EDS Assignment 5

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Roll no: 360
Batch: C3

Dataset of Crypto

CSV File:

Crypto.csv ×

1 to 49 of 49 entries Filter

slug	symbol	name	date	ranknow	open	high	low	close	volume	market	close_ratio	spread
bitcoin	BTC	Bitcoin	28-04-2013	1	135.3	135.98	132.1	134.21	0	1488566728	0.5438	3.88
bitcoin	BTC	Bitcoin	29-04-2013	1	134.44	147.49	134	144.54	0	1603768865	0.7813	13.49
bitcoin	BTC	Bitcoin	30-04-2013	1	144	146.93	134.05	139	0	1542813125	0.3843	12.88
bitcoin	BTC	Bitcoin	01-05-2013	1	139	139.89	107.72	116.99	0	1298954594	0.2882	32.17
bitcoin	BTC	Bitcoin	02-05-2013	1	116.38	125.6	92.28	105.21	0	1168517495	0.3881	33.32
bitcoin	BTC	Bitcoin	03-05-2013	1	106.25	108.13	79.1	97.75	0	1085995169	0.6424	29.03
bitcoin	BTC	Bitcoin	04-05-2013	1	98.1	115	92.5	112.5	0	1250316563	0.8889	22.5
bitcoin	BTC	Bitcoin	05-05-2013	1	112.9	118.8	107.14	115.91	0	1288693176	0.7521	11.66
bitcoin	BTC	Bitcoin	06-05-2013	1	115.98	124.66	106.64	112.3	0	1249023060	0.3141	18.02
bitcoin	BTC	Bitcoin	07-05-2013	1	112.25	113.44	97.7	111.5	0	1240593600	0.8767	15.74
bitcoin	BTC	Bitcoin	08-05-2013	1	109.6	115.78	109.6	113.57	0	1264049202	0.6424	6.18
bitcoin	BTC	Bitcoin	09-05-2013	1	113.2	113.46	109.26	112.67	0	1254535382	0.8119	4.2
bitcoin	BTC	Bitcoin	10-05-2013	1	112.8	122	111.55	117.2	0	1305479080	0.5407	10.45
bitcoin	BTC	Bitcoin	11-05-2013	1	117.7	118.68	113.01	115.24	0	1284207489	0.3933	5.67
bitcoin	BTC	Bitcoin	12-05-2013	1	115.64	117.45	113.43	115	0	1281982625	0.3905	4.02
bitcoin	BTC	Bitcoin	13-05-2013	1	114.82	118.7	114.5	117.98	0	1315710011	0.8286	4.2
bitcoin	BTC	Bitcoin	14-05-2013	1	117.98	119.8	110.25	111.5	0	1243874488	0.1309	9.55
bitcoin	BTC	Bitcoin	15-05-2013	1	111.4	115.81	103.5	114.22	0	1274623813	0.8708	12.31
bitcoin	BTC	Bitcoin	16-05-2013	1	114.22	118.76	112.2	118.76	0	1325726787	1	6.56
bitcoin	BTC	Bitcoin	17-05-2013	1	118.21	125.3	116.57	123.01	0	1373723882	0.7377	8.73
bitcoin	BTC	Bitcoin	18-05-2013	1	123.5	125.25	122.3	123.5	0	1379574546	0.4068	2.95
bitcoin	BTC	Bitcoin	19-05-2013	1	123.21	124.5	119.57	121.99	0	1363204703	0.4909	4.93
bitcoin	BTC	Bitcoin	20-05-2013	1	122.5	123.62	120.12	122	0	1363709900	0.5371	3.5
bitcoin	BTC	Bitcoin	21-05-2013	1	122.02	123	121.21	122.88	0	1374013440	0.933	1.79
bitcoin	BTC	Bitcoin	22-05-2013	1	122.89	124	122	123.89	0	1385778993	0.945	2
bitcoin	BTC	Bitcoin	23-05-2013	1	123.8	126.93	123.1	126.7	0	1417769833	0.9399	3.83
bitcoin	BTC	Bitcoin	24-05-2013	1	126.3	133.85	125.72	133.2	0	1491070770	0.92	8.13

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Code:

