

# Basics\_of\_Tensorflow

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```
[1]: import tensorflow as tf
[2]: # Basics of Tensorflow
[3]: #Constants

x1=tf.constant([1,2,3,4])
x2=tf.constant([5,6,7,8])

[8]: # Arithmetic operations
[14]: add=tf.add(x1,x2) #Addtion
      subtract=tf.subtract(x1,x2) #Subtraction
      mult=tf.multiply(x1,x2) #Multiplication
      div=tf.divide(x1,x2) #division
      sess.run(div)

      type(div)
[14]: tensorflow.python.framework.ops.Tensor
[16]: tf.zeros(4) #Zeros
      sess.run(tf.zeros(4))
[16]: array([0., 0., 0., 0.], dtype=float32)
[18]: sess.run(tf.zeros_like(x2))
[18]: array([0, 0, 0, 0], dtype=int32)
[20]: sess.run(tf.ones(3))
[20]: array([1., 1., 1.], dtype=float32)
[21]: sess.run(tf.ones_like(x1))
[21]: array([1, 1, 1, 1], dtype=int32)
[23]: sess.run(tf.fill([4,4],8))
[23]: array([[8, 8, 8, 8],
          [8, 8, 8, 8],
          [8, 8, 8, 8],
          [8, 8, 8, 8]], dtype=int32)
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[25]: #Matrix Multiplication
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[27]: # matmul
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x=tf.constant([[1,2],[3,4]])  
b=tf.constant([[4],[6]])  
matrix_mult= tf.matmul(x,b)  
print(sess.run(matrix_mult))
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[[16]  
 [36]]
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[28]: sess.run(tf.reduce_mean(x1,0))
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[28]: 2
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[29]: sess.run(tf.reduce_mean(x2,0))
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[29]: 6
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[34]: g=tf.constant([[2,3,4,5],[3,4,1,2],[1,7,6,9]])  
sess.run(g)
```

```
[34]: array([[2, 3, 4, 5],  
          [3, 4, 1, 2],  
          [1, 7, 6, 9]], dtype=int32)
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[35]: sess.run(tf.reduce_mean(g,1))
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[35]: array([3, 2, 5], dtype=int32)
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[ ]:
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