

BITCOIN PRICE FORECASTING

BTC  Daily

2021-08-14

THIRD EDITION

By Megan Yit
Institute of Data



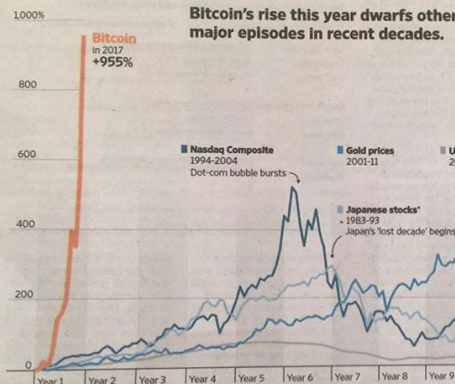
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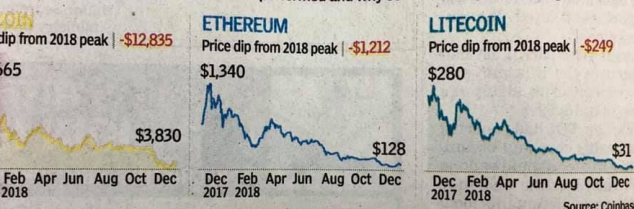
* Tokyo Stock Price Index * Case-Shiller Home Price Index

Source: CoinDesk (Bitcoin price and value); FactSet (Nasdaq performance, Japanese stocks, gold); Thomson Reuters (home prices)

Bitcoin Mania: Even Gr

CRYPTOCURRENCIES' CRASH COURSE

Cryptocurrencies took a big hit in 2018 with some of its most popular forms dropping more than 75% in value. Here's how three of the biggest ones performed and why some have kept faith in digital cash



SOME HAVEN'T GIVEN UP ON CRYPTOCURRENCIES YET

is the term for a cryptocurrency investor who's decided against selling out despite massive losses. The term comes from a post on an online crypto forum, where a user misspelled "as a hodl" giving rise to "hodler" or those who've decided to hold on to their cryptocurrencies

Lauer's Firing Puts N In Turn

By JOE FLINT

Matt Lauer's abrupt firing from NBC News after a series of inappropriate behavior ended a storied career that made him the

Bitcoin jumps as Tesla buys currency

Tesla purchased \$1.5bn of Bitcoin and announced it will start accepting the cryptocurrency as payment



Source: Bloomberg. Last update 09 February 2021, 12:35 GMT

From favourite to forgettable: The crypto journey in 2018

Hellie Bowles

Last year around this time, a toy called a cryptocurrency sold for \$170,000. A real estate agent remade himself as CoinDaddy, producing cryptocurrency-themed music videos. Kids barely out of high school were buying Lambo's because of a crypto meme. Experts went on CNBC to say Bitcoin was going to reach \$100,000 per coin.

For a few sweet months of 2018, all of Silicon Valley was wrapped up in a fantasy

CRYPTOCURRENCIES' CRASH COURSE

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EVEN UP ON CRYPTOCURRENCIES YET

ptocurrency investor who's decided against selling out despite m comes from a post on an online crypto forum, where a user misspelled "t to 'hodler'" or those who've decided to hold on to their cryptocurrencies

are still people working on it. Julian Spediaci, a cryptocurrency investor in San Francisco with his twin brother, James, said he would like people to know he identifies as a HODLER, or someone who is not selling despite market fluctuations. "A lot of people want to find out if we're still alive, so it'd be great to clarify that there are a lot of OG HODLERS," Mr. Spediaci said, using language common in the crypto industry to indicate he would remain an investor. "I think we're nearing a bottom," his brother said.

Some of the friends they made have left town. The meetups are quieter. The most recent video from the community's primary musical voice, CoinDaddy né Arya Bahman-yar, is set to the tune of Beatles hit "Yesterday."

Not everyone is struggling in the downturn. For lawyers, it is a new gold rush.