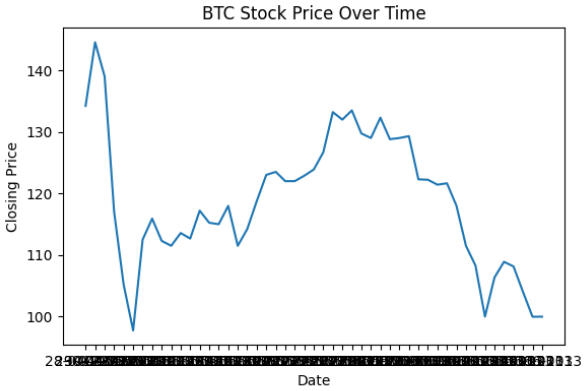
```
import pandas as pd
import matplotlib.pyplot as plt

# Load the stock market dataset
stock_df = pd.read_csv('/content/Crypto.csv')

# Display the first few rows of the dataset
print(stock_df.head())

# Perform data analysis and identify 10 grains
(stocks)
grains = stock_df['symbol'].unique()[:10]  #
Select the first 10 unique stock symbols

# Create an interactive dashboard with 10
different graphs for the identified grains
for grain in grains:
    # Filter the dataset for the current grain
    grain_df = stock_df[stock_df['symbol'] ==
grain]

    # Create a new figure and axes for each
grain
    fig, axs = plt.subplots(2, 2, figsize=(12,
8))

    # 1. Line plot: Stock price over time
    axs[0, 0].plot(grain_df['date'],
grain_df['close'])
    axs[0, 0].set_title(f'{grain} Stock Price
Over Time')
    axs[0, 0].set_xlabel('Date')
    axs[0, 0].set_ylabel('Closing Price')

    # 2. Bar plot: Daily trading volume
```

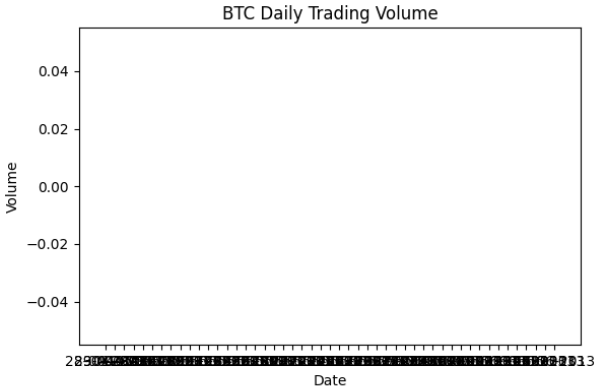
```
    axs[0, 1].bar(grain_df['date'],
grain_df['volume'])
    axs[0, 1].set_title(f'{grain} Daily Trading
Volume')
    axs[0, 1].set_xlabel('Date')
    axs[0, 1].set_ylabel('Volume')

    # 3. Scatter plot: High vs. Low prices
    axs[1, 0].scatter(grain_df['high'],
grain_df['low'])
    axs[1, 0].set_title(f'{grain} High vs. Low
Prices')
    axs[1, 0].set_xlabel('High Price')
    axs[1, 0].set_ylabel('Low Price')

    # 4. Histogram: Closing price distribution
    axs[1, 1].hist(grain_df['close'], bins=20)
    axs[1, 1].set_title(f'{grain} Closing Price
Distribution')
    axs[1, 1].set_xlabel('Closing Price')
    axs[1, 1].set_ylabel('Frequency')

    # Adjust subplot spacing
    plt.tight_layout()

    # Show the interactive dashboard for the
current grain
    plt.show()

    # 5. Pie Chart: Distribution of closing
prices
    plt.pie(grain_df['close'],
labels=grain_df['date'], autopct='%1.1f%%')
    plt.title(f'{grain} Closing Price
Distribution')
    plt.axis('equal')
    plt.show()
```

