Cryptocurrency Prediction

Submitted by : G2 , FinTastic

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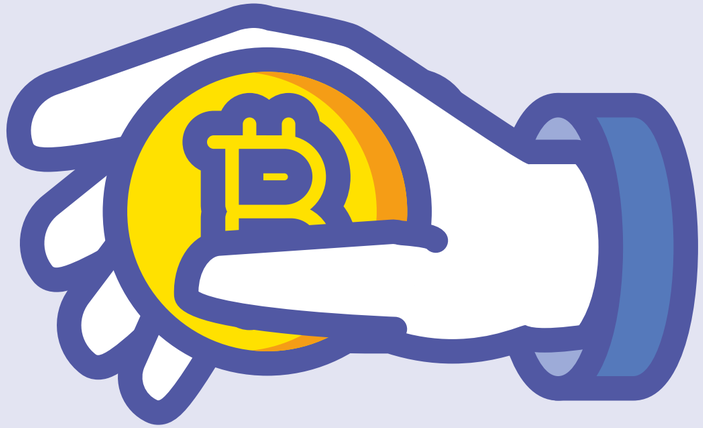
Objective

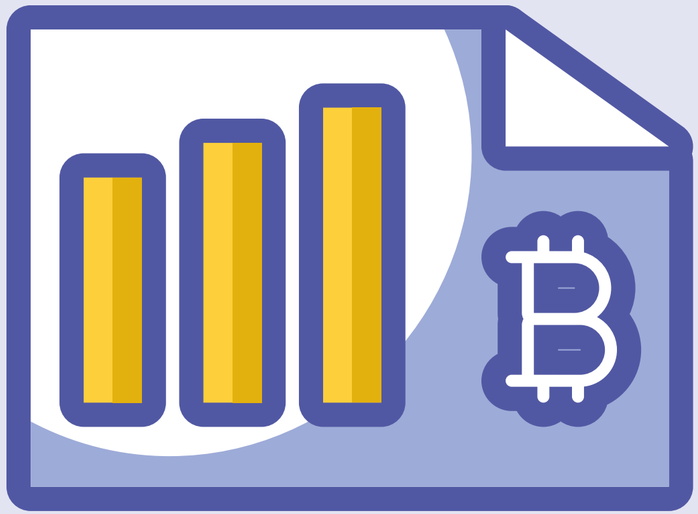
Cryptocurrency gaining a lot of interest in recent years. However , many people think it is risky to invest in Cryptocurrency market since it is a highly volatile market. As a result we aim to enhance the prices prediction in Cryptocurrency market by applying neural network in predicting their prices. Which will allow people to invest more in this market.



The Data Set

YFinance

The index is the date and the values are the close prices.



Bitcoin

Bitcoin historical prices

Nvidia

A technology company that we wanted to compare it with bitcoin prices

Model Selection

Neural Network :

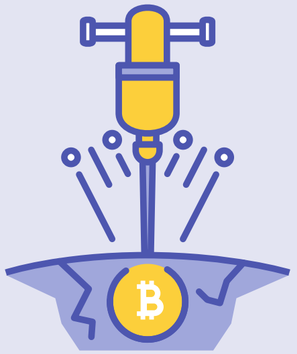
Neural networks process past and current data to estimate future values. Since we are dealing with prices, accuracy is an important aspect that can't be compromised ; hence, Neural Network provides high accuracy. Especially in a large dataset

The structure of a neural-network algorithm has three layers:

-The input layer feeds past data values into the next (hidden) layer.

