In [1]:
```python
# Import libraries from package :

import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
import seaborn as sns
from datetime import date
```

In [2]:
```python
!pip install nsepy
```

```
Requirement already satisfied: nsepy in c:\users\hp\anaconda3\lib\site-packages (0.
8)
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(from click->nsepy) (0.4.4)
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b\site-packages (from requests->nsepy) (2.0.4)
```

In [3]:
```python
from nsepy import get_history
```

In [4]:
```python
from nsepy.derivatives import get_expiry_date
expiry = get_expiry_date(year = 2022, month = 9)
expiry
```

Out[4]:
```
{datetime.date(2022, 9, 1),
 datetime.date(2022, 9, 6),
 datetime.date(2022, 9, 8),
 datetime.date(2022, 9, 13),
 datetime.date(2022, 9, 15),
 datetime.date(2022, 9, 27),
 datetime.date(2022, 9, 29)}
```

In [5]:
```python
df = get_history(symbol = 'TCS',
```

```
              start=date(2015,1,1),
              end=date(2020,9,30))
    df
```

Out[5]:

Date	Symbol	Series	Prev Close	Open	High	Low	Last	Close	VWAP	Volume	
2015-01-01	TCS	EQ	2558.25	2567.00	2567.00	2541.00	2550.00	2545.55	2548.51	183415	4.67
2015-01-02	TCS	EQ	2545.55	2551.00	2590.95	2550.60	2588.40	2579.45	2568.19	462870	1.18
2015-01-05	TCS	EQ	2579.45	2581.00	2599.90	2524.65	2538.10	2540.25	2563.94	877121	2.24
2015-01-06	TCS	EQ	2540.25	2529.10	2529.10	2440.00	2450.05	2446.60	2466.90	1211892	2.98
2015-01-07	TCS	EQ	2446.60	2470.00	2479.15	2407.45	2426.90	2417.70	2433.96	1318166	3.20
...	...	...	...	...	...	...	...	...	...	...	
2020-09-24	TCS	EQ	2467.45	2450.00	2450.00	2302.60	2332.90	2332.25	2355.03	8425118	1.98
2020-09-25	TCS	EQ	2332.25	2368.00	2440.00	2352.10	2417.75	2422.30	2412.24	8228297	1.98
2020-09-28	TCS	EQ	2422.30	2440.00	2444.00	2366.00	2429.00	2426.30	2403.73	4347177	1.04
2020-09-29	TCS	EQ	2426.30	2434.85	2511.05	2426.30	2486.75	2488.40	2489.18	6995815	1.74
2020-09-30	TCS	EQ	2488.40	2489.00	2505.00	2460.00	2483.00	2492.30	2485.20	3917186	9.73

1423 rows × 14 columns

To check how many coulmn's and row's are there in the above data

In [6]:
```
df.shape
```

Out[6]:
```
(1423, 14)
```

In [7]:
```
df.describe()
```

Out[7]:

	Prev Close	Open	High	Low	Last	Close	VWAP
count	1423.000000	1423.000000	1423.000000	1423.000000	1423.000000	1423.000000	1423.000000
mean	2354.619115	2355.360787	2380.028145	2329.240548	2354.599051	2354.572769	2354.748475
std	325.132455	324.111930	327.085764	323.234181	324.874470	325.108107	325.166198

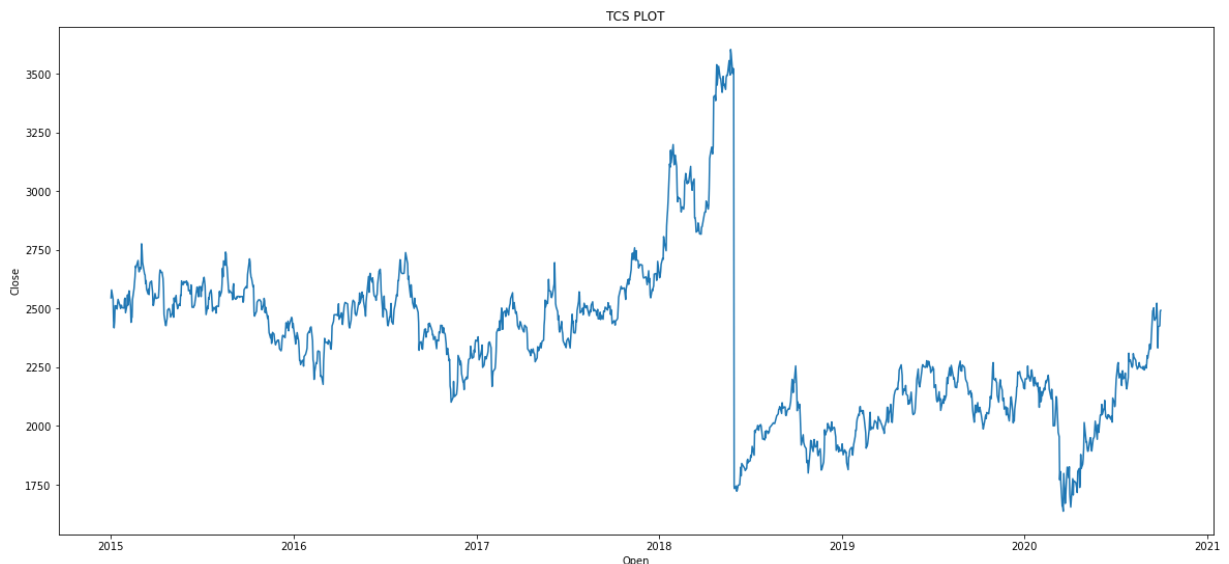|	Prev Close	Open	High	Low	Last	Close	VWAP
min	1636.350000	1559.700000	1685.450000	1506.050000	1631.000000	1636.350000	1622.310000
25%	2115.525000	2118.975000	2136.350000	2091.700000	2115.300000	2115.525000	2114.590000
50%	2361.700000	2360.800000	2382.400000	2340.000000	2360.000000	2361.700000	2361.380000
75%	2537.275000	2538.000000	2563.125000	2512.225000	2535.000000	2536.850000	2534.575000
max	3603.700000	3625.000000	3674.800000	3572.550000	3610.750000	3603.700000	3633.110000

