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Introduction

In this blog post, we will only update what we have been working on since it is only one week since our last blogpost about machine learning. We also share some new interesting findings based on our previous results as well.

In this blog post, we discuss the current direction of our group and some future plans.

Updates

- Other approaches to predict Bitcoin prices: we are working on the Trading Trend Approach and Black Market Approach which we outlined in our first blogpost.
- The Trading Trend Approach, however, does not give us promising results, according to our models we constructed. The correlations resulted from our calculations are not very meaningful. We have tried to use and do not use the factors we outlined in our first blogpost, but it is still hard to formalize the model that gives us meaningful results.

$$E(price) = f(p1, p7, p30, sd7, sd30, av7, av30, v7, v30)$$

where:

$$p1 = 1 - day\ BTC\ Price\ Change$$
$$p7 = 7 - day\ BTC\ Price\ Change$$
$$sd7 = 7 - day\ Price's\ Standard\ Deviation$$
$$v7 = 7 - day\ Average\ Trading\ Volume$$
$$av7 = 7 - day\ Moving\ BTC\ PriceAverage$$
$$p30 = 30 - day\ BTC\ Price\ Change$$
$$sd30 = 30 - day\ Price's\ Standard\ Deviation$$
$$v30 = 30 - day\ Average\ Trading\ Volume$$
$$v30 = 30 - day\ Moving\ BTC\ PriceAverage$$

- For the Black Market Approach, we discovered that the data in the Darknet are encrypted and very hard to get meaningful results from them. Thus, we will not continue using this approach.
- For the machine learning approach, we are examining our results from our previous blogpost and trying to figue other results based on the previous results. We still cannot find other conclusions yet, since it is only one week from last blogpost, but we are working on it.
- We are working on the possibilities of using other approaches, as we stated earlier that we will try to use all of the useful models and, on a given day of prediction, if many of the models' results agrees we can say confidently that we have some conclusive results. If, however, some models agrees and some disagrees, we can say that, on that day of prediction, we do not conclusive results and do not recommend using the prediction based on our product results on the particular day. However, we might provide that prediction probability for some models in the future versions (blogpost #4, or the final report)

New Insights

From our Midterm Report, in our Computational Power Approach, we have, based on the regression analysis, we have, for

$$MA(50)_i = \alpha \cdot hashRate_{i-50} + \beta \cdot marketCap_{i-50} + \gamma$$
$$\alpha = 0.000526513738900334$$
$$\beta = -0.00023952288238909$$
$$\gamma = 3530.08911436625$$

Which we find interesting since α is account for the hash rate and β is the coefficient of the market cap. $MA(50)_i$ is our definition of the value of a bitcoin, which is the average price from the previous 50 days. i is the day we are predicting (maybe, today's price.)

It is interesting that the more the total bitcoin hash rate (production rate), the higher the price seems to be (which is not intuitive since the more production should result in lower price.) However, we think this might make sense since bitcoin production is not based on only computational power, but also the difficulty level of the newly coined bitcoin as well. We might take that into account in our future models.

For the market cap, it is also that the higher the market cap is, the lower the price seems to be. However, since we use market cap in US Dollars, it is directly related to the price of bitcoin. Thus, this might also make sense if the previous price is too high (making market cap large) makes today's price lower.

For these insights, we know that we should proceed cautiously when using our models. However, they also tell us some aspects of the bitcoin market that we do not know by looking at the pain data.

Future Works

We are planning to expand our project by integrating more models. But, we have not yet conclude which one we will choose. We might expand our project to other directions instead, but we will keep you updated through our blog posts.

We are also discussing the direction of this project as well as the expected final form of our project. We will post about it in the next blog post.