GrowUP - A Modern way of Trading

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Abstract: As the name GrowUP suggests the major aim of this project is to grow, earn and learn. The people who are beginners or newcomers in cryptocurrency trading face a lot of problems, questionnaires and queries regarding algorithmic trading strategies in day-to-day life. GrowUP is an efficient way of algorithmic trading in real life, a thing that automatically trades on your behalf.

Keywords: Algorithmic trading, bot, earn, cryptocurrency.

I.   INTRODUCTION

Every decision made in trading has two major components: what to buy or sell, and when to buy or sell it. Every trading strategy consists of determining how to figure out what to buy and when to buy or sell it. There are two major ways to evaluate these questions: fundamental analysis and technical analysis. Fundamental analysis makes an evaluation about the value of a security by examining many aspects of the financial condition of a company. This is meant to determine if the current price of the security is undervalued or overvalued to predict whether the price will increase or decrease in value. These decisions are often based on several metrics. Some of these metrics include the P/E ratio, which is the ratio of the price of the stock to the company's earnings.

GrowUP is a Bitcoin TA trading and backtesting platform that connects to popular Bitcoin exchanges. GrowUP is a tool that makes it very easy to automate your own trading strategies. We can either create our own trading strategy or start with the built-in example strategies.

II.   METHODOLOGY

GrowUP is a tool that is designed as a starter kit for automated trading on the cryptocurrency market. GrowUP aims to have a low barrier entry to writing your own strategies (however a basic scripting knowledge is required for users who create their own strategies).

Market Data

GrowUP aggregates all market data into various timely candles (OHLC, VWP and amount of trades). This means GrowUP only has to store candles on disk, which take up a predictable amount of space on the harddrive. The tradebot will use some additional market data (the orderbook) to execute orders efficiently, but this data is not visible anywhere else.

Strategies

Strategies are simple scripts that handle new market data (OHLC candles) as well as calculated indicator results (strategies specify what indicators they want with which settings). Every time there is new data the strategy can determine to signal either LONG or SHORT. That's about it! This very simple design (candles + indicator values go in => signals come out) is quite powerful.

Unfortunately this simple design can sometimes be limiting, here are some limitations:

Since strategies are only fed candles (and indicator values):

    a.   Strategies cannot act on a smaller timeframe than 1 minute.
    b.   Strategies cannot see any trades.
    c.   Strategies cannot look at the orderbook.

Strategies do not know what the current portfolio looks like.
Strategies can only trigger a LONG or SHORT which signals to go "all in".

Execution Strategy

When you are using GrowUP for a real tradebot GrowUP will create orders at the exchange whenever your strategy signals an advice (long or short). If your strategy signals a long advice, GrowUP will try to buy as much "asset" as it can get with all your "currency" (if your strat is running on USD/BTC that would mean buying BTC with all your USD). As for creating the orders GrowUP is conservative and stays on your side of the orderbook (this means you don't lose on the spread, slippage or taker fees).

Features

● **Backtesting**

GrowUP supports backtesting strategies over historical data. A Backtest is a simulation where you simulate running a strategy over a long time (such as the last 30 days) in a matter of seconds. Backtesting requires having market data locally available already. After a backtest GrowUP will provide statistics about the market and the strategy's performance.

Important things to remember:

1. Just because a strategy performed well in the past, does not mean it will perform well in the future.

2. Be careful of overfitting, in other words: don't simply tweak a strategy until you get high profit and assume that will be as profitable when going live.

3. The backtest simulation is limited, this is not really a problem on bigger markets (such as BTC/USD) but the differences between backtests and live traders on very low volume markets might be big.

● **Importing**

In order to backtest our strategies we will need to have historical market data to test with. The easiest way of getting this data is importing it directly from the exchange using the GrowUP UI (note that this is not supported at all exchanges, check this list to see what exchanges GrowUP can import from).

We can start an import by navigating to the tab "Local tab" and scrolling to the bottom and click "Go to the importer". This brings us to the importing page with this at the bottom:

Once we configure the market and daterange you want to watch and click import GrowUP will automatically download historical market data from the exchange:

● **Paper Trading**

GrowUP can automatically run a strategy over the live markets and simulate in realtime what would happen if we would have traded on its signals. Paper trading and backtesting are the two simulation modes that come with GrowUP. It's a great way to experiment with strategies without putting your money on the line.

You can start a paper trader by going to live grows and clicking on "Start a new live Grow".

Keep in mind that a paper trader is a simulation, and the accuracy depends on the market we decide to run it on (you'll get pretty accurate results on big markets like USD/BTC). We can read more about the details and limitations of the simulation on the backtesting page.

