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Information Design
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Design Challenge: Algorithmic Trading Dashboard

About 70% of transactions in the US stock market are done by robots! It is known as algorithmic trading. At the most basic level it works like this: a computer acquires stock data for a user-specified company, creates technical indicators based on the data, and decides which symbols to buy or sell (if previously bought) based on some conditional logic. More advanced trading systems are capable of monitoring multiple stocks in parallel and use machine learning to predict future performance. Regardless of complexity, real money is at stake.

As part of another project, I recently started developing a trading system. Early on I ran into some odd issues. In order to aid in the debugging process, I decided that I would create a dashboard capable of visualizing financial candlestick data and technical indicators. The dashboard proved monumentally helpful during the development of the stock trading system. I expect that it will prove very useful in the future too because it can be used for manual day trading and swing trading.

The dashboard was created using open-source web friendly technologies. The webpage employs a minimalist format and relies heavily on the Bootstrap library, which is the most popular HTML/CSS/JS library on Earth. The webpage extracts data from a MySQL database and feeds it to two different charts, both of which were created using the JavaScript-based Chart.js library. The first chart is a candlesticks chart. Each timestamp in a candlestick chart includes open, close, high, and low data. This chart may be the most important visualization in the stock buying/selling process. The second type of chart is a line plot. In the line plot, a user selected indicator is plotted against time.

The charts are somewhat interactive in that when you mouse over the candles in the candle chart or points in the line plot, a tooltip pops up that show you additional information.

The dashboard allows the temporal resolution to be changed, as some audience members may prefer to invest over weeks as opposed to days.

The intended audience for this dashboard are new and intermediate traders. This because the dashboard probably does not have all of the visualizations required by advanced traders. Once hosted on the web, users would access the dashboard via their browsers.

The layout of the dashboard was inspired by the Yahoo Finance API.

1. https://www.experfy.com/blog/the-future-of-algorithmic-trading
2. https://finance.yahoo.com/chart/GOOG