```
# IMPORTANT: RUN THIS CELL IN ORDER TO IMPORT YOUR KAGGLE DATA SOURCES,
# THEN FEEL FREE TO DELETE THIS CELL.
# NOTE: THIS NOTEBOOK ENVIRONMENT DIFFERS FROM KAGGLE'S PYTHON
# ENVIRONMENT SO THERE MAY BE MISSING LIBRARIES USED BY YOUR
# NOTEBOOK.
import kagglehub
kabhishm_adani_group_stock_prices_20162023_path = kagglehub.dataset_download('kabhishm/adani-group-stock-prices-20162023')
acarmehmet_nvidia_historical_stock_data_path = kagglehub.dataset_download('acarmehmet/nvidia-historical-stock-data')

print('Data source import complete.')
```

```
# This Python 3 environment comes with many helpful analytics libraries installed
# It is defined by the kaggle/python Docker image: https://github.com/kaggle/docker-python
# For example, here's several helpful packages to load

import numpy as np # linear algebra
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)

# Input data files are available in the read-only "../input/" directory
# For example, running this (by clicking run or pressing Shift+Enter) will list all files under the input directory

import os
for dirname, _, filenames in os.walk('/kaggle/input'):
    for filename in filenames:
        print(os.path.join(dirname, filename))

# You can write up to 20GB to the current directory (/kaggle/working/) that gets preserved as output when you create a version using "Sav
# You can also write temporary files to /kaggle/temp/, but they won't be saved outside of the current session
```

```
/kaggle/input/adani-group-stock-prices-20162023/ADANIENT.NS.csv
/kaggle/input/nvidia-historical-stock-data/nvidia_historical_stock_data.csv
```

LIABRAY IMPORTATION

```
#Importing of liabraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
import warnings
warnings.filterwarnings('ignore')
from pandas.plotting import lag_plot
```

INDEX

INITIAL READING AND CLEANING PROCESS

```
#Reading of file
df = pd.read_csv('/kaggle/input/nvidia-historical-stock-data/nvidia_historical_stock_data.csv')
```

```
df
```

	Date	Open	High	Low	Close	Volume
0	1999-10-21 00:00:00	0.038334	0.040244	0.037259	0.040244	382128000
1	1999-10-22 00:00:00	0.040125	0.042394	0.040125	0.041200	286752000
2	1999-10-25 00:00:00	0.040961	0.041559	0.039170	0.039170	213840000
3	1999-10-26 00:00:00	0.040842	0.044425	0.040603	0.042991	481248000
4	1999-10-27 00:00:00	0.043230	0.043469	0.040364	0.041081	214128000
...	...	...	...	...	...	...
6285	2024-10-15 00:00:00	137.869995	138.570007	128.740005	131.600006	377831000
6286	2024-10-16 00:00:00	133.979996	136.619995	131.580002	135.720001	264879700
6287	2024-10-17 00:00:00	139.339996	140.889999	136.869995	136.929993	306435900
6288	2024-10-18 00:00:00	138.669998	138.899994	137.279999	138.000000	176090200
6289	2024-10-21 00:00:00	138.130005	143.710007	138.000000	143.710007	264554500

6290 rows × 6 columns

```
#Getting info on data
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 6290 entries, 0 to 6289
Data columns (total 6 columns):
 #   Column  Non-Null Count  Dtype  
---  ------  --------------  -----  
 0   Date    6290 non-null   object 
 1   Open    6290 non-null   float64
 2   High    6290 non-null   float64
 3   Low     6290 non-null   float64
 4   Close   6290 non-null   float64
 5   Volume  6290 non-null   int64  
dtypes: float64(4), int64(1), object(1)
memory usage: 295.0+ KB
```

