Cryptocurrency and Seasonality

David Adoni

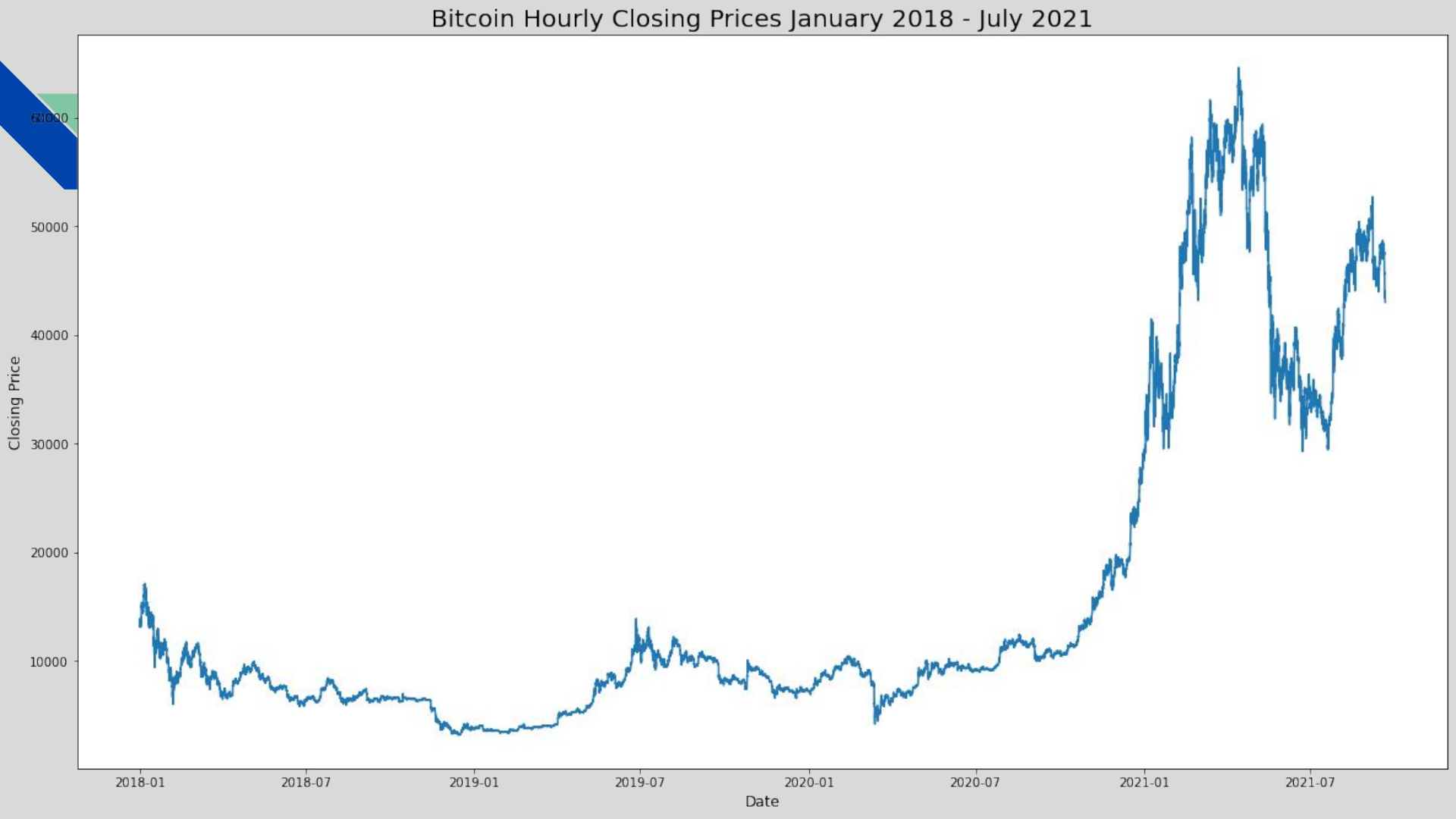
Problem Statement

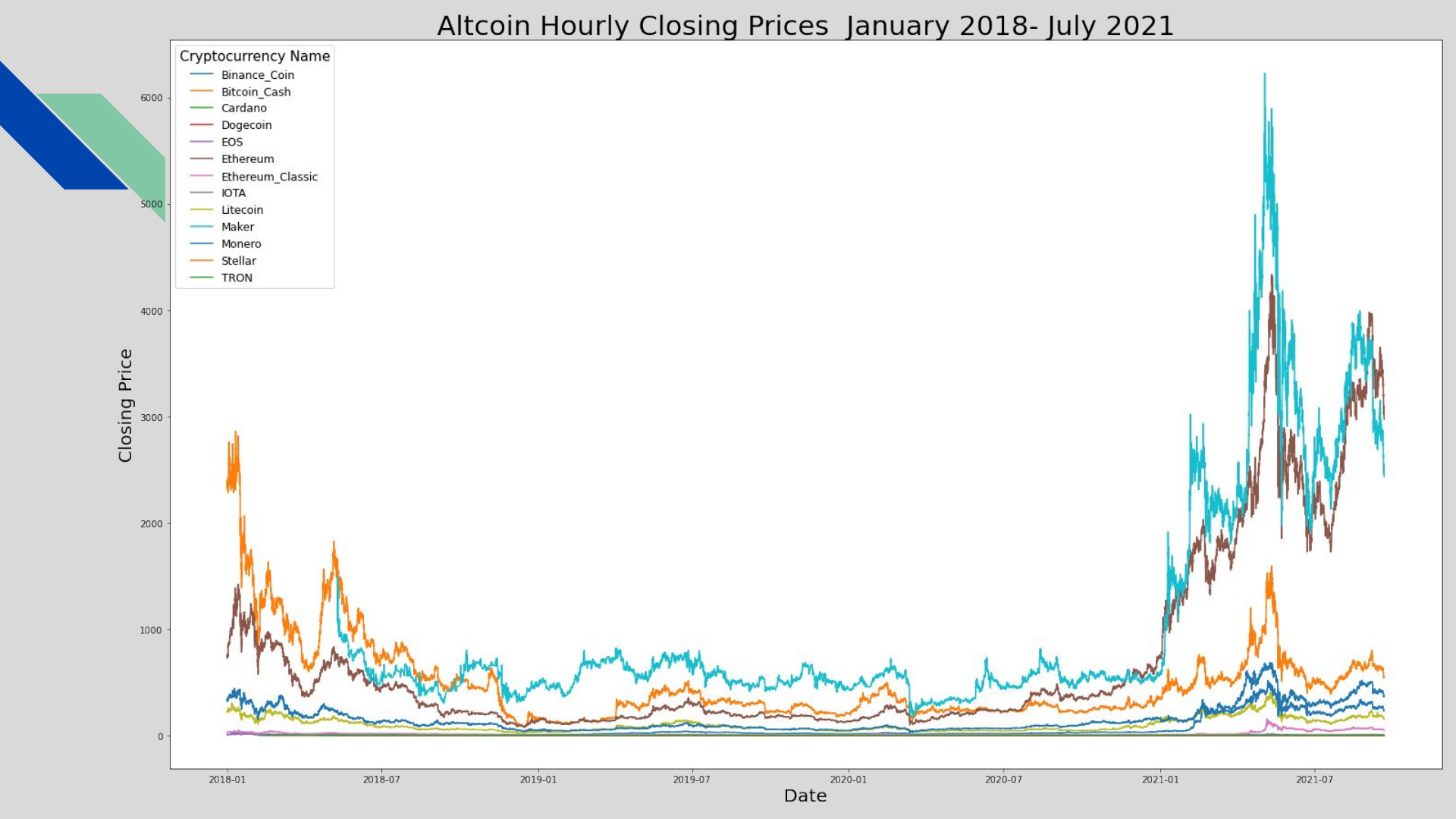
- Tasked by Coinbase to find if and when there are seasonal patterns in cryptocurrency markets

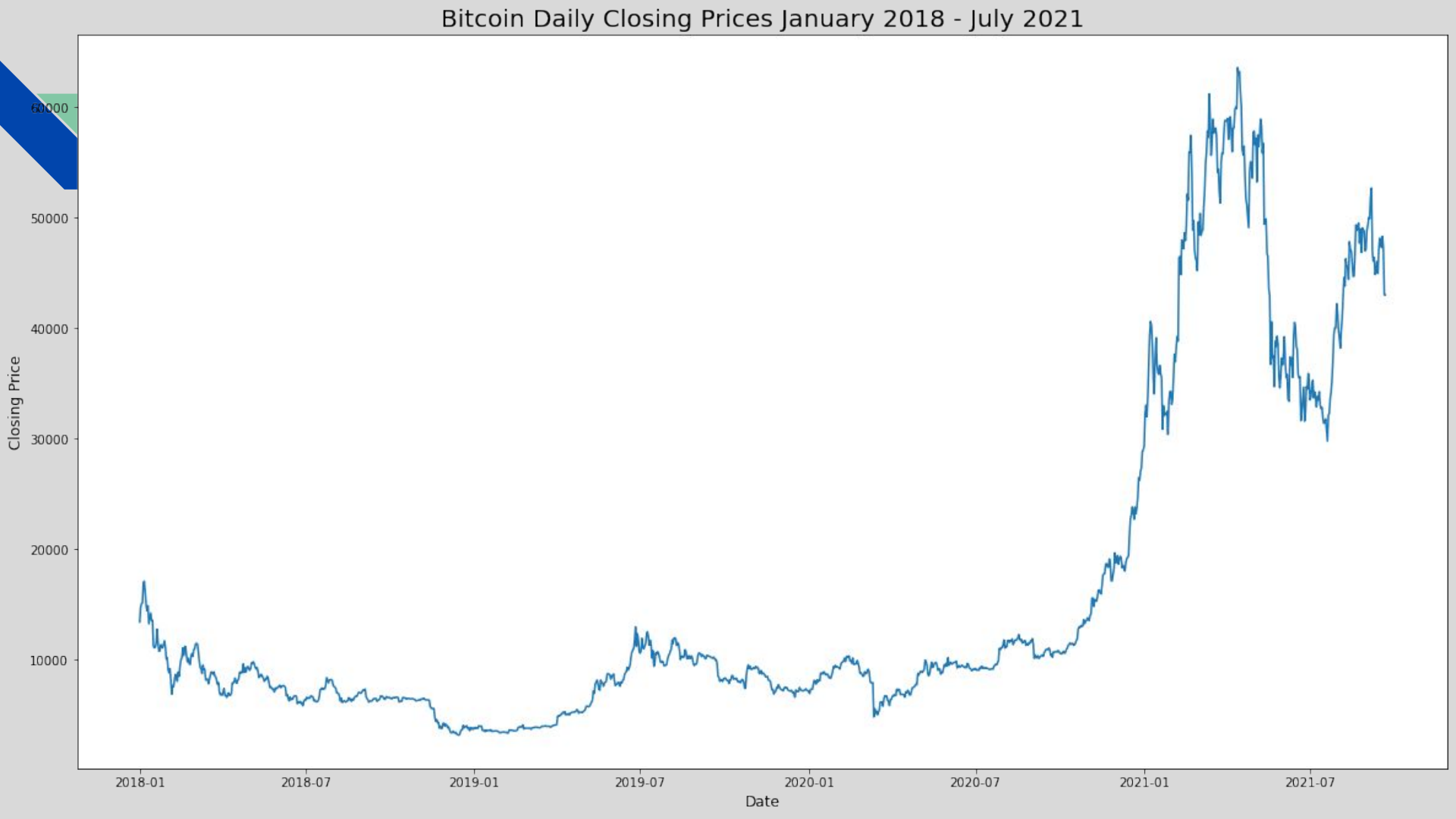
- Potential tool for forecasting crypto trade opportunities

Data Collection/Cleaning

1. Crypto Data from Kaggle
2. Remove NaNs
3. Drop irrelevant columns
4. Create time series index
5. Separate data by cryptocurrency


Bitcoin Hourly Closing Prices January 2018 - July 2021
60000
50000
40000
30000
20000
10000
Closing Price
2018-01
2018-07
2019-01
2019-07
2020-01
2020-07
2021-01
2021-07
Date


