importing libraries

In [1]:

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

load the training dataset

In [4]:

```
google_data=pd.read_csv("Google_Stock_Price_Train.csv")
google_data.head()
```

Out[4]:

```
       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
```

using open stock price column to train model

In [12]:

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

```
[[778.81]
 [788.36]
 [786.08]
 [795.26]
 [806.4 ]
 [807.86]
 [805.  ]
 [807.14]
 [807.48]
 [807.08]
 [805.81]
 [805.12]
 [806.91]
 [807.25]
 [822.3 ]
 [829.62]
 [837.81]
 [834.71]
 [814.66]
 [796.86]]
(20, 1)
```

normalizing the dataset

In [8]:

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

Out[8]:

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

creating x_train and y_train data structures

In [1]:

```
 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=np.array(x_train)
    y_train=np.array(y_train)
    print(x_train.shape)
    print(y_train.shape)
```

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

In [2]:

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

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

In [ ]:

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

In [ ]:

```
regressor=Sequentail()
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))
```

In [5]:

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

In [24]:

```
import pandas as pd
import numpy as np
from sklearn.preprocessing import StandardScaler
import matplotlib.pyplot as plt
dataset_test=pd.read_csv("Google_Stock_Price_Test.csv")
actual_stock_price=dataset_test.iloc[:,1:2].values
```

In [29]:

```
from sklearn.preprocessing import StandardScaler
dataset_total=pd.concat((google_data['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))
```

In [35]:

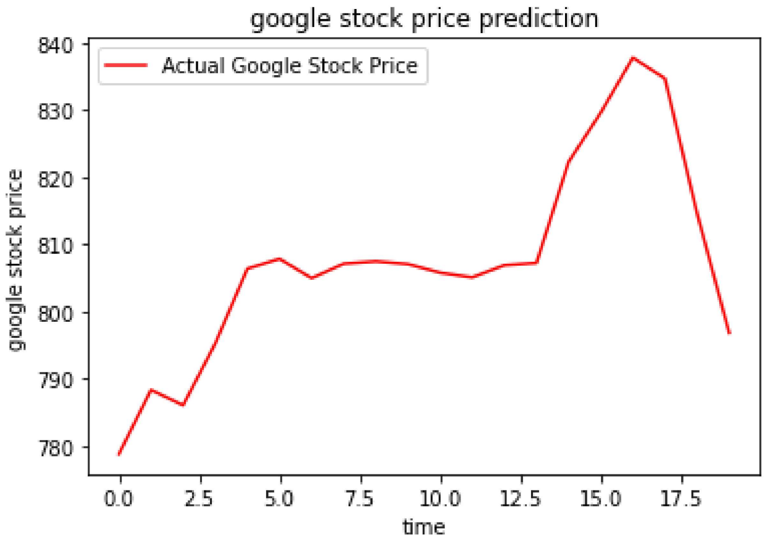
```
predicted_stock_price=regressor.predict(x_test)
predicted_stock_price=scaler.inverse_transform(predicted_stock_price)
```

In [38]:

```
plt.plot(actual_stock_price,color='red',label='Actual Google Stock Price')
plt.title("google stock price prediction")
plt.xlabel("time")
plt.ylabel("google stock price")
plt.legend()
```

Out[38]:

```
<matplotlib.legend.Legend at 0x21203b3bd00>
```



In [ ]: