```
#Import libraries
import os
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline


dataset_train=pd.read_csv("/content/Google_Stock_Price_Train.csv")
dataset_train.head()
```

	Date	Open	High	Low	Close	Volume
0	1/3/2012	325.25	332.83	324.97	663.59	7,380,500
1	1/4/2012	331.27	333.87	329.08	666.45	5,749,400
2	1/5/2012	329.83	330.75	326.89	657.21	6,590,300
3	1/6/2012	328.34	328.77	323.68	648.24	5,405,900
4	1/9/2012	322.04	322.29	309.46	620.76	11,688,800

```
training_set=dataset_train.iloc[:,1:2].values
print(training_set)
print(training_set.shape)
```

```
[[325.25]
 [331.27]
 [329.83]
 ...
 [793.7 ]
 [783.33]
 [782.75]]
(1258, 1)
```

```
from sklearn.preprocessing import MinMaxScaler
scaler=MinMaxScaler(feature_range=(0,1))
scaled_training_set=scaler.fit_transform(training_set)


scaled_training_set
```

```
array([[0.08581368],
       [0.09701243],
       [0.09433366],
       ...,
       [0.95725128],
       [0.93796041],
       [0.93688146]])
```

```
X_train =[]
y_train=[]
for i in range(60,1258):
```

```
    X_train.append(scaled_training_set[i-60:i,0])
    y_train.append(scaled_training_set[i,0])
    x_train,Y_train=np.array(X_train),np.array(y_train)


print(x_train.shape)
print(Y_train.shape)
```

```
    (1198, 60)
    (1198,)
```

```
x_train=np.reshape(x_train,(x_train.shape[0],x_train.shape[1],1))
x_train.shape
```

```
    (1198, 60, 1)
```

```
!pip install tensorflow
```

```
    Requirement already satisfied: tensorflow in /usr/local/lib/python3.7/dist-packages (
    Requirement already satisfied: setuptools in /usr/local/lib/python3.7/dist-packages (
    Requirement already satisfied: gast>=0.2.1 in /usr/local/lib/python3.7/dist-packages
    Requirement already satisfied: typing-extensions>=3.6.6 in /usr/local/lib/python3.7/d
    Requirement already satisfied: numpy>=1.20 in /usr/local/lib/python3.7/dist-packages
    Requirement already satisfied: flatbuffers>=1.12 in /usr/local/lib/python3.7/dist-pac
    Requirement already satisfied: six>=1.12.0 in /usr/local/lib/python3.7/dist-packages
    Requirement already satisfied: wrapt>=1.11.0 in /usr/local/lib/python3.7/dist-package
    Requirement already satisfied: astunparse>=1.6.0 in /usr/local/lib/python3.7/dist-pac
    Requirement already satisfied: keras<2.9,>=2.8.0rc0 in /usr/local/lib/python3.7/dist-
    Requirement already satisfied: opt-einsum>=2.3.2 in /usr/local/lib/python3.7/dist-pac
    Requirement already satisfied: tf-estimator-nightly==2.8.0.dev2021122109 in /usr/loca
    Requirement already satisfied: absl-py>=0.4.0 in /usr/local/lib/python3.7/dist-packag
    Requirement already satisfied: protobuf>=3.9.2 in /usr/local/lib/python3.7/dist-packa
    Requirement already satisfied: tensorflow-io-gcs-filesystem>=0.23.1 in /usr/local/lib
    Requirement already satisfied: google-pasta>=0.1.1 in /usr/local/lib/python3.7/dist-p
    Requirement already satisfied: libclang>=9.0.1 in /usr/local/lib/python3.7/dist-packa
    Requirement already satisfied: h5py>=2.9.0 in /usr/local/lib/python3.7/dist-packages
    Requirement already satisfied: termcolor>=1.1.0 in /usr/local/lib/python3.7/dist-pack
    Requirement already satisfied: tensorboard<2.9,>=2.8 in /usr/local/lib/python3.7/dist
    Requirement already satisfied: keras-preprocessing>=1.1.1 in /usr/local/lib/python3.7
    Requirement already satisfied: grpcio<2.0,>=1.24.3 in /usr/local/lib/python3.7/dist-p
    Requirement already satisfied: wheel<1.0,>=0.23.0 in /usr/local/lib/python3.7/dist-pa
    Requirement already satisfied: cached-property in /usr/local/lib/python3.7/dist-packa
    Requirement already satisfied: requests<3,>=2.21.0 in /usr/local/lib/python3.7/dist-p
    Requirement already satisfied: tensorboard-data-server<0.7.0,>=0.6.0 in /usr/local/li
    Requirement already satisfied: google-auth-oauthlib<0.5,>=0.4.1 in /usr/local/lib/pyt
    Requirement already satisfied: tensorboard-plugin-wit>=1.6.0 in /usr/local/lib/python
    Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.7/dist-packa
    Requirement already satisfied: werkzeug>=0.11.15 in /usr/local/lib/python3.7/dist-pac
    Requirement already satisfied: google-auth<3,>=1.6.3 in /usr/local/lib/python3.7/dist
    Requirement already satisfied: rsa<5,>=3.1.4 in /usr/local/lib/python3.7/dist-package
    Requirement already satisfied: pyasn1-modules>=0.2.1 in /usr/local/lib/python3.7/dist
    Requirement already satisfied: cachetools<5.0,>=2.0.0 in /usr/local/lib/python3.7/dis
    Requirement already satisfied: requests-oauthlib>=0.7.0 in /usr/local/lib/python3.7/d
    Requirement already satisfied: importlib-metadata>=4.4 in /usr/local/lib/python3.7/di
    Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.7/dist-packages (f
    Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in /usr/local/lib/python3.7/dist-
    Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.7/dist-pa
```

```
Requirement already satisfied: chardet<4,>=3.0.2 in /usr/local/lib/python3.7/dist-pac
Requirement already satisfied: urllib3!=1.25.0,!=1.25.1,<1.26,>=1.21.1 in /usr/local/
Requirement already satisfied: idna<3,>=2.5 in /usr/local/lib/python3.7/dist-packages
Requirement already satisfied: oauthlib>=3.0.0 in /usr/local/lib/python3.7/dist-packa
```

```
!pip install keras
```

```
Requirement already satisfied: keras in /usr/local/lib/python3.7/dist-packages (2.8.0
```

```
from keras.models import Sequential
from keras.layers import LSTM
from keras.layers import Dense
from keras.layers import Dropout
```

```
from tensorflow.keras.layers import Dropout
```

```
regressor = Sequential()
regressor.add(LSTM(units = 50, return_sequences = True, input_shape = (x_train.shape[1], 1
regressor.add(Dropout(0.2))
regressor.add(LSTM(units = 50, return_sequences = True))
regressor.add(Dropout(0.2))
regressor.add(LSTM(units = 50, return_sequences = True))
regressor.add(Dropout(0.2))
regressor.add(LSTM(units = 50))
regressor.add(Dropout(0.2))
regressor.add(Dense(units = 1))
```

```
regressor.compile(optimizer ='adam',loss='mean_squared_error')
regressor.fit(x_train,Y_train,epochs=100,batch_size=32)
```

```
Epoch 1/100
38/38 [==============================] - 18s 210ms/step - loss: 0.0393
Epoch 2/100
38/38 [==============================] - 9s 240ms/step - loss: 0.0059
Epoch 3/100
38/38 [==============================] - 9s 226ms/step - loss: 0.0058
Epoch 4/100
38/38 [==============================] - 5s 119ms/step - loss: 0.0052
Epoch 5/100
38/38 [==============================] - 5s 119ms/step - loss: 0.0053
Epoch 6/100
38/38 [==============================] - 4s 118ms/step - loss: 0.0055
Epoch 7/100
38/38 [==============================] - 4s 118ms/step - loss: 0.0048
Epoch 8/100
38/38 [==============================] - 4s 118ms/step - loss: 0.0044
Epoch 9/100
38/38 [==============================] - 4s 117ms/step - loss: 0.0048
Epoch 10/100
38/38 [==============================] - 5s 119ms/step - loss: 0.0041
Epoch 11/100
```

```
38/38 [==============================] - 5s 119ms/step - loss: 0.0044
Epoch 12/100
38/38 [==============================] - 5s 118ms/step - loss: 0.0040
Epoch 13/100
38/38 [==============================] - 5s 121ms/step - loss: 0.0040
Epoch 14/100
38/38 [==============================] - 5s 119ms/step - loss: 0.0040
Epoch 15/100
38/38 [==============================] - 5s 120ms/step - loss: 0.0042
Epoch 16/100
38/38 [==============================] - 5s 120ms/step - loss: 0.0040
Epoch 17/100
38/38 [==============================] - 4s 118ms/step - loss: 0.0035
Epoch 18/100
38/38 [==============================] - 5s 121ms/step - loss: 0.0036
Epoch 19/100
38/38 [==============================] - 5s 120ms/step - loss: 0.0038
Epoch 20/100
38/38 [==============================] - 5s 118ms/step - loss: 0.0036
Epoch 21/100
38/38 [==============================] - 5s 134ms/step - loss: 0.0038
Epoch 22/100
38/38 [==============================] - 6s 151ms/step - loss: 0.0037
Epoch 23/100
38/38 [==============================] - 5s 120ms/step - loss: 0.0030
Epoch 24/100
38/38 [==============================] - 5s 120ms/step - loss: 0.0034
Epoch 25/100
38/38 [==============================] - 5s 122ms/step - loss: 0.0032
Epoch 26/100
38/38 [==============================] - 5s 122ms/step - loss: 0.0033
Epoch 27/100
38/38 [==============================] - 5s 119ms/step - loss: 0.0033
Epoch 28/100
38/38 [==============================] - 4s 118ms/step - loss: 0.0030
Epoch 29/100
38/38 [==============================] - 5s 119ms/step - loss: 0.0034
```

```
dataset_test=pd.read_csv("/content/Google_Stock_Price_Test.csv")
actual_stock_price=dataset_test.iloc[:,1:2].values


dataset_total = pd.concat((dataset_train['Open'], dataset_test['Open']), axis = 0)
inputs = dataset_total[len(dataset_total) - len(dataset_test) - 60:].values
inputs = inputs.reshape(-1,1)
inputs = scaler.transform(inputs)
X_test = []
for i in range(60, 80):
    X_test.append(inputs[i-60:i, 0])
X_test = np.array(X_test)
X_test = np.reshape(X_test, (X_test.shape[0], X_test.shape[1], 1))
predicted_stock_price = regressor.predict(X_test)
predicted_stock_price = scaler.inverse_transform(predicted_stock_price)


plt.plot(actual_stock_price, color = 'red', label = 'Actual Google Stock Price')
plt.plot(predicted_stock_price, color = 'blue', label = 'Predicted Google Stock Price')
plt.title('Google Stock Price Prediction')
```

```
plt.xlabel('Time')
plt.ylabel('Google Stock Price')
plt.legend()
plt.show()
```