Bitcoin futures forecast

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1.       Motivation

As electronic money is becoming more and more popular around the world, electronic money transactions are becoming more and more common. Some people have made a lot of profits from it, and some people have gone bankrupt as a result. Our motivation is to use machine learning to create a platform for price prediction of mainstream electronic currencies, such as Bitcoin. To help people make better choices in electronic currency transactions. It can also provide a good reference for people who want to invest in electronic money.

2.       Dataset

We will collect historical data from major electronic currency trading platforms, bitcoin transaction prices of the day, transaction volume, etc. Possible methods include: using the platform's official APIs, web crawlers, and if there is quite valuable data, do not rule out Use the manual input method. After obtaining the data, we will clean the data to remove useless information, classify the transaction price and transaction volume, and store it in a database or file.

3.       Method

Because the project plan is set to predict the bitcoin price changes in the next 10 seconds or so, we think it is more appropriate to adopt regression prediction. The initially selected models are Decision Tree Regressor, Linear Regression, k-nearest neighbors, support vector regression, in addition, a baseline regression will be added as a comparison.

4.       Intended experiments

We plan to collect 6 months of data, use the first 5 months of data for training, and the most recent 1 month of data for verification. First, use the cross-validation method to select the best hyperparameters of each model, and then train the model to get the result. Finally, parameters such as Mean/Median of prediction and Coefficient of Determination are used to compare the performance of each model and baseline regression.