Change?

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Data Analytics
Ironhack

by
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Abstract

This project gives an overview of a certain curreny's prediction. The topic is coming from a personal problem, thus I did the examination based on my national currency (HUF for later mention) and Bitcoin (BTC). In my result I show the best and worst case scenarios that could happen.

During the project I used different APIs and datasets not only about the two currencies but observing other stocks, materials, insexes. For having deeper insights I used Python with Jupyter Notebook and Tableau for visualization.
The main part of the work is using the Prophet module for time series analysis and prediction.
As a first result I can see the potential outcomes, the value of a certain amount in a year.

Introduction

If you are not familiar with investment options but you have savings or your money is just not in the good place most probably you have the question "What should I do with my money"? I would not only be interested in where to allocate it but also what other people are talking about as a good investment. This is how I found Bitcoin as an option but to make a decision I had to investigate more.

Discussion

Searching for data

My research started with exploring different sources (websites, articles). For getting deeper insight I used Glassnode and with its API I could discover several details about Bitcoin's behavior.
For using the API registration is required. There is a module for Python called Glassnode that allows getting data easily.
From here I got information about active and new bitcoin users.

Datasets about currencies' value in USD are coming from Yahoo Finance as many articles refer to this source.
- Currencies: HUF, EUR, BTC
- Index: ANP500 price
- Material: Gold price
- Stocks: Tesla and green companies

All the datasets are historical from 2016 or 2018 1st January until 2020 20th November, stored in csv files.
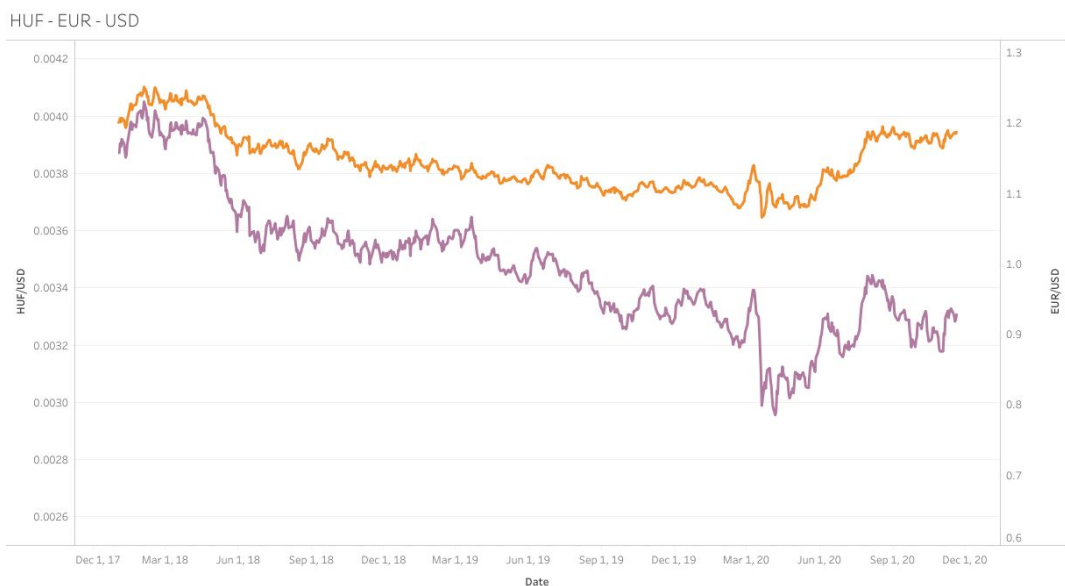
Exploring the data