"Now that the market dropped, everyone is getting sued," said Chante Eliasadeh, a law student and the president of a blockchain law club called Blockchain at Berkeley Law. She said the legal scene is pretty exciting right now. As the US Securities and Exchange Commission cracks down, some scammers are trying to escape to Ball or Malta, where regulations are more lax.

At one holiday party in Palo Alto this year, the theme

ple, Real Money, Real Deals" — on the walls, on boards, on slide shows and handouts.

Moderating a panel was Radhika Iyengar-Emens, a founding partner at a venture firm that specialises in cryptocurrency and blockchain start-ups called StarChain Ventures. "I think we're going to see a lot of real use cases," Ms. Iyengar-Emens said. "And these guys will be here for those very real use cases."

A use case would be a regular consumer's being able to use a cryptocurrency to do something other than make a speculative investment.

Kerry Washington, a member of the Litecoin Foundation, talked about a big Litecoin coin summit this year, which on one slide he specified cost a quarter-million dollars. There, guests could buy candy with Litecoins. This showed everyone how useful Litecoin could be, he said.

The trouble was always that we already have something that lets us buy candy.

An ad played for something called Bitrus, a wallet. It was just a half-dozen people looking straight at the camera saying "I trust Bitrus."

And then Curtis Wang, the chief executive of Bitrus, stood up to announce a very special offer: He could promise investors a 10% annual yield. There was scattered applause in the crowd.

Someone in the audience raised their hand and asked

BBC good,

crypto experts argue.

"The fact that miners are shutting down and difficulty is decreasing is a feature, not a bug, of Bitcoin's design," the venture capitalist Arianna Simpson wrote on Twitter.

Blockchain remains a volatile

Outline



Bitcoin

Who?

Investor considering purchasing cryptocurrency (bitcoin).

Objective?

Want to know if its prices can be predicted.

Business context?

Is it possible to predict bitcoin prices?

Data Question?

Using past bitcoin prices and various indices data, is it possible to model and forecast bitcoin prices with a reasonable degree of accuracy?

Data?



01

BTC data (Bloomberg)

Past prices (Open, Close, High, Low), Market Capitalization

02

Index data (Bloomberg)

USD index, Shanghai index, Federal Funds Rate, Financial Times Stock Exchange 100 Index, Dow Jones, Nonfarm payroll