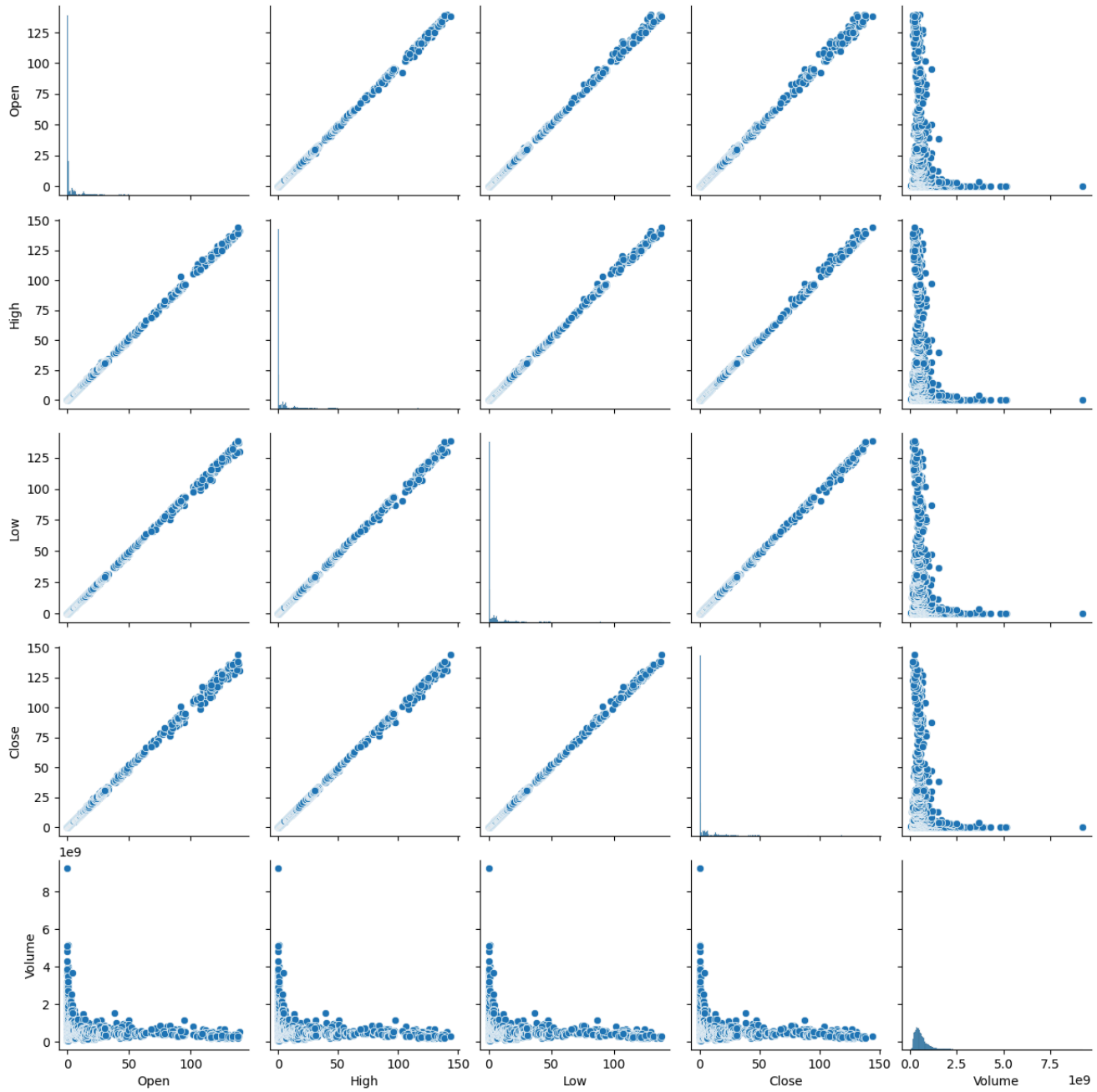
```
#Getting stats on numeric data
df.describe()
```

	Open	High	Low	Close	Volume
count	6290.000000	6290.000000	6290.000000	6290.000000	6.290000e+03
mean	7.413215	7.552883	7.263899	7.415679	6.152477e+08
std	19.579643	19.955825	19.159134	19.577934	4.295346e+08
min	0.038334	0.040244	0.037259	0.039170	4.564400e+07
25%	0.270100	0.277495	0.262916	0.269890	3.549901e+08
50%	0.442333	0.448562	0.435627	0.442142	5.131920e+08
75%	4.512542	4.586693	4.463839	4.539182	7.403648e+08
max	139.788047	143.710007	138.000000	143.710007	9.230856e+09