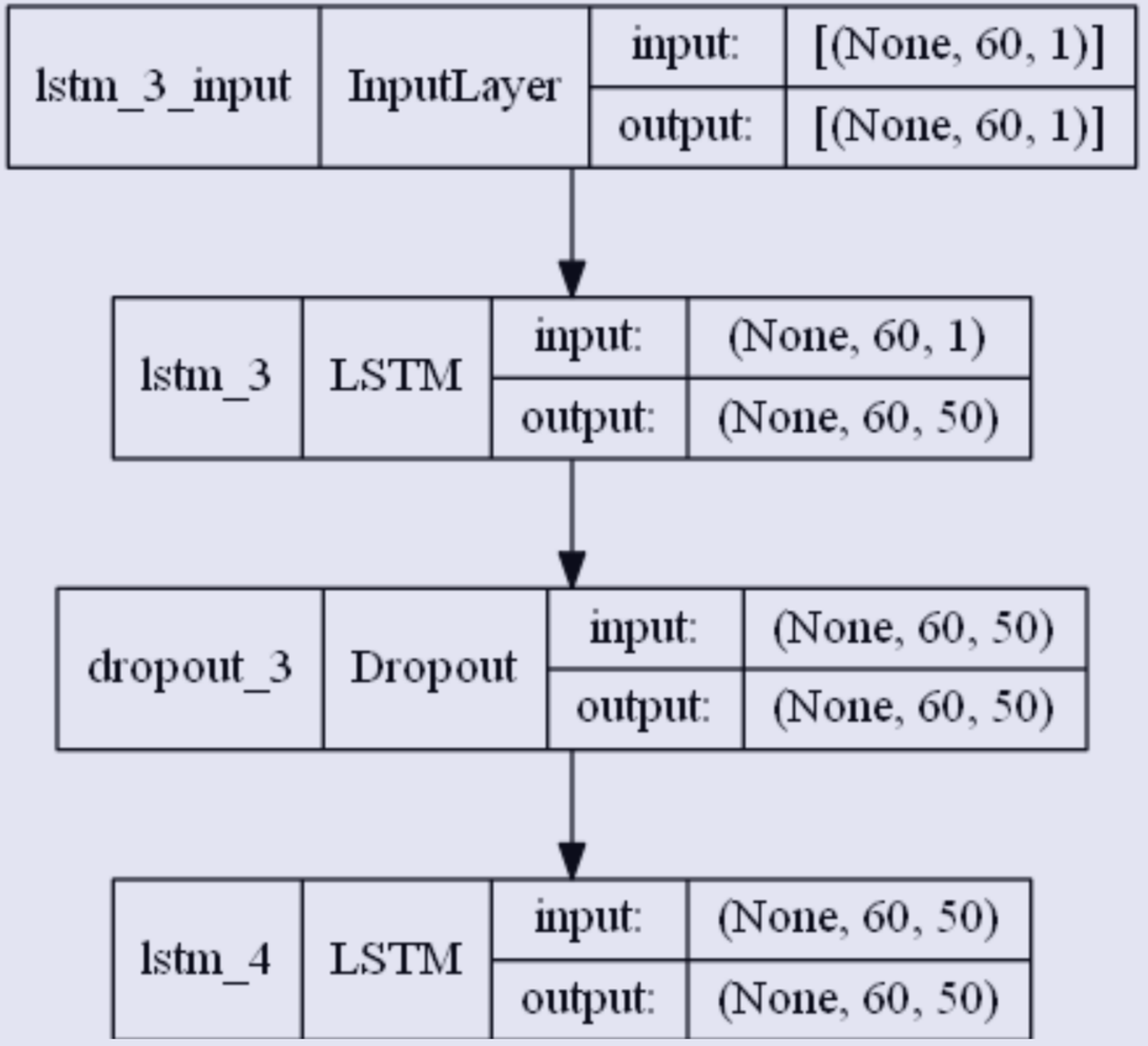
-The hidden layer encapsulates several complex functions that create predictors; often those functions are hidden from the user.