Altcoin Hourly Closing Prices January 2018- July 2021
Cryptocurrency Name
Binance_Coin
Bitcoin_Cash
Cardano
Dogecoin
EOS
Ethereum
Ethereum_Classic
IOTA
Litecoin
Maker
Monero
Stellar
TRON
Closing Price
6000
5000
4000
3000
2000
1000
0
2018-01
2018-07
2019-01
2019-07
2020-01
2020-07
2021-01
2021-07
Date


Bitcoin Daily Closing Prices January 2018 - July 2021
60000
50000
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20000
10000
Closing Price
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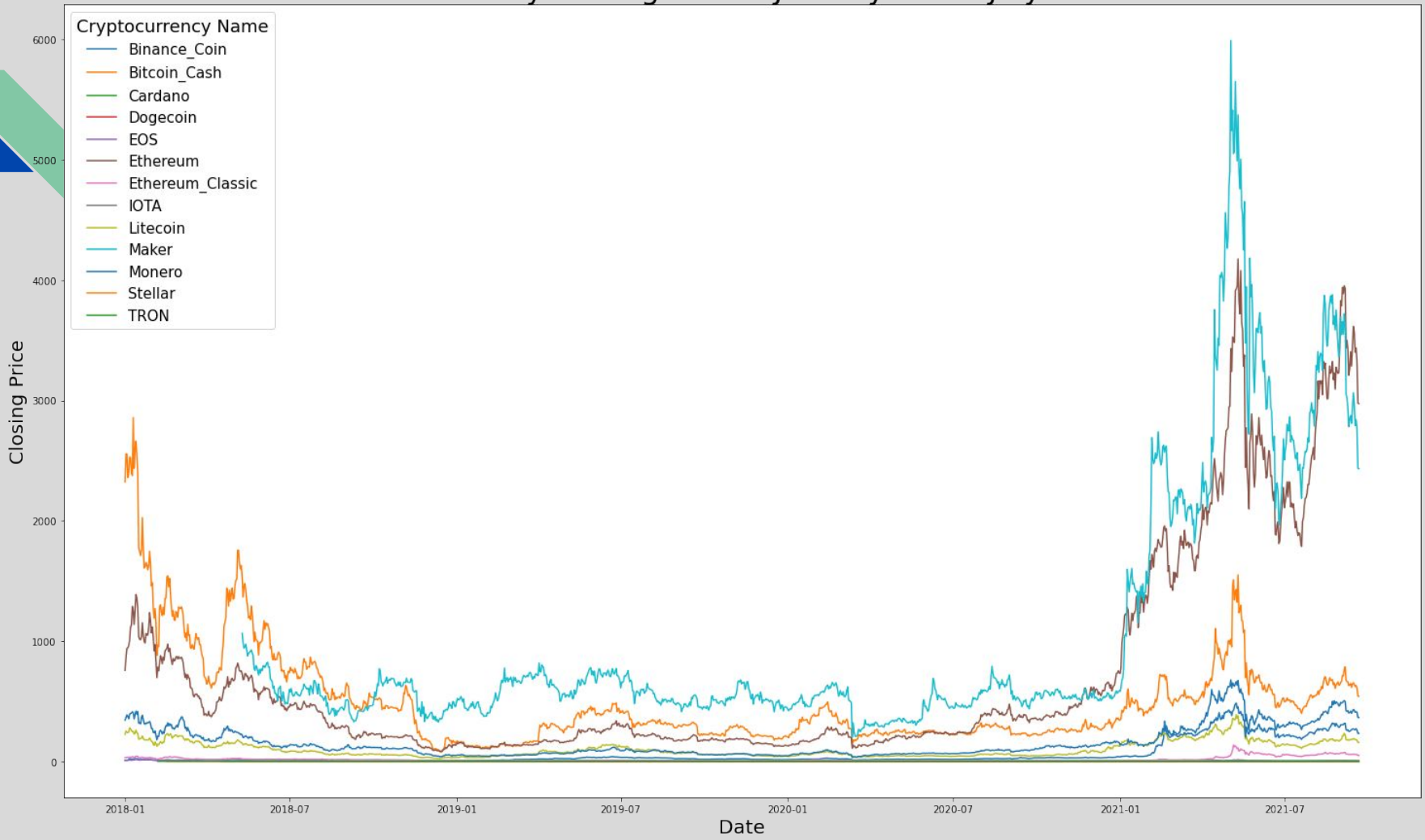
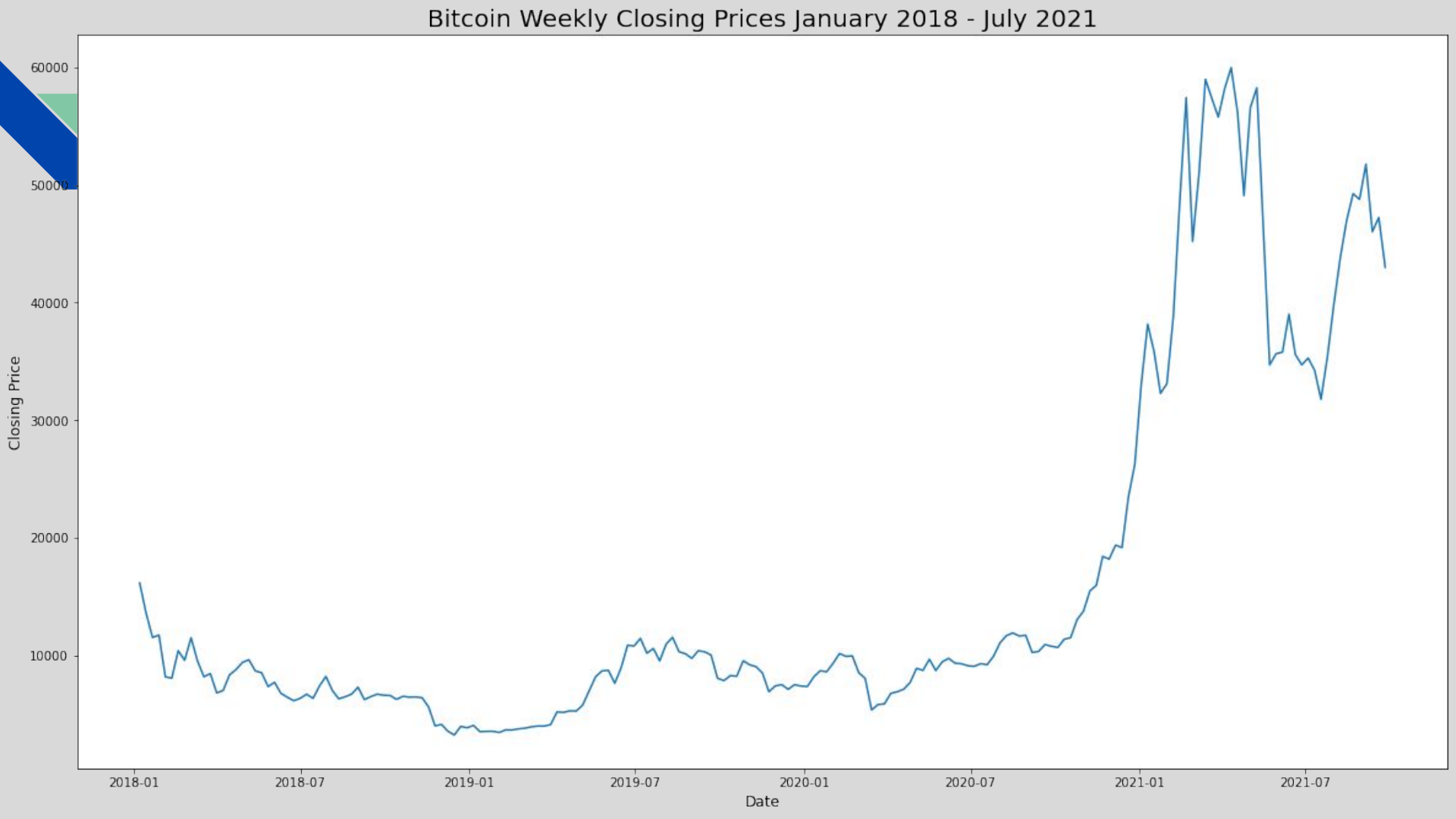
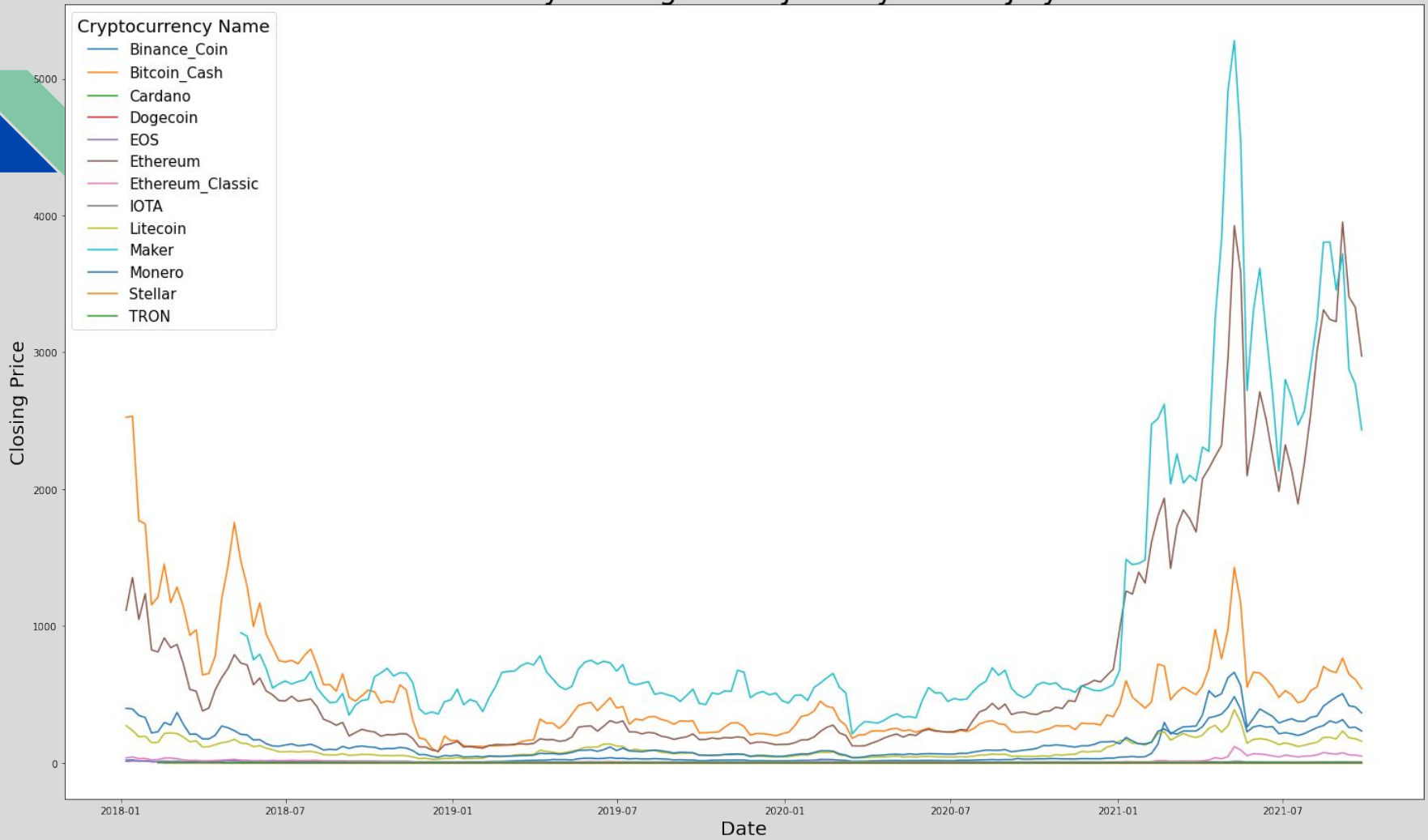
2019-01
2019-07
2020-01
2020-07
2021-01
2021-07
Date

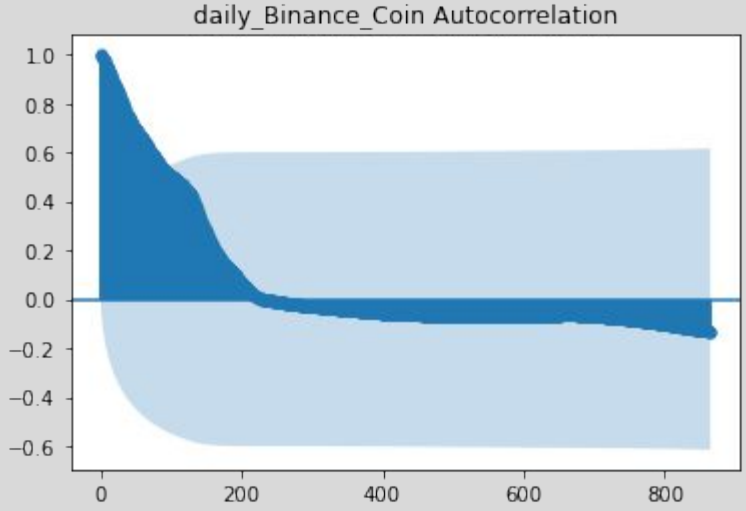
Altcoin Daily Closing Prices January 2018- July 2021




Bitcoin Weekly Closing Prices January 2018 - July 2021
Closing Price
60000
50000
40000
30000
20000
10000
2018-01
2018-07
2019-01
2019-07
2020-01
2020-07
2021-01
2021-07
Date