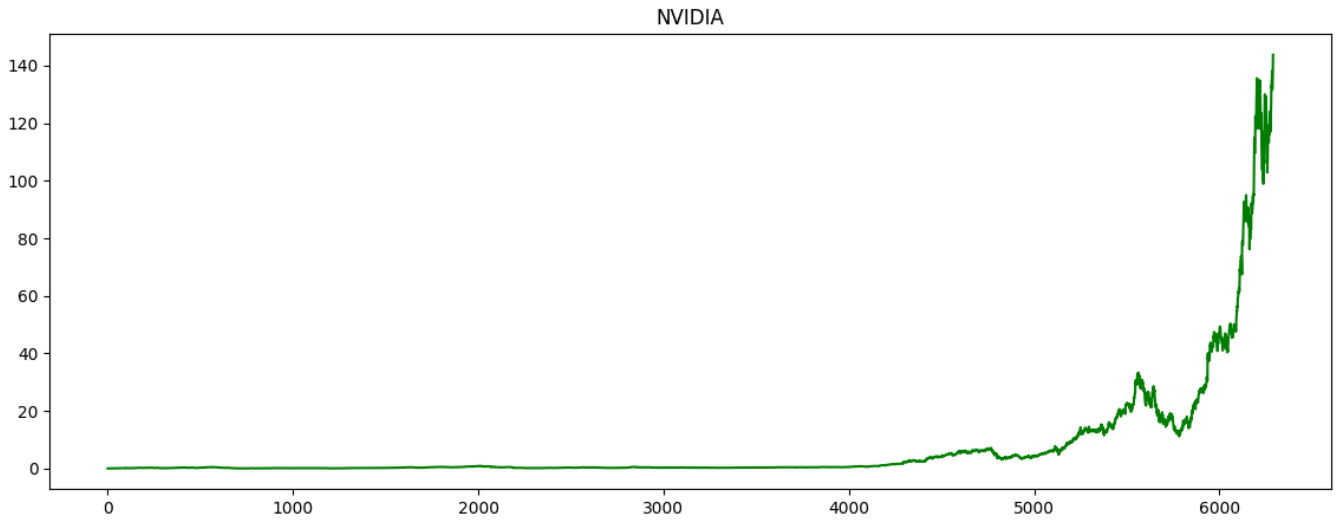
EDA

```
#PAIRPLOT
sns.pairplot(df)
```

<seaborn.axisgrid.PairGrid at 0x7879c6d42da0>

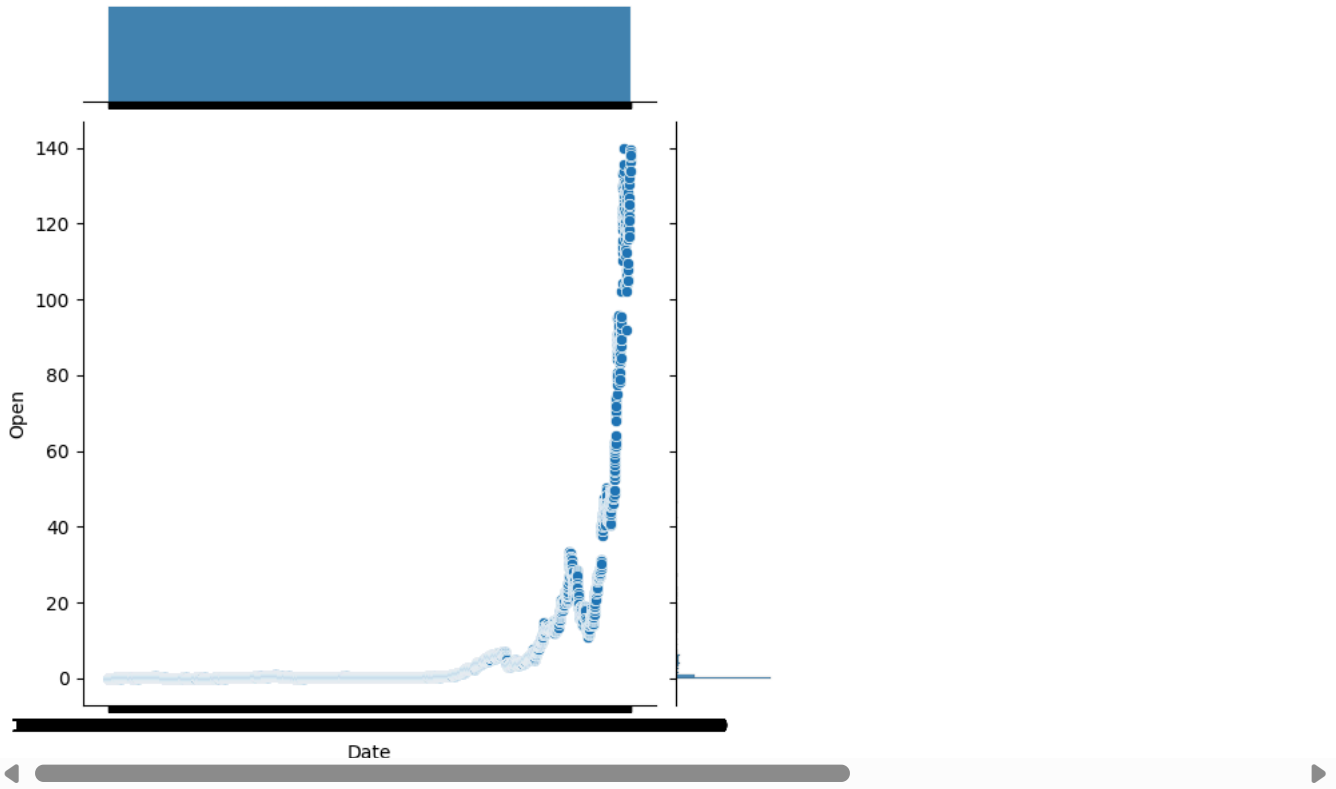



```
# ANSWER 1 NVIDIA CLOSE VALUE
#Close plot of nvidia
plt.figure(figsize=(14,5))
plt.plot(df[['Close']],color="green")
plt.title('NVIDIA')
plt.show()
```



