# Cryptocurrency Crystal Ball
## … a 30 days Forecast into Bitcoin

3/14/2021

Created by Charlie Burds, Emmanuel Martinez & George Quintanilla


# INTRODUCTION

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**Background**
Cryptocurrencies are digital assets used for transactions and for investment purposes around the world. The largest currency, Bitcoin, has a market cap of $1.1 trillion USD.

Trading Bitcoin provides an opportunity for profit, just like trading stocks. Machine learning models can help predict the price of Bitcoin, to a degree of accuracy, and are being incorporated into trading strategies.

**Purpose**
The purpose of this study is to find out with what accuracy the direction of the price of Bitcoin can be predicted using machine learning methods.

**Goal**
The goal of this project is to implement a machine learning model that can predict Bitcoin price 30 days into the future. The model will indicate if Bitcoin should be bought or sold depending on the current price.



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# DATA COLLECTION

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**Machine Learning Data**

Data Source – Kaggle

ETL – Data was stored and called from AWS S3 bucket. Transformed by dropping N/A's. We then pinpointed a single price point, in our case the "weighted price"

Cleaned Data – minute over minute Bitcoin pricing for 2020

**Crypto Currency Analysis Data**

Data Source – Facebook Prophet

ETL – Data was stored and called from AWS S3 bucket. It provided the 50 most poplar currencies .

Cleaned Data – day over day pricing for the Top 10 currencies for 2011-2020



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# PREDICTION ANALYSIS

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Develop a cryptocurrency search system with comparative technical analysis of 30 days forecast for a day-trader to utilize.

Define Threshold:

- Resistance level – daily highest price
- Support level – daily lowest price

If Predicted Bitcoin Price is above threshold → 'Buy'

If Predicted Bitcoin Price is below threshold → 'Sell'



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# MACHINE LEARNING MODEL

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**Support Vector Machine ('SVM'):**

- SVM are a set of supervised learning methods used for classificationa, regression and outliers detection.
- Advantages are effective in high dimensional spaces and uses a subset of training points in the decision function
- Disadvantages are if there are more features than samples the model can overfit and it does not directly provide probability estimates



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# DASHBOARD

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**A blueprint for the dashboard is created and includes all of the following:**

The blueprint are as follows in Resources-> index.html & framework.js

**✓ Storyboard on Google Slide(s)**

Done

**✓ Description of the tool(s) that will be used to create final dashboard**

The Dashboard will be a hosted on Github os, it will use HTML to display our analysis, JS to fill in our framework. Content will include market data for different crypto currencies, and CSS to style

**✓ Description of interactive element(s)**

The two interactive elements will be a drop-down menu to select a cryptocurrency you would like to analysis. The second element will be interactive market data charts. This charts will have show numeric values as you scroll over them


# ANALYSIS

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The below graphs are an analysis of our targeted cryptocurrencies. In this phase of the project, we used a source that provided market data on the top 50 most traded currencies, we then cleaned it by only looking at the top 5

Using FB Prophet and Colab we were able to create visualizations that give the viewer the best summary of those 10 currencies. These visualizations will be displayed on our dashboard and are interactive

