

## Stock Market Paper Trading Web Application

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For my computer science capstone project, I will be developing a paper trading web application. If you are not familiar with the term paper trading, the best and easiest description would be buying and selling stocks on the stock market using simulated money. With this application, you will be able to place stock purchases based on real-time stock prices to practice without using actual money. There will be a few different components to this project. For the front-end, I will be using the Vue.js framework using JavaScript. For the backend, I will use Express.js and Node.js. To use the application, you will need to sign-up with an account and log in every time you want to access it. To store user information, I will be using NeDB; a light-weight database written entirely in JavaScript. NeDB uses MongoDB's API and uses a file system storage system saving data in JSON format. The database will store all the stocks that each user currently holds, the amount of each stock, their current bank roll and other pieces of metadata that are necessary. For client-server communication, I will be using AJAX since I do not have any shared data structures between users. To retrieve stock prices and other stock market information, I will be connecting to the Yahoo Finance API. I am using this API because it is free but it limits the number of requests you can make to the API per minute. This is okay because I do not expect there to be many users.

I am also going to put in a lot of time to make the UX/UI friendly and easy to use because that is a very common issue I see with a lot of web applications. There will be sleek designs as well as good computational performance.

I wanted to build a stock market related application because the stock market is a huge force in what drives the U.S and world economy and brings great interest to me. The application will allow you to buy and sell stocks. It will also show the overall profits or losses as well as from each individual stock. My goal is to also have historical price charts visible for each stock.