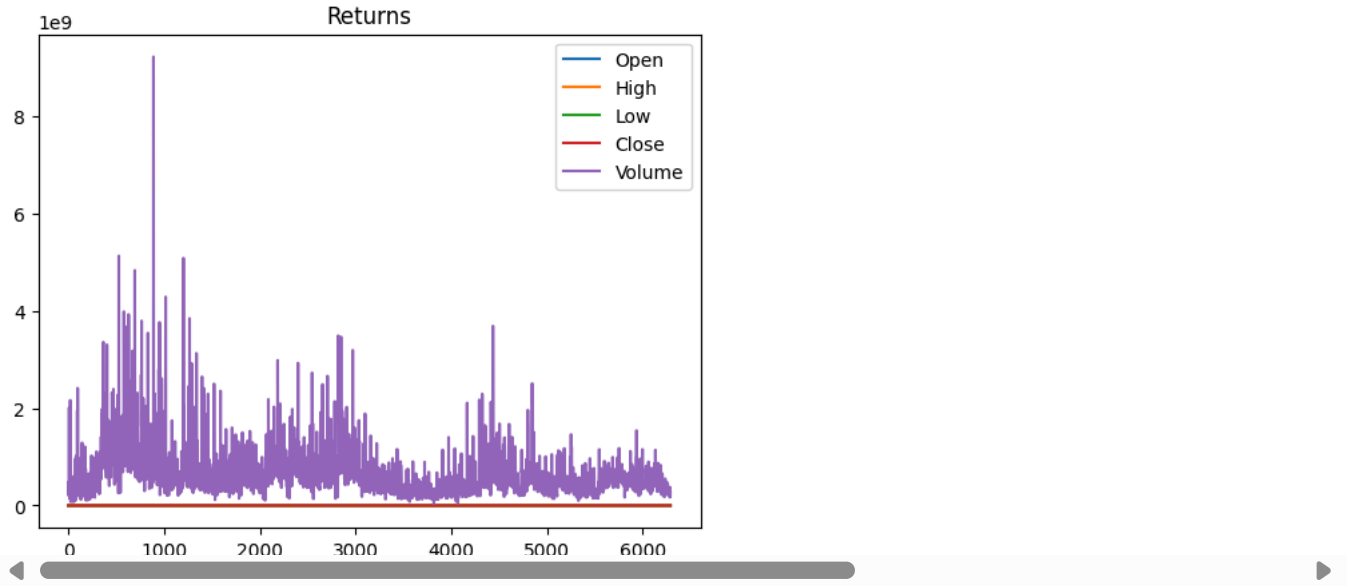

```
# ANSWER 1 NVIDIA OPEN VALUE VISUALIZATION
#JOIN PLOT
sns.jointplot(data=df, x='Date', y="Open")
```

```
<seaborn.axisgrid.JointGrid at 0x7879c2e85000>
```



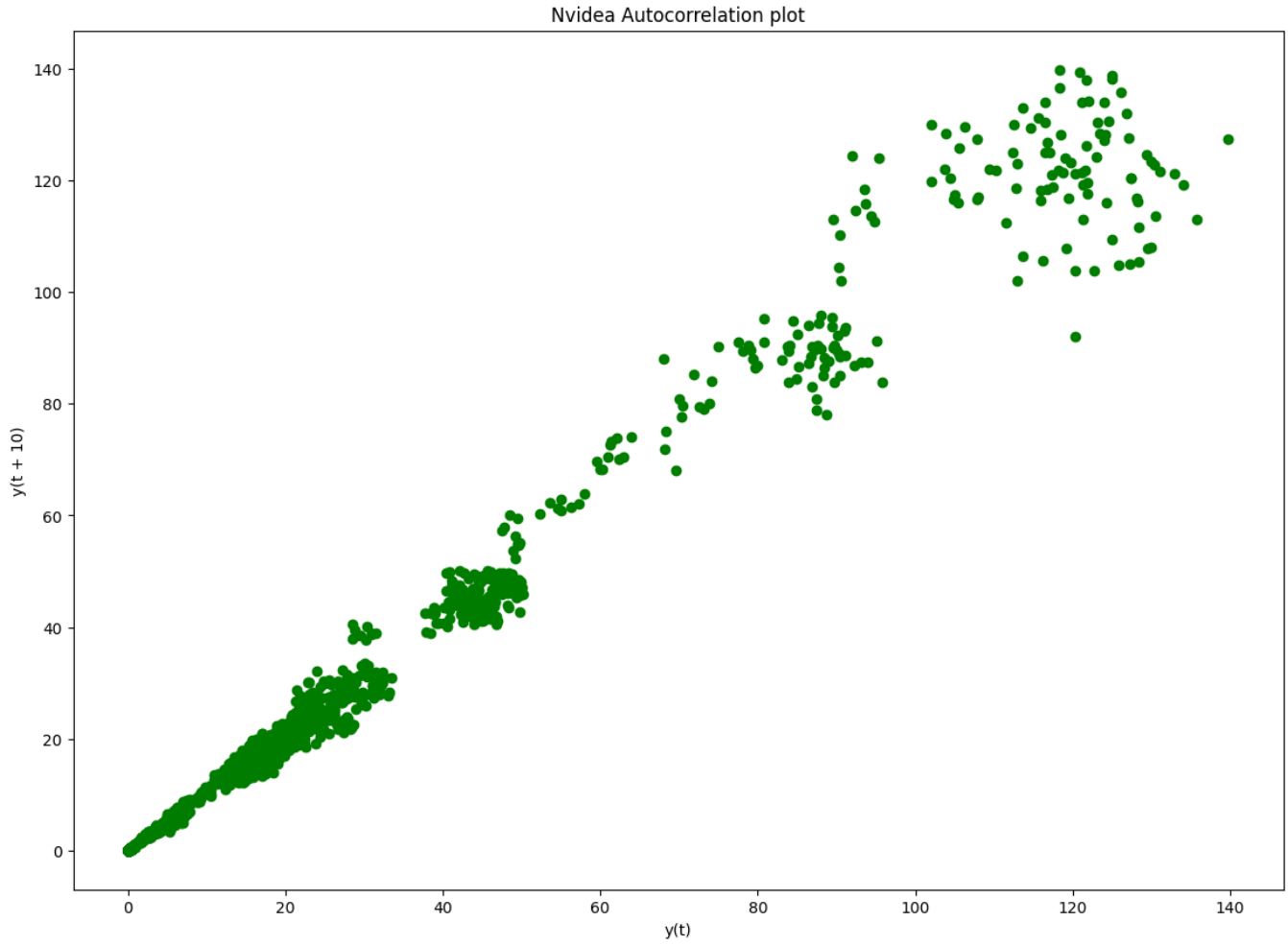

```
# ANSWER 3 CUMULATIVE SUM PLOT
dret = df.cumsum()
df.plot()
plt.title('Returns')
```

```
Text(0.5, 1.0, 'Returns')
```




```
#LAG Plot
plt.figure(figsize=(14,10))
lag_plot(df['Open'], lag=10,c="green")
plt.title('Nvidea Autocorrelation plot')
```

```
Text(0.5, 1.0, 'Nvidea Autocorrelation plot')
```