# GRAPH 1 - TOP CRYPTOCURRENCIES

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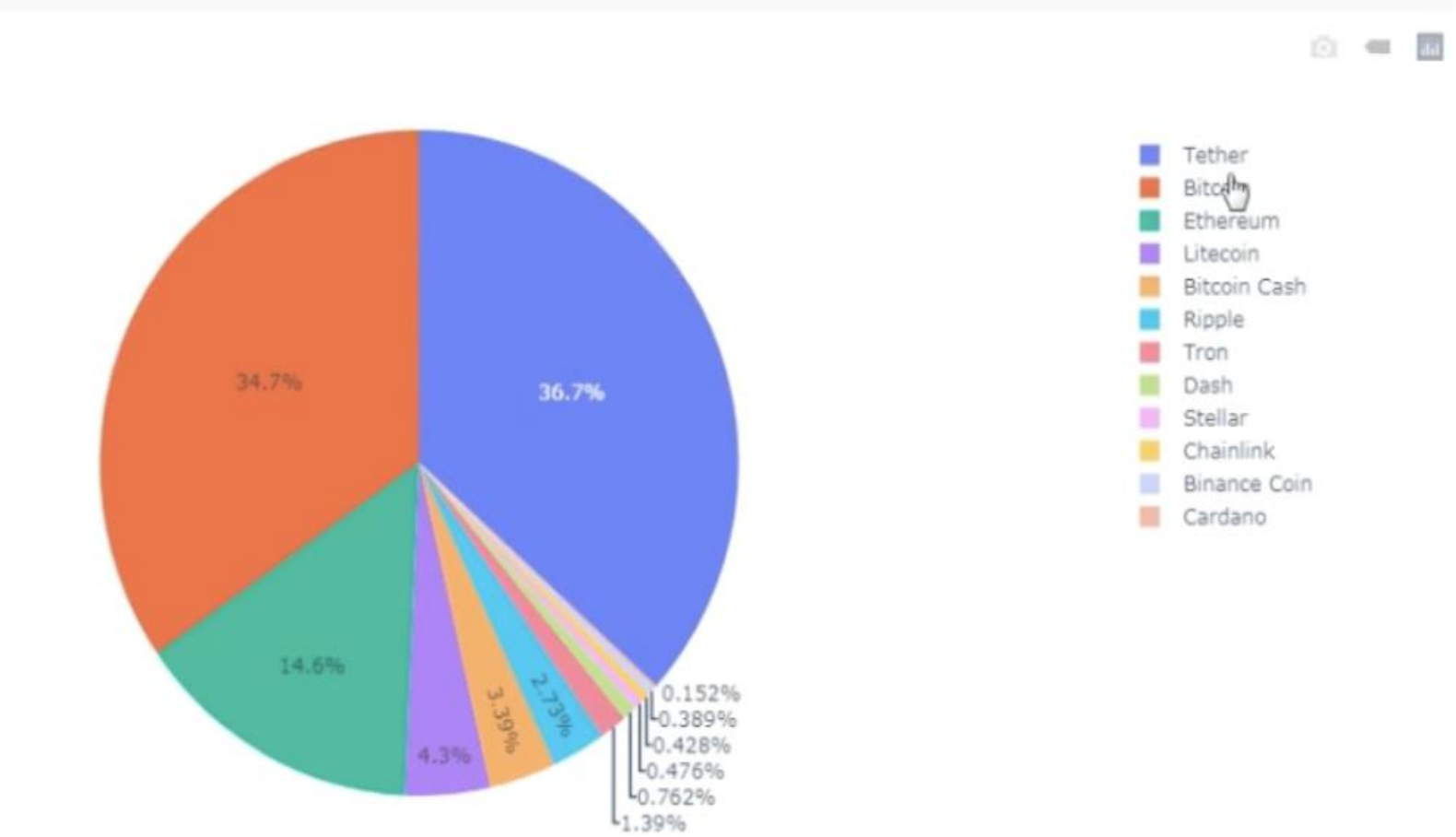




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# GRAPH 2 - TOP CRYPTOCURRENCIES