In [8]:
```python
# TO CREATE PLOT
plt.figure(figsize=(20,9))
plt.xlabel('Open')
plt.ylabel('Close')
plt.plot(df['Close'])
plt.title('TCS PLOT')
plt.show
```

Out[8]: `<function matplotlib.pyplot.show(close=None, block=None)>`

In [14]:
```python
from sklearn.model_selection import train_test_split
```

In [15]:
```python
from sklearn import linear_model
```

In [28]:
```python
x = df[['High', 'Low']]
y = df[['Close']]
x
```

Out[28]:

Date	High	Low
2015-01-01	2567.00	2541.00
2015-01-02	2590.95	2550.60
2015-01-05	2599.90	2524.65

	High	**Low**
Date		
2015-01-06	2529.10	2440.00
2015-01-07	2479.15	2407.45
...	...	...
2020-09-24	2450.00	2302.60
2020-09-25	2440.00	2352.10
2020-09-28	2444.00	2366.00
2020-09-29	2511.05	2426.30
2020-09-30	2505.00	2460.00

1423 rows × 2 columns

In [29]:
```python
print(y)
```

```
                Close
Date
2015-01-01  2545.55
2015-01-02  2579.45
2015-01-05  2540.25
2015-01-06  2446.60
2015-01-07  2417.70
...             ...
2020-09-24  2332.25
2020-09-25  2422.30
2020-09-28  2426.30
2020-09-29  2488.40
2020-09-30  2492.30

[1423 rows x 1 columns]
```

In [35]:
```python
x_train, x_test, y_train, y_test = train_test_split(x,y,test_size = 0.3, random_stat
```

In [36]:
```python
x_train
```

Out[36]:

	High	**Low**
Date		
2018-08-31	2092.00	2074.00
2017-08-23	2516.80	2473.15
2020-08-03	2303.85	2230.70
2018-03-06	3127.00	3030.15
2018-04-12	3150.00	3007.95
...	...	...
2020-08-20	2276.55	2240.05
2020-06-12	2049.20	2011.00

	High	Low
Date		
2017-02-16	2478.00	2435.60
2019-08-26	2282.00	2225.00
2020-03-19	1685.45	1546.75

996 rows × 2 columns

In [37]:
```
x_test
```

Out[37]:

	High	Low
Date		
2015-08-03	2525.00	2500.90
2015-02-23	2722.00	2671.00
2019-02-12	2070.00	2018.00
2016-07-20	2502.50	2448.15
2019-12-16	2136.00	2080.30
...	...	...
2018-10-23	1898.00	1837.00
2018-11-09	1961.95	1905.00
2020-04-16	1764.90	1675.05
2020-06-10	2132.00	2073.50
2020-09-16	2507.60	2477.30

427 rows × 2 columns

In [38]:
```
y_train
```

Out[38]:

	Close
Date	
2018-08-31	2078.40
2017-08-23	2489.45
2020-08-03	2254.15
2018-03-06	3042.80
2018-04-12	3139.25
...	...
2020-08-20	2252.85
2020-06-12	2039.50
2017-02-16	2447.75

	Close
Date	
2019-08-26	2276.30
2020-03-19	1636.35

996 rows × 1 columns

In [39]:
```python
y_test
```

Out[39]:

	Close
Date	
2015-08-03	2509.60
2015-02-23	2696.65
2019-02-12	2051.60
2016-07-20	2494.95
2019-12-16	2126.75
...	...
2018-10-23	1843.65
2018-11-09	1909.20
2020-04-16	1716.05
2020-06-10	2108.75
2020-09-16	2503.00

427 rows × 1 columns

In [42]:
```python
linear = linear_model.LinearRegression()
model = linear.fit(x , y)
```

In [43]:
```python
model.coef_
```

Out[43]: array([[0.54019209, 0.45854408]])

In [44]:
```python
model.score(x , y)
```

Out[44]: 0.9971864404970914

In [50]:
```python
Prediction = model.predict(x_train)
Prediction
```

Out[50]: array([[2081.94319961],
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