MODEL PREPRATION

Splitting of Date column into splits of year month day and Day of week

```
#Converting date as object to date as date time
df['Date'] = pd.to_datetime(df['Date'])


#Converting object to year,month ,day and day of week one by one
df['Year'] = df['Date'].dt.year
df['Month'] = df['Date'].dt.month
df['Day'] = df['Date'].dt.day
df['DayOfWeek'] = df['Date'].dt.dayofweek


#Simplifing more to quarter and day of year
df['Quarter'] = df['Date'].dt.quarter
df['DayOfYear'] = df['Date'].dt.dayofyear


#Dropping of initial dtae column
df.drop(columns=['Date'], inplace=True)
```

```
df
```

	Open	High	Low	Close	Volume	Year	Month	Day	DayOfWeek	Quarter	DayOfYear
0	0.038334	0.040244	0.037259	0.040244	382128000	1999	10	21	3	4	294
1	0.040125	0.042394	0.040125	0.041200	286752000	1999	10	22	4	4	295
2	0.040961	0.041559	0.039170	0.039170	213840000	1999	10	25	0	4	298
3	0.040842	0.044425	0.040603	0.042991	481248000	1999	10	26	1	4	299
4	0.043230	0.043469	0.040364	0.041081	214128000	1999	10	27	2	4	300
...	...	...	...	...	...	...	...	...	...	...	...
6285	137.869995	138.570007	128.740005	131.600006	377831000	2024	10	15	1	4	289
6286	133.979996	136.619995	131.580002	135.720001	264879700	2024	10	16	2	4	290
6287	139.339996	140.889999	136.869995	136.929993	306435900	2024	10	17	3	4	291
6288	138.669998	138.899994	137.279999	138.000000	176090200	2024	10	18	4	4	292
6289	138.130005	143.710007	138.000000	143.710007	264554500	2024	10	21	0	4	295

6290 rows × 11 columns

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 6290 entries, 0 to 6289
Data columns (total 11 columns):
 #   Column     Non-Null Count  Dtype  
---  ------     --------------  -----  
 0   Open       6290 non-null   float64
 1   High       6290 non-null   float64
 2   Low        6290 non-null   float64
 3   Close      6290 non-null   float64
 4   Volume     6290 non-null   int64  
 5   Year       6290 non-null   int32  
 6   Month      6290 non-null   int32  
 7   Day        6290 non-null   int32  
 8   DayOfWeek  6290 non-null   int32  
 9   Quarter    6290 non-null   int32  
 10  DayOfYear  6290 non-null   int32  
dtypes: float64(4), int32(6), int64(1)
memory usage: 393.2 KB
```

FLITER DATA FROM 2018-2024

