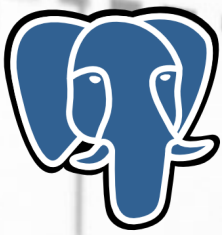
itcoin Trader

HTML

CSS



PostgreSQL

What is this about?

Bitcoin is a currency with no fixed value. It can be traded into other currencies, and back again as the price of a Bitcoin changes.

This project is about writing an automated Bitcoin trader, that attempts to buy and sell Bitcoins at the best possible times, to gain a profit.

How?

Suppose you have your price data, as below:

The candlesticks represent the prices over a set period. (See the full document for an explanation of candlesticks). Ideally, one should buy and sell Bitcoins at the marked positions, as these are the maximum and minimum of the price of Bitcoin.

The trader attempts to recognise these points by following the moving based average strategies described on the next page.

Trading Strategies

The following trading strategies rely on the concept of a moving average. This is essentially taking an average of the recent prices, except that as new price information is received, old price data is discarded, and thus it "moves" along with the time. One can take moving averages of different lengths, for example two moving averages, where one takes into account 10 prices, and the other, 5 prices. The longer average will take longer to react, and the shorter average will react more quickly to short term changes.

Thus, when the short term moving average crosses above the long term moving average, a buy signal is generated, and vice-versa.

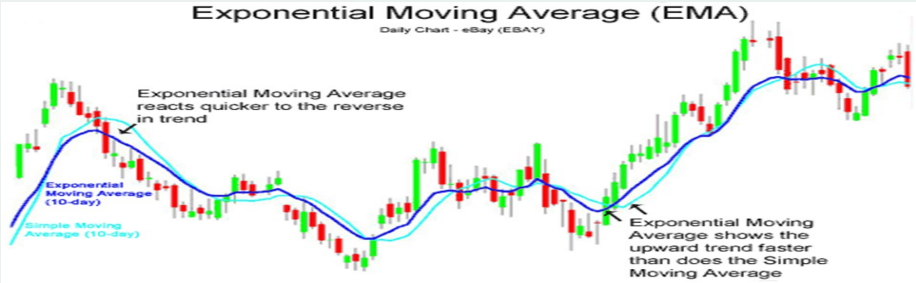
This is because the short term indicates that there is a sudden increase in price compared to the long term one.

A graph below demonstrates this "Simple Moving Average":

Since a computer is unable to analyse these trends visually, these buy and sell signals are required. However, you may have noticed there is a problem—lag. The sell signal, in this case, is a lot later than it could be. Buying that late could prove to be unprofitable (not in this case).

Better Strategies

We can improve our moving average in a number of ways. One method is to weigh the most recent data points (in an exponential fashion), such that more recent prices have a larger effect on the average. This average is known as the exponential moving average, and reacts far more quickly to market trends.



The double and triple exponential moving averages can be used to place even more emphasis on recent price data. Another type of moving average is the "Adaptive Moving Average", which simply filters out noisy periods, and recognises when there is a real trend. This drastically reduces the false buy/sell signals, as seen below.

This is a very brief leaflet, please read the full document, or speak to Harjot Singh for in-depth explanations.

If you are further interested in the trader, please contact me at harjot@harkul.com