype=int64, numpy=array([1, 1], dtype=int64)>

array([1, 1], dtype=int64)

<tf.Variable 'Variable:0' shape=(4,) dtype=int32, numpy=array([1, 2, 3, 4])>

<tf.Tensor: shape=(4,), dtype=int32, numpy=array([1, 2, 3, 4])>

<tf.Tensor: shape=(2, 2), dtype=int32, numpy= array([[2, 3],

[4, 5]])>

<tf.Variable 'UnreadVariable' shape=(4,) dtype=int32, numpy=array([0, 1, 2, 3])>

<tf.Variable 'UnreadVariable' shape=(4,) dtype=int32, numpy=array([2, 3, 4, 5])>

# TensorFlow Placeholder

[34]:

[35]:

1. : <tf.Tensor 'Placeholder:0' shape=(400, 400) dtype=float32>

[36]:

1. : tf.float32

[37]:

[37]: TensorShape([400, 400])

[38]:

1. : 'Placeholder:0'

[39]:

1. : <tf.Tensor 'Placeholder\_1:0' shape=(400, 400) dtype=float32>

[40]:

1. : <tf.Tensor 'Add:0' shape=(400, 400) dtype=float32>

[41]:

[41]: array([[1., 1., 1., …, 1., 1., 1.],

[1., 1., 1., …, 1., 1., 1.],

[1., 1., 1., …, 1., 1., 1.],

…,

[1., 1., 1., …, 1., 1., 1.],

[1., 1., 1., …, 1., 1., 1.],

[1., 1., 1., …, 1., 1., 1.]], dtype=float32)

[42]:

[42]: array([[3., 3., 3., …, 3., 3., 3.],

[3., 3., 3., …, 3., 3., 3.],

[3., 3., 3., …, 3., 3., 3.],

…,

[3., 3., 3., …, 3., 3., 3.],

[3., 3., 3., …, 3., 3., 3.],

[3., 3., 3., …, 3., 3., 3.]], dtype=float32)