```
yn =df[(df['Year'] > 2017)]
```

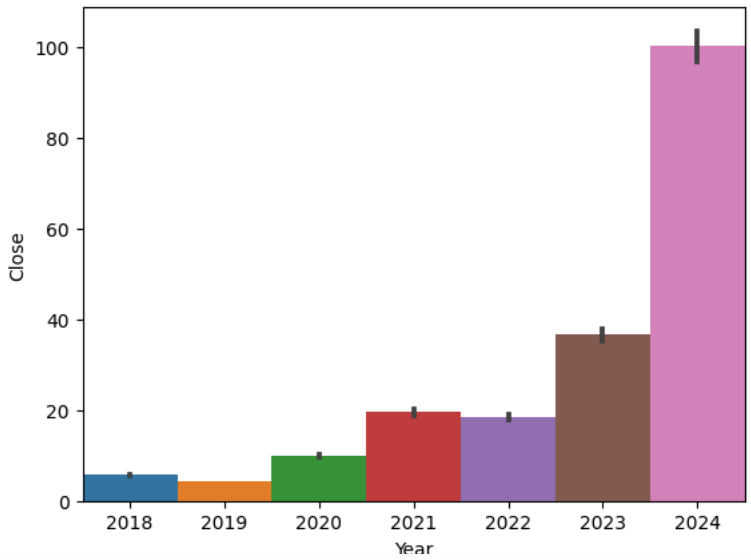
```
yn
```

	Open	High	Low	Close	Volume	Year	Month	Day	DayOfWeek	Quarter	DayOfYear
4578	4.841929	4.933930	4.810273	4.930220	355616000	2018	1	2	1	1	2
4579	5.047694	5.285116	5.039038	5.254696	914704000	2018	1	3	2	1	3
4580	5.336064	5.392699	5.260138	5.282397	583268000	2018	1	4	3	1	4
4581	5.297236	5.364505	5.220321	5.327161	580124000	2018	1	5	4	1	5
4582	5.450818	5.564582	5.405806	5.490388	881216000	2018	1	8	0	1	8
...	...	...	...	...	...	...	...	...	...	...	...
6285	137.869995	138.570007	128.740005	131.600006	377831000	2024	10	15	1	4	289
6286	133.979996	136.619995	131.580002	135.720001	264879700	2024	10	16	2	4	290
6287	139.339996	140.889999	136.869995	136.929993	306435900	2024	10	17	3	4	291
6288	138.669998	138.899994	137.279999	138.000000	176090200	2024	10	18	4	4	292
6289	138.130005	143.710007	138.000000	143.710007	264554500	2024	10	21	0	4	295

1712 rows × 11 columns

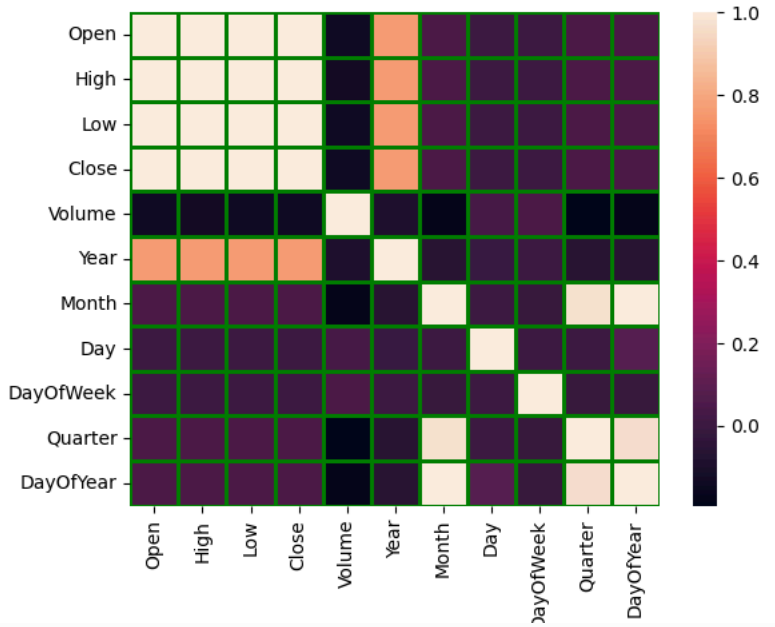
```
#ANSWER 4
#Creating of bar plot as per year and close
sns.barplot(x='Year',y='Close',data=yn,width=1.0)
```