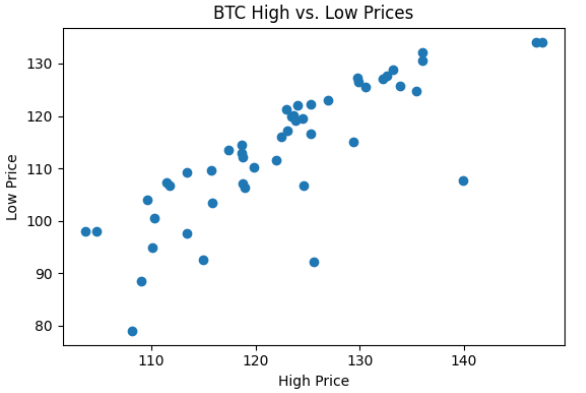
```
    # 6. Box Plot: Closing prices
    plt.boxplot(grain_df['close'])
    plt.title(f'{grain} Closing Price Box Plot')
    plt.ylabel('Closing Price')
    plt.show()

    # 7. Area Plot: Stock price over time
    plt.fill_between(grain_df['date'],
grain_df['close'])
    plt.title(f'{grain} Stock Price Over Time')
    plt.xlabel('Date')
    plt.ylabel('Closing Price')
    plt.show()

    # 8. Violin Plot: Distribution of closing
prices
    plt.violinplot(grain_df['close'])
    plt.title(f'{grain} Closing Price
Distribution')
    plt.ylabel('Closing Price')
    plt.show()

    # 9. Heatmap: Correlation between high and
low prices
    correlation_matrix = grain_df[['high',
'low']].corr()
    sns.heatmap(correlation_matrix, annot=True,
cmap='coolwarm')
    plt.title(f'{grain} Correlation Heatmap')
    plt.show()

    # 10. Polar Plot: Stock price over time
    theta = range(len(grain_df['date']))
    plt.polar(theta, grain_df['close'])
    plt.title(f'{grain} Stock Price Over Time')
    plt.show()
```

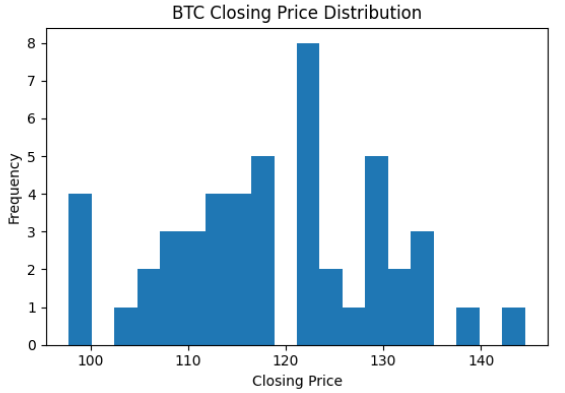
Output:

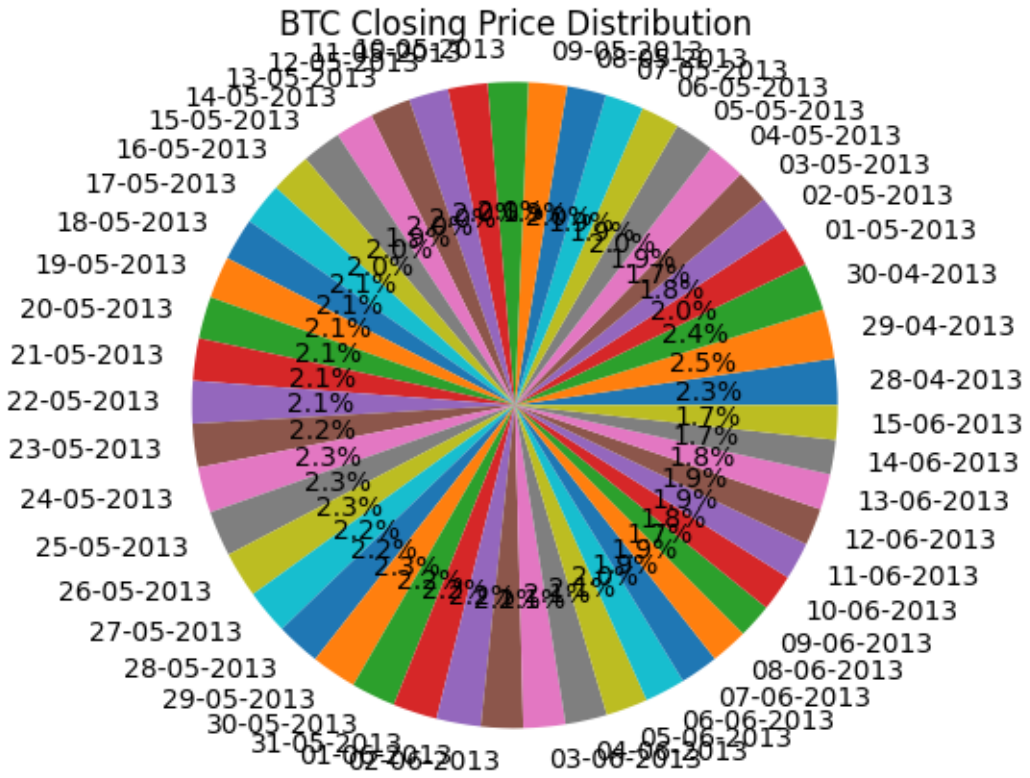
```
slug symbol     name         date  ranknow
open    high     low  \
0  bitcoin    BTC  Bitcoin  28-04-2013        1
135.30  135.98  132.10
1  bitcoin    BTC  Bitcoin  29-04-2013        1
134.44  147.49  134.00
2  bitcoin    BTC  Bitcoin  30-04-2013        1
144.00  146.93  134.05
3  bitcoin    BTC  Bitcoin  01-05-2013        1
139.00  139.89  107.72
4  bitcoin    BTC  Bitcoin  02-05-2013        1
116.38  125.60   92.28

    close  volume      market  close_ratio
spread
0  134.21       0  1488566728       0.5438
3.88
1  144.54       0  1603768865       0.7813
13.49
2  139.00       0  1542813125       0.3843
12.88
3  116.99       0  1298954594       0.2882
32.17
4  105.21       0  1168517495       0.3881
33.32
```

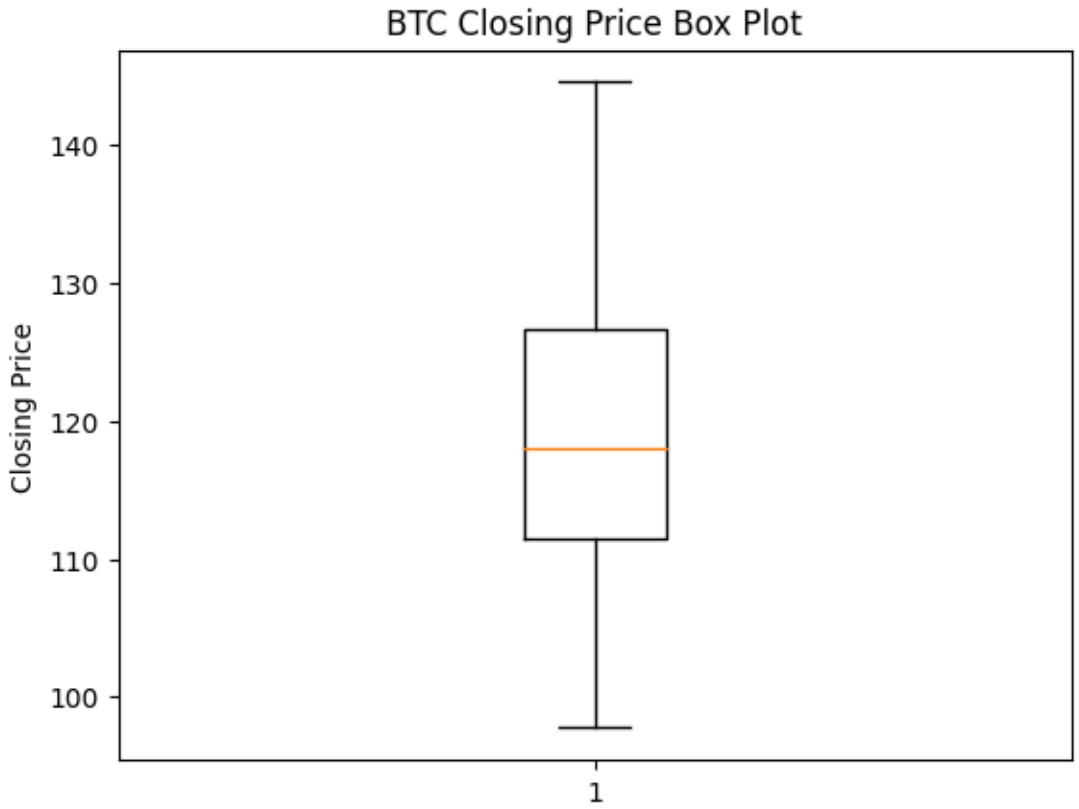

BTC Stock Price Over Time
Closing Price
Date

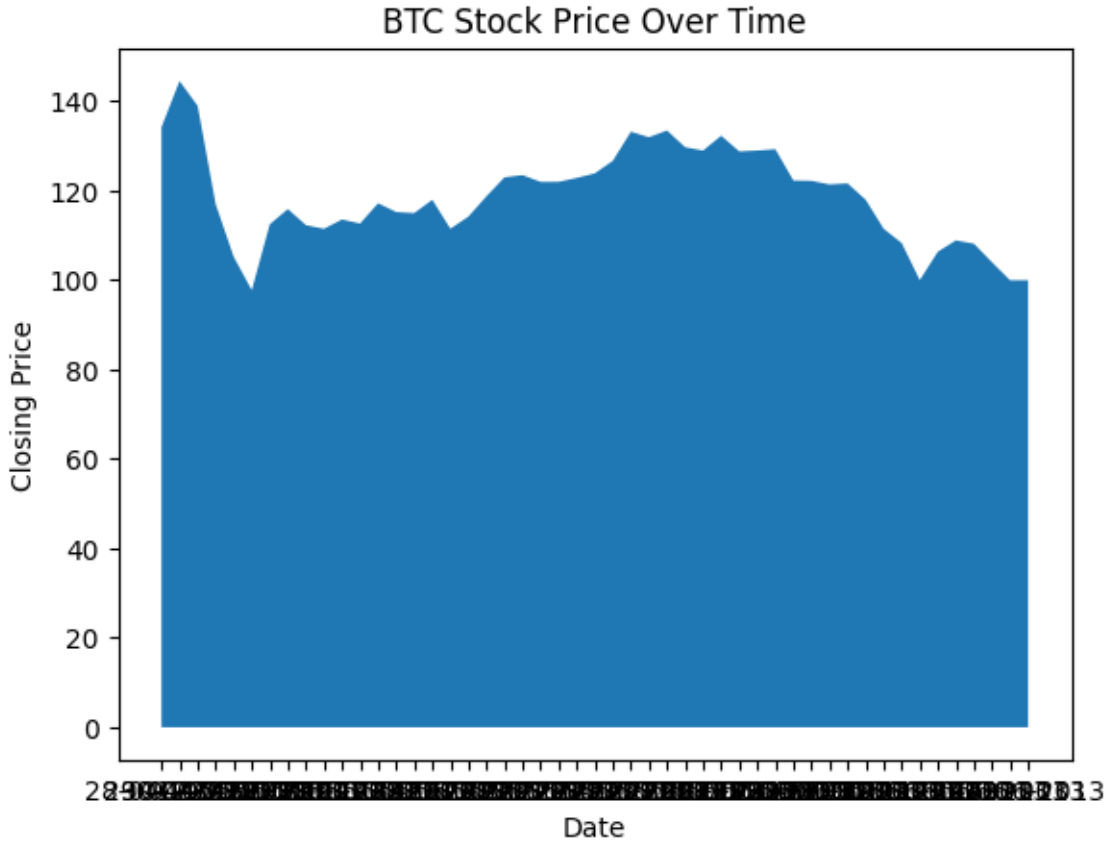

BTC Daily Trading Volume
Volume
Date

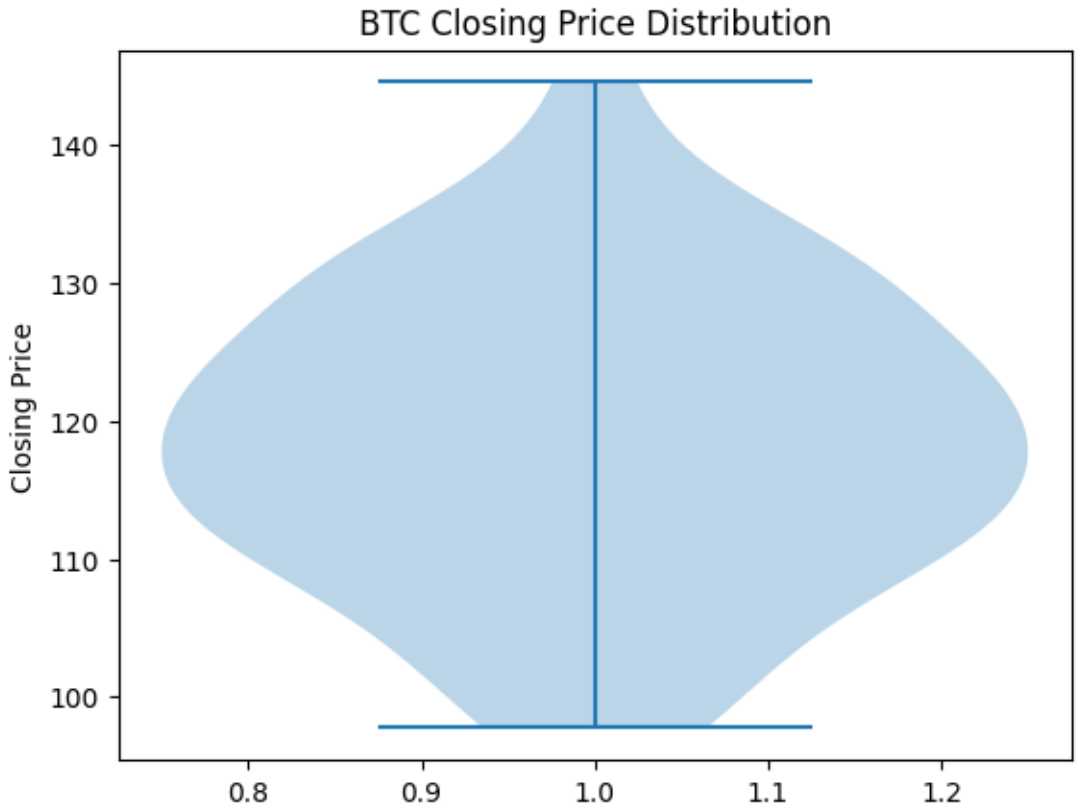

BTC High vs. Low Prices
Low Price
High Price

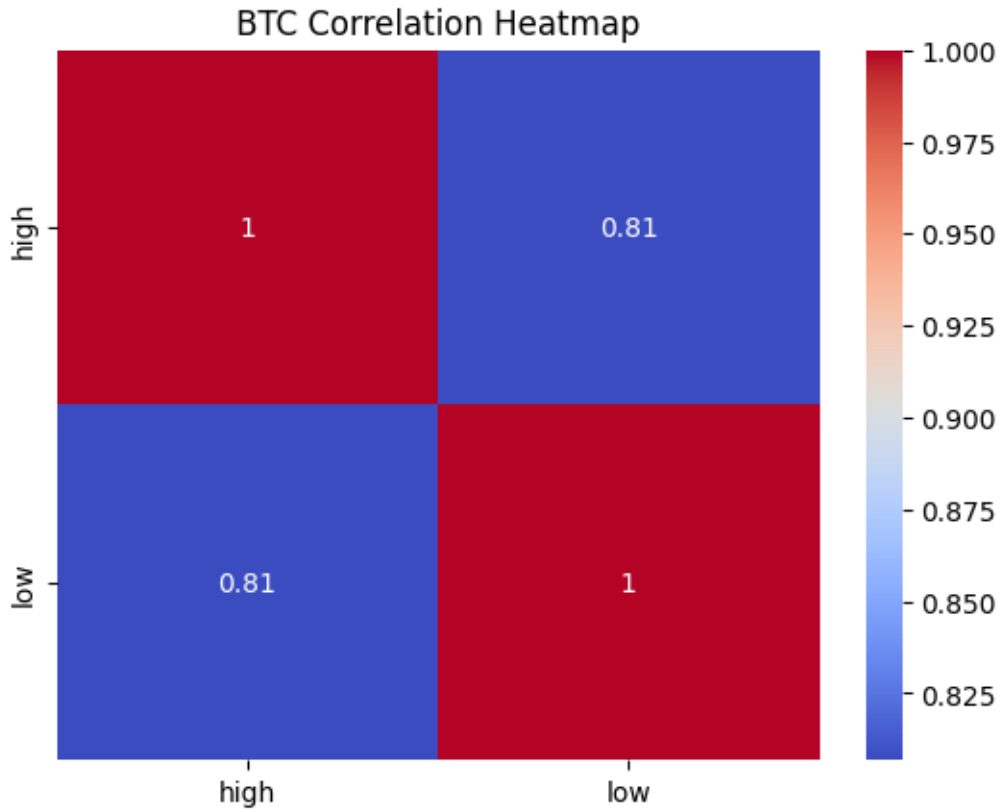