For discovering datasets I used Python in Jupyter Notebook and visualized them in Tableau.
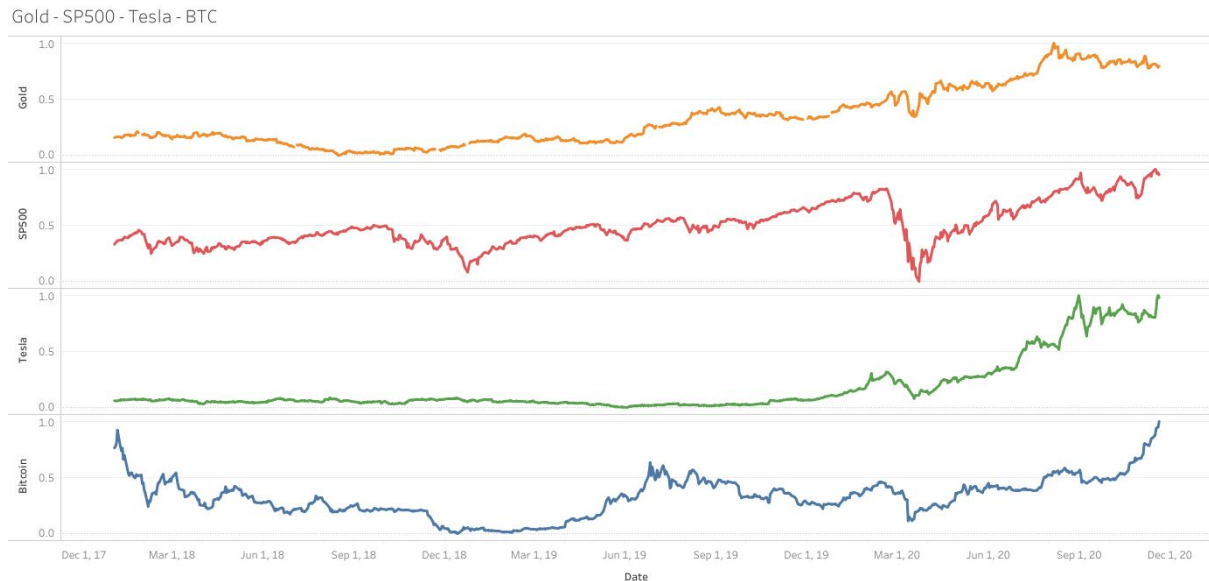The problem that ispired this project is that HUF is losing its value:

The graph shows that HUF shows a declining trend during the two years period, compared to EUR that showed similar tandancy but it is not as big as HUF's.

To have an overview about what is going on around the economy to explore indexes. For this project I chose Gold, as the most valuable material, SNP500 that an index and includes the 500 biggest US companies, and Tesla as a green investment option.

These three demonstrate that the past two years our economy is showing a growing tendency however we can leave without a word that there was a huge drop in March when the covid-19 pandemic started.