Altcoin Weekly Closing Prices January 2018 - July 2021

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0.8
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0.4
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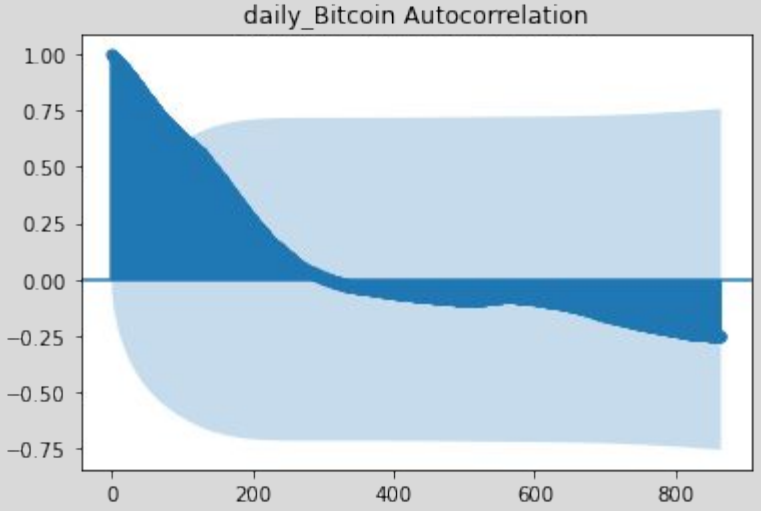
−0.4
−0.6
0
200
400
600
800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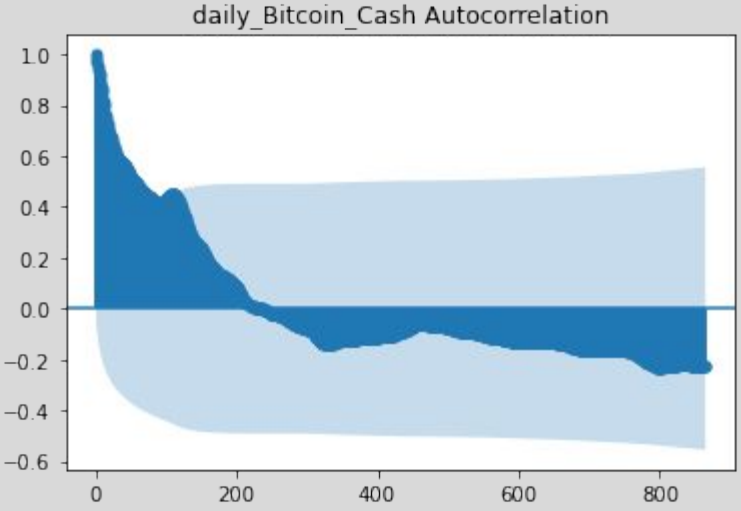
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0.2
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−0.6
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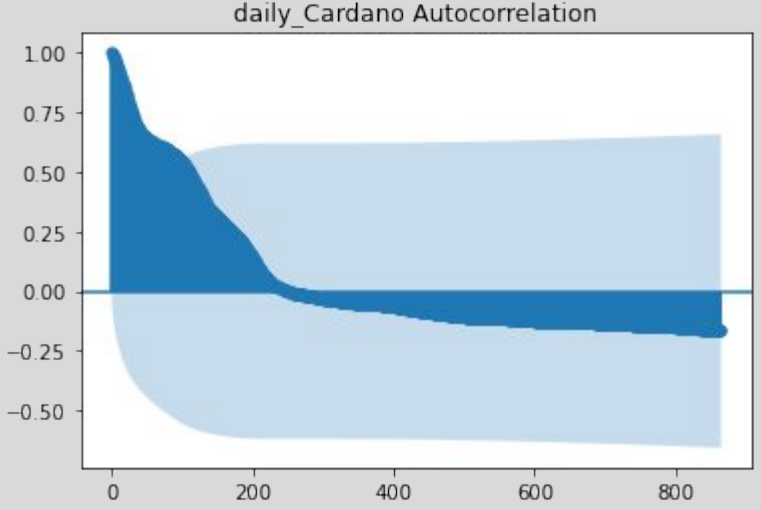
200
400
600
800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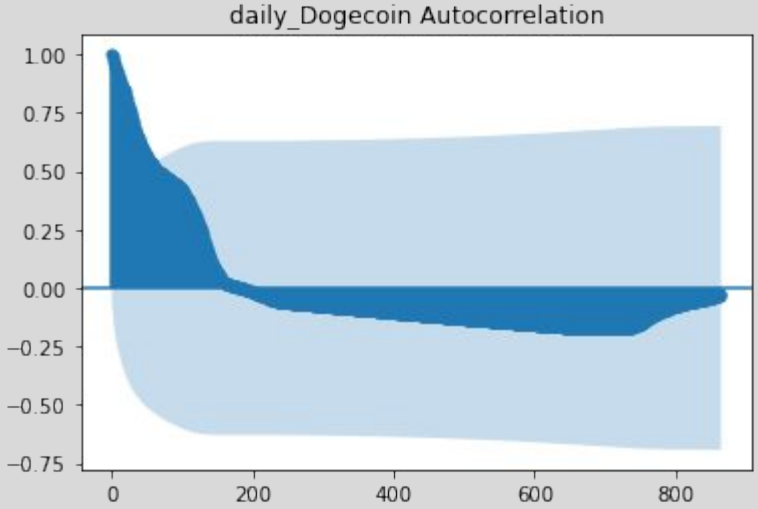
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600
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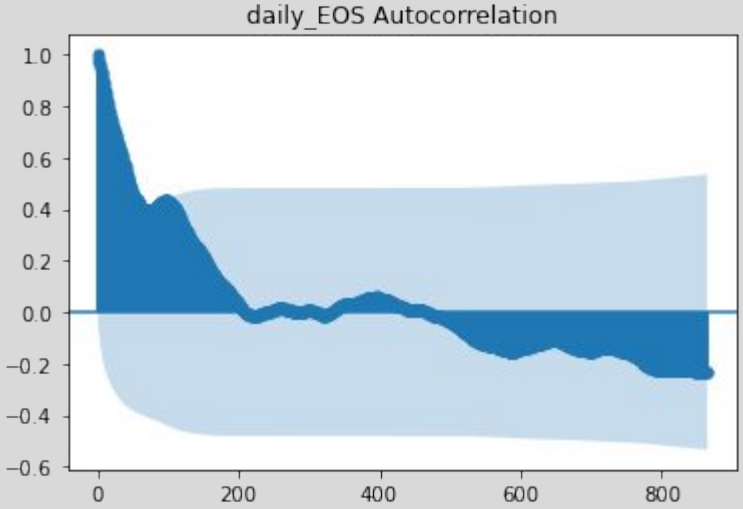
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0.4
0.2
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−0.4
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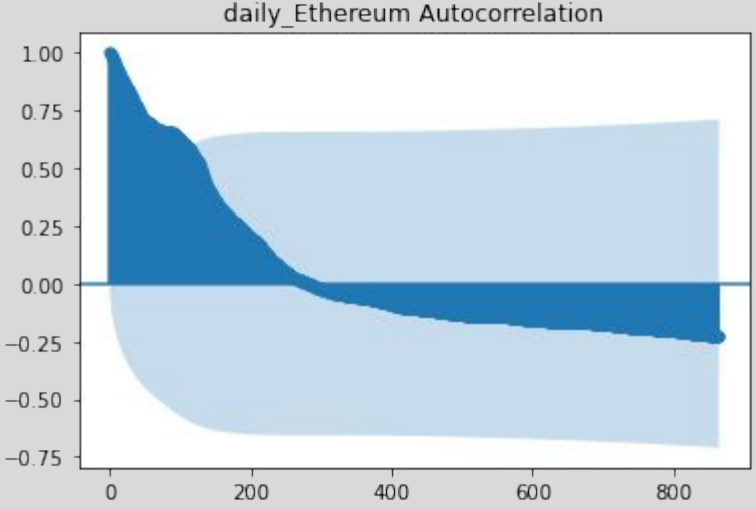
200
400
600
800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600
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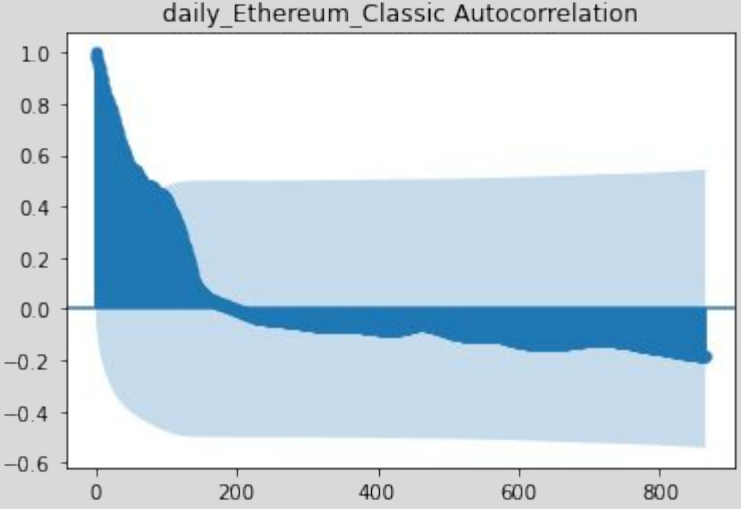
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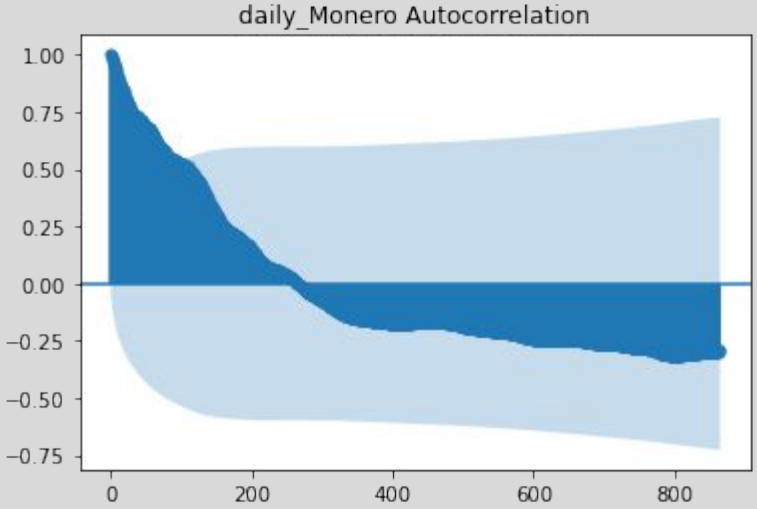
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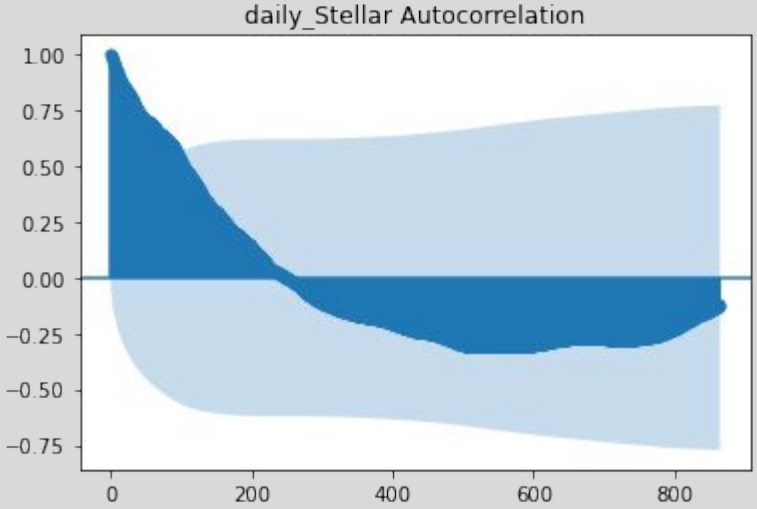
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0.00
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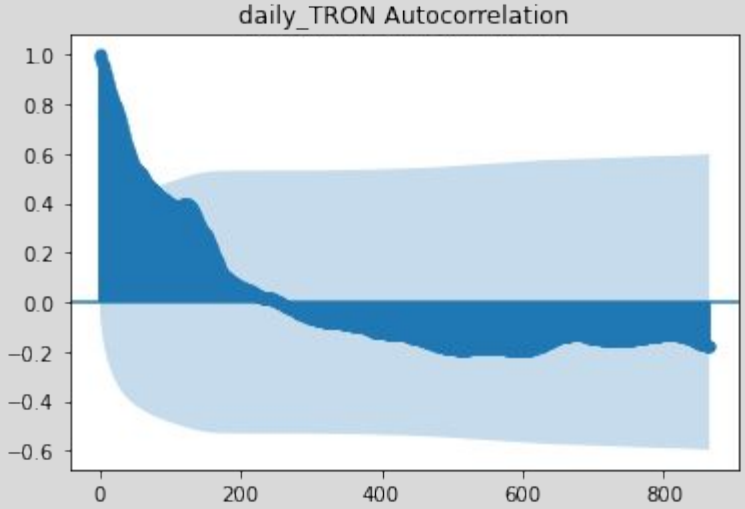
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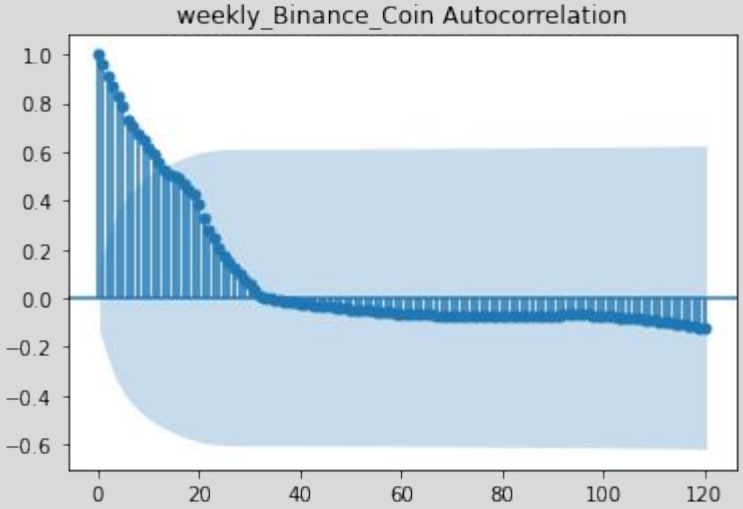