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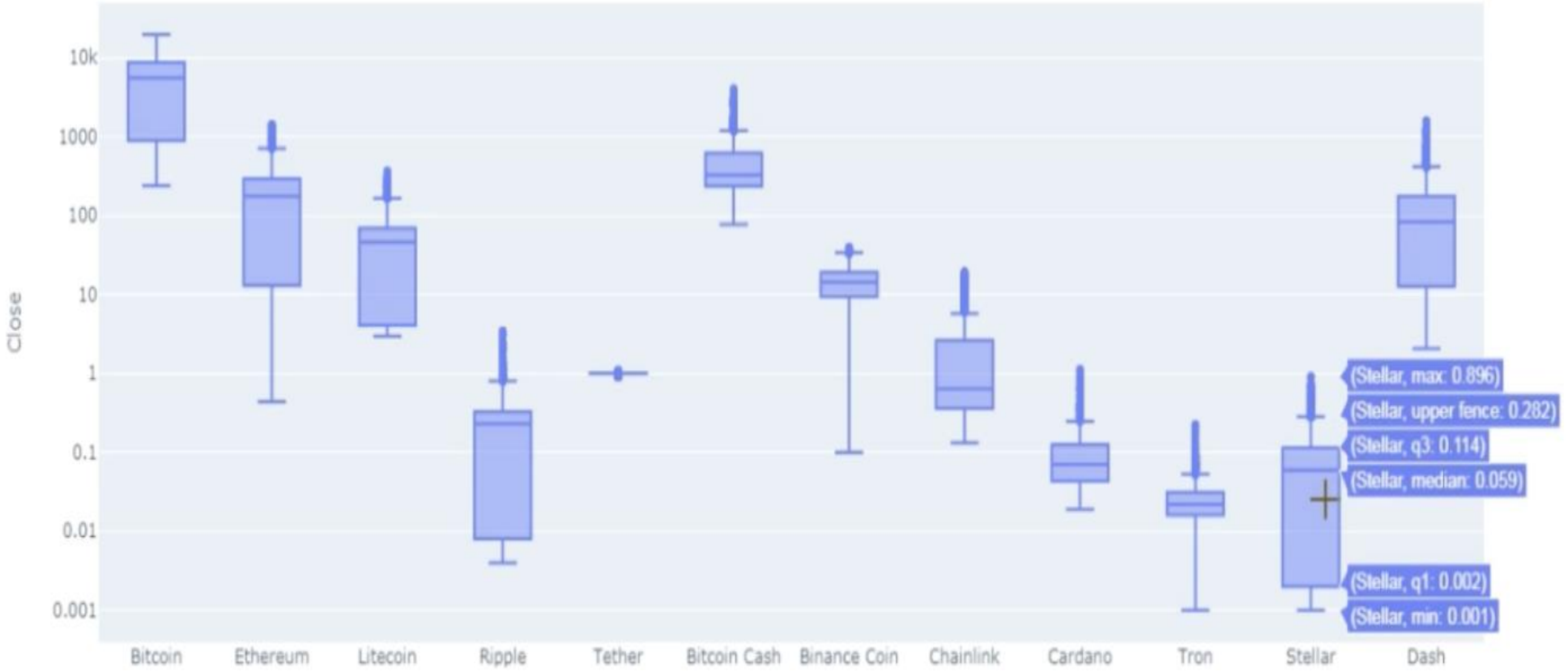




