CURRENCY EXCHANGE RATE PREDICTION (NAIRA)WITH MACHINE LEARNING.

November 27, 2022

1 Currency prediction using yahooFinance

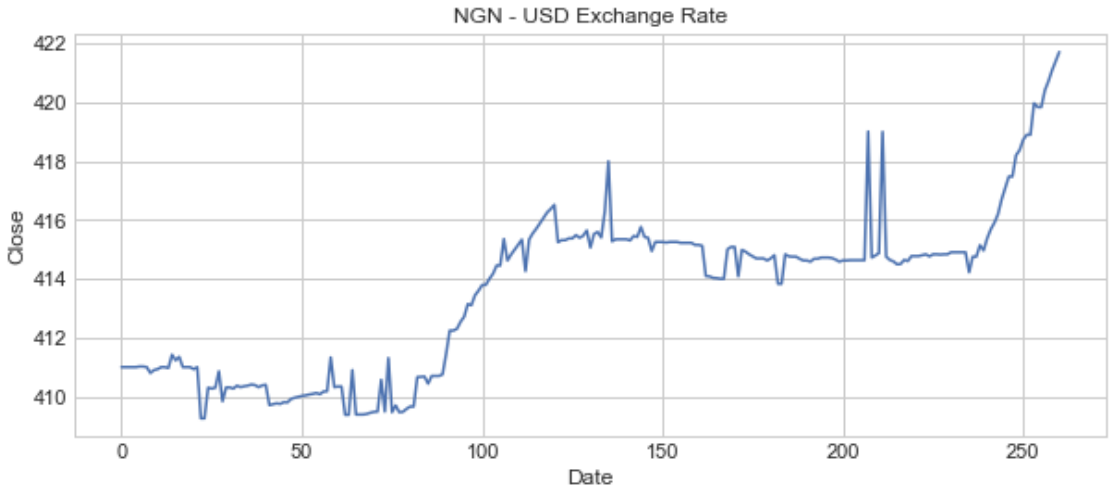
(USD TO NAIRA)

[3]:
```
#IMPORT LIBRARIES
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from seaborn import regression
sns.set()
plt.style.use('seaborn-whitegrid')

data = pd.read_csv("NGN=X.csv")
print(data.head())
```

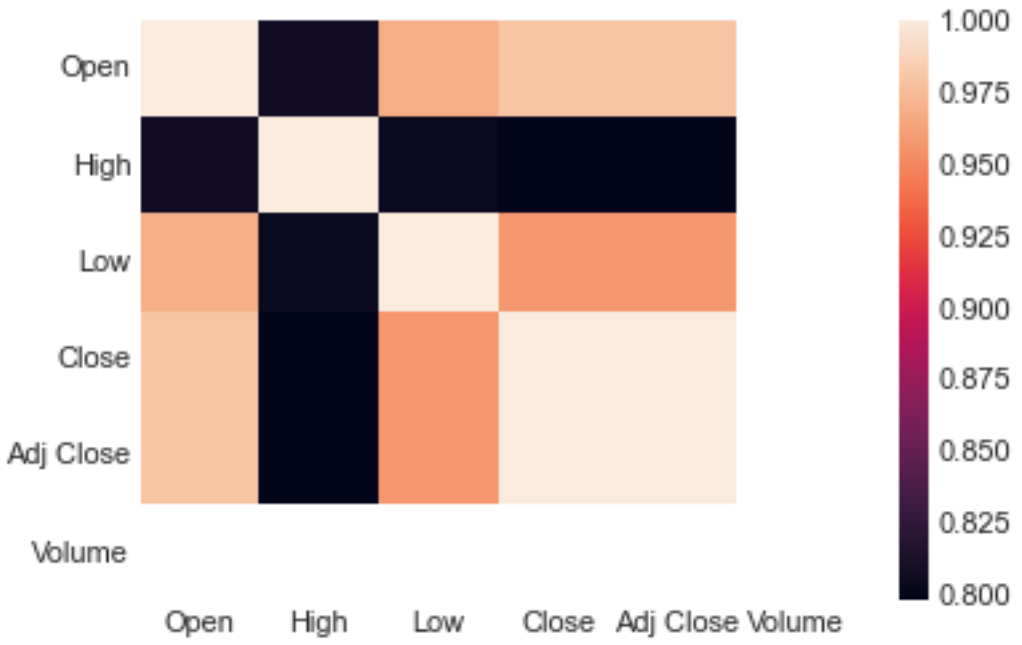
```
         Date   Open        High         Low  Close  Adj Close  Volume
0  2021-08-30  411.0  411.510010  409.640015  411.0      411.0       0
1  2021-08-31  411.0  411.500000  409.000000  411.0      411.0       0
2  2021-09-01  411.0  411.529999  410.070007  411.0      411.0       0
3  2021-09-02  411.0  411.600006  410.660004  411.0      411.0       0
4  2021-09-03  411.0  411.390015  410.549988  411.0      411.0       0
```

[4]:
```
#TARGET VALUES THAT NEEDS TO BE PREDICTED
plt.figure(figsize=(10, 4))
plt.title("NGN - USD Exchange Rate")
plt.xlabel("Date")
plt.ylabel("Close")
plt.plot(data["Close"])
plt.show()
```



[5]:
```
#CHECKING CORRELATION BETWEEN THE FEATURES
print(data.corr())
sns.heatmap(data.corr())
plt.show()
```

```
                Open      High       Low     Close  Adj Close  Volume
Open        1.000000  0.806529  0.967942  0.978974   0.978974     NaN
High        0.806529  1.000000  0.803402  0.797507   0.797507     NaN
Low         0.967942  0.803402  1.000000  0.956746   0.956746     NaN
Close       0.978974  0.797507  0.956746  1.000000   1.000000     NaN
Adj Close   0.978974  0.797507  0.956746  1.000000   1.000000     NaN
Volume           NaN       NaN       NaN       NaN        NaN     NaN
```



[7]:
```
#PREPARE DATASET BY STORING THE MOST RELEVANT  FEATURES IN VRIABLE X AND TARGET␣
 ↪IN  COLUMN IN VARIABLE Y

x = data[["Open", "High", "Low"]]
y = data["Close"]
x = x.to_numpy()
y = y.to_numpy()
y = y.reshape(-1, 1)
```

[8]:
```
#USING TREE REGRESSION MODEL TO SPLIT DATASET AND TRAIN A EXCHANGE PREDICTION

from sklearn.model_selection import train_test_split
xtrain, xtest, ytrain, ytest = train_test_split(x, y, test_size=0.2,␣
 ↪random_state=42)

from sklearn.tree import DecisionTreeRegressor
model = DecisionTreeRegressor()
model.fit(xtrain, ytrain)
ypred = model.predict(xtest)
```

[9]:
```
#PREDICTED VALUES OF EXCHANGE RATE OF NIGERIA NAIRA FOR THE NEXT 5 DAYS
data = pd.DataFrame(data={"Predicted Rate": ypred.flatten()})
print(data.head())
```

```
   Predicted Rate
0      410.309998
```

```
1      415.420013
2      415.079987
3      409.410004
4      415.149994
```

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