Data Preparation

Drop



Removing columns

Null values



Data collected for different interval periods

Format



Formatting dates, setting as index for time series analysis

Restrict



Filling in null values

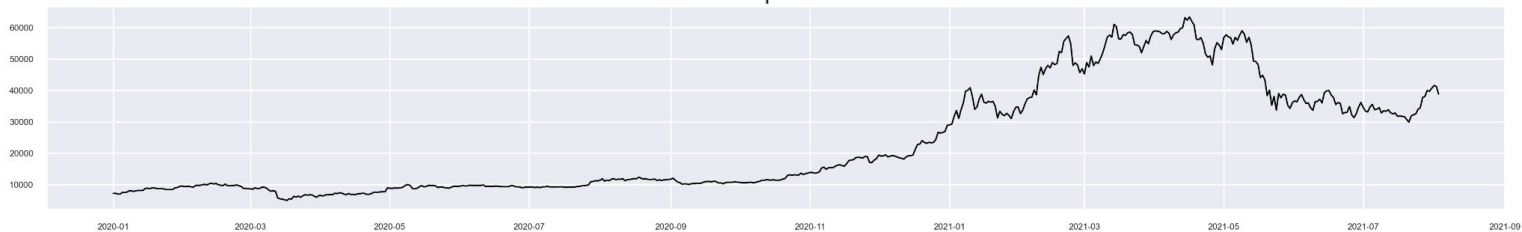
Merge



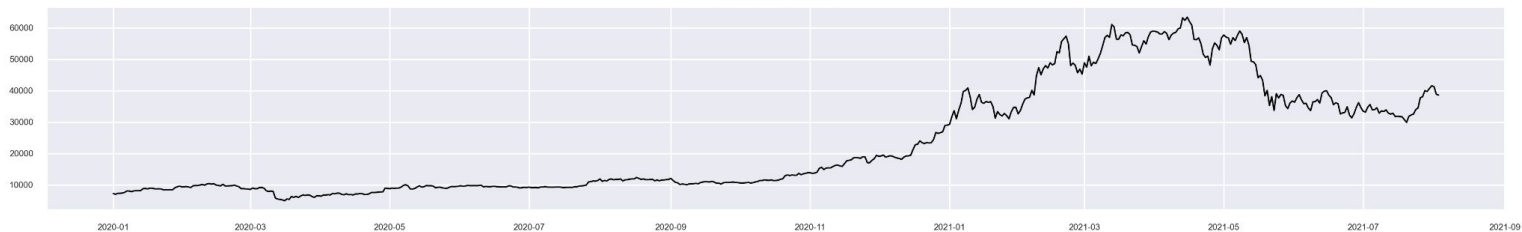
Putting all in single dataframe

Data Exploration

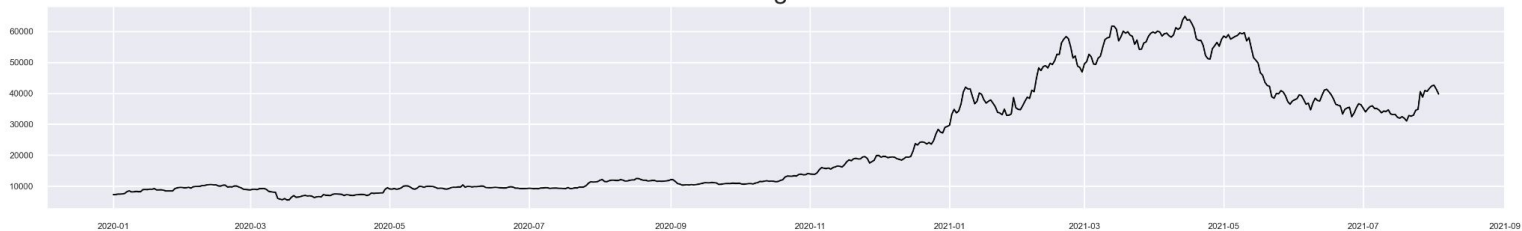
Open