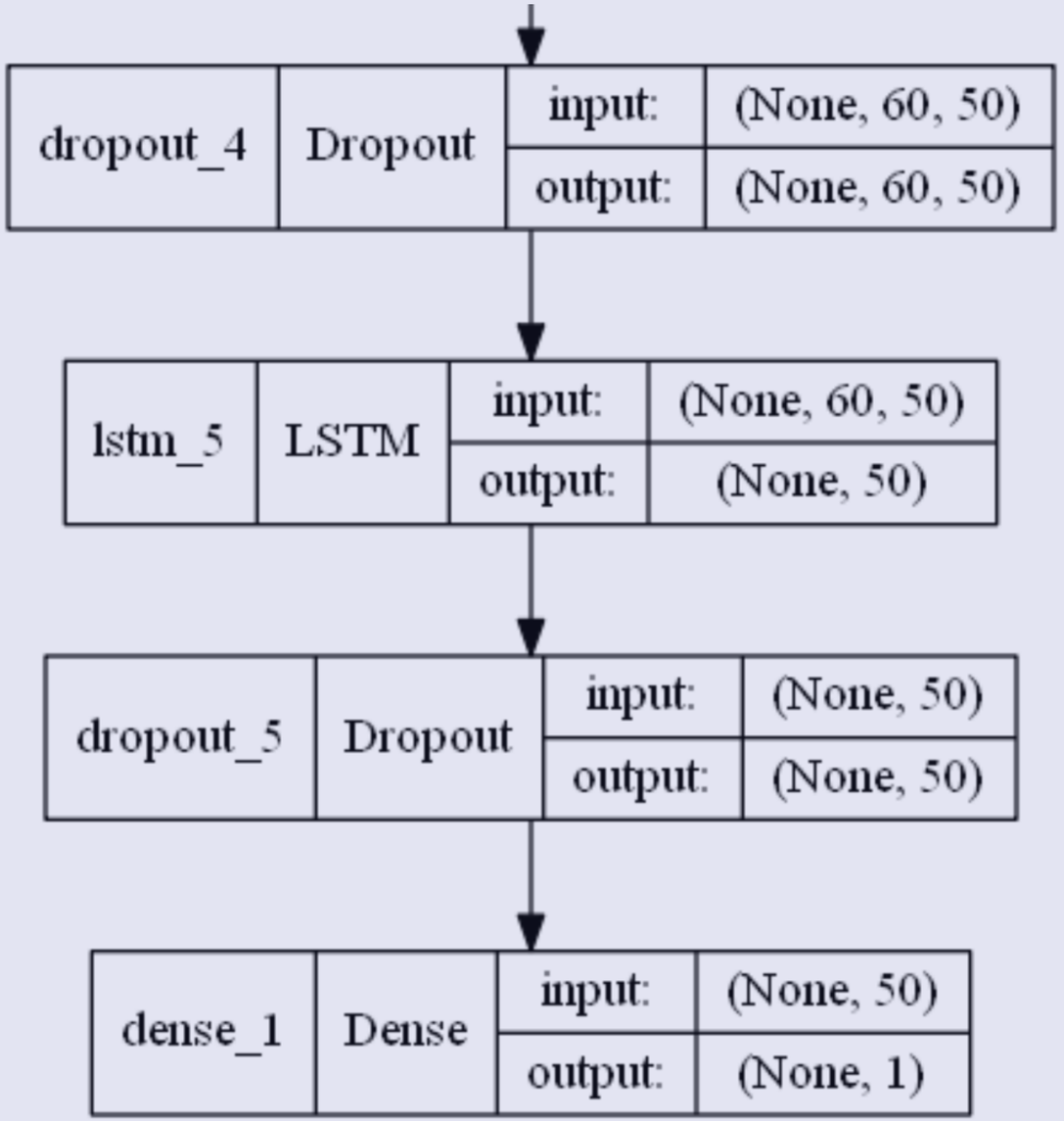
-The output layer collects the predictions made in the hidden layer and produces the final result.



