Stock_Linear_Regression

September 29, 2021

1 Stock Linear Regression

[1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import math

import warnings
warnings.filterwarnings("ignore")

# fix_yahoo_finance is used to fetch data
import fix_yahoo_finance as yf
yf.pdr_override()
```

[2]:
```
# input
symbols = 'AMD'
start = '2012-01-01'
end = '2019-01-01'

# Read data
dataset = yf.download(symbols,start,end)

# View Columns
dataset.head()
```

```
[**********100%**********]  1 of 1 downloaded
```

[2]:

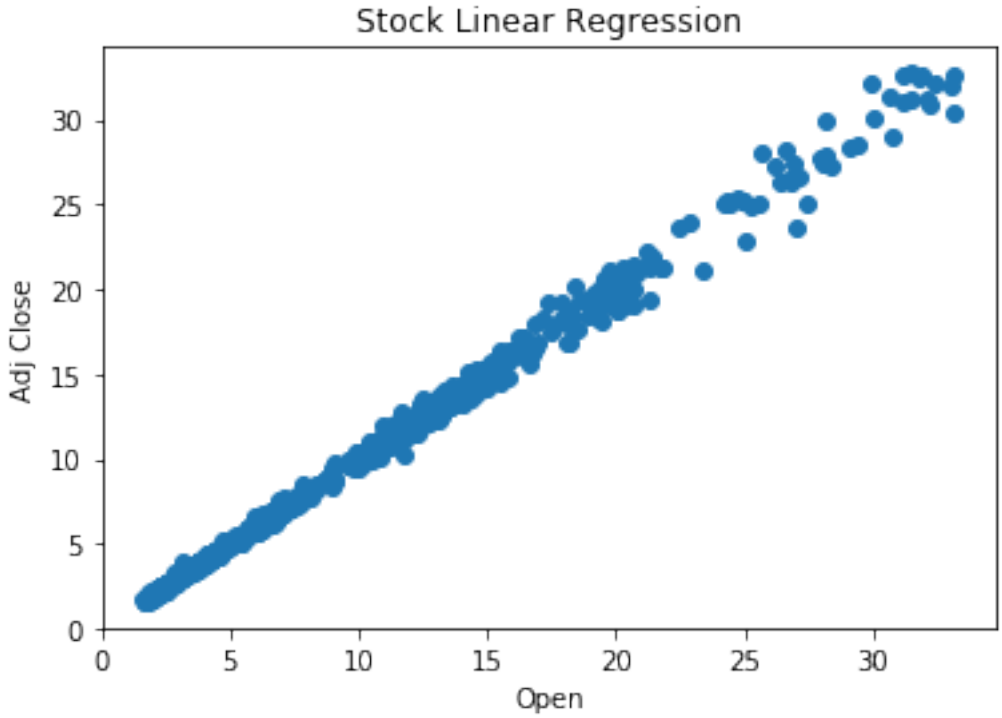
Date	Open	High	Low	Close	Adj Close	Volume
2012-01-03	5.53	5.59	5.44	5.48	5.48	12675100
2012-01-04	5.47	5.49	5.41	5.46	5.46	8034900
2012-01-05	5.45	5.57	5.35	5.46	5.46	11476900
2012-01-06	5.44	5.52	5.39	5.43	5.43	12938600
2012-01-09	5.42	5.60	5.38	5.59	5.59	12585400

[3]:
```
dataset['Returns'] = np.log(dataset['Adj Close'] / dataset['Adj Close'].
↪shift(1))
```

[4]:
```
dataset = dataset.dropna()
```

[5]:
```
X = dataset['Open']
Y = dataset['Adj Close']
```

[6]:
```
plt.scatter(X,Y)
plt.xlabel('Open')
plt.ylabel('Adj Close')
plt.title('Stock Linear Regression')
plt.show()
```



[7]:
```
from sklearn.model_selection import train_test_split
```

[8]:
```
X_train,X_test,y_train,y_test=train_test_split(X,Y,test_size=0.2,random_state=0)
```

[9]:
```
X_train = np.array(X_train).reshape(-1,1)
y_train = np.array(y_train).reshape(-1,1)
X_test = np.array(X_test).reshape(-1,1)
y_test = np.array(y_test).reshape(-1,1)
```

[10]:
```
X_train.shape
```

[10]: (1407, 1)

[11]:
```
from sklearn.linear_model import LinearRegression

linregression=LinearRegression()
linregression.fit(X_train,y_train)
```

[11]:
```
LinearRegression(copy_X=True, fit_intercept=True, n_jobs=None,
         normalize=False)
```

[12]:
```
y_pred = linregression.predict(X_test)
y_pred
```

[12]:
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```

[13]:
```
print('Intercept')
linregression.intercept_
```

```
Intercept
```

[13]:
```
array([0.02047659])
```

[14]:
```
print('Slope')
linregression.coef_
```

```
Slope
```

[14]:
```
array([[0.99603132]])
```

[15]:
```
import matplotlib.pyplot as plt

plt.scatter(X_train,y_train)
plt.plot(X_train,linregression.predict(X_train),'r')
plt.xlabel('Open')
plt.ylabel('Adj Close')
plt.title('Stock Linear Regression')
plt.show()
```