BTC Closing Price Distribution
Frequency
Closing Price

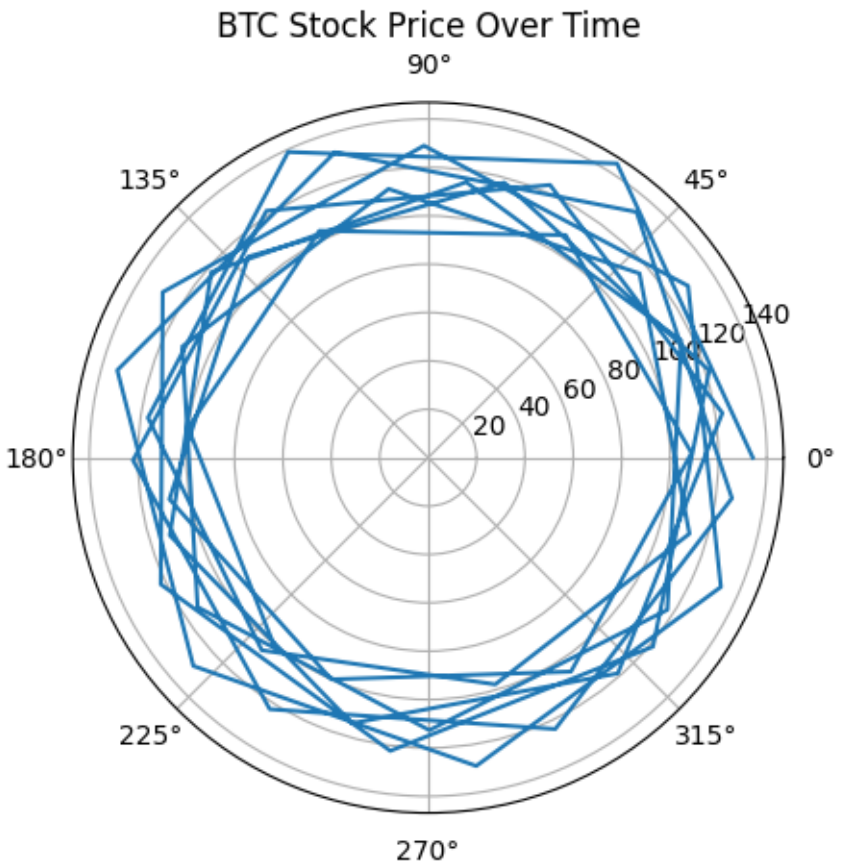

BTC Closing Price Distribution


BTC Closing Price Box Plot
Closing Price
140
130
120
110
100
1


BTC Stock Price Over Time
Closing Price
140
120
100
80
60
40
20
0
Date


BTC Closing Price Distribution
Closing Price
140
130
120
110
100
0.8
0.9
1.0
1.1
1.2


BTC Correlation Heatmap
high
low
1
0.81
0.81
1
high
low
1.000
0.975
0.950
0.925
0.900
0.875
0.850
0.825


BTC Stock Price Over Time
90°
45°
135°
180°
0°
225°
315°
270°
20
40
60
80
100
120
140