Data Collection and Preprocessing Phase

Date	24 April 2024
Team ID	739934
Project Title	Crystal Ball Analysis: Projecting Share Prices Of The Leading Gpu Titans
Maximum Marks	6 Marks

Data Exploration and Preprocessing Report

Dataset variables will be statistically analysed to identify patterns and outliers, with Python employed for preprocessing tasks like normalization and feature engineering. Data cleaning will address missing values and outliers, ensuring quality for subsequent analysis and modeling, and forming a strong foundation for insights and predictions.

Section	Description
Data Overview	Descriptive Analysis:-

```
[20] x_train.describe(include='all')
```

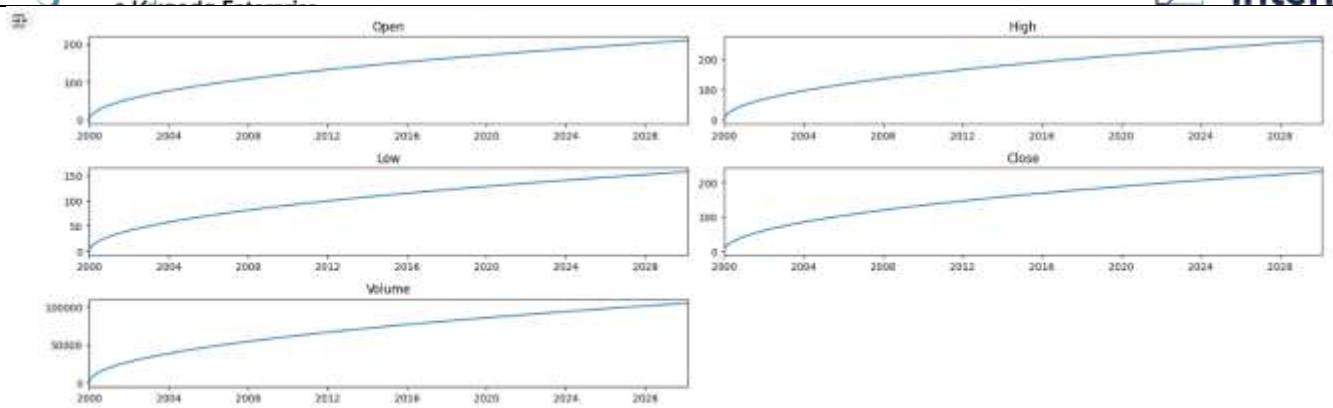
	Open	High	Low	Volume	Year	Month	Day	Company
count	27227.000000	27227.000000	27227.000000	2.722700e+04	27227.000000	27227.000000	27227.000000	27227.000000
mean	60.315613	61.188853	59.626940	2.468755e+08	2001.267014	6.538987	15.755133	1.559922
std	111.856381	113.039237	110.413412	1.077167e+09	10.460180	3.410273	8.744898	1.410846
min	0.000000	0.218750	0.216146	0.000000e+00	1980.000000	1.000000	1.000000	0.000000
25%	3.430000	3.718750	3.593750	3.671470e+06	1993.000000	4.000000	8.000000	0.000000
50%	10.300000	10.500000	10.062500	2.615800e+07	2003.000000	7.000000	16.000000	2.000000
75%	26.700001	26.990000	26.360001	6.002380e+07	2010.000000	9.000000	23.000000	2.000000
max	567.667419	575.104126	547.836243	2.833812e+10	2023.000000	12.000000	31.000000	4.000000

```
x_test.describe(include='all')
```