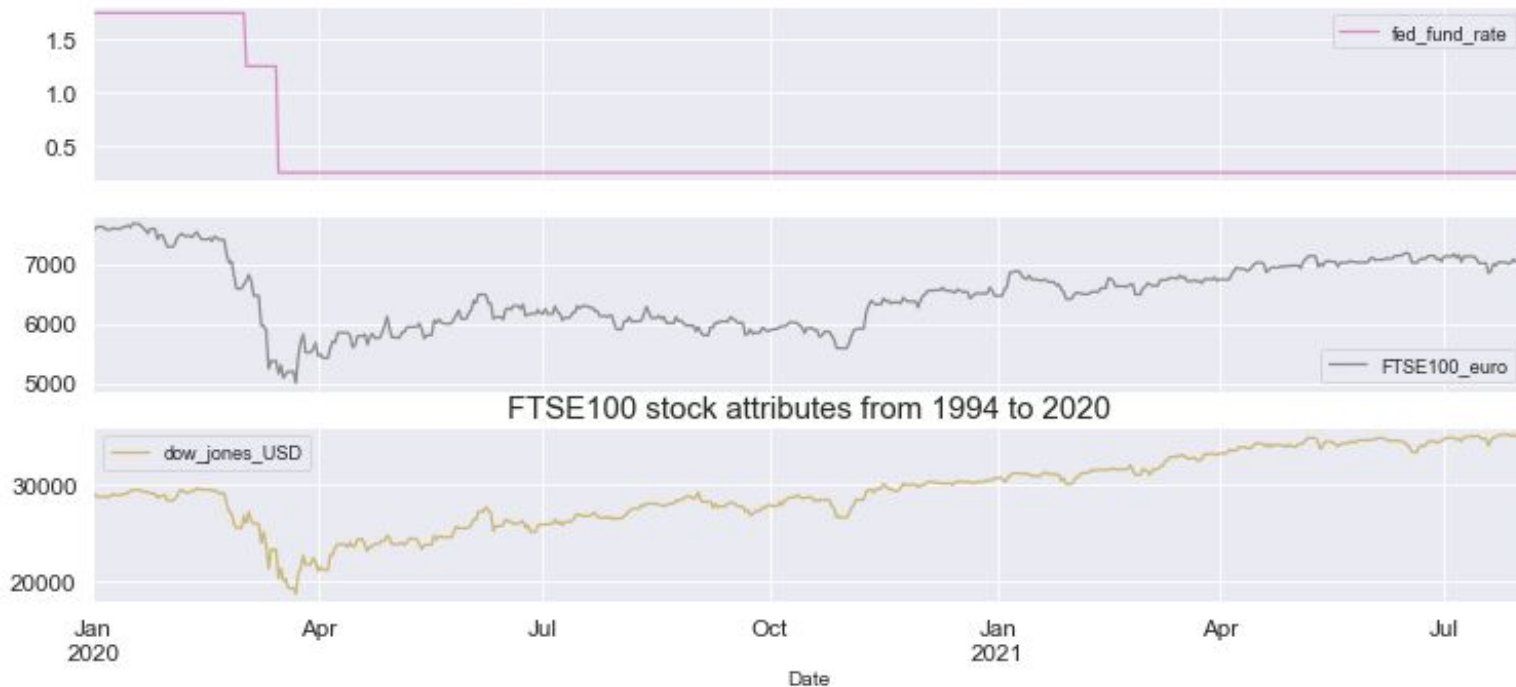
Last Price



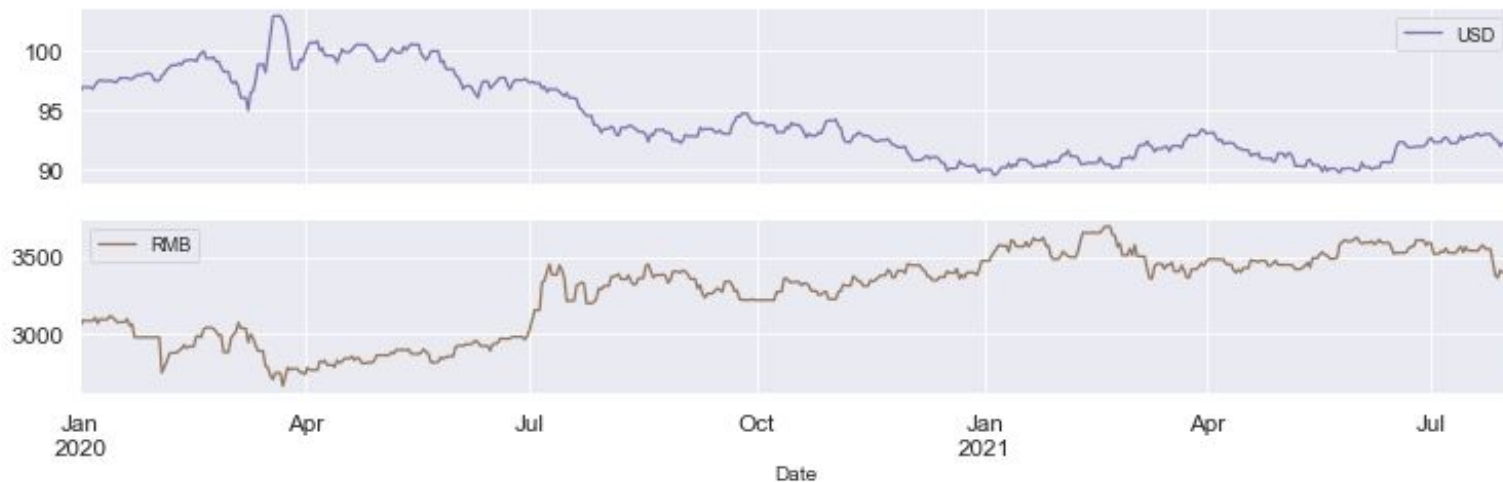
High



Data Exploration



Data Exploration





Univariate +
Non-stationary

Prophet

Univariate Models

3

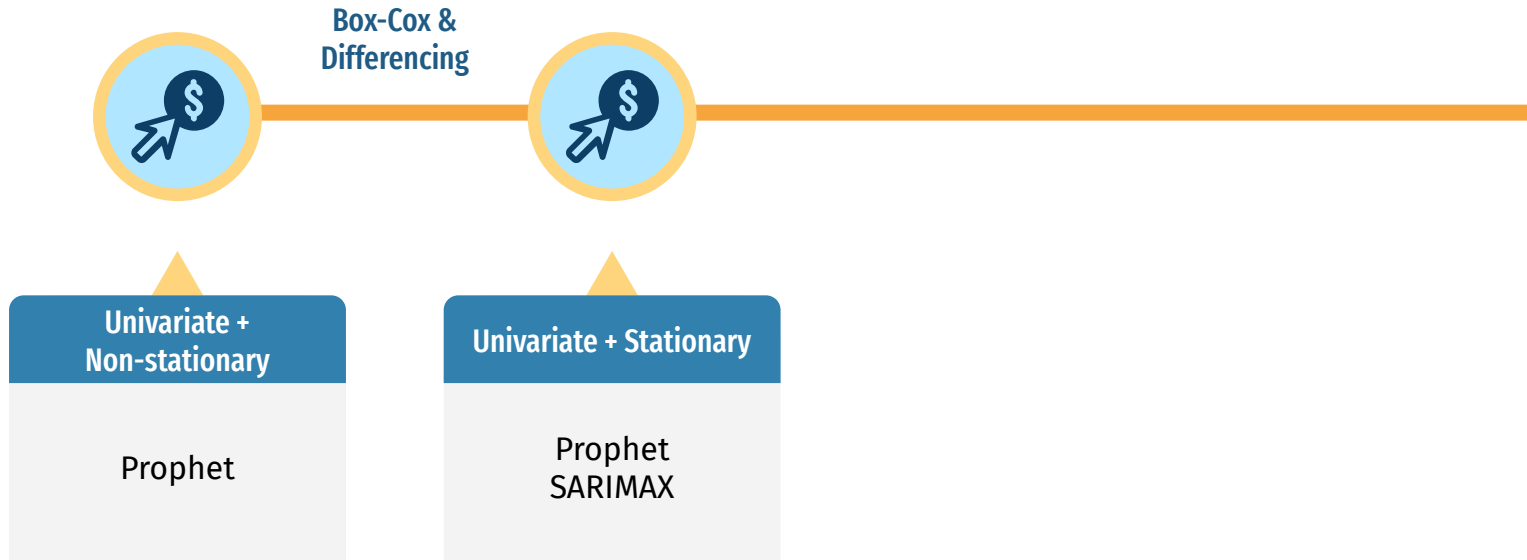
