Visualization of Complex Data
## DATS 6401
Lab 2
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1. Loaded the data:

```
#%%
# Override yfinance API
yf.pdr_override()

# Defining stocks and date range
stocks = ['AAPL', 'ORCL', 'TSLA', 'IBM', 'YELP', 'MSFT']
start_date = '2013-01-01'
end_date = '2023-08-28'

# Retrieve stock data
stock_data = {}
for stock in stocks:
    print(f"Fetching data for {stock}")
    stock_data[stock] = web.get_data_yahoo(stock, start=start_date, end=end_date)

for stock, data in stock_data.items():
    print(f"\nHead for {stock}:")
    print(data.head())
```
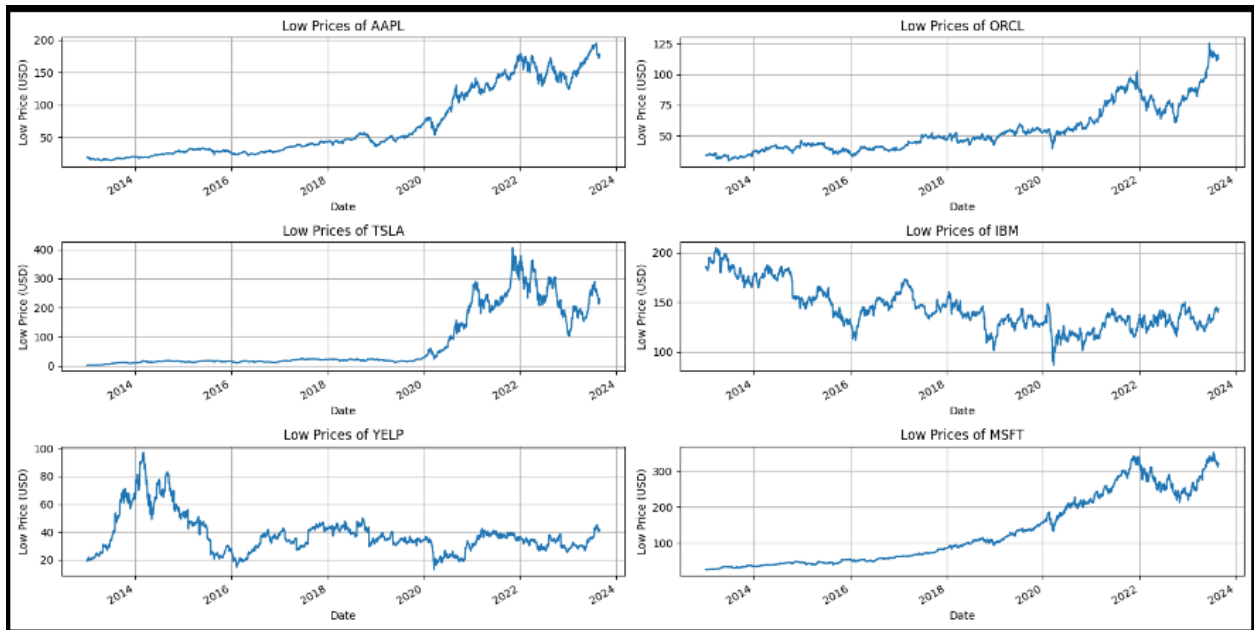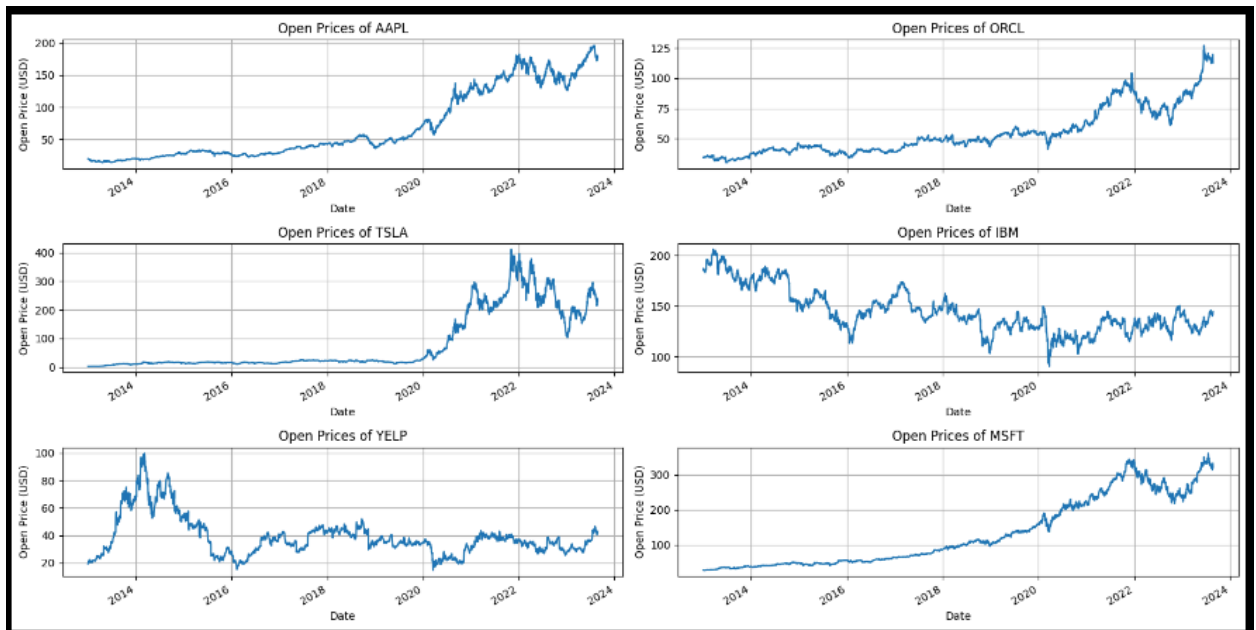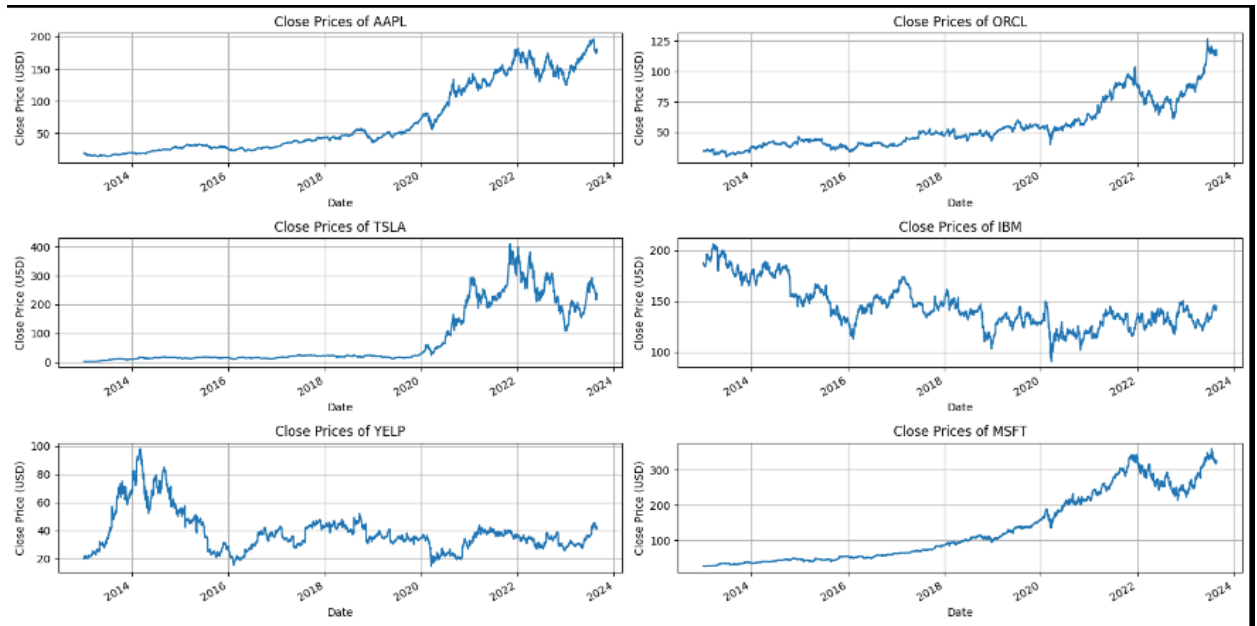
2. High Prices:
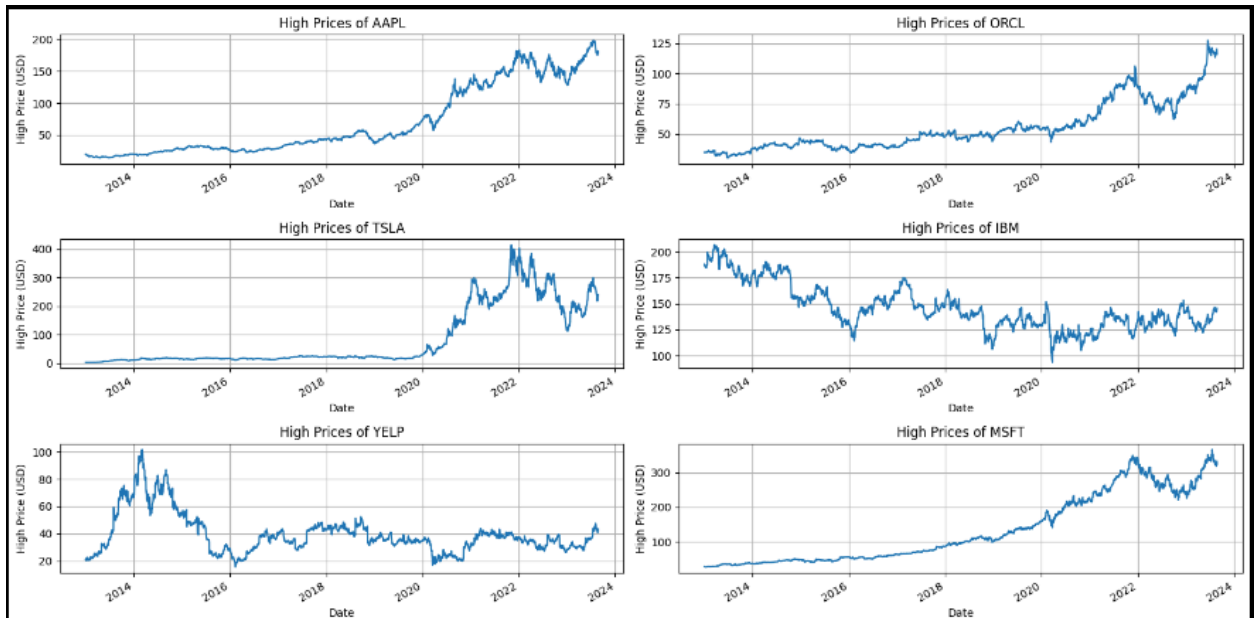
3. Low Prices:

Open Prices:

Close Prices:

Volume Prices:
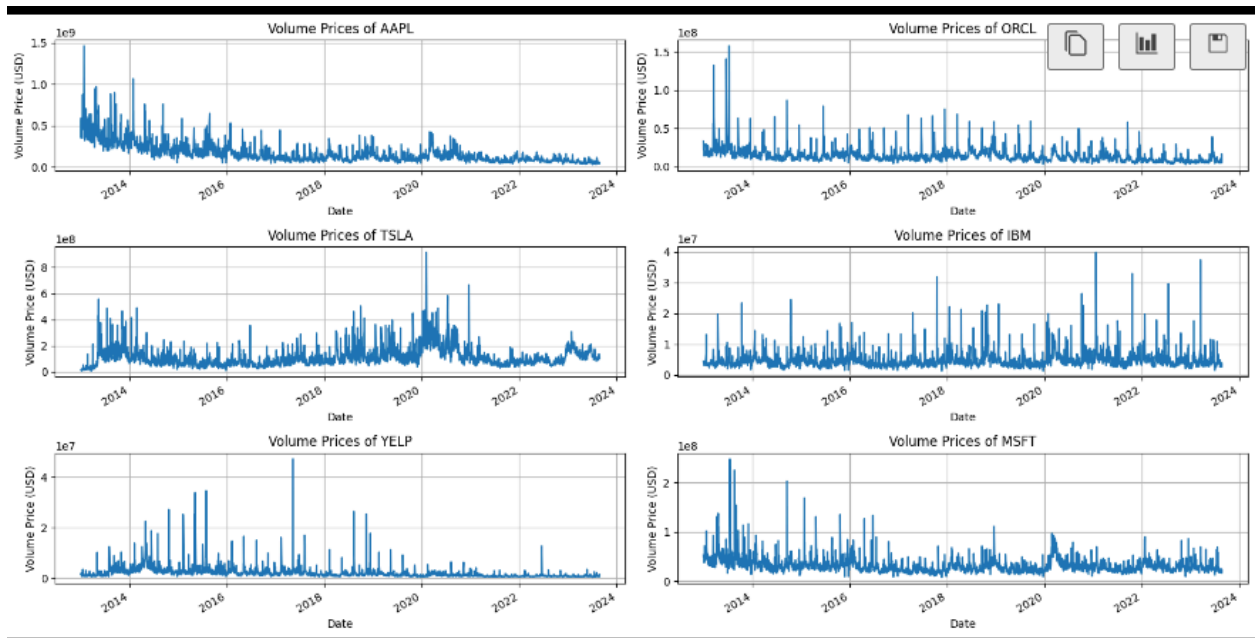
Adj. Close Prices:.
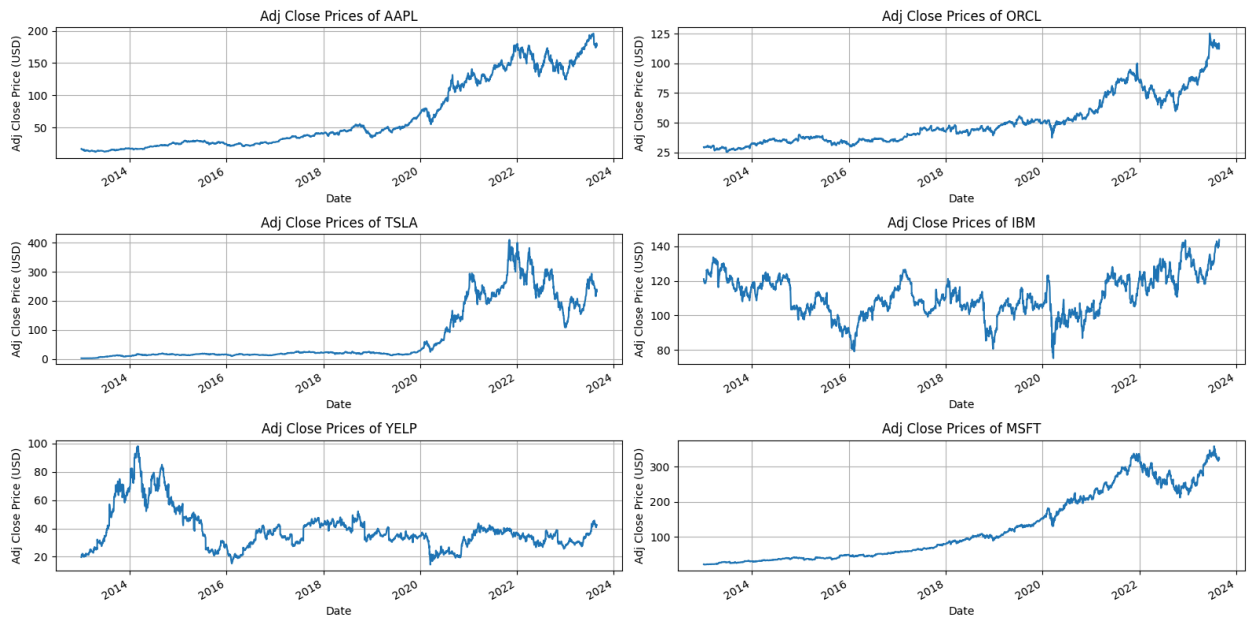
4. High Prices:

5. Low Prices:

Low Distribution of AAPL

Low Distribution of ORCL

Low Distribution of TSLA

Low Distribution of IBM

Low Distribution of YELP

Low Distribution of MSFT

Open Price:

Open Distribution of AAPL

Open Distribution of ORCL

Open Distribution of TSLA

Open Distribution of IBM

Open Distribution of YELP

Open Distribution of MSFT
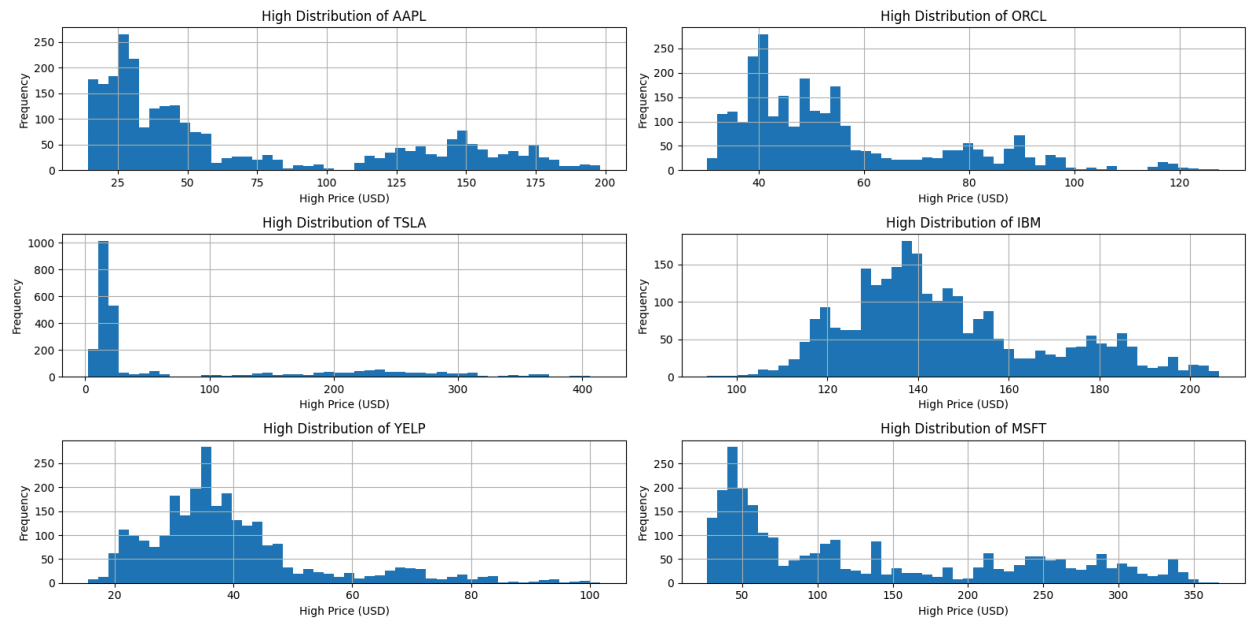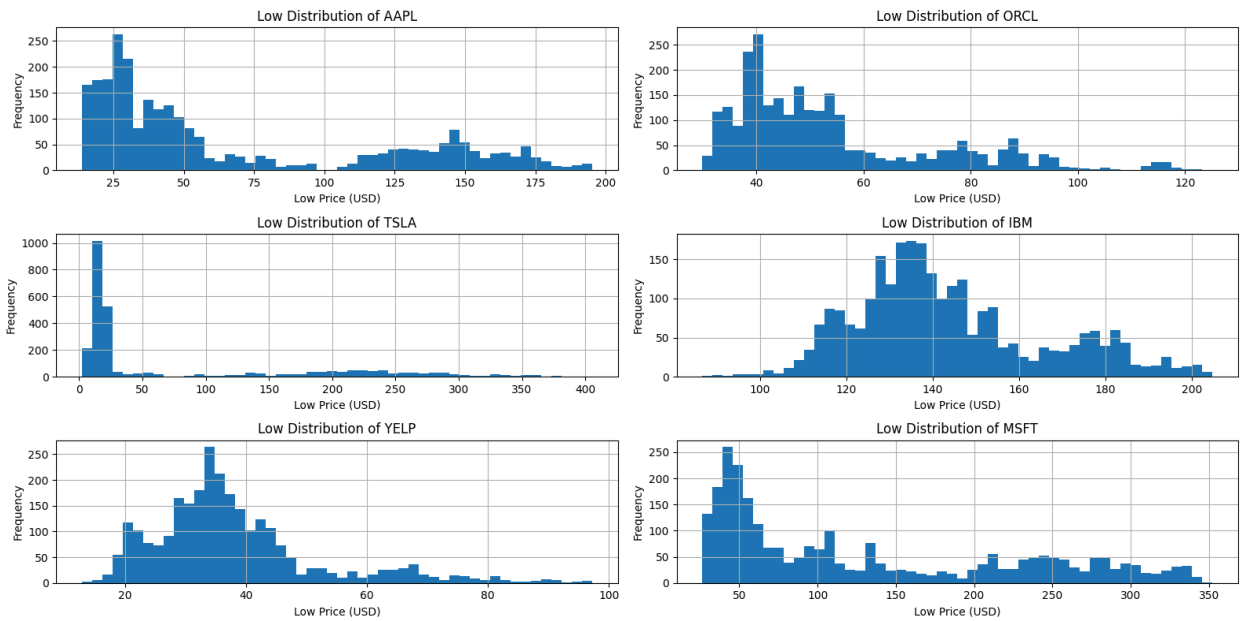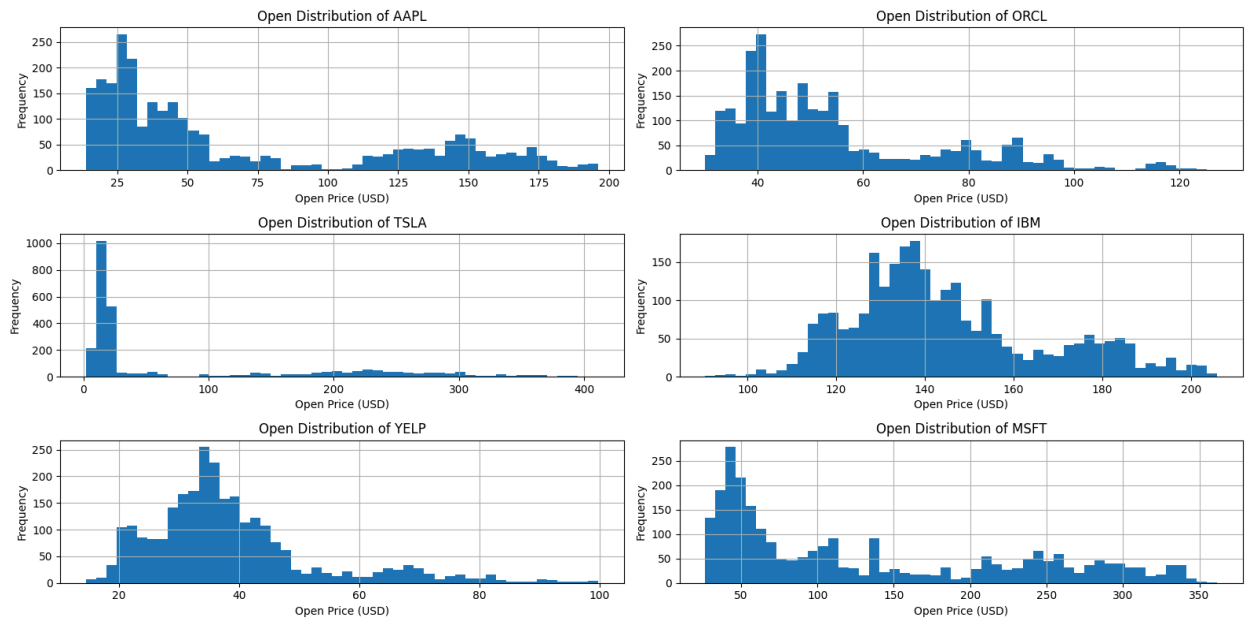
Close Price:
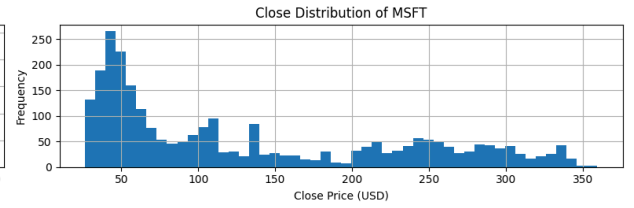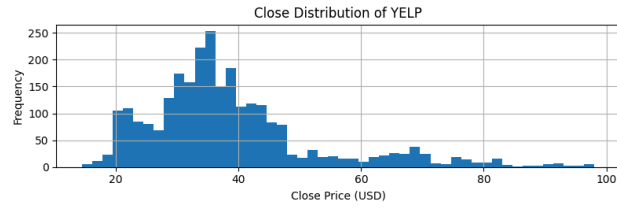