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# GRAPH 3 - BITCOIN

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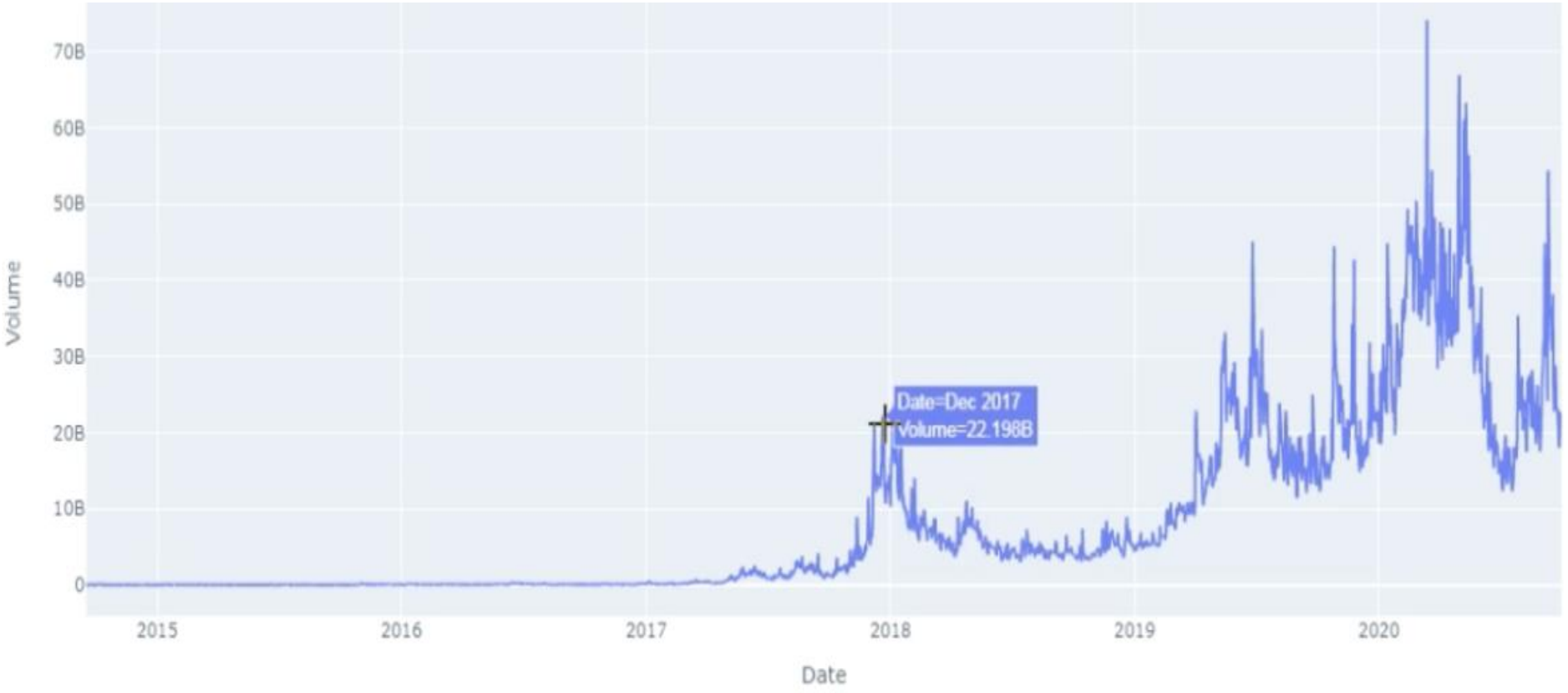




