**TENSORFLOW**

**1.Importing tensor flow:**

Import tensorflow as tf

**2.Creating a variable:**

zero=tf.Variable(0)

**3.Creating a constant:**

one=tf.constant(1)

**4.Changing the value of the variable:**

new\_value=tf.add(zero,one)

update=tf.assign(zero,new\_value)

**5.Initializing variable:**

init\_op=tf.global\_variables\_initializer()

* Whenever we use variables in the code it should be initialized before executing.

**6.Creating a session:**

sess= tf.Session()

* To run the operations in tensorflow session should be created and run it using session.

**7.running using session:**

sess.run(init\_op)

**8.String operations:**

hello=tf.constant("hello")

world=tf.constant("world")

helloworld=tf.add(hello,world)

print(sess.run(helloworld))

* **helloworld**

**9.Placeholders:**

a=tf.placeholder(tf.float32)

* Usually value of the placeholders will be in float so we use float.

b=a\*2

**10.Feeding a placeholder with scalar:**

result=sess.run(b,feed\_dict={a:3})

print(result)

* 6.0

**11.Feeding placeholder with vector of rank 1:**

result=sess.run(b,feed\_dict={a:[3,4,5]})

print(result)

* [6. 8. 10.]

**12.Closing the session:**

sess.close()

* Once the session is closed again we cannot use it to run.

**13.Other ways of using the session method:**

with tf.Session() as sess:

    result=sess.run (hello+world)

    print(result)

* All the lines will be executed within this session.
* No need of explicitly closing the session.

**14.Demo to explain the tensor flow programming structure:**

import tensorflow as tf

graph=tf.get\_default\_graph()

graph.get\_operations()

a=tf.constant(10,name="a")

operations=graph.get\_operations()

operations

* If you run this code we will not get the value instead will get the operation and datatype and the name of the constant.

b=tf.constant(20,name="b")

operations=graph.get\_operations()

operations

c=tf.add(a,b,name="c")

operations=graph.get\_operations()

operations

d=tf.multiply(a,b,name="d")

operations=graph.get\_operations()

operations

e=tf.multiply(c,d,name="e")

operations=graph.get\_operations()

operations

sess=tf.session()

print(sess.run(e))

* 6000

sess.close()