In [67]:

```
import yfinance as yf
```

In [68]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
from __future__ import annotations
```

In [69]:

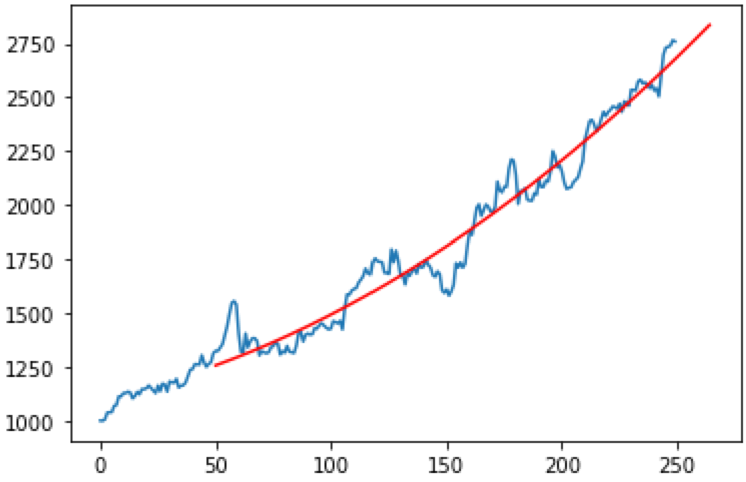
```
stock_data = yf.Ticker("MINDTREE.NS")
stock_data = stock_data.history(period = '1y')[['Open']]
MINDT = stock_data.reset_index(drop = True)
```

In [70]:

```
x = MINDT.index
y= MINDT.Open
model = np.polyfit(x,y,2)
predict = np.poly1d(model)
x_pol_reg = range(50, 265)
y_pol_reg = predict(x_pol_reg)
plt.plot(x,y)
plt.plot(x_pol_reg, y_pol_reg, c='r')
```

Out[70]:

```
[<matplotlib.lines.Line2D at 0x7fef16e9fe20>]
```



import yfinance as yf import pandas as pd tesla = yf.Ticker('TSLA') tesla = tesla.history(period="max") tesla = tesla[['Open']] nio = yf.Ticker('NIO') nio = nio.history(period="max") nio = nio[['Open']] stonks = tesla.merge(nio, how = 'outer', left_index = True, right_index = True) stonks.columns = ['TSLA', 'NIO'] stonks

tesla = yf.Ticker('TSLA')

MY COLLUMMNS FOR STUDY

tesla = yf.Ticker('TSLA') tesla=tesla.history(period="max") tesla = tesla[['Open','Close','Volume']] tesla

CHOOSING STOCK LIST

In [73]:

```
stock_list = ['TSLA','NIO','IQQH.F','BTC-USD','BTC-INR',
              'ETH-USD','LTC-USD','AMZN','TWTR','FB','SQ','PYPL','BRK-A','CSP
              'EURINR=X','^CNXIT','HAPPSTMNDS.NS','MPHASIS.NS','WIPRO.NS','MI
```

```
                'TCS.NS','TECHM.NS','^CNXAUTO','ASHOKLEY.NS','BOSCHLTD.NS','MARU
                'EXIDEIND.NS','AMARAJABAT.NS','BALKRISIND.NS','MRF.NS','^CNXMETA
                'VEDL.NS','TATASTEEL.NS','JINDALSTEL.NS','TATASTEEL.NS','JSWSTEE
```

HALF DONE LIST

In [74]:

```
stock_names = ['TESLA','NIO','CLEAN_ENERGE_ETF','BIT_COIN','BIT_IND','ETH_USD
               'SQUARE','PAYPAL','BERKSHR','S&P500','GOLD','SILV','CRUDE','UARI
                'NIFTY_IT','HAPPYMIND','MPHASIS','WIPRO','MINDTREE','INFY','CO
```

### basic practice

In [ ]:

```
i=1
index_dot = stock_list[i].find(".")
stock_list[i],index_dot
```

In [ ]:

```
index_dot = stock_list[i].find(".")
name = stock_list[i][:index_dot]
name
```

In [75]:

```
len(stock_names), len(stock_list)
```

Out[75]:

```
(28, 52)
```

DEFINE A COLLECTION AND CLEANING

In [76]:

```
def collect_clean(lists: list[str]) :
    res=[]
    for stock in lists:
        idx=stock.find(".")
        if idx == -1:
            res.append(stock)
        else:
            res.append(stock[:idx])
    return res
```

In [77]:

```
temp_list = collect_clean(stock_list[len(stock_names):])
```

In [78]:

```
stock_names = stock_names+temp_list
```

In [79]:

```
len(stock_names), len(stock_list)
```

Out[79]:

```
(52, 52)
```

In [80]:

```
stock_dict = {i:j for i,j in zip(stock_names,stock_list)}
```

stock_dict

stock_dict.items()

append to a new DataFrame

In [81]:

```
master_df = pd.DataFrame()
for key,val in stock_dict.items():
    df = yf.Ticker(val)
    df=df.history(period="max")
    df.dropna(inplace=True)
    #df = df[['Open','Close','Volume']]
    master_df[key+'_Open'] = df['Open']
    master_df[key+'_Close'] = df['Close']
    master_df[key+'_Volume'] = df['Volume']
    #print(f"{key} is done")
```

```
- ^CNXAUTO: 1d data not available for startTime=-2208988800 and endTime=162713
9574. Only 100 years worth of day granularity data are allowed to be fetched p
er request.
- ^CNXMETAL: 1d data not available for startTime=-2208988800 and endTime=16271
39580. Only 100 years worth of day granularity data are allowed to be fetched
per request.
```

quality check

In [ ]:

```
df[df.index.duplicated()]
```

In [82]:

```
master_df.head()
```

Out[82]:

Date	TESLA_Open	TESLA_Close	TESLA_Volume	NIO_Open	NIO_Close	NIO_Volume	CLEAN
2010-06-29	3.800	4.778	93831500	NaN	NaN	NaN	
2010-06-30	5.158	4.766	85935500	NaN	NaN	NaN	
2010-07-01	5.000	4.392	41094000	NaN	NaN	NaN	
2010-07-02	4.600	3.840	25699000	NaN	NaN	NaN	
2010-07-06	4.000	3.222	34334500	NaN	NaN	NaN	

5 rows × 153 columns

correlation plotting on seaborn

In [83]:

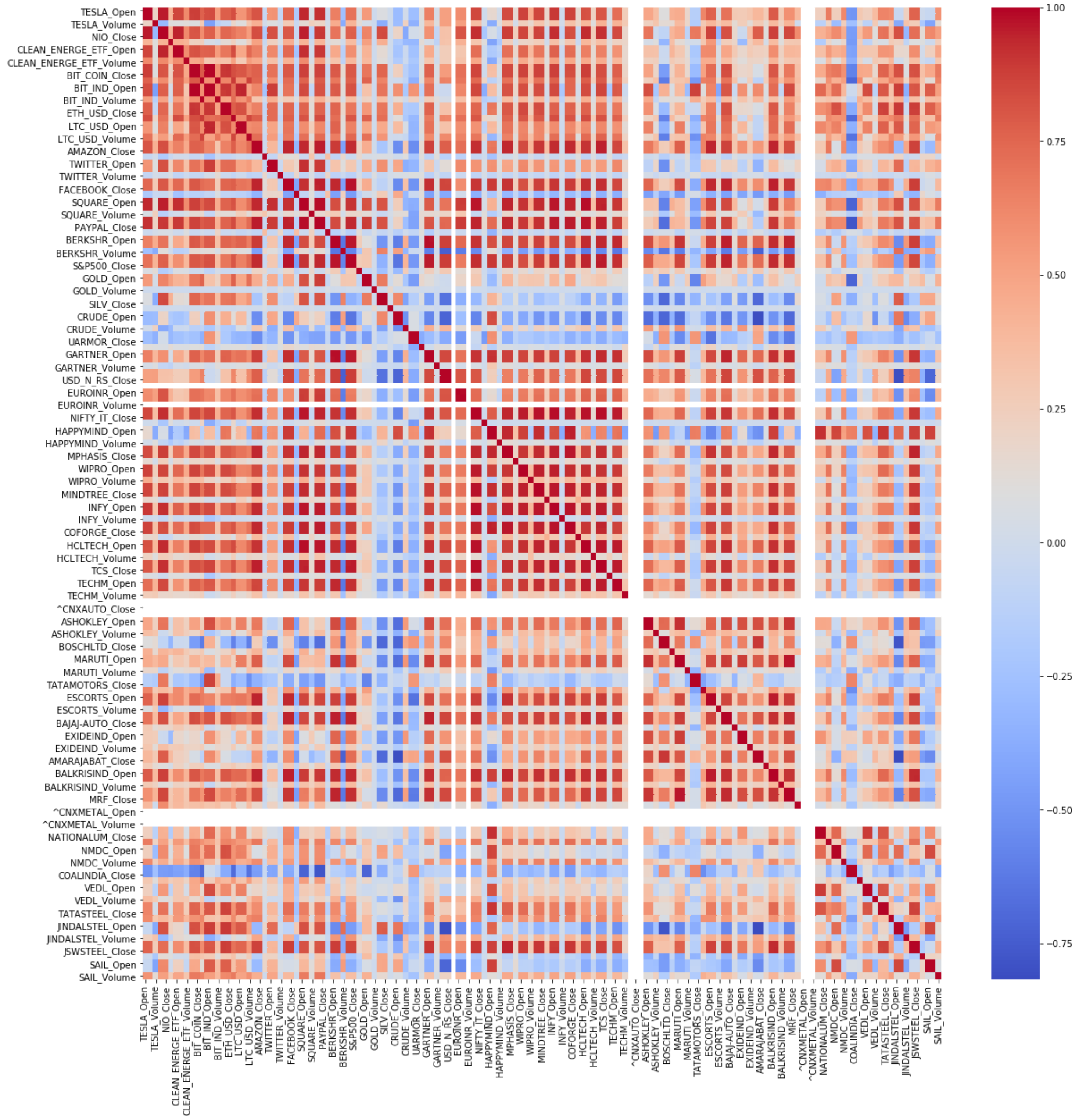
```
import seaborn as sns
```

In [84]:

```
plt.figure(figsize=(20,20))
sns.heatmap(master_df.corr(),cmap='coolwarm')
```

Out[84]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fef19f381f0>
```



Plotting higger correlations

In [85]:

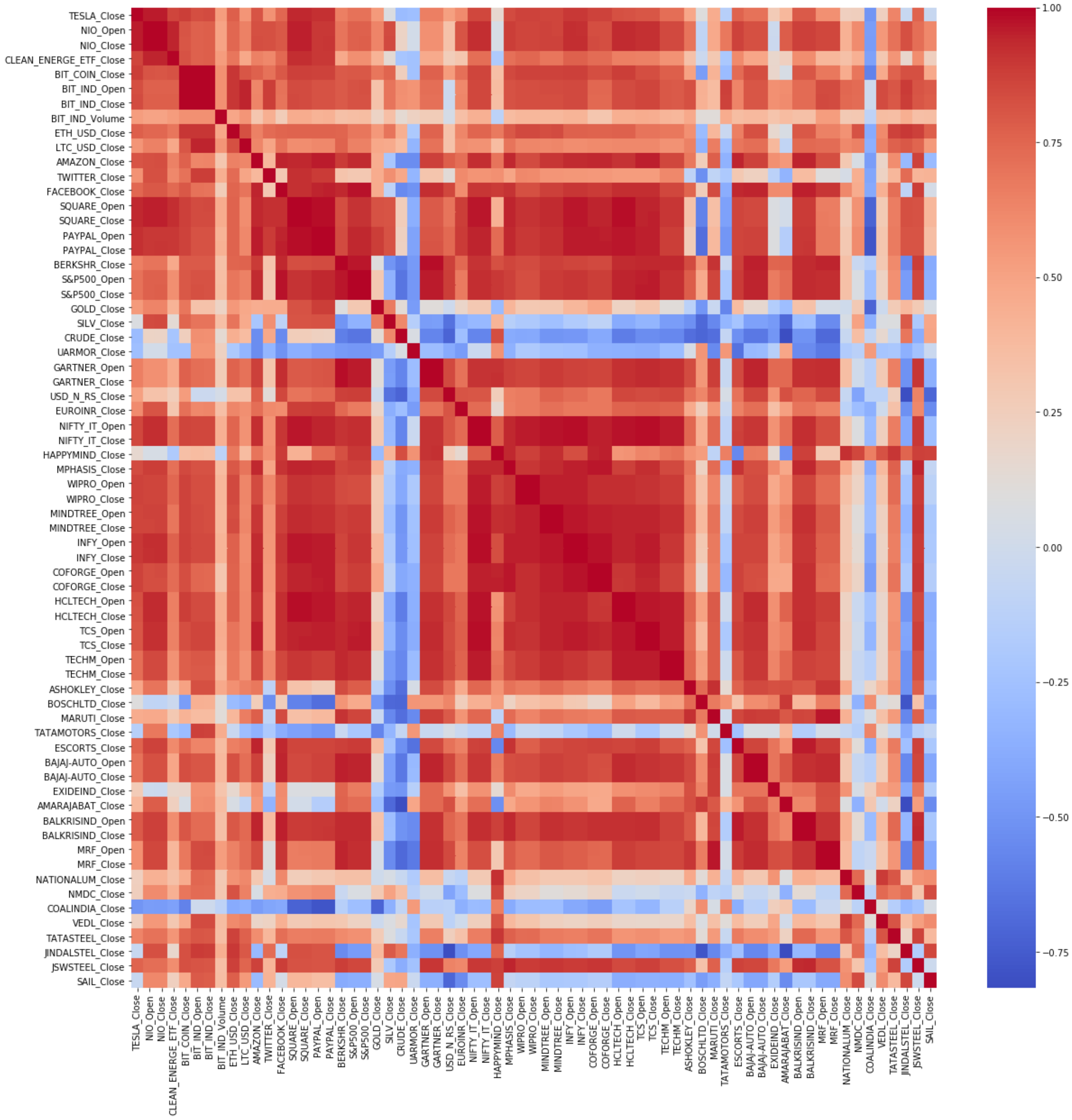
```
corr_matrix = master_df.corr().abs()
upper = corr_matrix.where(np.triu(np.ones(corr_matrix.shape), k=1).astype(np.
corr_cols = [column for column in upper.columns if any(upper[column] > 0.95)]
```

In [86]:

```
plt.figure(figsize=(20,20))
sns.heatmap(master_df[corr_cols].corr(),cmap='coolwarm')
```

Out[86]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fef17097cd0>
```



In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]:

In [ ]: