

TensorFlow

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```
import tensorflow as tf  
hello = tf.constant(["Hello, TensorFlow!"])  
print(hello)
```

Tensor("Const_1:0", shape=(1,), dtype=string)

```
a=tf.constant(10)  
b=tf.constant(32)  
c=tf.add(a,b)  
print(c)
```

Tensor("Add:0", shape=(), dtype=int32)

```
sess = tf.Session()  
  
print(sess.run(hello))  
print(sess.run([a,b,c]))  
  
sess.close()
```

[b'Hello, TensorFlow!'] [10, 32, 42]
b : byte

```
X = tf.placeholder(tf.float32, [None, 3])  
print(X)
```

Tensor("Placeholder:0", shape=(?, 3), dtype=float32)

```
x_data = [[1,2,3], [4,5,6]]  
print(x_data)
```

[[1, 2, 3], [4, 5, 6]]

```
W=tf.Variable(tf.random_normal([3,2]))  
b=tf.Variable(tf.random_normal([2,1]))  
print(W)  
print(b)
```

```
<tf.Variable 'Variable_2:0' shape=(3, 2) dtype=float32_ref>  
<tf.Variable 'Variable_3:0' shape=(2, 1) dtype=float32_ref>
```

```
expr = tf.matmul(X,W) + b  
print(expr)
```

```
Tensor("add:0", shape=(2, 2), dtype=float32)
```

```
sess = tf.Session()  
sess.run(tf.global_variables_initializer())  
  
print(" === x data ===")  
print(x_data)  
print(" === W ===")  
print(sess.run(W))  
print(" === b ===")  
print(sess.run(b))  
print(" === expr ===")  
print(sess.run(expr, feed_dict={X: x_data}))  
  
sess.close()
```

```
==== x data ====  
[[1, 2, 3], [4, 5, 6]]  
==== W ====  
[[ 1.5674975 1.1554967 ]  
[-0.98044693 -0.18680261]  
[ 2.1845849 0.2875251 ]]  
==== b ====  
[[0.32480603] [0.48454314]]  
==== expr ====  
[[ 6.4851646 1.9692729]  
[14.959808 5.8976674]]
```