Technical Indicators used

- **MACD (Moving Average Convergence Divergence)**

  Moving average convergence divergence (MACD) is a trend-following momentum indicator that shows the relationship between two moving averages of prices. The MACD is calculated by subtracting the 26-period exponential moving average (EMA) from the 12-period EMA.
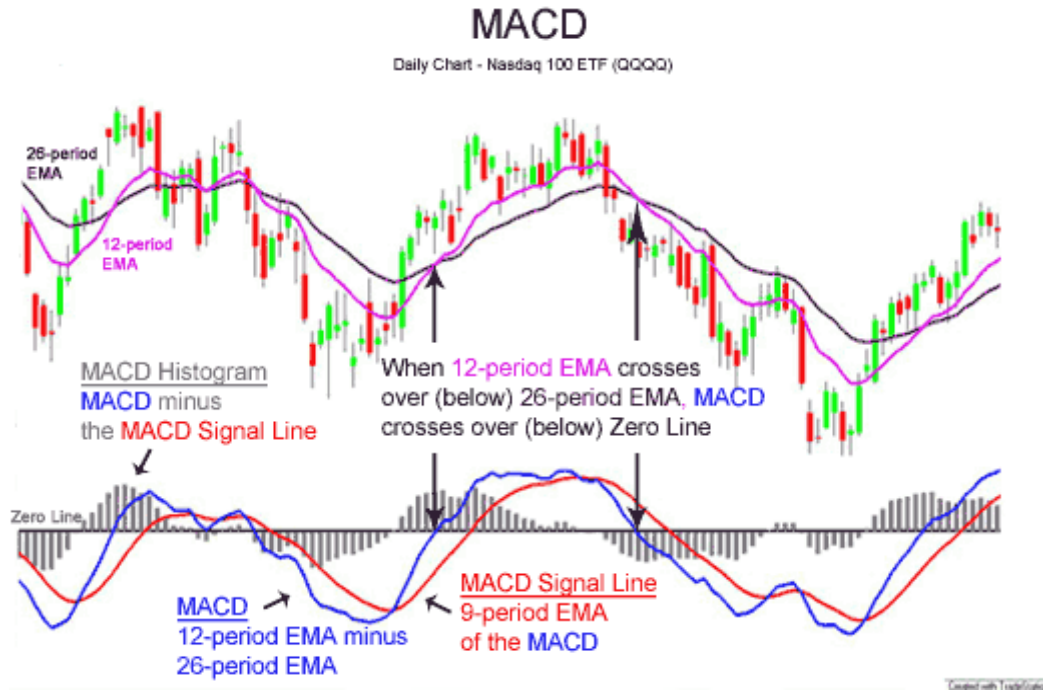
- **RSI (Relative Strength Index)**

  RSI compares the magnitude of recent gains and losses over a specified time period to measure speed and change of price movements of a security. It is primarily used to attempt to identify overbought or oversold conditions in the trading of an asset.

● **DEMA (Double Exponential Moving Average)**

The DEMA is a fast-acting moving average that is more responsive to market changes than a traditional moving average. It was developed in an attempt to create a calculation that eliminated some of the lag associated with traditional moving averages.

● **CCI (Commodity Channel Index)**

The Commodity Channel Index (CCI) is a momentum based technical trading tool used most often to help determine when an investment vehicle is reaching a condition of being overbought or oversold.
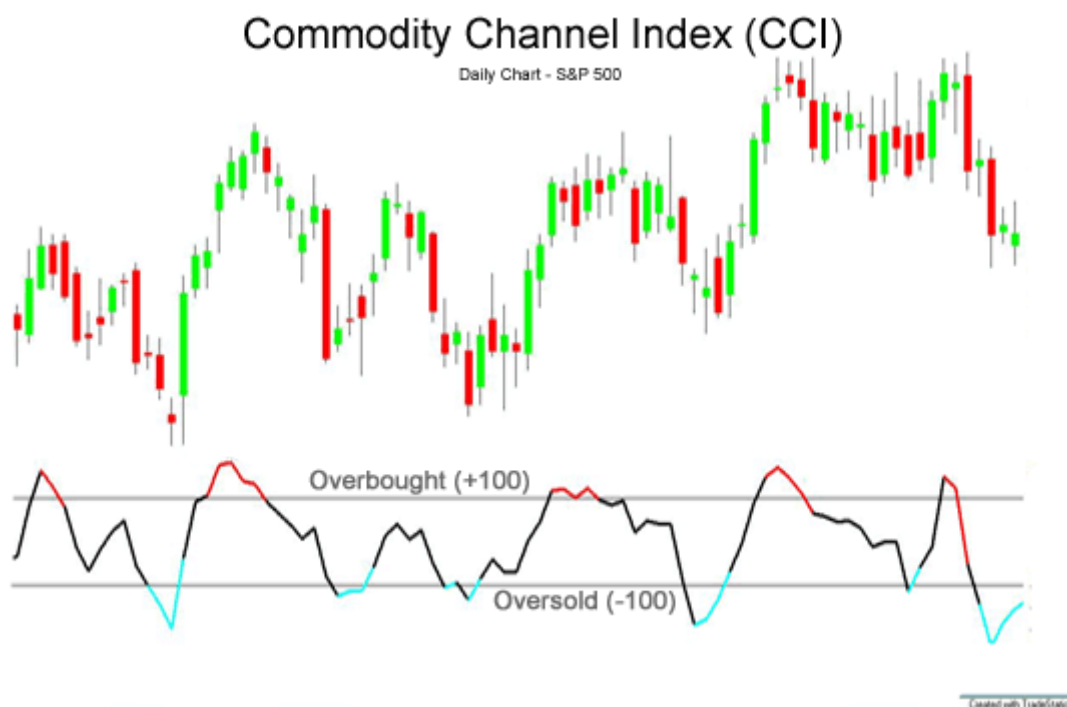
III.   RESULTS AND CONCLUSION

Trading is a highly complex process which consist of an unimaginable amount of randomness; with the help of this tool we can make some prediction and patterns in the market to book some profits more efficiently by eliminating different types of losses which are made by a person which, including factors such as emotions, money management, time of execution and experience.

In this study, we designed a system in which a person can do paper trading using different strategies and backtest their strategies.

IV.   FUTURE WORK

Although there is something in this project that is being kept out for the future in order to make this project more optimistic, reliable and effective. Here are some of the future considerations:.

● Improve stability of new event and backtest engine

● Port the old supported exchanges to some new broker software

● new UI

● advanced orders from created strategies (Take Profit and Stop Loss)

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