	Open	High	Low	Volume	Year	Month	Day	Company
count	6809.000000	6809.000000	6809.000000	6.809000e+03	6809.000000	6809.000000	6809.000000	6809.000000
mean	100.937076	102.317686	99.529994	3.692865e+07	2019.400646	6.469526	15.746071	1.559994
std	100.764061	101.881577	99.596936	3.175757e+07	2.417713	3.470243	8.746159	1.410873
min	1.620000	1.690000	1.610000	0.000000e+00	2014.000000	1.000000	1.000000	0.000000
25%	32.799999	33.240002	32.430000	1.586950e+07	2018.000000	3.000000	8.000000	0.000000
50%	53.209999	53.919998	52.410000	3.059510e+07	2020.000000	6.000000	16.000000	2.000000
75%	151.850006	154.660004	148.830002	5.063920e+07	2021.000000	10.000000	23.000000	2.000000
max	435.010010	439.899994	426.739990	3.250584e+08	2024.000000	12.000000	31.000000	4.000000

```
import matplotlib.pyplot as plt
import pandas as pd

# Generate sample data
dates = pd.date_range(start='1/1/2000', periods=11000)
data = pd.DataFrame({
    'Date': dates,
    'Open': (pd.Series(range(11000)) ** 0.5) * 2,  # Example data for 'Open'
    'High': (pd.Series(range(11000)) ** 0.5) * 2.5,  # Example data for 'High'
    'Low': (pd.Series(range(11000)) ** 0.5) * 1.5,  # Example data for 'Low'
    'Close': (pd.Series(range(11000)) ** 0.5) * 2.2,  # Example data for 'Close'
    'Volume': (pd.Series(range(11000)) ** 0.5) * 1000  # Example data for 'Volume'
})

fig, axs = plt.subplots(5, 2, figsize=(18, 9))

# List of column names to be plotted
columns_to_plot = ['Open', 'High', 'Low', 'Close', 'Volume']

# Plot each dat
for i, ax in en
    if i < len(columns_to_plot):
        ax.plot(data['Date'], data[columns_to_plot[i]])
        ax.set_title(columns_to_plot[i])
        ax.set_xlim([data['Date'].min(), data['Date'].max()])
    else:
        ax.axis('off')

plt.tight_layout()
plt.show()
```

list: columns_to_plot
(5 items) ['Open', 'High', 'Low', 'Close', 'Volume']



Loading Data

```
amd = pd.read_csv('/content/AMD (1980 -11.07.2023).csv')
asus = pd.read_csv('/content/ASUS (2000 - 11.07.2023).csv')
intel = pd.read_csv('/content/INTEL (1980 - 11.07.2023).csv')
msi = pd.read_csv('/content/MSI (2023 - 08.04.2024).csv')
nvidia = pd.read_csv('/content/NVIDIA (1999 -11.07.2023).csv')
```

Handling Missing Data

```
[ ]
amd.isnull().sum()
```

```
Date         0
Open         0
High         0
Low          0
Close        0
Adj Close    0
Volume       0
dtype: int64
```

```
[ ] asus.isnull().sum()
```

```
Date           0
Open         123
High         123
Low          123
Close        123
Adj Close    123
Volume       123
dtype: int64
```

```
[ ] intel.isnull().sum()
```

```
Date         0
Open         0
High         0
Low          0
Close        0
Adj Close    0
Volume       0
dtype: int64
```

```
[ ] nvidia.isnull().sum()
```

```
Date         0
Open         0
High         0
Low          0
Close        0
Adj Close    0
Volume       0
dtype: int64
```

```
[ ] asus=asus.dropna()
    asus
```

	Date	Open	High	Low	Close	Adj Close	Volume
0	2000-01-05	438.747223	446.535675	436.151154	438.747223	89.092613	6.106176e+09
1	2000-01-06	440.045380	447.833862	436.151154	437.449310	88.829048	6.545984e+09
2	2000-01-07	432.256927	433.555084	425.766632	428.362701	86.983925	4.764317e+09
3	2000-01-10	434.853271	454.324158	434.853271	450.429901	91.464920	1.199988e+10
4	2000-01-11	463.410767	463.410767	442.641449	443.939606	90.146988	1.423350e+10
...	...	...	...	...	...	...	...
5864	2023-07-04	298.500000	302.500000	293.000000	293.500000	293.500000	6.790210e+06
5865	2023-07-05	294.000000	298.000000	292.000000	296.500000	296.500000	1.683419e+06
5866	2023-07-06	298.000000	302.500000	295.500000	300.000000	300.000000	2.966401e+06
5867	2023-07-07	300.000000	300.000000	291.000000	293.000000	293.000000	2.140715e+06
5868	2023-07-10	293.000000	295.000000	291.000000	292.000000	292.000000	1.432084e+06

5746 rows × 7 columns

Feature Engineering	Attached the codes in final submission.

Save Processed Data	-
	`[ ] import pickle as pkl`
	`[ ] pkl.dump(lr,open('model.pkl','wb'))`