Model Descriptive Performance

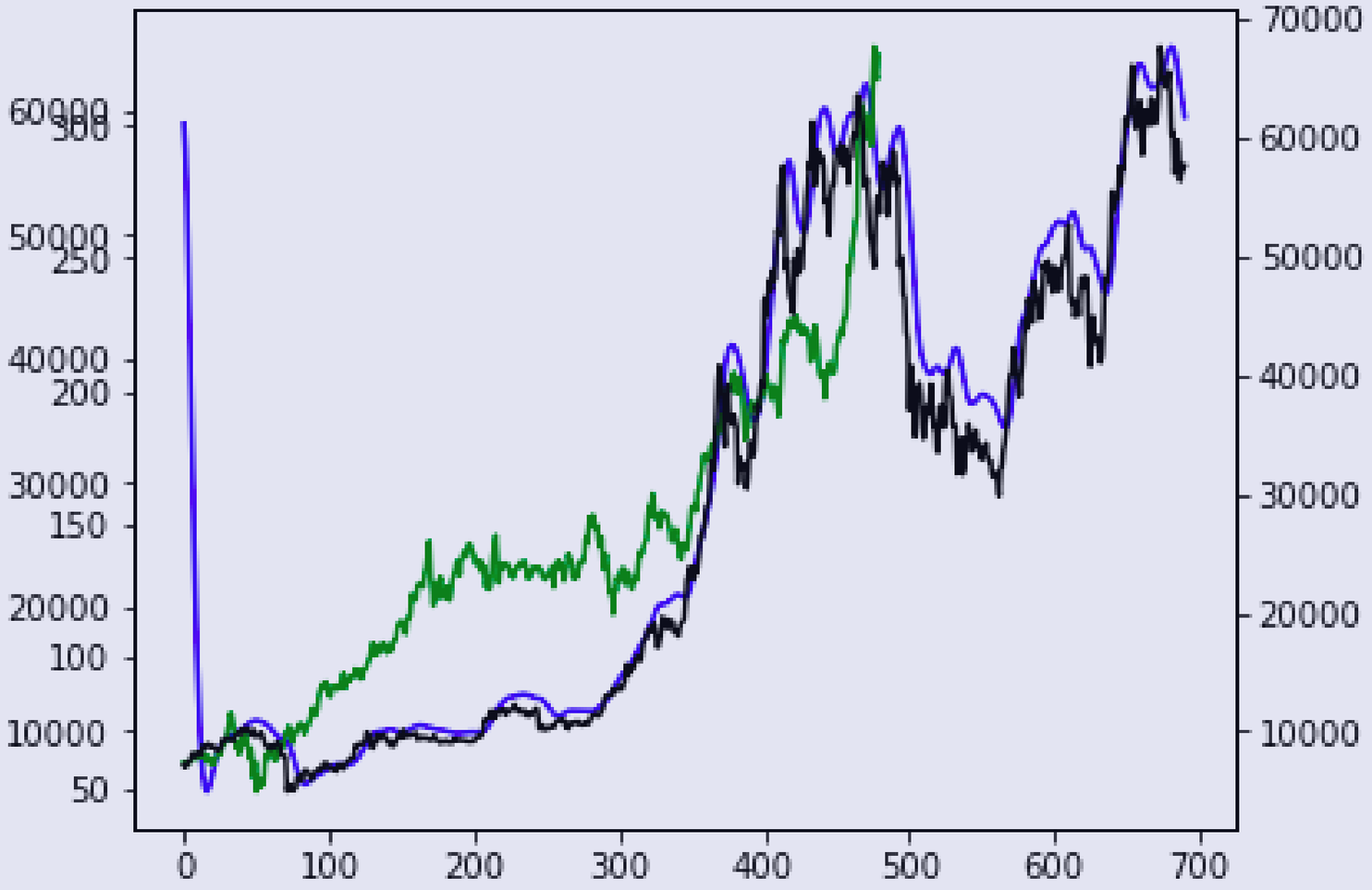
```
Model: "sequential_1"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 lstm_3 (LSTM)               (None, 60, 50)            10400

 dropout_3 (Dropout)         (None, 60, 50)            0

 lstm_4 (LSTM)               (None, 60, 50)            20200

 dropout_4 (Dropout)         (None, 60, 50)            0

 lstm_5 (LSTM)               (None, 50)                20200

 dropout_5 (Dropout)         (None, 50)                0

 dense_1 (Dense)             (None, 1)                 51

=================================================================
Total params: 50,851
Trainable params: 50,851
Non-trainable params: 0
```


lstm_3_input
InputLayer
input: [(None, 60, 1)]
output: [(None, 60, 1)]
lstm_3
LSTM
input: (None, 60, 1)
output: (None, 60, 50)
dropout_3
Dropout
input: (None, 60, 50)
output: (None, 60, 50)
lstm_4
LSTM
input: (None, 60, 50)
output: (None, 60, 50)