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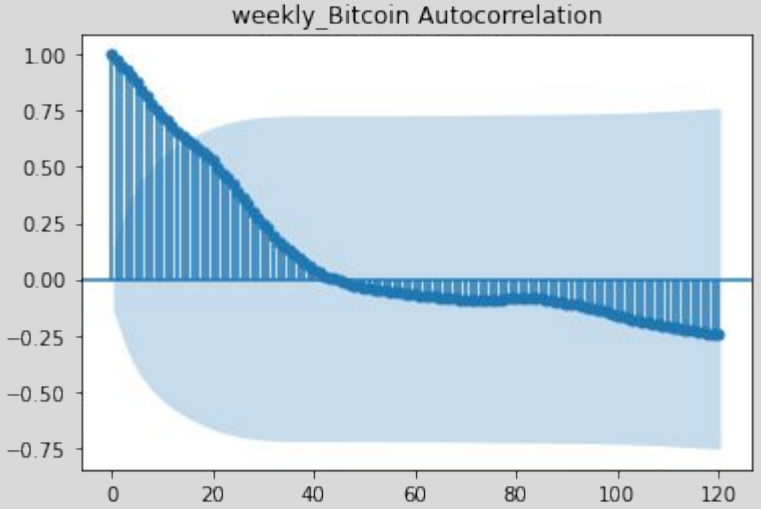
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0.00
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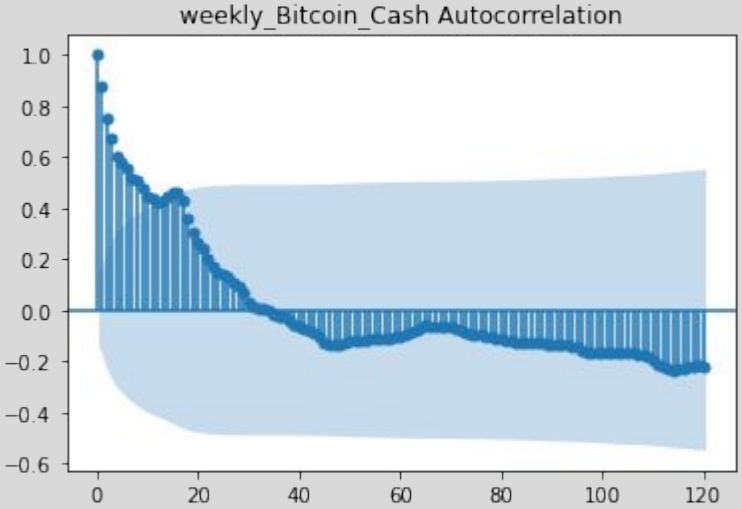
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60
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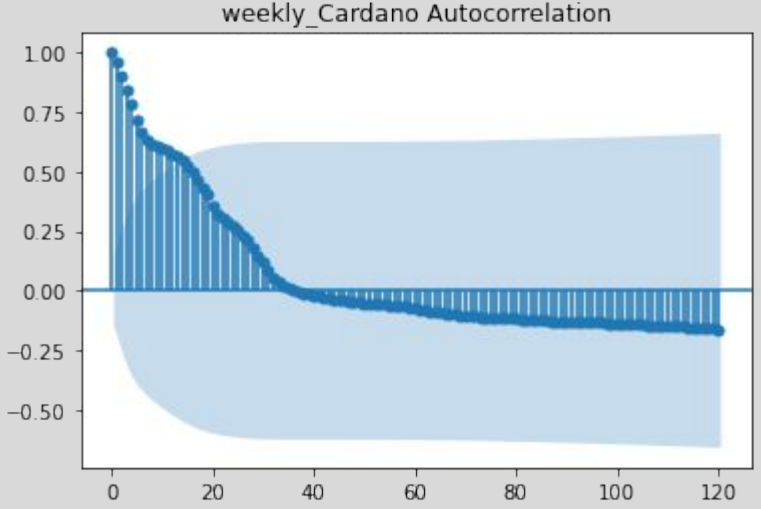
weekly_Cardano Autocorrelation
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0.50
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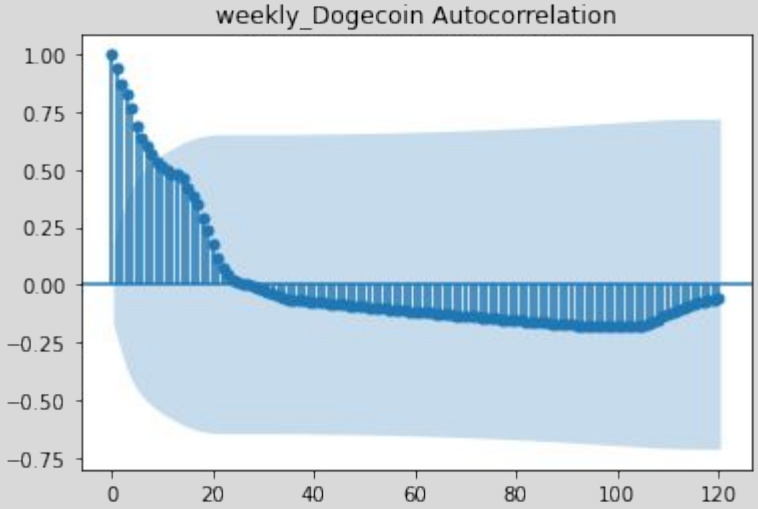
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1.00
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0.00
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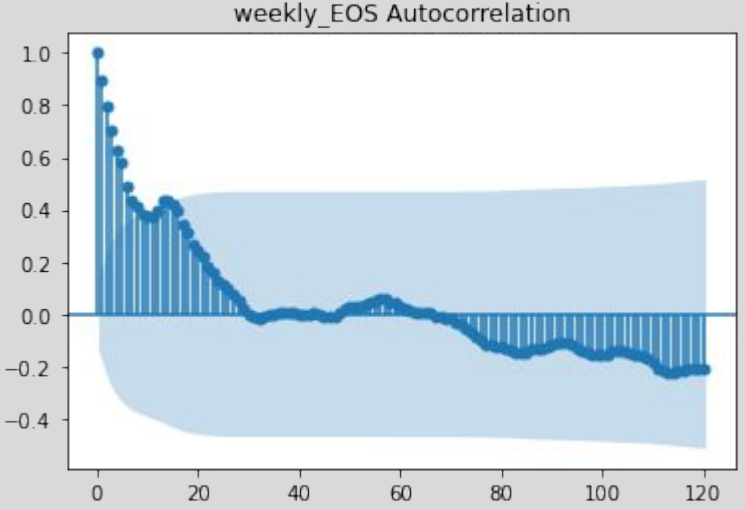
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0.4
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100
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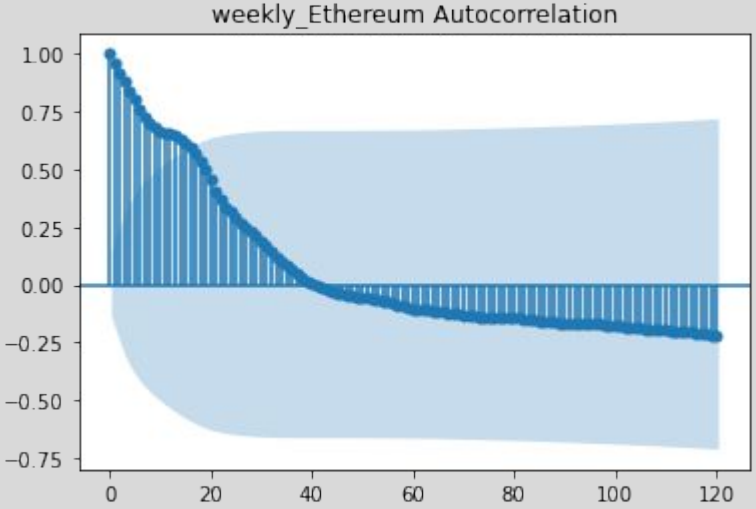
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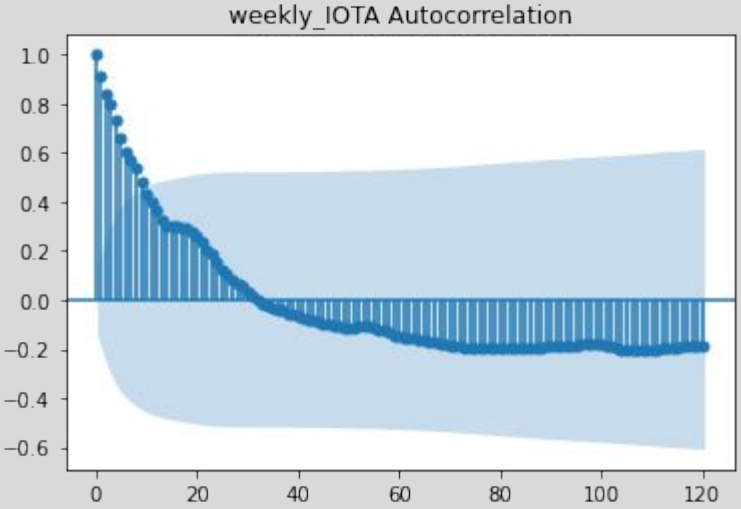
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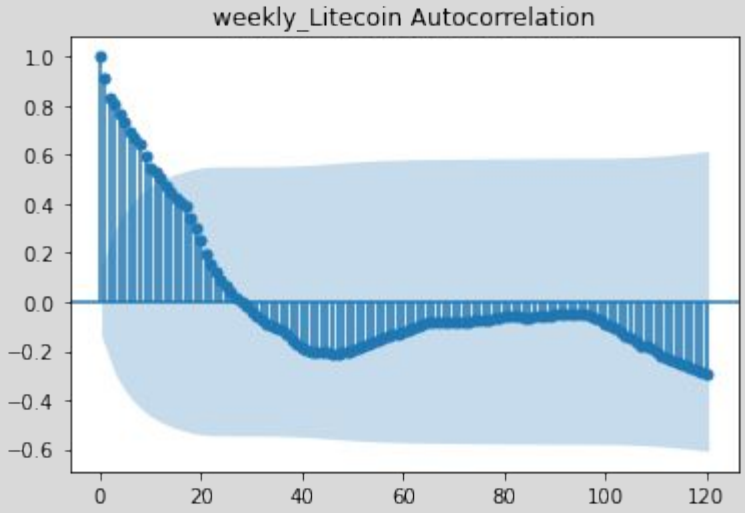
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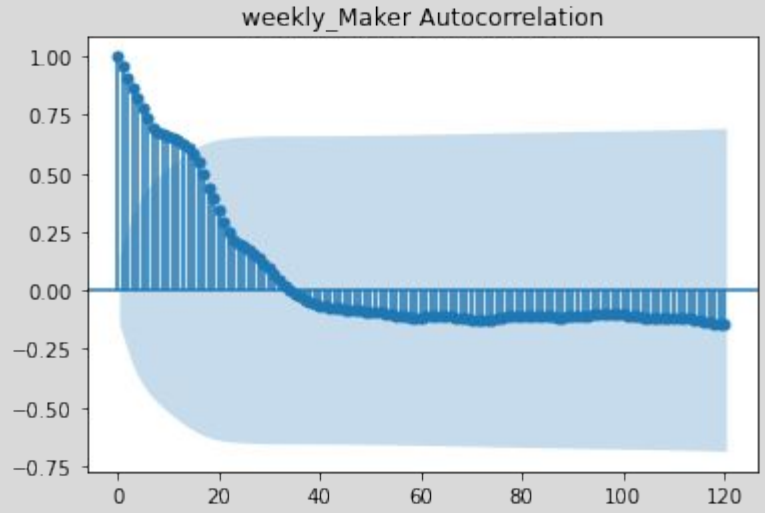
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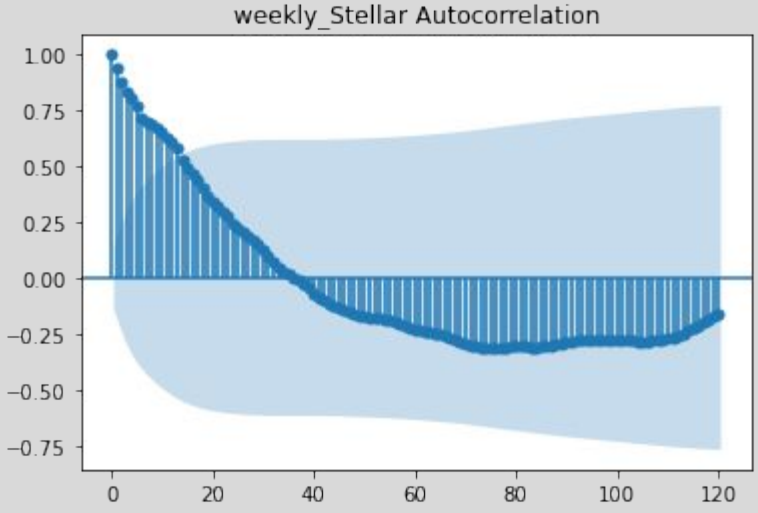
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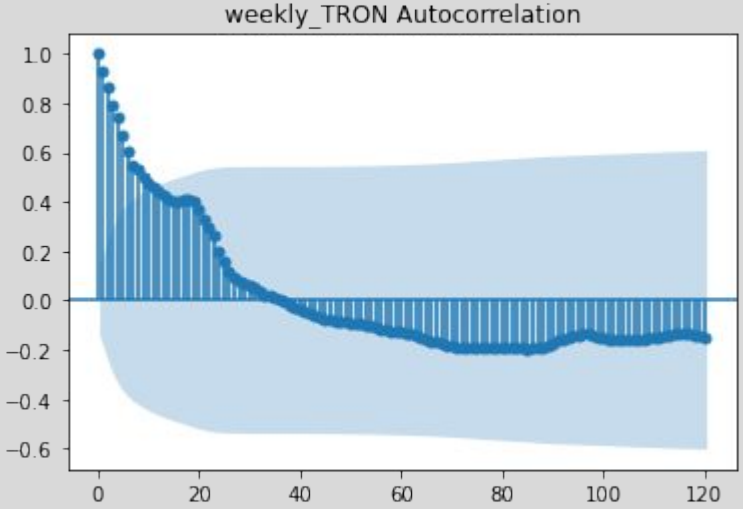
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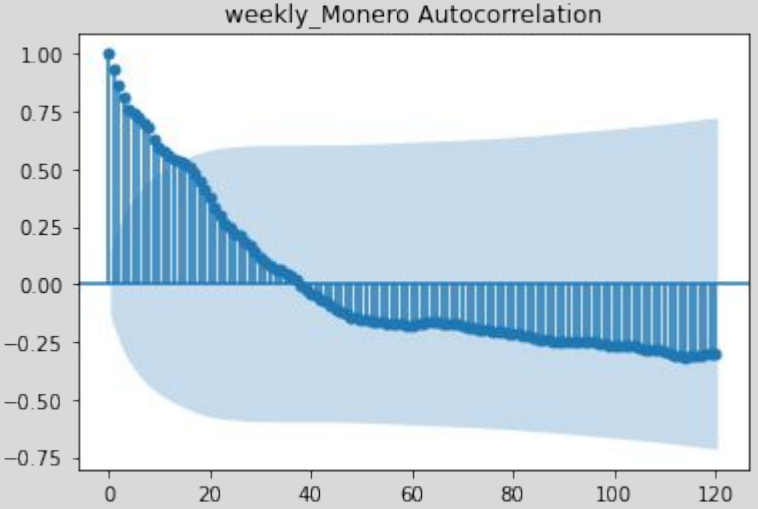
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0.25
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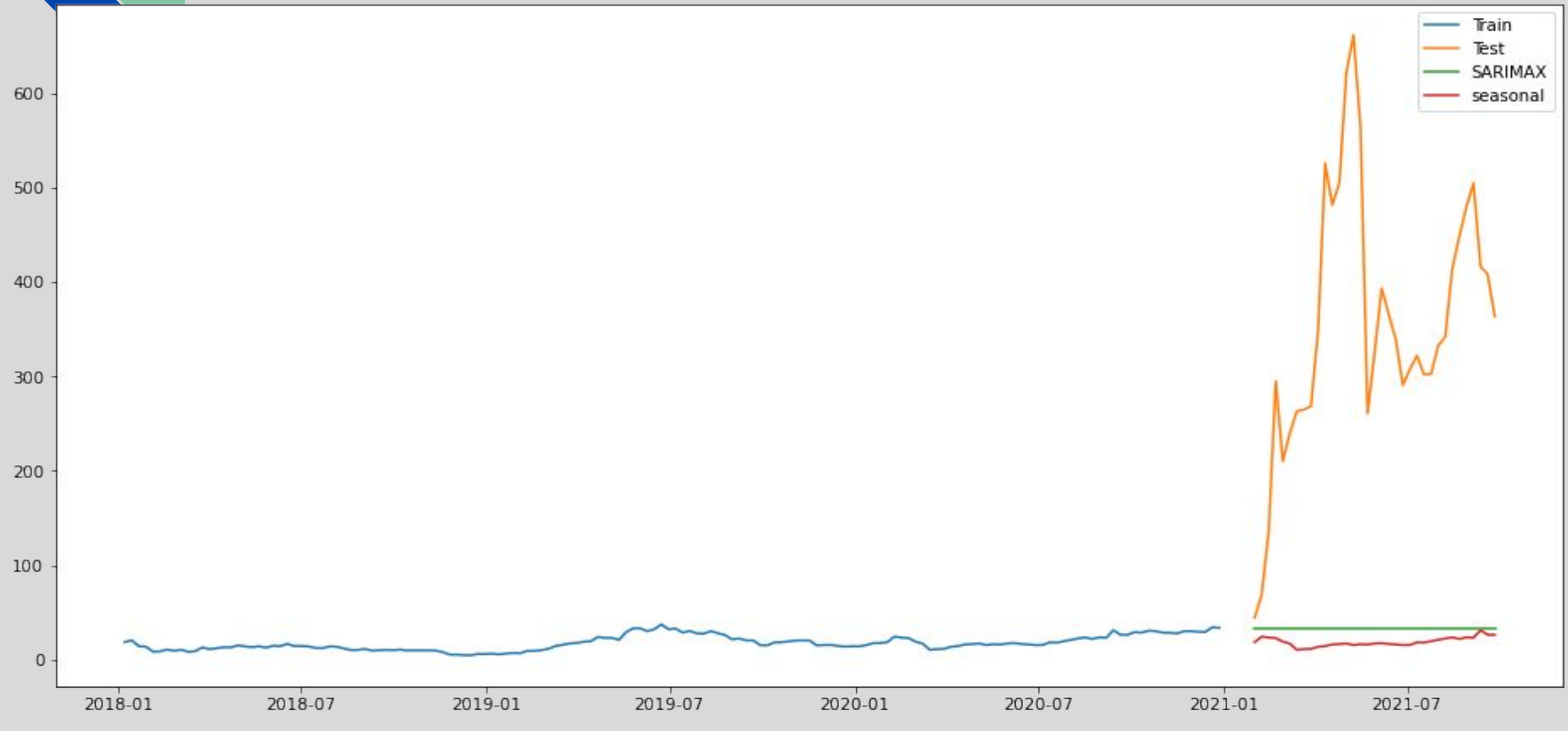
20
40
60
80
100
120