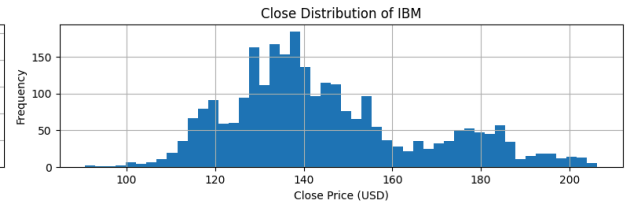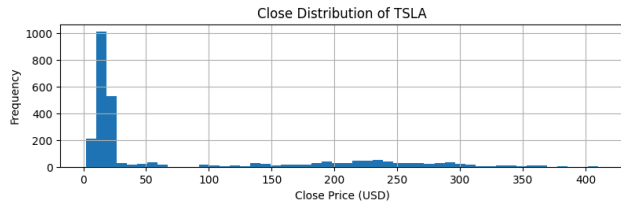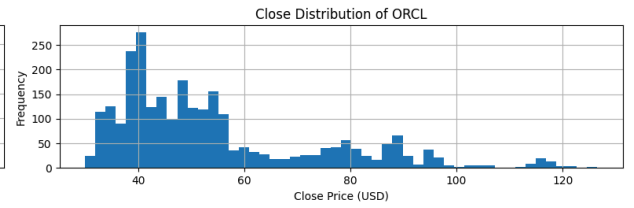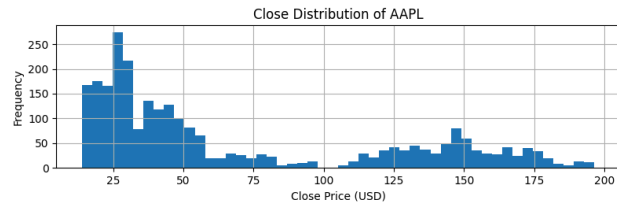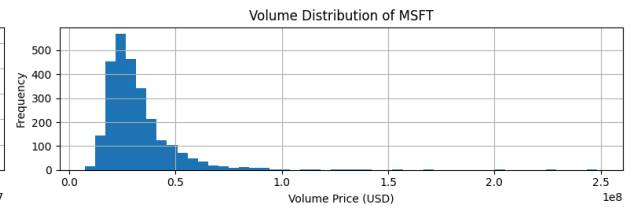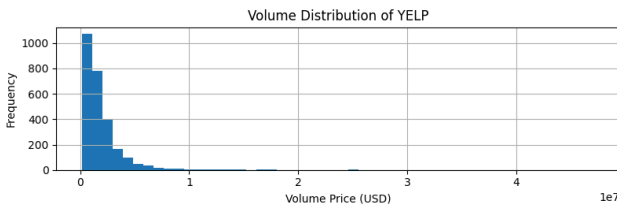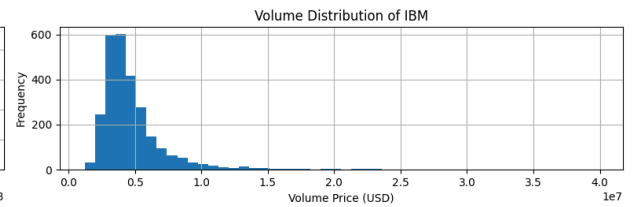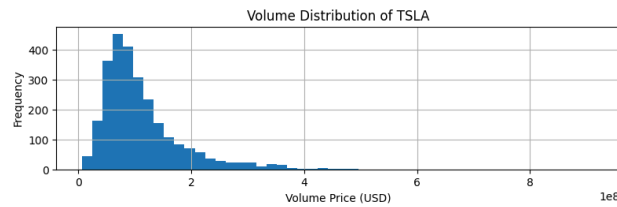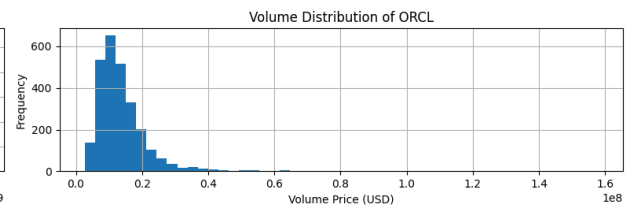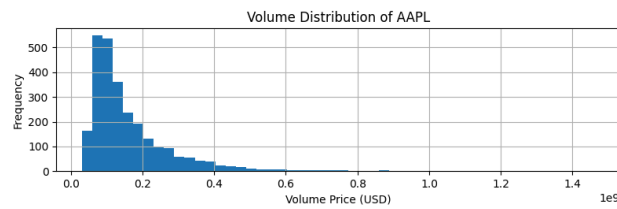
Volume:

Adj.:
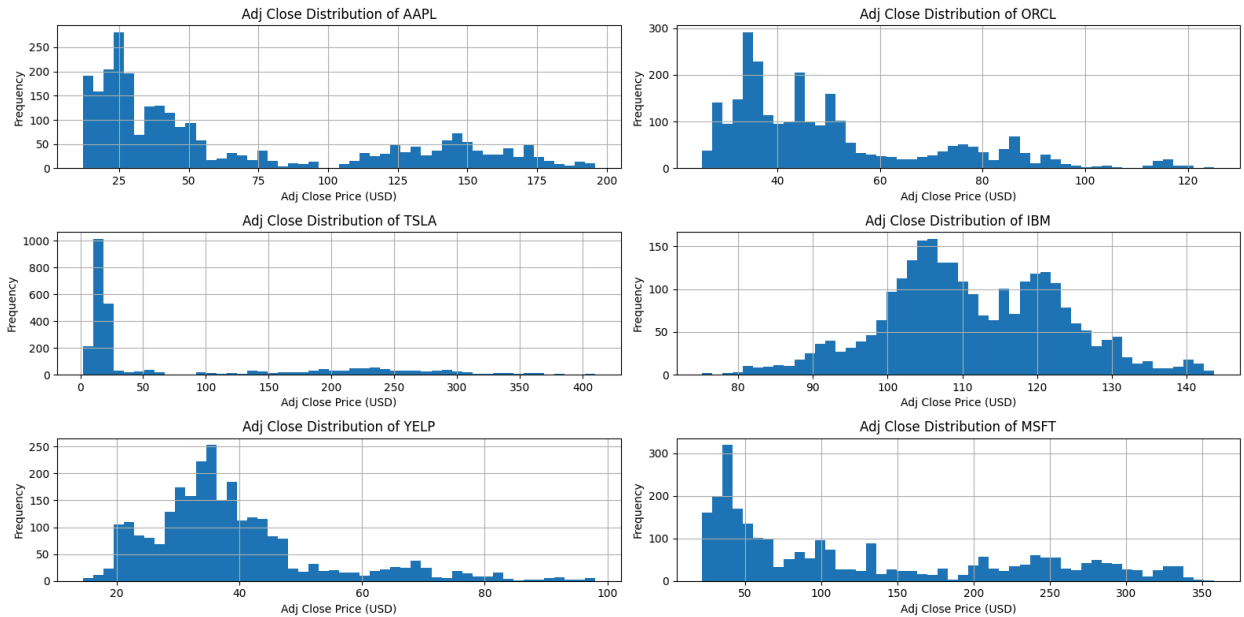
6. Covariance Matrix:

Covariance Matrix for AAPL:

	High	Low	Open
High	2937.998281	2869.861638	2902.669304
Low	2869.861638	2804.29996	2835.784444
Open	2902.669304	2835.784444	2868.4622
Close	2905.172803	2838.317624	2870.128712
Volume	-3237552246.256744	-3191908143.374443	-3211467207.209013
Adj Close	2926.739244	2859.406417	2891.437877

	Close	Volume	Adj Close
High	2905.172803	-3237552246.256744	2926.739244
Low	2838.317624	-3191908143.374443	2859.406417
Open	2870.128712	-3211467207.209013	2891.437877
Close	2873.55656	-3217889521.8373	2894.889841
Volume	-3217889521.8373	15404477741540850.0	-3244449470.546215
Adj Close	2894.889841	-3244449470.546215	2916.576691

7.

Covariance Matrix for ORCL:

	High	Low	Open	Close
High	390.220457	380.444348	384.99391	385.235854
Low	380.444348	371.288388	375.54039	375.77866
Open	384.99391	375.54039	380.115682	380.061136
Close	385.235854	375.77866	380.061136	380.597167
Volume	-57281781.208142	-57916090.018401	-57586788.1207	-57713631.296551
Adj Close	406.256452	396.202934	400.76622	401.316404

	Volume	Adj Close
High	-57281781.208142	406.256452
Low	-57916090.018401	396.202934
Open	-57586788.1207	400.76622
Close	-57713631.296551	401.316404
Volume	86629323053599.09375	-61113243.656889
Adj Close	-61113243.656889	423.721351

Covariance Matrix for TSLA:

	High	Low	Open \
High	11385.476039	10847.188987	11129.608715
Low	10847.188987	10343.065615	10606.561304
Open	11129.608715	10606.561304	10886.137893
Close	11117.349364	10596.667046	10865.551696
Volume	-453594873.700487	-501292765.72908	-479668800.340098
Adj Close	11117.349364	10596.667046	10865.551696

	Close	Volume	Adj Close
High	11117.349364	-453594873.700487	11117.349364
Low	10596.667046	-501292765.72908	10596.667046
Open	10865.551696	-479668800.340098	10865.551696
Close	10864.17554	-470859017.631921	10864.17554
Volume	-470859017.631921	6289479778720466.0	-470859017.631921
Adj Close	10864.17554	-470859017.631921	10864.17554

Covariance Matrix for IBM:

	High	Low	Open	Close \
High	471.081453	472.495386	471.226766	471.633947
Low	472.495386	475.131201	473.255681	473.677509
Open	471.226766	473.255681	472.367129	471.720302
Close	471.633947	473.677509	471.720302	473.171219
Volume	-9035900.803567	-10667285.743218	-9766765.022034	-9961502.005428
Adj Close	126.7477	127.784225	126.690083	127.776068

	Volume	Adj Close
High	-9035900.803567	126.7477
Low	-10667285.743218	127.784225
Open	-9766765.022034	126.690083
Close	-9961502.005428	127.776068
Volume	8134187196933.257812	-4705055.346421
Adj Close	-4705055.346421	138.501987

Covariance Matrix for YELP:

	High	Low	Open	Close \
High	215.279002	205.183429	210.758454	209.806478
Low	205.183429	196.262954	201.16043	200.355531
Open	210.758454	201.16043	206.851705	205.325807
Close	209.806478	200.355531	205.325807	205.027604
Volume	9890740.933482	8354122.115784	9089938.666479	9130290.930444
Adj Close	209.806478	200.355531	205.325807	205.027604

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                  Volume        Adj Close
High          9890740.933482      209.806478
Low           8354122.115784      200.355531
Open           9089938.666479     205.325807
Close          9130290.930444     205.027604
Volume    6582526591231.685547  9130290.930444
Adj Close      9130290.930444     205.027604
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Covariance Matrix for MSFT:

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                  High            Low            Open  \
High           9602.574435      9388.884359      9497.444974
Low            9388.884359      9183.273757       9287.66213
Open           9497.444974       9287.66213      9395.817347
Close          9498.54273       9288.918062       9394.30015
Volume    -247549398.934211 -255709385.661351 -251151188.210467
Adj Close      9556.101786       9344.991559      9451.100299