Univariate Models



Univariate Models

3

Univariate Models



Univariate Models

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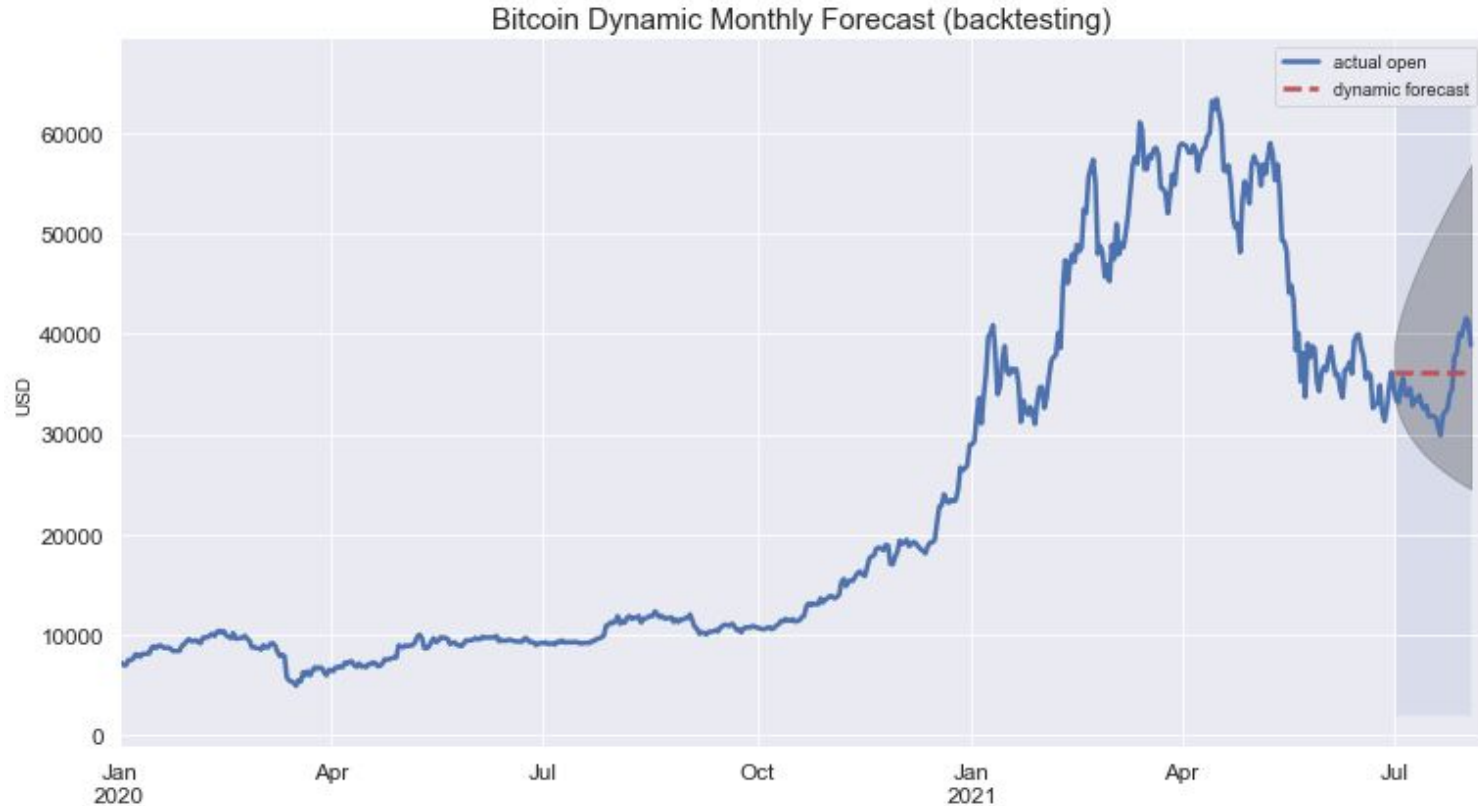
Univariate Models

