

Build Python code.ipynb

Training and testing

```
[ ] train_size = int(len(df) * 0.70)
test_size = len(df) - train_size
train, test = df[0:train_size, :], df[train_size:len(df), :]

[ ] def create_data_set(_data_set, _look_back=1):
    data_x, data_y = [], []
    for i in range(len(_data_set) - _look_back - 1):
        a = _data_set[i:(i + _look_back), 0]
        data_x.append(a)
        data_y.append(_data_set[i + _look_back, 0])
    return np.array(data_x), np.array(data_y)

[ ] look_back = 90
X_train, Y_train, X_test, Y_test = [], [], [], []
X_train, Y_train = create_data_set(train, look_back)
X_train = np.reshape(X_train, (X_train.shape[0], X_train.shape[1], 1))
X_test, Y_test = create_data_set(test, look_back)
X_test = np.reshape(X_test, (X_test.shape[0], X_test.shape[1], 1))
```

LSTM Layer

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MODEL TRAINING

```
[ ] train_predict = regressor.predict(X_train)
test_predict = regressor.predict(X_test)

100/100 [=====] - 5s 37ms/step
41/41 [=====] - 2s 56ms/step

[ ] train_predict = sc.inverse_transform(train_predict)
Y_train = sc.inverse_transform([Y_train])
test_predict = sc.inverse_transform(test_predict)
Y_test = sc.inverse_transform([Y_test])
```

Prediction

```
print('Train Mean Absolute Error:', mean_absolute_error(Y_train[0], train_predict[:,0]))
print('Train Root Mean Squared Error:', np.sqrt(mean_squared_error(Y_train[0], train_predict[:,0])))
print('Test Mean Absolute Error:', mean_absolute_error(Y_test[0], test_predict[:,0]))
print('Test Root Mean Squared Error:', np.sqrt(mean_squared_error(Y_test[0], test_predict[:,0])))
plt.figure(figsize=(8,4))
plt.plot(history.history['loss'], label='Train Loss')
plt.plot(history.history['val_loss'], label='Test Loss')
plt.title('model loss')
plt.ylabel('loss')
plt.xlabel('epochs')
plt.legend(loc='upper right')
plt.show()
```

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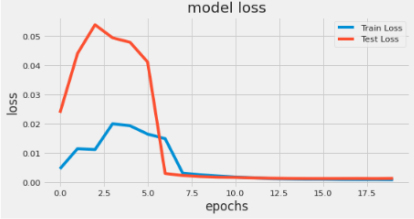
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Train Mean Absolute Error: 2.990752442269955
Train Root Mean Squared Error: 3.7597080187310064
Test Mean Absolute Error: 2.5375749609835907
Test Root Mean Squared Error: 5.37880820095519

model loss



```
[ ] aa=[x for x in range(180)]
plt.figure(figsize=(8,4))
plt.plot(aa, Y_test[0][:180], marker='.', label="actual")
plt.plot(aa, test_predict[:,0][:180], 'r', label="prediction")
plt.tight_layout()
sns.despine(top=True)
plt.subplots_adjust(left=0.07)
plt.ylabel('Price', size=15)
plt.xlabel('Time step', size=15)
plt.legend(fontsize=15)
plt.show();
```

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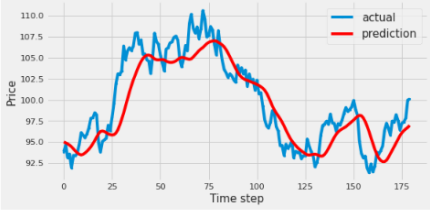
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