```
<Axes: xlabel='Year', ylabel='Close'>
```




```
#ANSWER 5
#Correlation chart
coreal=yn.corr()
linewidths = 2
linecolor = "green"
sns.heatmap(coreal,linewidths=linewidths,
                linecolor=linecolor)
```

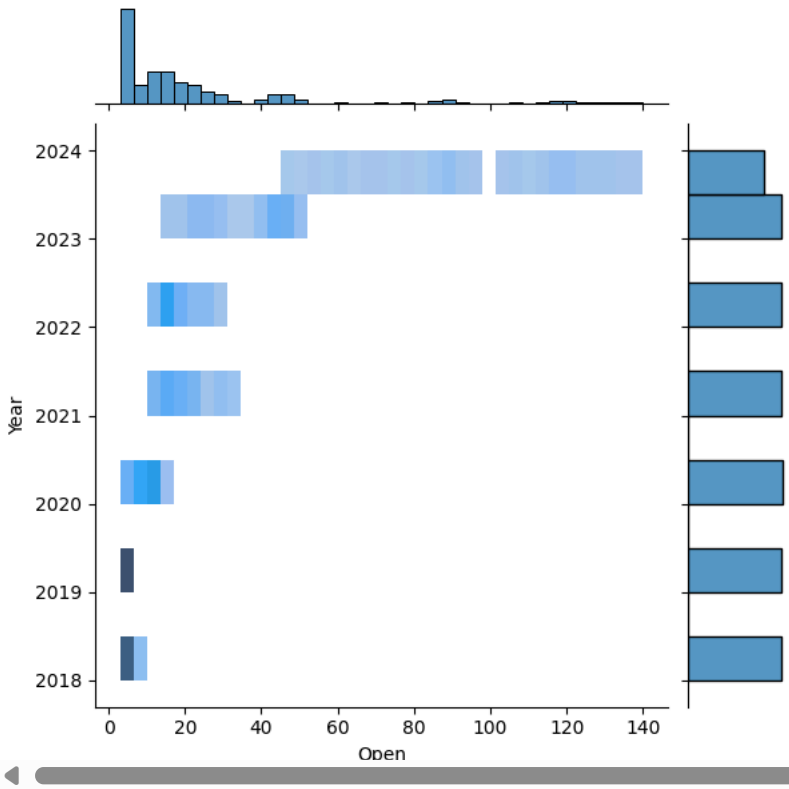
```
<Axes: >
```



#

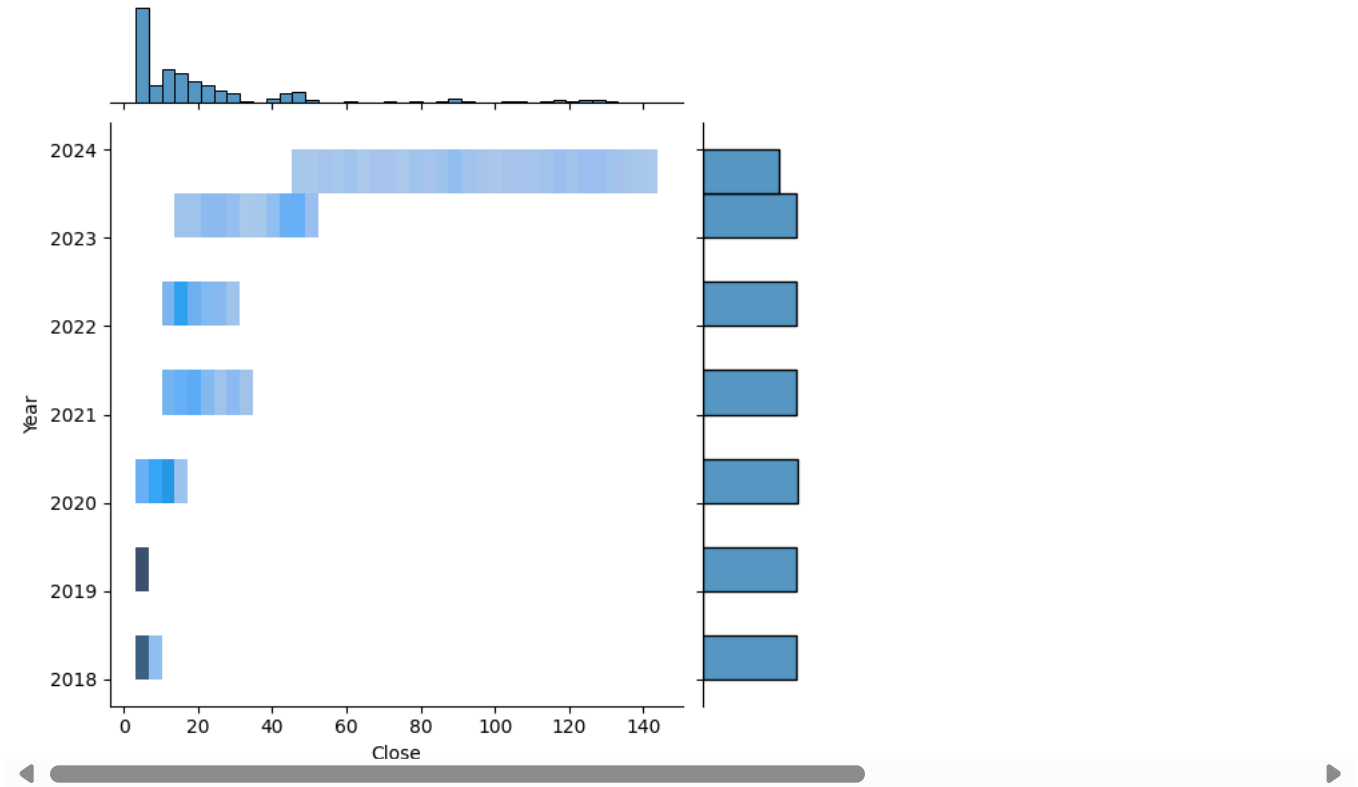
```
#Join plot for open and year
sns.jointplot(data=yn, x="Open", y="Year", kind="hist")
```

```
<seaborn.axisgrid.JointGrid at 0x7879b02e9930>
```



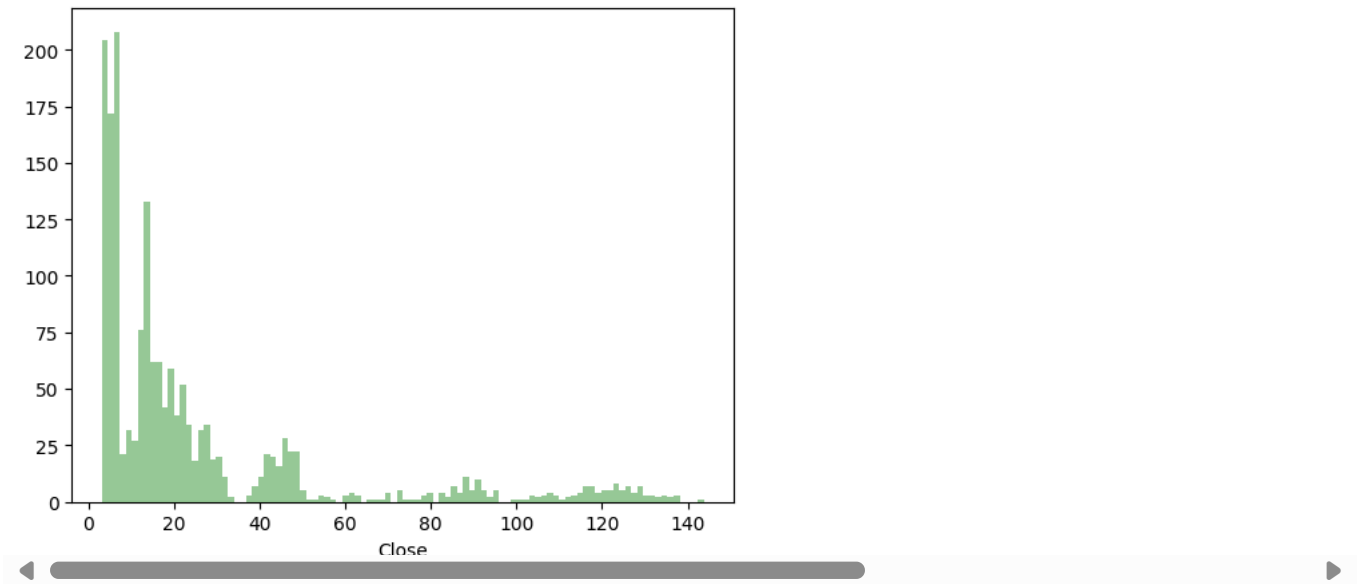

