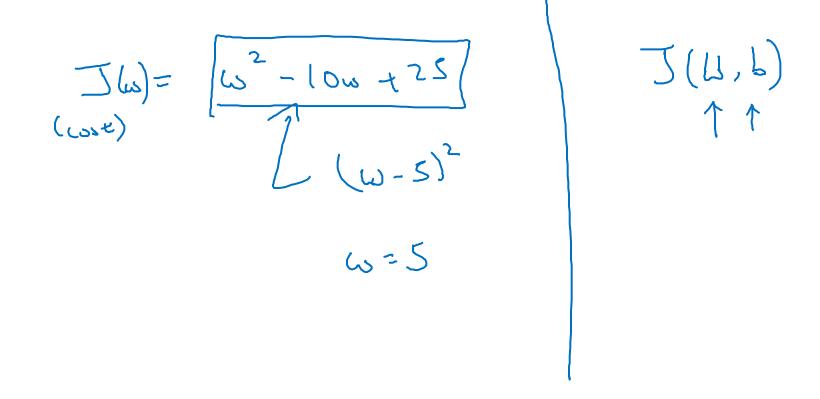


Programming Frameworks

TensorFlow

Motivating problem



```
Code example
                                                × To][6]*62
import numpy as np
import tensorflow as tf
coefficients = np.array([[1], [-20],
w = tf.Variable([0], dtype=tf.float32)
x = tf.placeholder(tf.float32, [3,1])
cost = x[0][0]*w**2 + x[1][0]*w + x[2][0]
train = tf.train.GradientDescentOptimizer(0.01).minimize(cost)
init = tf.global variables initializer()
session = tf.Session()
                                    with tf.Session() as session:
                                        session.run(init) ←
session.run(init)
                                        print(session.run(w)) <</pre>
print(session.run(w))
for i in range (1000):
     session.run(train, feed dict={x:coefficients})
```

print(session.run(w))