                  Close           Volume        Adj Close
High           9498.54273     -247549398.934211      9556.101786
Low            9288.918062    -255709385.661351      9344.991559
Open           9394.30015     -251151188.210467     9451.100299
Close          9398.391664    -252507260.924346      9455.160566
Volume    -252507260.924346  272855795098016.5625 -253285600.276815
Adj Close      9455.160566    -253285600.276815      9513.392196
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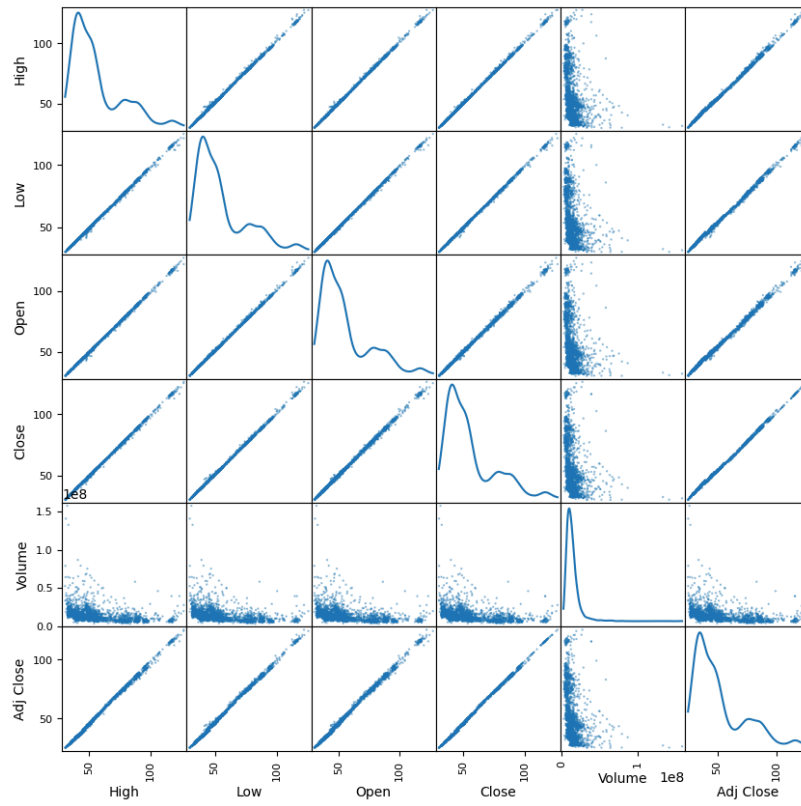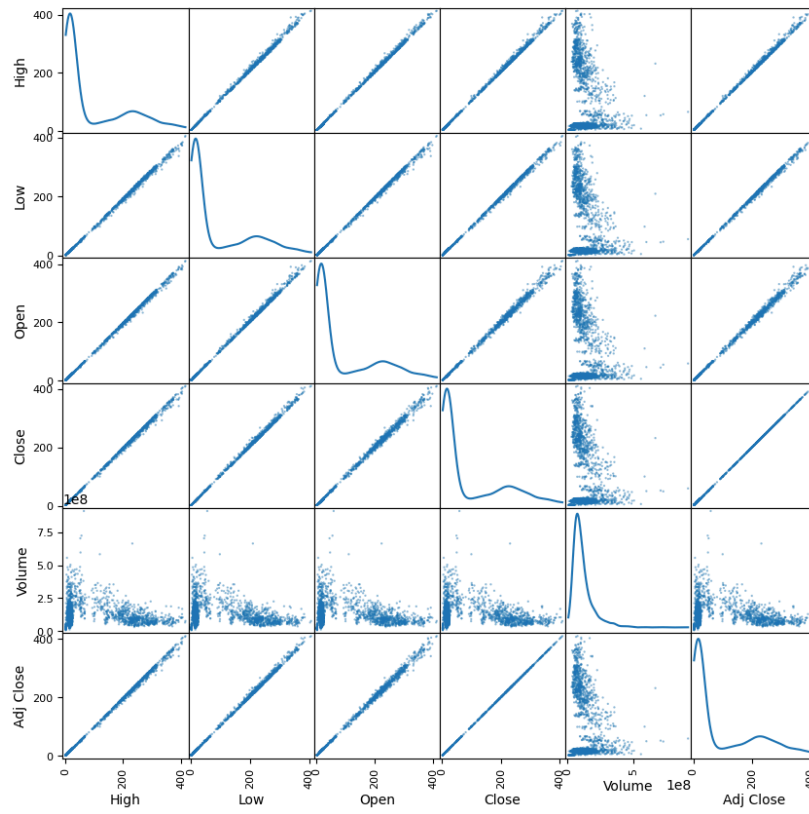
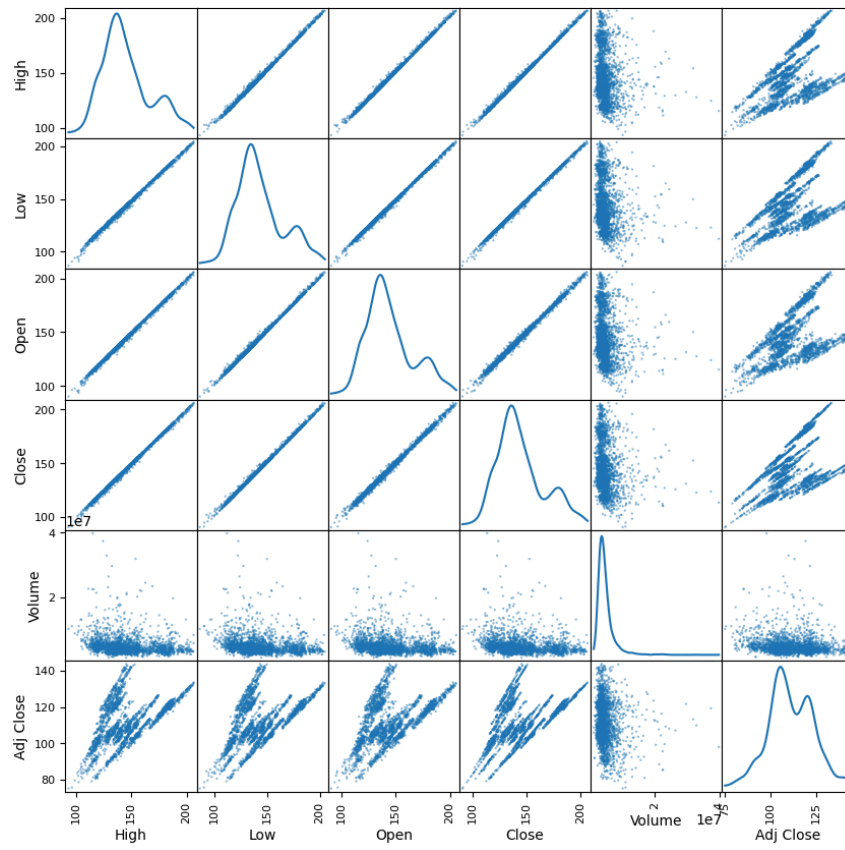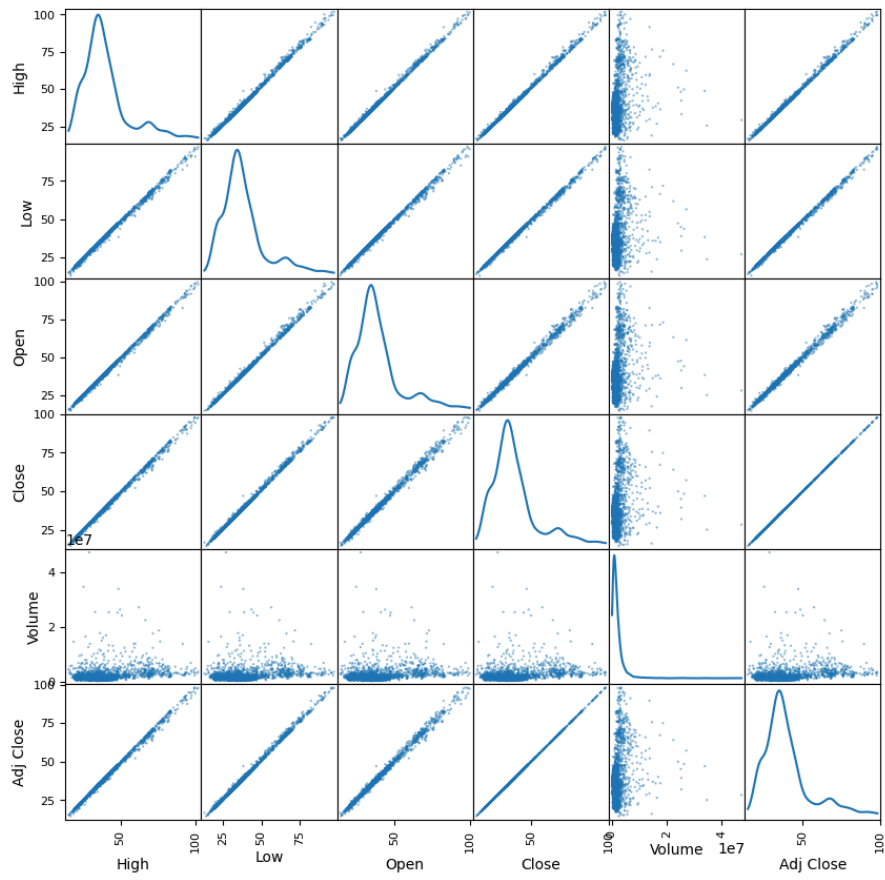Scatter Matrix for AAPL
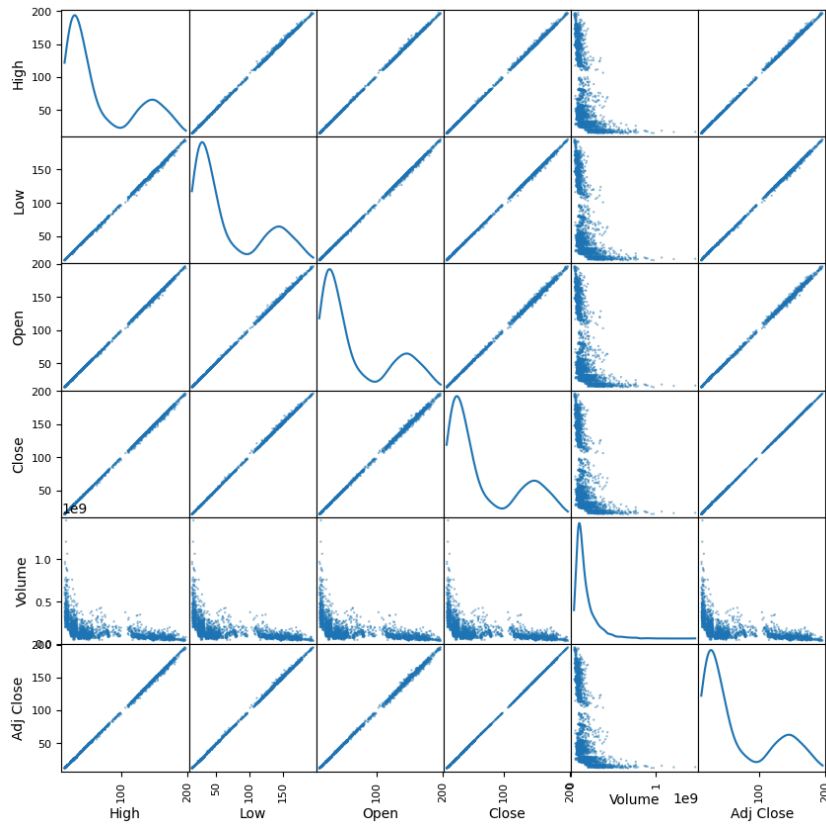
8.

Scatter Matrix for ORCL

9.

Scatter Matrix for TSLA

Scatter Matrix for IBM

Scatter Matrix for YELP

Scatter Matrix for MSFT