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# GRAPH 4 – BITCOIN

## 30 days prediction

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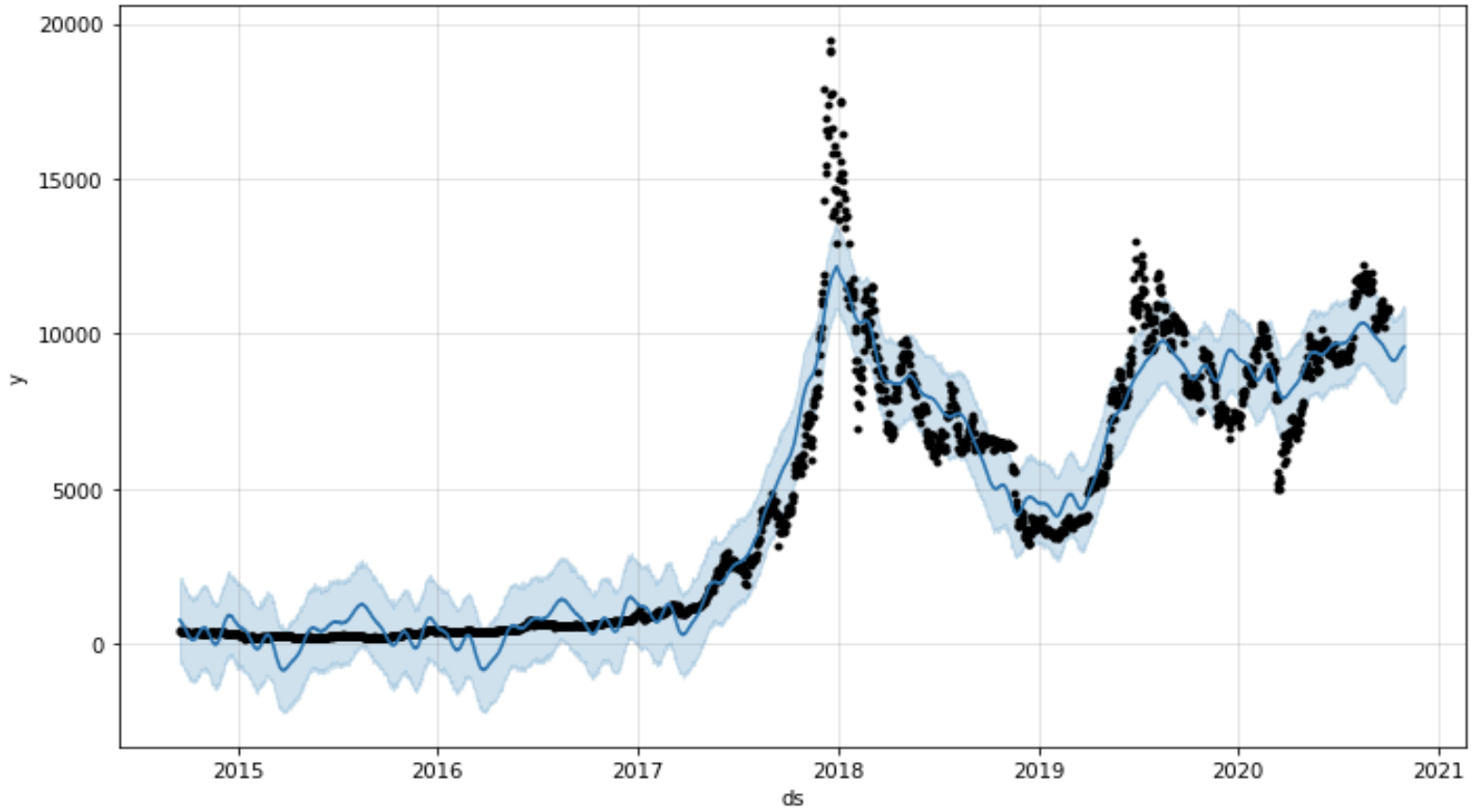
# GRAPH 5 – BITCOIN