Binance Coin Weekly Model

The baseline RMSE is 363

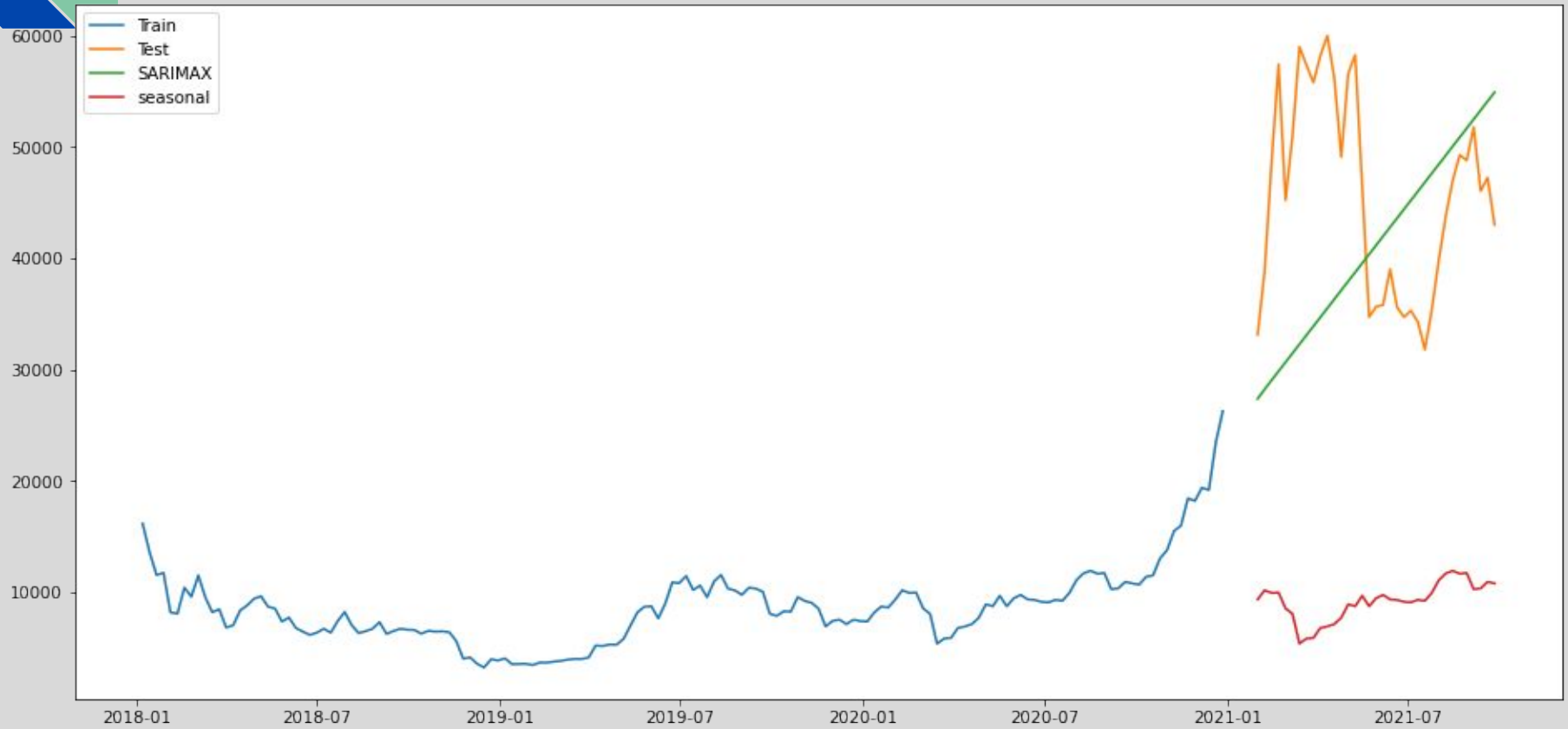
The model RMSE is 349.0



The baseline RMSE is 37794

The model RMSE is 14527.0

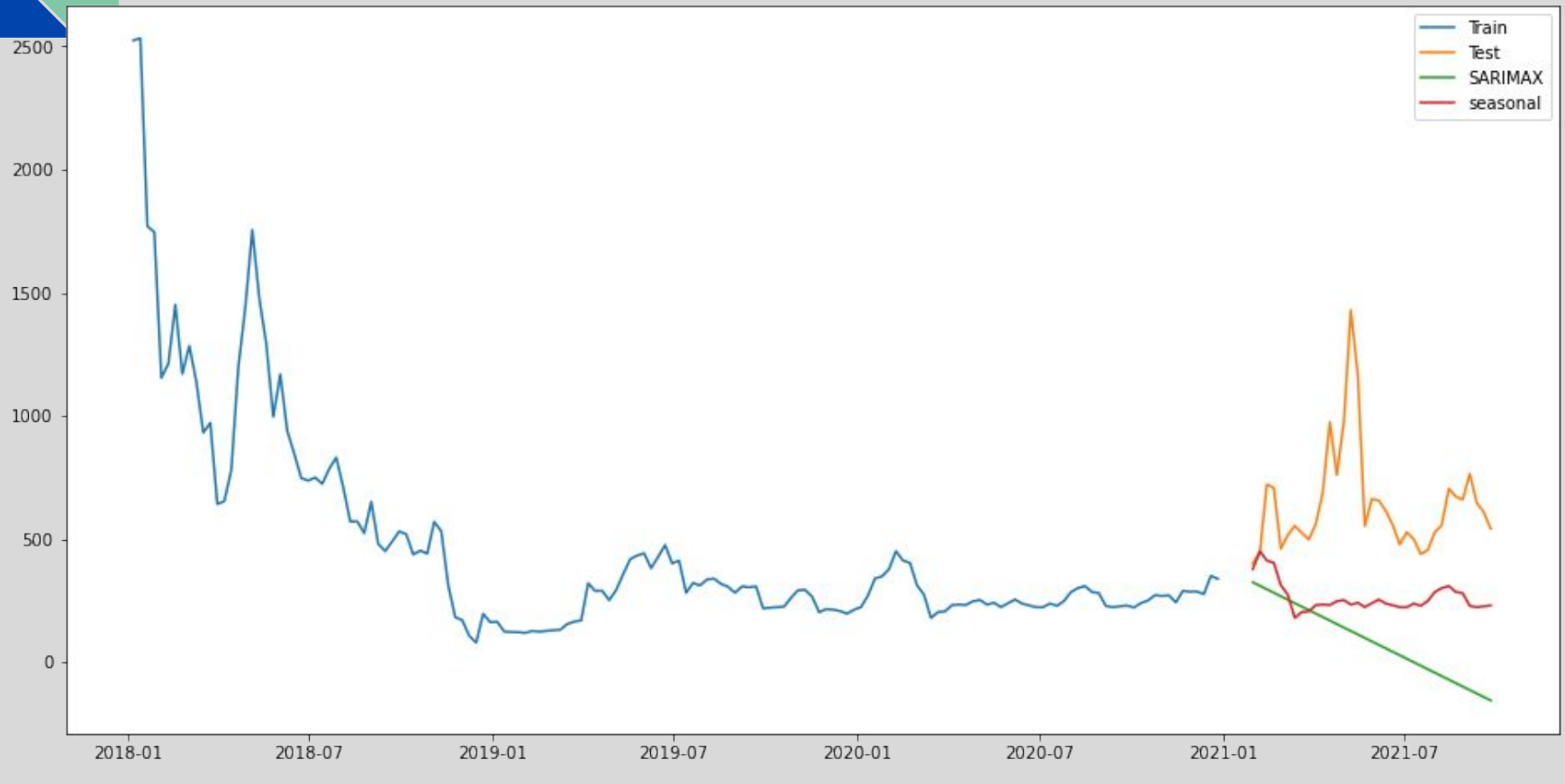
Bitcoin Weekly Model



The baseline RMSE is 442

The model RMSE is 613.0

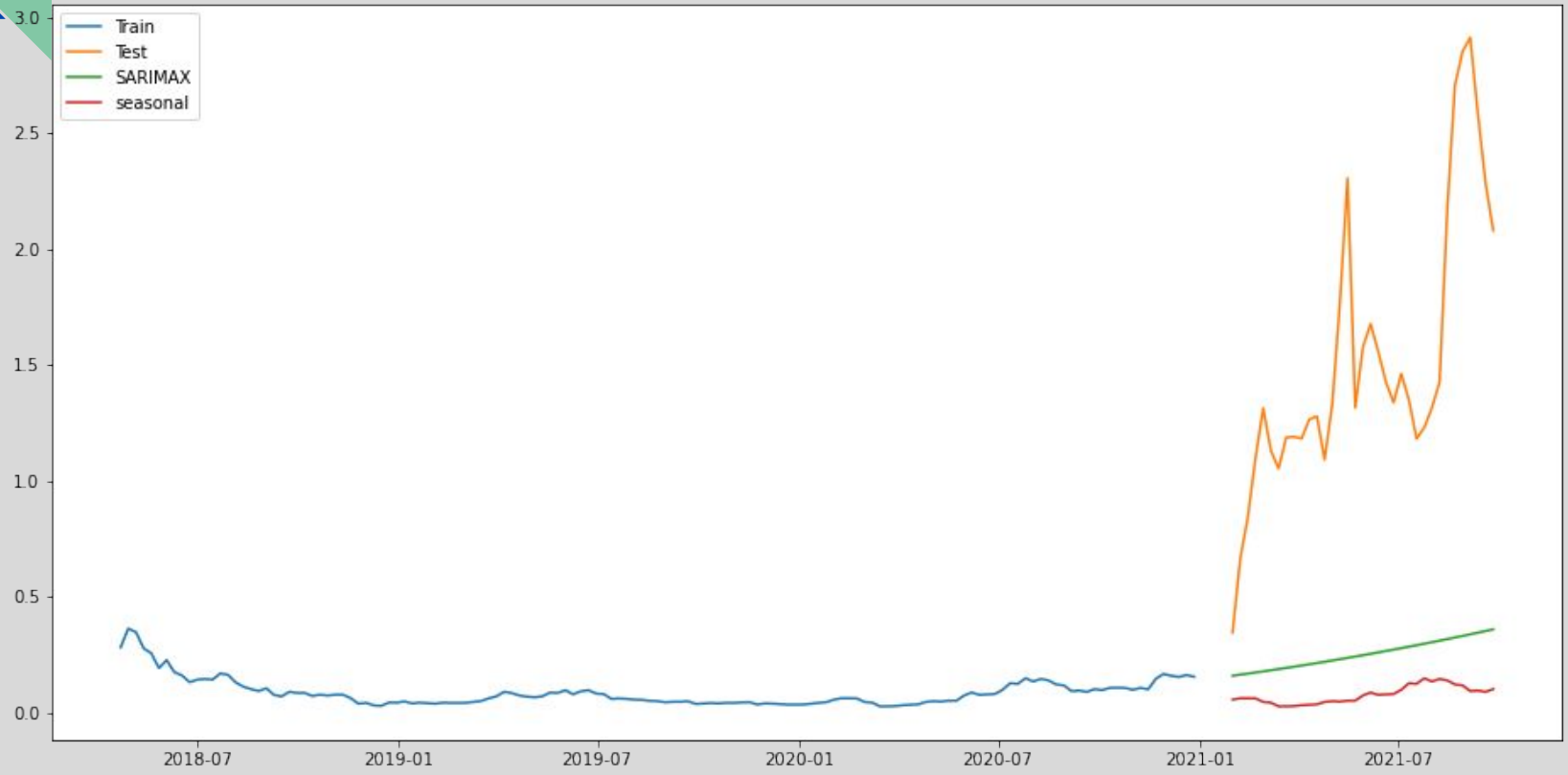
Bitcoin Cash Model



The baseline RMSE is 2

Cardano Weekly Model

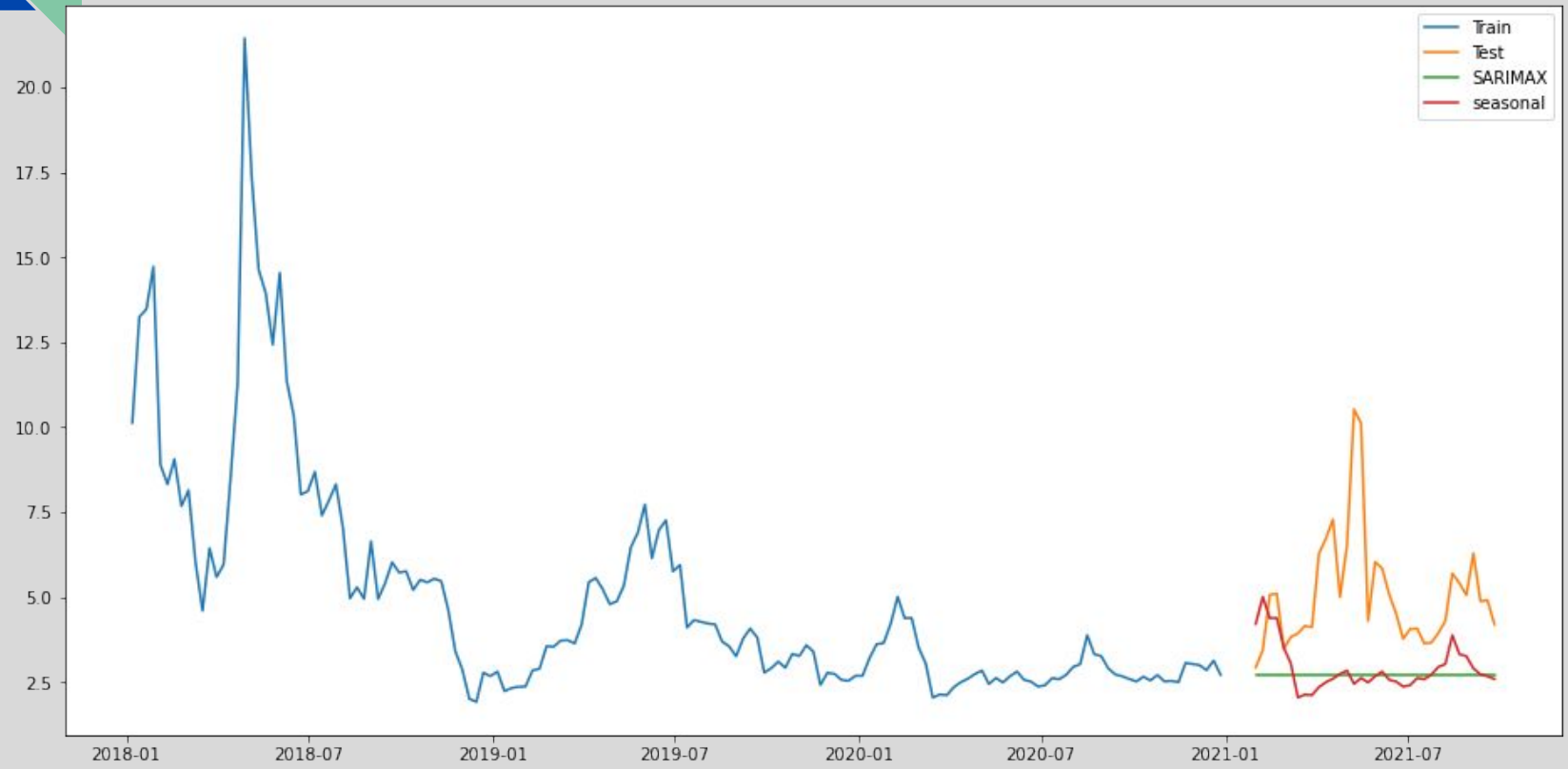
The model RMSE is 1.0



The baseline RMSE is 3

