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RESEARCH OF THE CRYPTOCURRENCY PRICE PREDICTION APPROACHES

The development of information technologies enables extending the number of spheres where they may be applied. In general, the main purposes for using these technologies are automatization, digitalization and optimization of different processes.

The evolution of hardware and software increases computational capacity and makes storing a vast amount of data possible. This process stimulates the development of innovations that are relevant nowadays and find solutions for a large variety of issues.

The last decade has had a significant impact on innovation in the financial sphere. The concept of cryptocurrency is very popular nowadays and this is related not only to the incredible increase in popularity of this asset type. Cryptocurrencies are specific digital assets, that enable peer-to-peer transactions through interactions with blockchains and access to the internet is the only requirement to perform them. It allows executing international money transfers with incredible speed and significantly lowering fees comparing to the traditional bank systems.

Blockchain represents the decentralized bank that processes these transfers, it stores information, and all needed parameters of the transactions in a decentralized manner. As the result, it forms an open database that contains all data about this type of financial system, therefore everybody is able to verify correctness of any operations or to receive public data of any transactions.

This data accessibility enables the possibility to develop new approaches for data analysis by using specific blockchain metrics. For instance, it is possible to analyze blockchain usage, the number of unique users, transaction amount, etc. This data may be received from the blockchain and to be used during the cryptocurrencies prices prediction as this data correlates with the value of the cryptocurrencies or tokens.

There are 2 methods that may be used during the forecasting of the crypto assets price: technical and fundamental. Both these methods have their own pros and cons and each of them is applied based on the specific factors and features of the system. The common drawback of these methods is ignoring the external events and indicators that have a significant influence on the forecast accuracy.

The process of predicting cryptocurrency prices is influenced by many factors. One of the most important is the lack of enough amount of historical data that corresponds to the different cycles of the economy. As the result, this feature causes significantly higher forecasting complexity. Besides, mentioned type of assets has high volatility, which is a disadvantage during the research of the prediction methods and development of the systems that are powered by these algorithms.

Generally, cryptocurrency rate prediction is based on using the technical method. It includes analysis of the charts, prices, demand, technical indicators and corresponding techniques of the technical analysis. The lack of fundamental indicators is caused by some specifics of this type of digital asset. These assets differ from the traditional ones because they have no intrinsic values unlike, stocks, resources, real estate, etc. However, cryptocurrencies have some unique features. Unfortunately, they are rarely used during the predictions of future prices, however, they may potentially increase forecast accuracy. This data consists of blockchain-related data and other external factors [1] like tweets about tokens or digital currencies, changes in the number of Google searches, etc. As the price of the cryptocurrency depends on the ratio between supply and demand, this additional data is very important as it allows us to predict the growth of the specific digital assets that are caused by specific events and fundamental indicators.

In summary, we are going to implement a system that will help us to research and analyze different methods for predictions of cryptocurrency prices. This system will allow comparing different models and evaluating performance of each of them. Each model will use different algorithms, indicators and features to generate own forecast. As the result, it will be possible to determine which ideas and algorithm are more accurate and reliable. Besides, an additional task is to compare models' effectiveness for different time ranges and to define the best algorithms for each of them. These results will help to figure out if it is possible to forecast cryptocurrency prices ad what accuracy of these predictions are.

Reference

1. Aggarwal, I. Gupta, N. Garg, and A. Goel, “Deep learning approach to determine the impact of socio economic factors on bitcoin price prediction,” in 2019 Twelfth International Conference on Contemporary Computing (IC3), pp. 1–5, 2019.