Moving forward, there is another option to see our economy. It is worth it to examine currencies other than EUR. This is Bitcoin that has a totally different "lifeway" than the ones above:
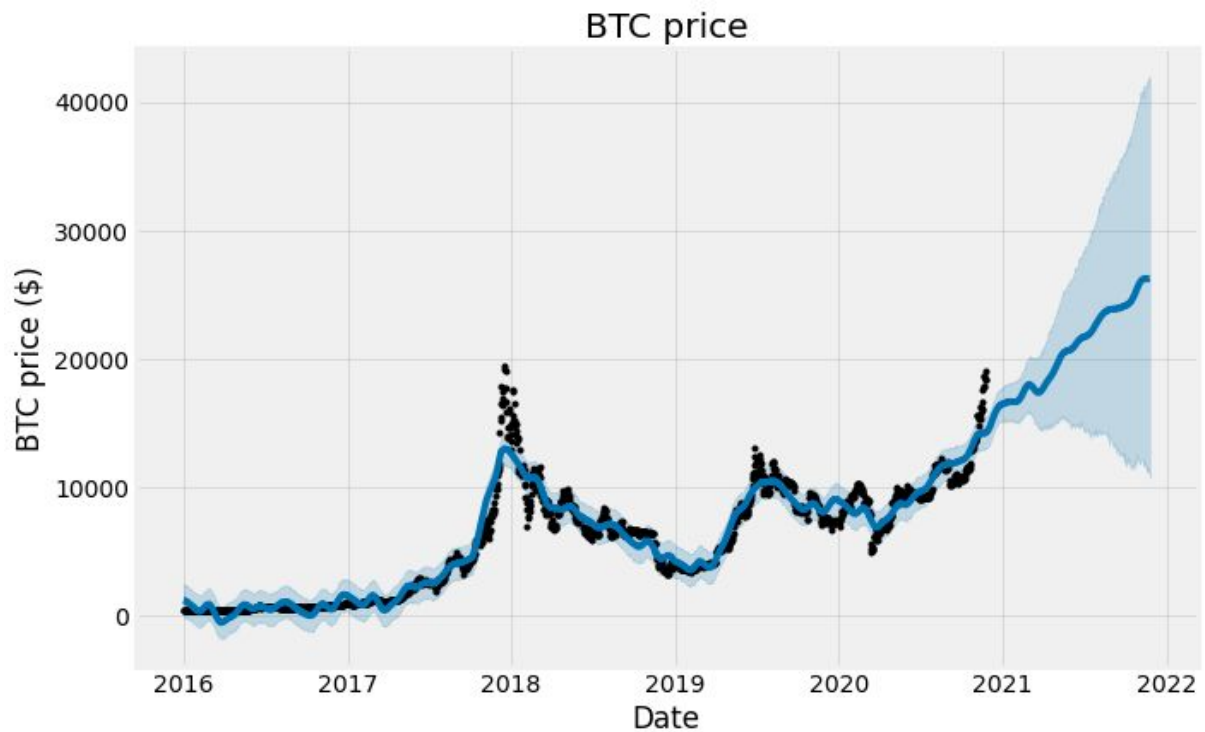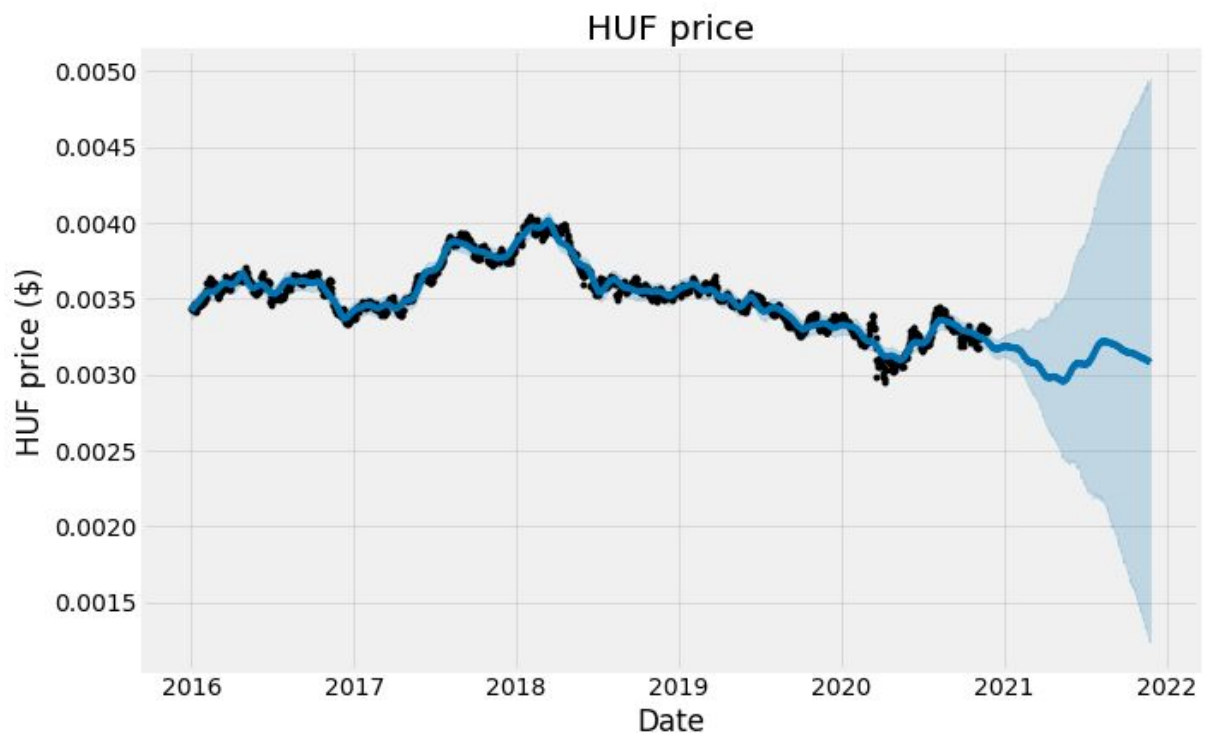

Prediction

The question in this project is how much would worth a certain amount of money in a year later if its staying in HUF or converted to BTC.
For this I used a Python module called Prophet that is made for predictions based on historical data.
My work is available on GitHub:

BTC price

Same process for predicting HUF, but for the changepoint_range I chose 80% because the result because contrary to BTC HUFs past is smoother so we can get most of the checkpoints from the past.

HUF price

Here is an example: what could happen if I buy BTC for 2.260.000 HUF on 23rd November and see the potential values for 23rd November 2021.

Options	Now	Expected Value	Best Case	Worst Case
Stay	7.467	6.970	11.124	2.916
Change	7.467	10.680	17.518	4.284

Conclusion and future approach

This forecast shows well how most probably our prediction goes but this model isn't sophisticated enough to lead us to make a decision.

In the future it could be interesting to see the changing points and choose them based on specific actions in the past like US Elections or just a post on Twitter.

Also the risk we take if allocated budget to Bitcoins is very high and since no one really knows where it is from and managed by who there's going to be always a big certainty around.