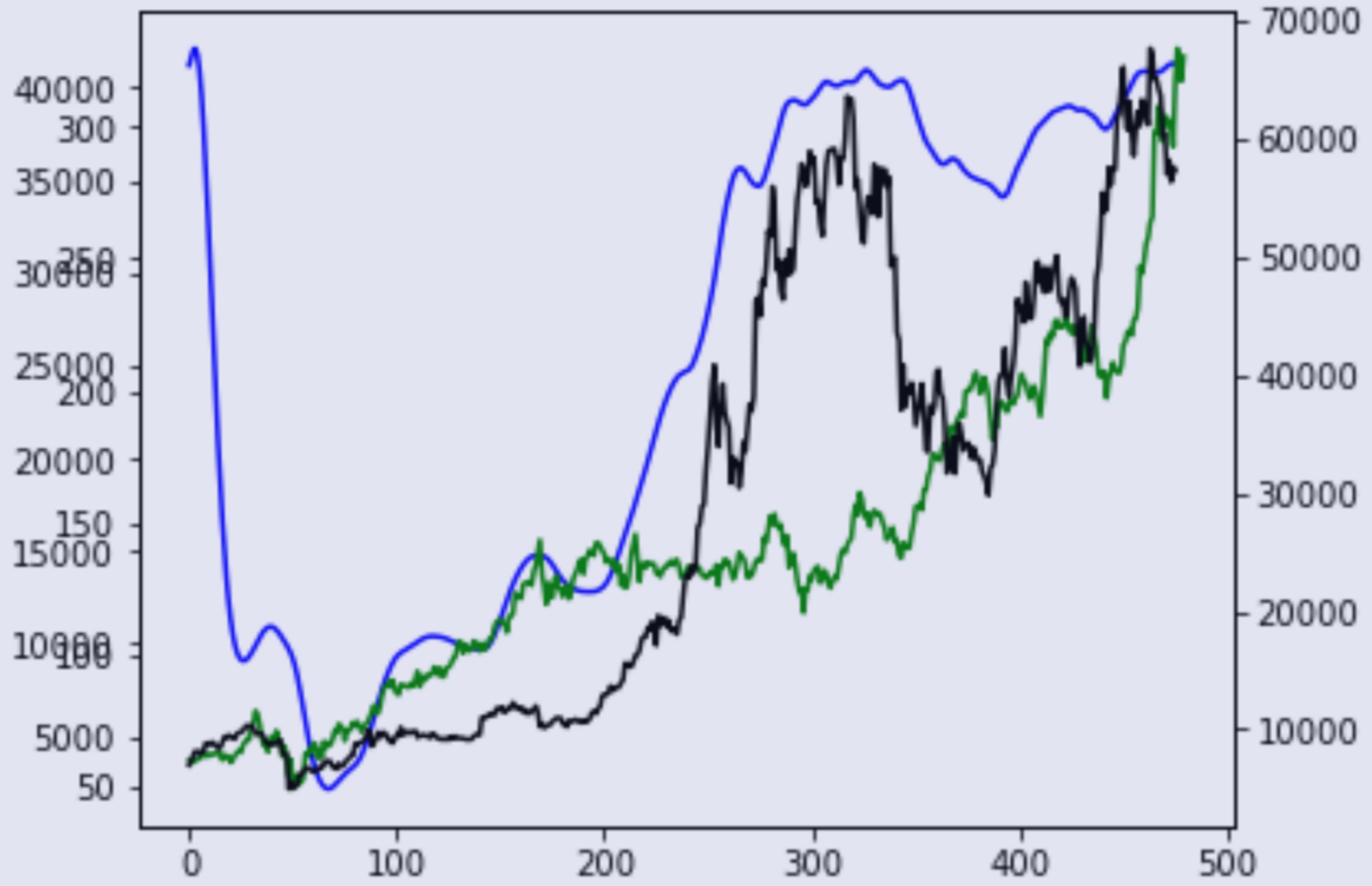

dropout_4
Dropout
input:
(None, 60, 50)
output:
(None, 60, 50)
lstm_5
LSTM
input:
(None, 60, 50)
output:
(None, 50)
dropout_5
Dropout
input:
(None, 50)
output:
(None, 50)
dense_1
Dense
input:
(None, 50)
output:
(None, 1)

The Result

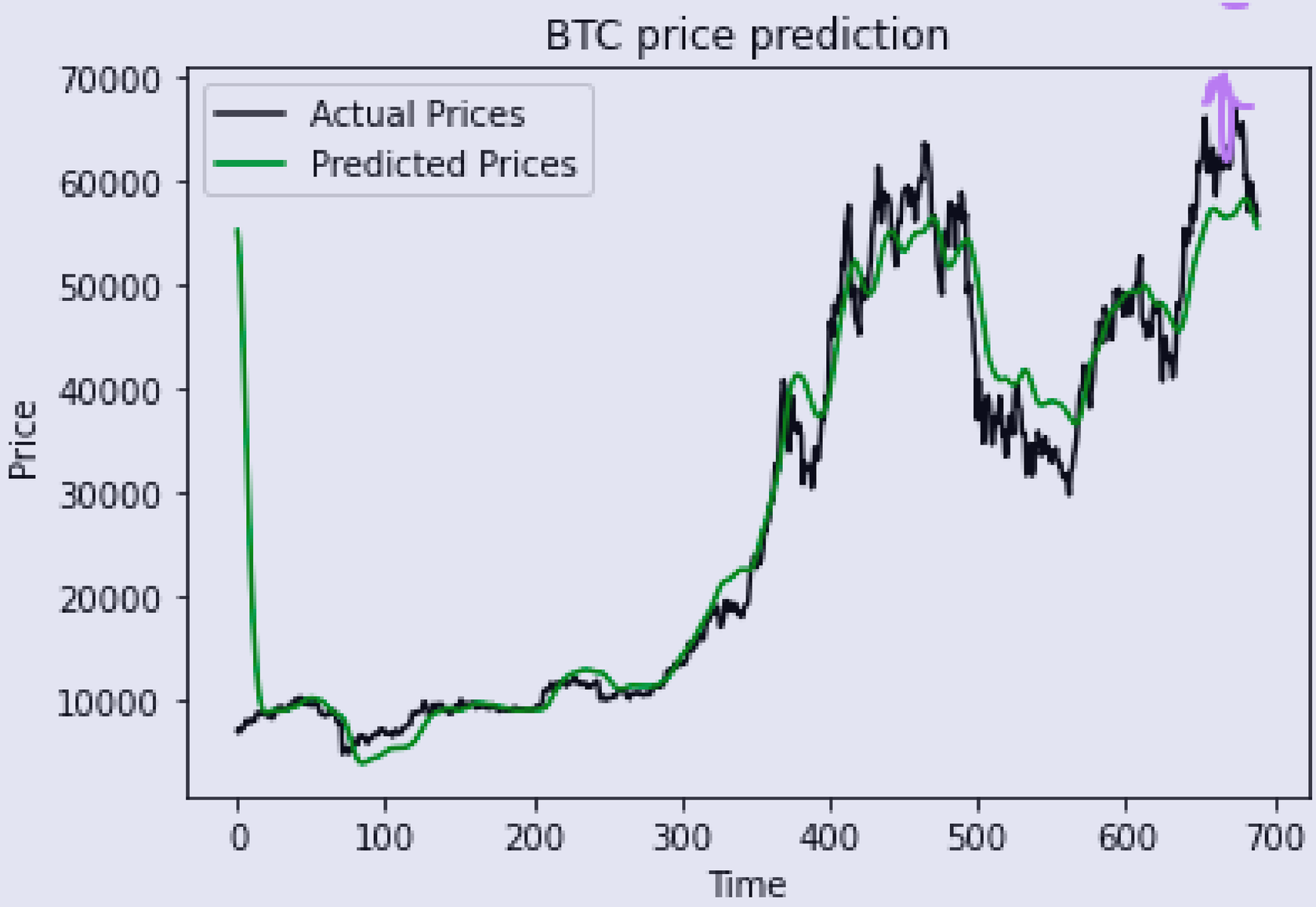
One day prediction (BTC+NVDA)



60 days predictions (BTC+NVDA)



Predictions (BTC Only)



THANK YOU!