```
#Join plot for close and year
sns.jointplot(data=yn, x="Close", y="Year", kind="hist")
```

```
<seaborn.axisgrid.JointGrid at 0x7879ae425e40>
```



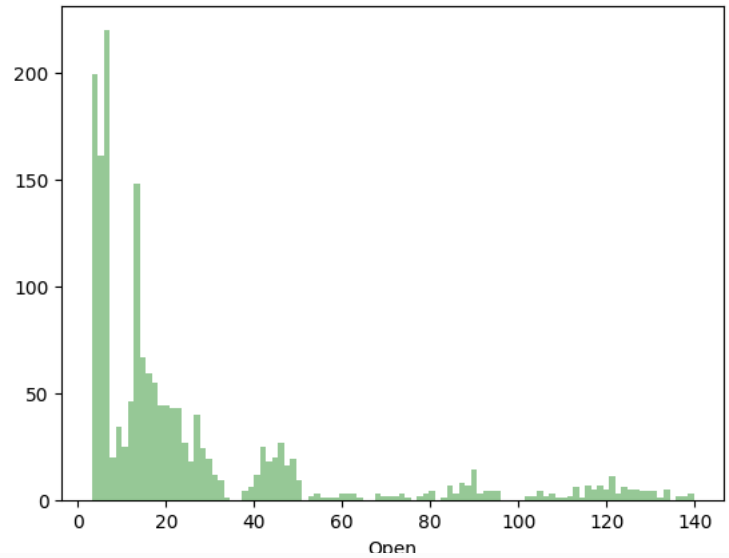

```
#Distplpot for univariate distribution
sns.distplot(yn['Close'],bins=100,kde=False,color='green')
```

```
<Axes: xlabel='Close'>
```




```
#Distplot for univariate distribution
sns.distplot(yn['Open'],bins=100,kde=False,color='green')
```

```
<Axes: xlabel='Open'>
```



PREDICTIVE ANALYSIS MODEL

yn

	Open	High	Low	Close	Volume	Year	Month	Day	DayOfWeek	Quarter	DayOfYear
4578	4.841929	4.933930	4.810273	4.930220	355616000	2018	1	2	1	1	2
4579	5.047694	5.285116	5.039038	5.254696	914704000	2018	1	3	2	1	3
4580	5.336064	5.392699	5.260138	5.282397	583268000	2018	1	4	3	1	4
4581	5.297236	5.364505	5.220321	5.327161	580124000	2018	1	5	4	1	5
4582	5.450818	5.564582	5.405806	5.490388	881216000	2018	1	8	0	1	8
...	...	...	...	...	...	...	...	...	...	...	...
6285	137.869995	138.570007	128.740005	131.600006	377831000	2024	10	15	1	4	289
6286	133.979996	136.619995	131.580002	135.720001	264879700	2024	10	16	2	4	290
6287	139.339996	140.889999	136.869995	136.929993	306435900	2024	10	17	3	4	291
6288	138.669998	138.899994	137.279999	138.000000	176090200	2024	10	18	4	4	292
6289	138.130005	143.710007	138.000000	143.710007	264554500	2024	10	21	0	4	295

1712 rows x 11 columns

```
#TRAIN AND TEST SPLIT
#Importing of necessary liabrary
from sklearn.model_selection import train_test_split


x = yn[['Open','High','Low','Close','Volume','Year','Month','Day','DayOfWeek',
        'Quarter','DayOfYear']]
y = yn['Close']


x.shape
```

```
(1712, 11)
```

```
y.shape
```

```
(1712,)
```

```
x_train ,x_test ,y_train ,y_test  = train_test_split(x,y,random_state=40,test_size=0.2)


x_train.shape
```

```
(1369, 11)
```

```
x_test.shape
```

```
(343, 11)
```

```
y_train.shape
```

```
(1369,)
```

```
y_test.shape
```

```
(343,)
```

```
x_train.head()
```

	Open	High	Low	Close	Volume	Year	Month	Day	DayOfWeek	Quarter	DayOfYear
4847	3.376587	3.424948	3.249112	3.263745	1153932000	2019	1	29	1	1	29
5883	23.397570	23.615464	22.714903	22.953787	474866000	2023	3	10	4	1	69
4885	4.365909	4.430208	4.247985	4.314271	525212000	2019	3	25	0	1	84
4676	5.949849	6.130861	5.949106	6.129622	442956000	2018	5	23	2	2	143
6077	48.183659	49.393399	48.109674	48.879509	479948000	2023	12	15	4	4	349

Building of Model

```
#Importing of necessary liabrary
from sklearn.ensemble import RandomForestRegressor
rfr=RandomForestRegressor(n_estimators=100, random_state=40)
```

```
rfr.fit(x_train,y_train)
```

```
RandomForestRegressor
RandomForestRegressor(random_state=40)
```

```
y_pred=rfr.predict(x_test)
```