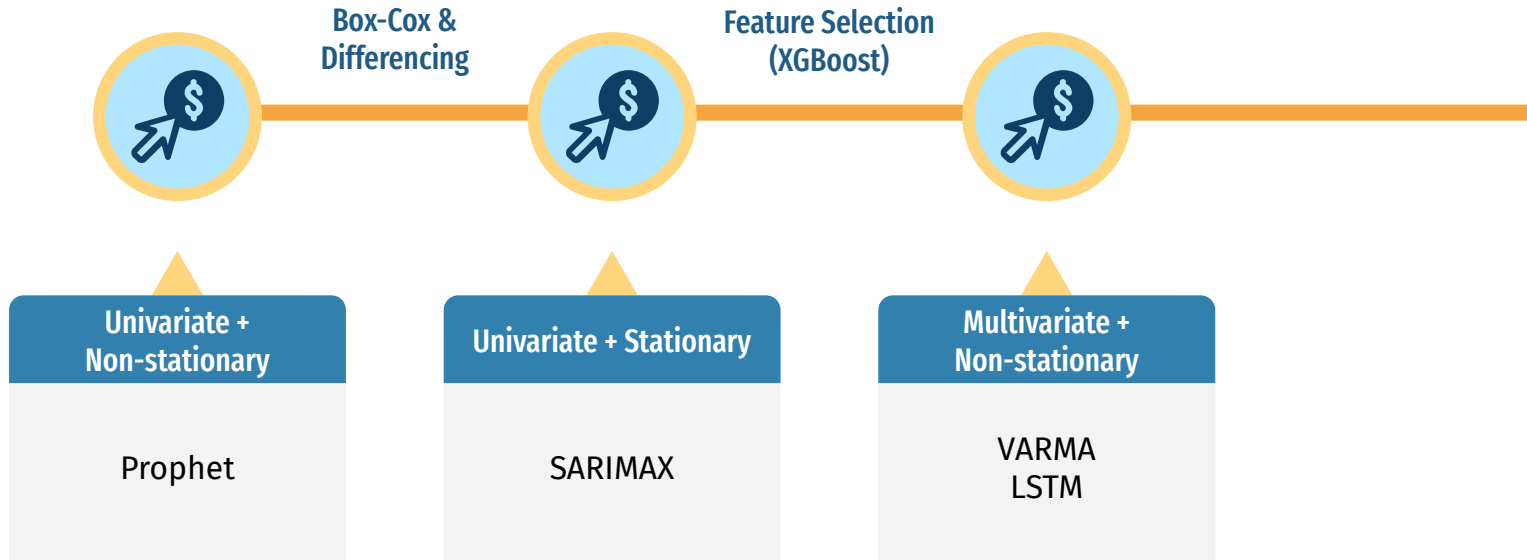


Univariate Models

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Univariate Models

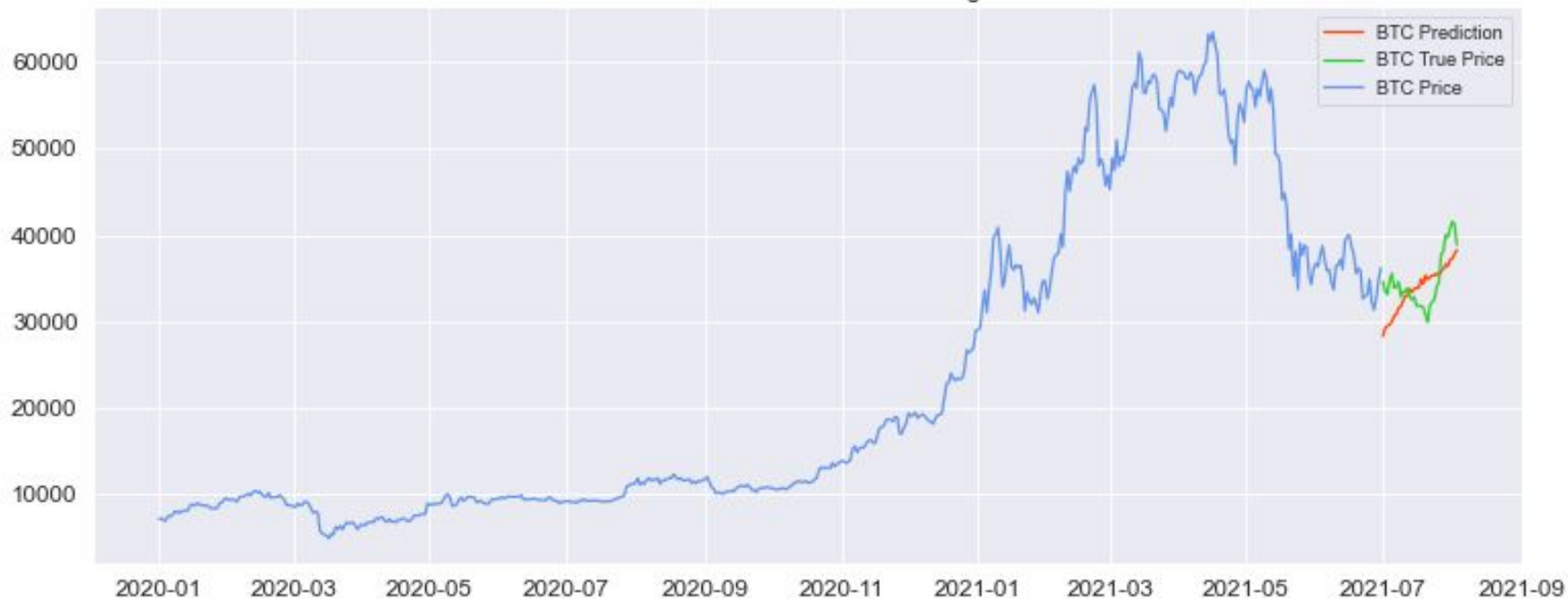


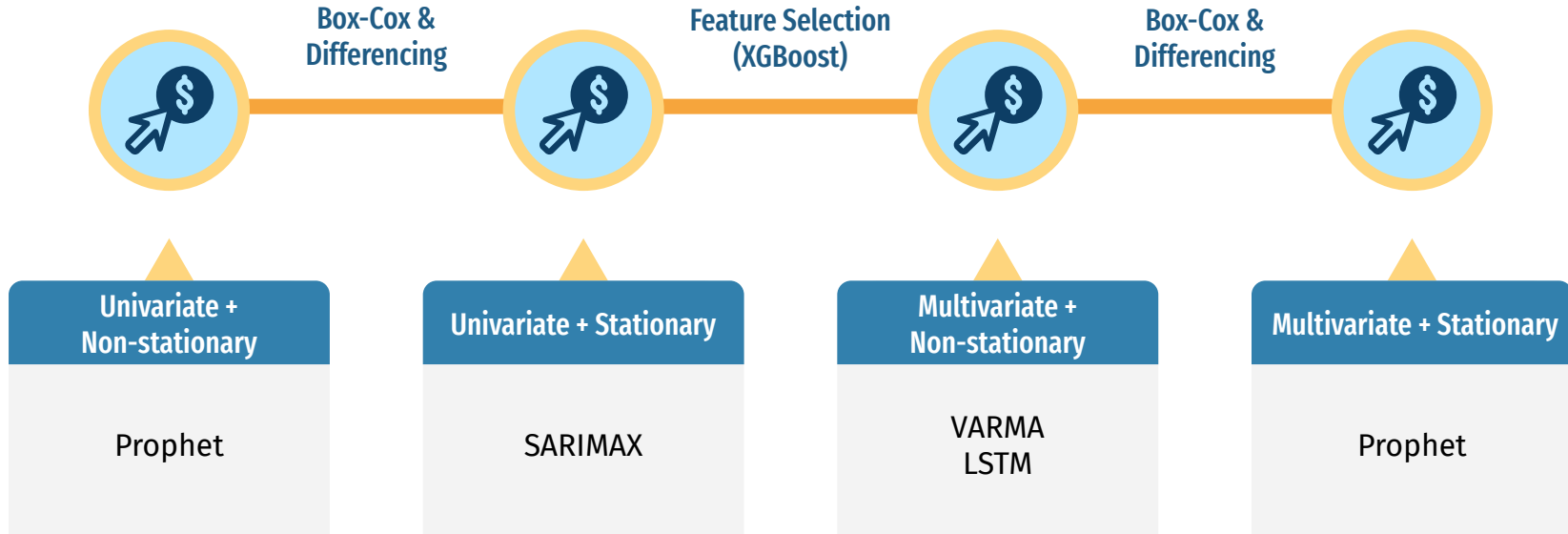


Multivariate VARMA Forecasting



Multivariate LSTM Forecasting





Multivariate Prophet Forecasting



Limitations / Extensions

6

Limitations



Problem / Question

Question was answered but not enough hyperparameter tuning / no standardized scoring system to compare models used

Sentiment Analysis

Very volatile and unpredictable because of varying perceptions about its intrinsic value, consider sentiment analysis





Possible to forecast BTC prices.