## 30 days prediction



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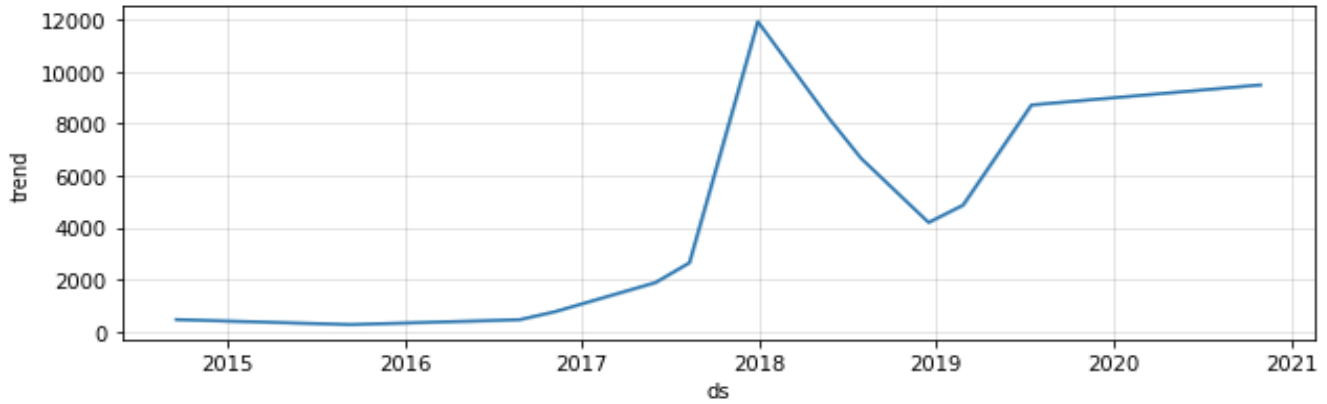
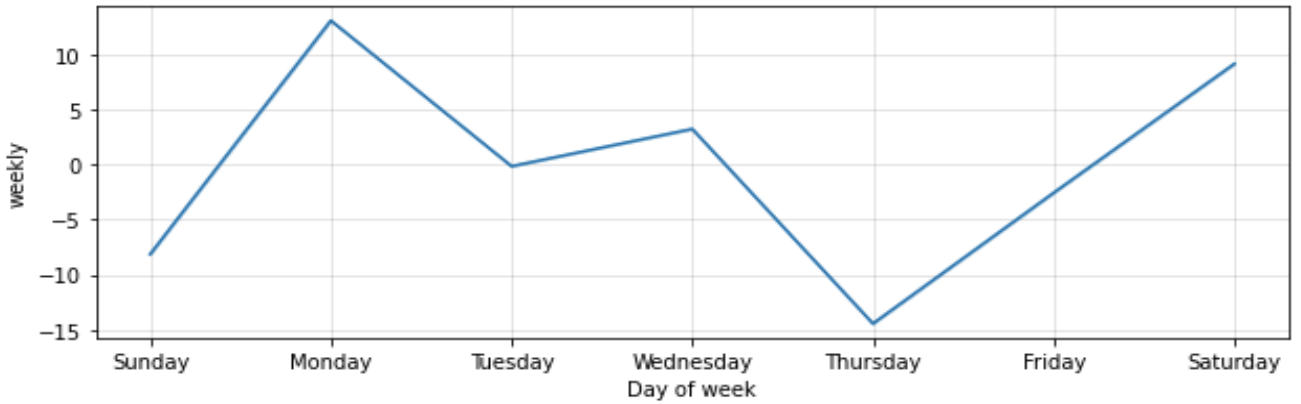
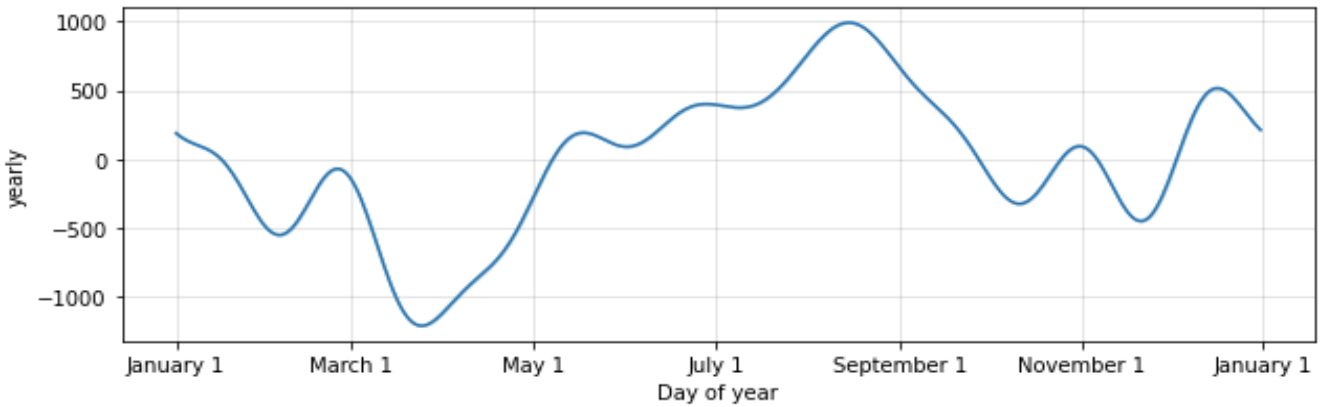
# GRAPH 5 – BITCOIN