EOS Weekly Model

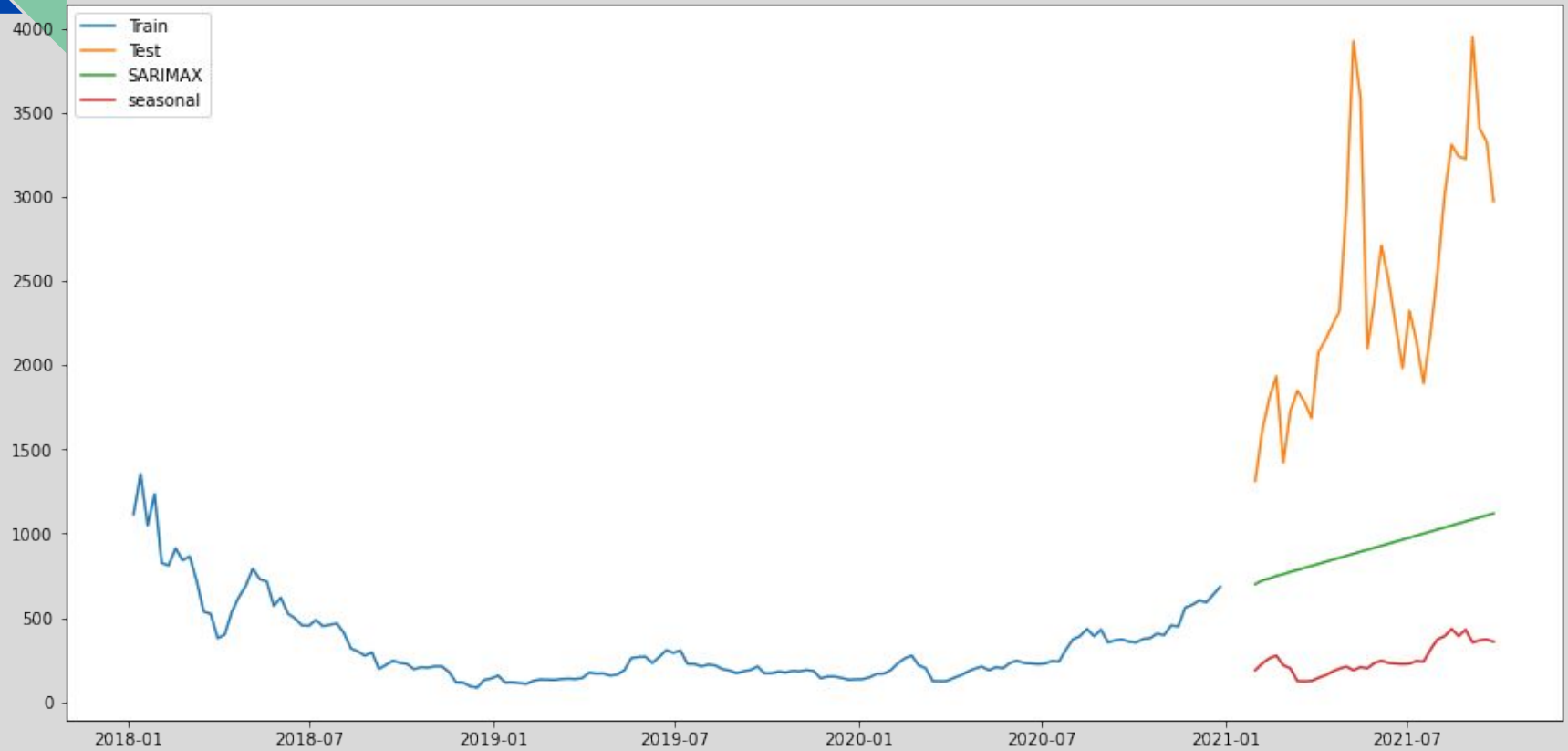
The model RMSE is 3.0



The baseline RMSE is 2294

Ethereum Weekly Model

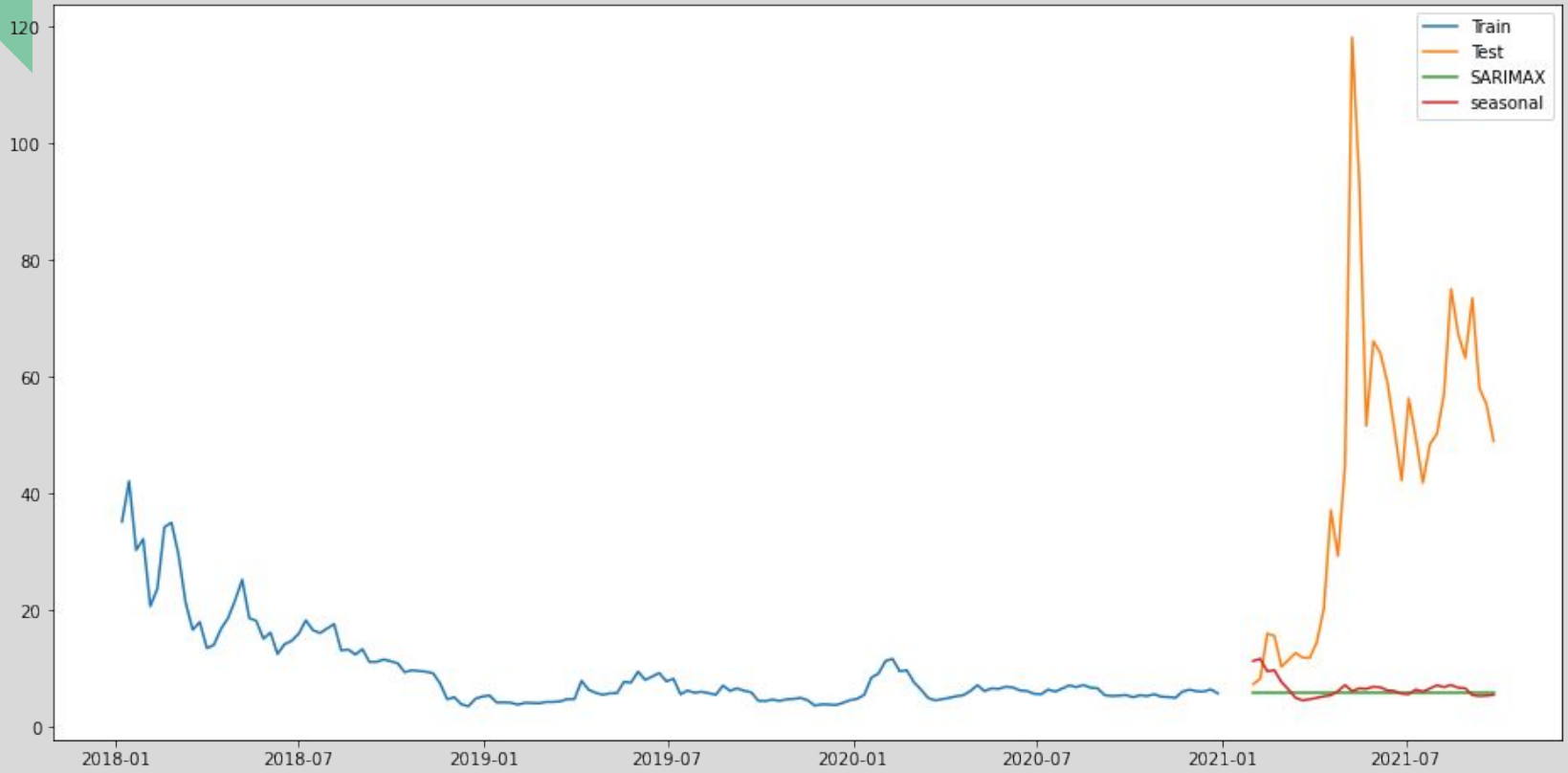
The model RMSE is 1658.0



The baseline RMSE is 46

Ethereum Classic Weekly Model

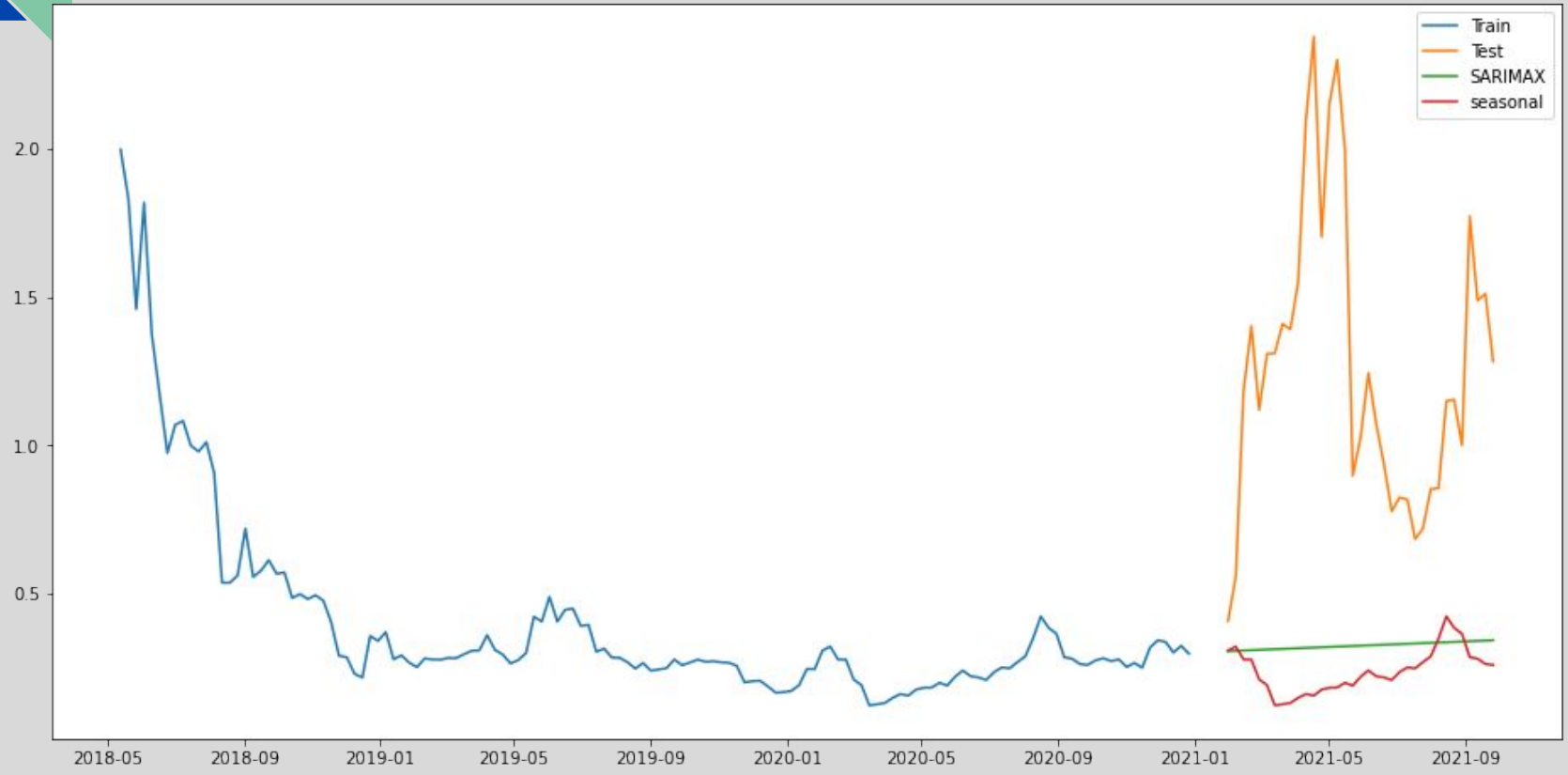
The model RMSE is 46.0



The baseline RMSE is 1

IOTA Weekly Model

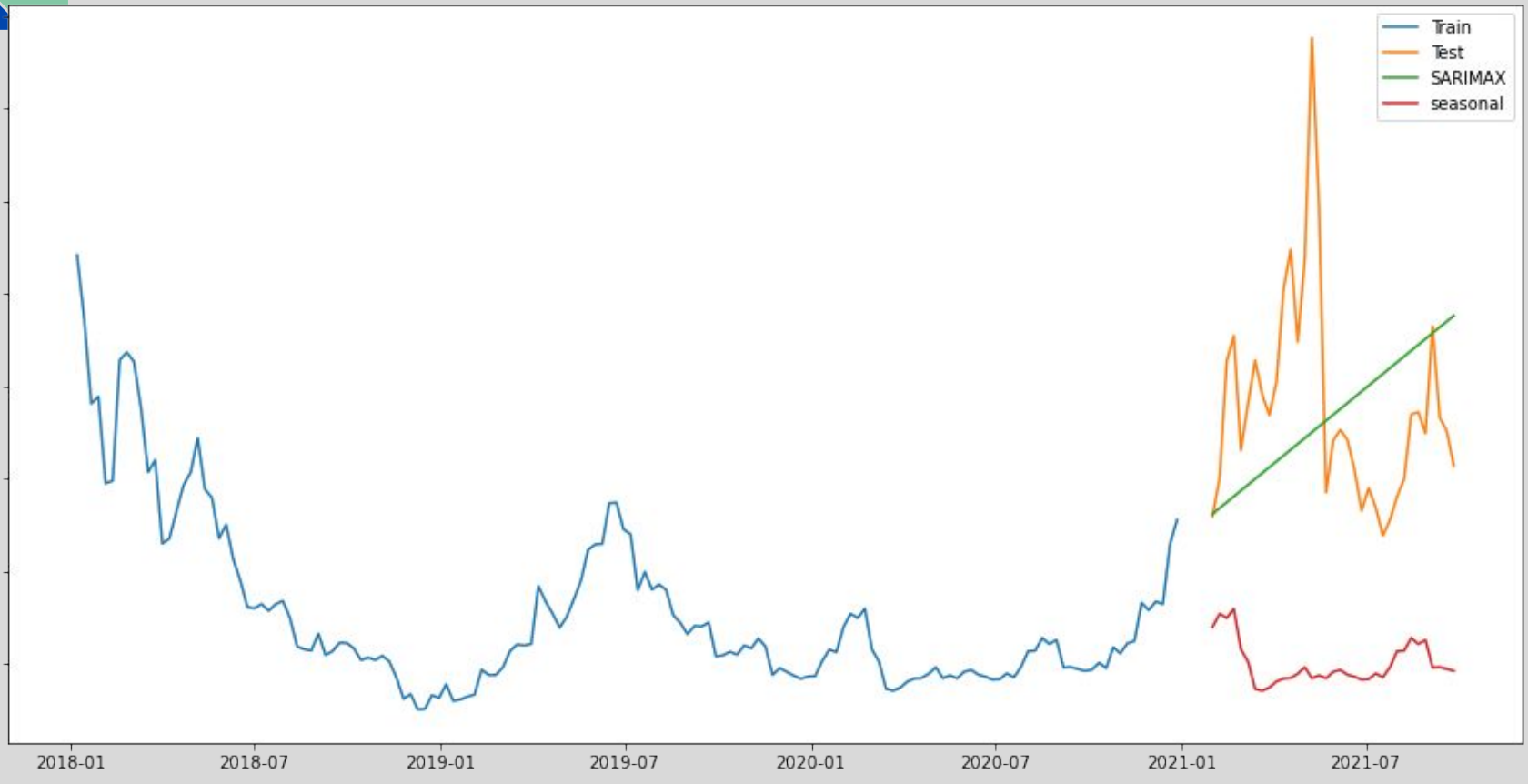
The model RMSE is 1.0



The baseline RMSE is 151

Litecoin Weekly Model

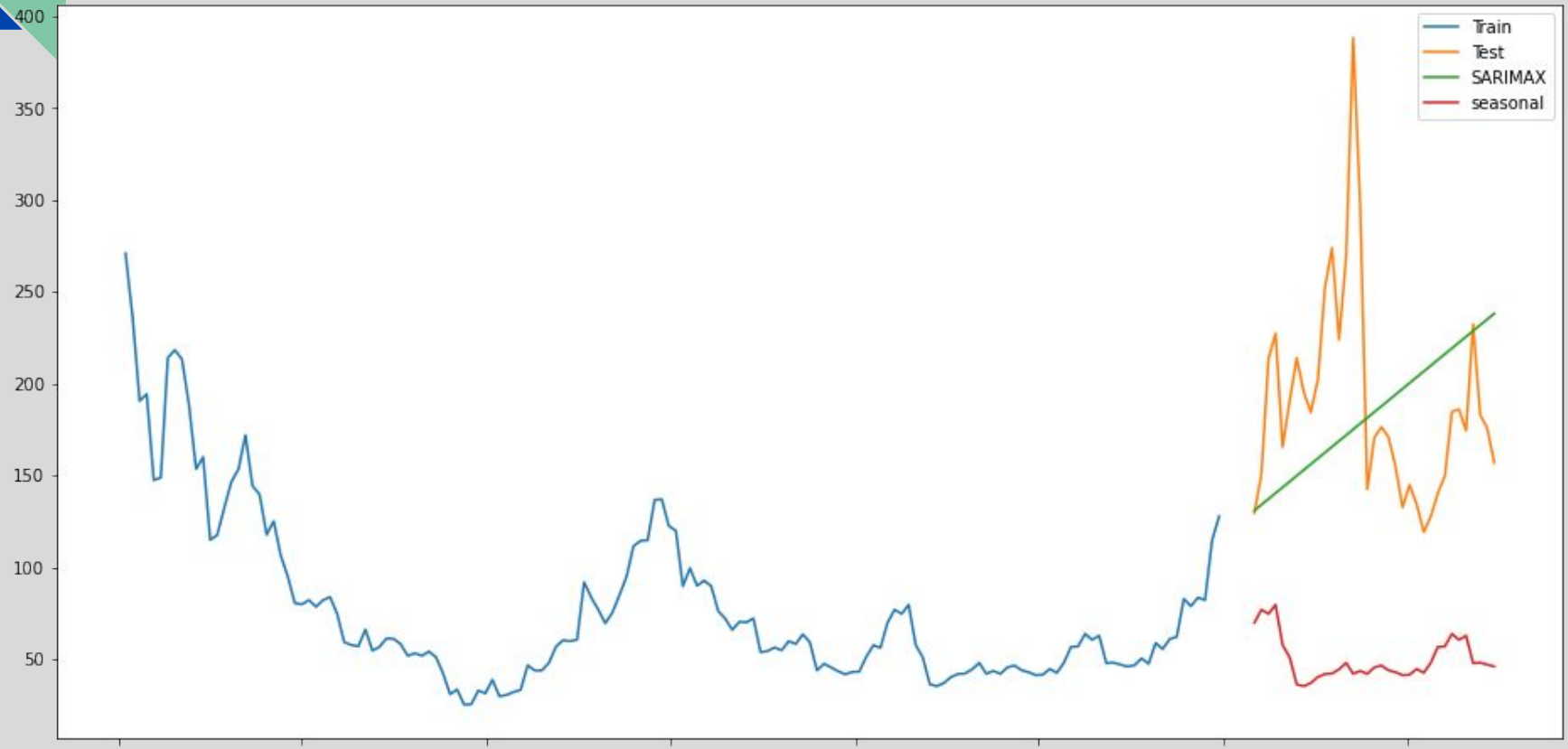
The model RMSE is 70.0



The baseline RMSE is 2616

Maker Weekly Model

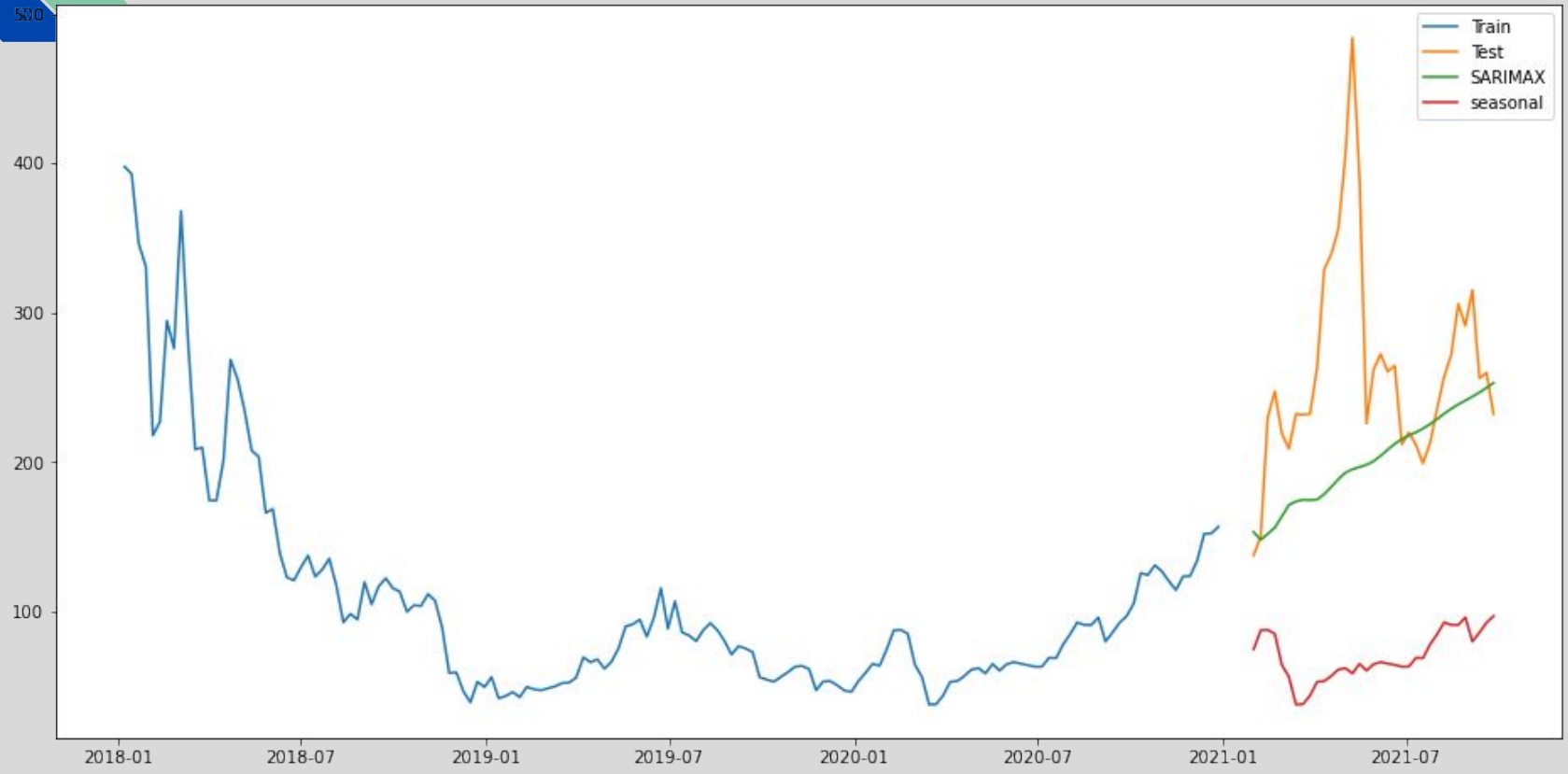
The model RMSE is 2525.0



The baseline RMSE is 206

The model RMSE is 94.0

Monero Weekly Model



Conclusion

Seasonality was not evident in closing price data

Some models performed better than others

More hyperparameter tuning could help

Trying other models may work as well

No easy route to crypto millions

Thank You

Questions?