Names: Brian Kominick, Noah Foltz, Matthew Donovan

Title: Swing Trading with Bitcoin using Random Decision Forests

Aims: Regression to find a predicted future price of bitcoin based upon our selected attributes. We will use the daily data to forecast whether price will be going up or down for the day and then make smaller price predictions based on real-time data from bitstamp.

Data: We will be using price, date, adjusted Transaction Volume(USD), transaction count, market cap(USD), exchange Volume(USD), generated Coins, fees, active Addresses, average Difficulty, payment Count, median transaction Value(USD), median Fee, block Size, block Count. This is all daily data and comes from coinmetrics.io, and we'll be starting from when all the data columns are full at day 1571. We will also be using real-time price data from the bitstamp.net exchange.

We will be using random decision forests to predict price based on the attributes listed above. We will be using the scikit learn randomForestRegressor in order to predict price.

We will evaluate our algorithm on the first metric: whether it was correctly labelled a bull or bear market for the day, and then the second part of the algorithm will be based on the absolute difference in our algorithms price and the actual price of bitcoin.

Our theoretical framework is weak from the beginning because if machine learning could easily and accurately predict price, everyone would be making money off of trading, and that is certainly not the case. Also, we will need to learn about the scikit random forest module and its corresponding parameters, as well as fit our data into the scikit learn data regression template. In addition to analyzing the data, we will be collecting real-time prices from bitstamp and will need to decide how and when to incorporate them into decision making. This data will need to be preprocessed to filter out noise from many small transactions and those that are quickly removed after being posted.

Ref:

https://coinmetrics.io/data/btc.csv
https://www.bitstamp.net/s/examples/live_order_book.html
http://scikit-learn.org/stable/modules/generated/sklearn.ensemble.RandomForestRegressor.html