30 days prediction

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# GRAPH 6 – BITCOIN

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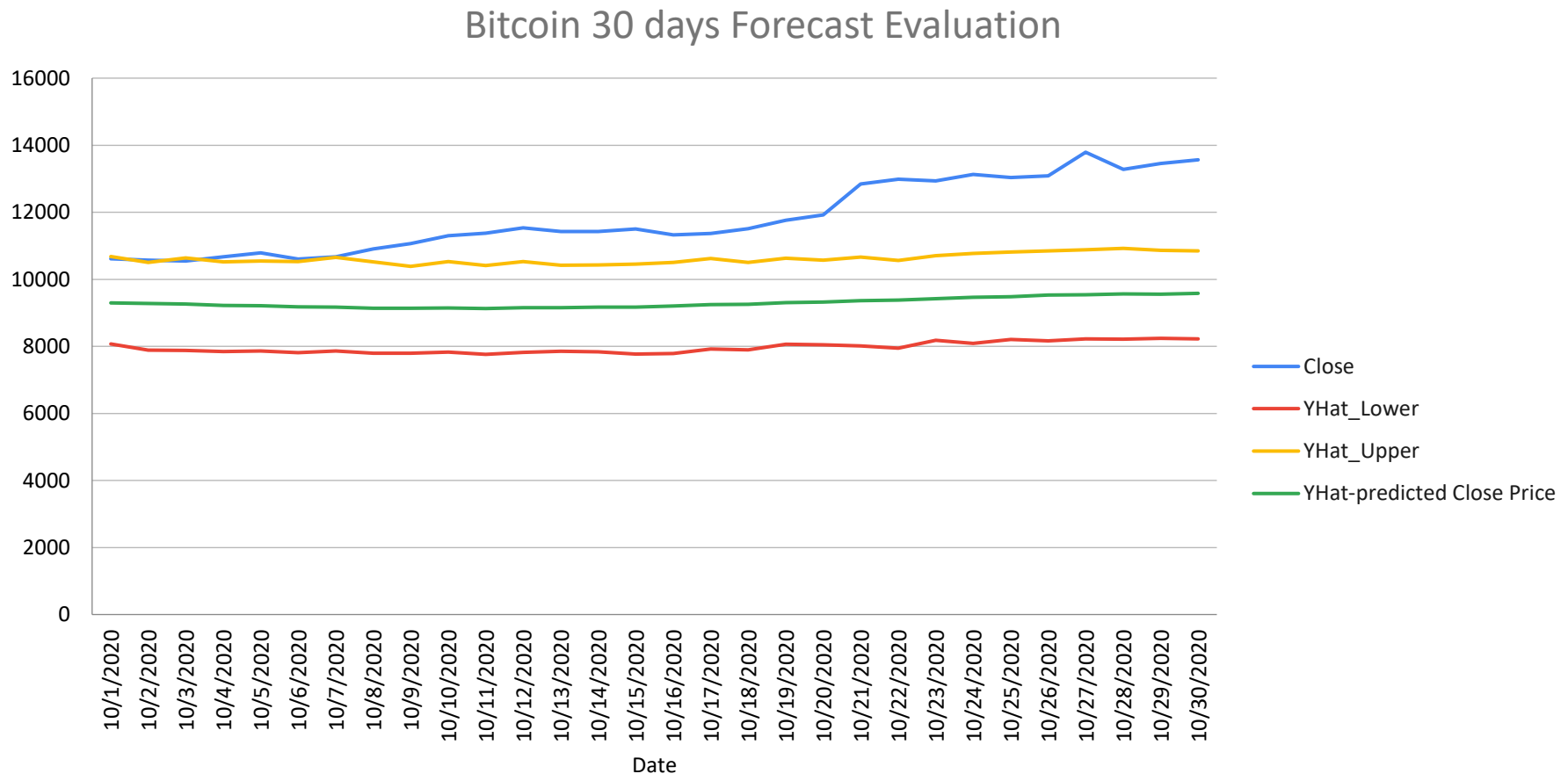




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