# CIS 196 Final Project

## Description

**Heroku**: http://still-retreat-7443.herokuapp.com/

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We created a stock trading simulation platform for an investment and trading club that we are both part of. Users can create an account with their email address and start off with $100,000 of practice money to invest in any stock. Stocks of interest are created by registered members by inputting their ticker symbol; we have ensured that only ticker symbols belonging to actual companies will go through.

Users will then be presented with the created stock, which features pricing information and a chart of historical prices. These stocks are typically those discussed and pitched by fellow members. Individual users can then create an investment portfolio of these available stocks, choosing how many shares to invest. A public leaderboard is maintained of the top-performing individuals, as well as an announcements page where users can post information.

## Functionalities

The app consists of five different classes: Investment, Member, Portfolio, Post, and Stock. Members are the users of the trading simulation, and are Devise User classes with modifications. Members have a single Portfolio, containing their remaining funds and the market value of their current investments, with which they can perform multiple Investments that involve a given Stock. They can also make public Posts that can be found in the Announcements page.

In terms of validations, investment must involve a stock and belong to a member, and must contain a share change (shares purchased or sold), which cannot be zero. A positive share change represents a purchase, while a negative change represents a sale or a short sell (if the change brings the net share change into the negatives). Members have a single portfolio with many investments through their portfolio, and must have a username, unique email, and a minimum password length of 8 for added security. Posts must contain a body of maximum length 200 characters. Stocks are unique based on their ticker so that duplicates are not inadvertently created by users.

We used three different API sources connecting to Yahoo Finance to pull relevant financial data for a stock, including ticker symbol pricing information, the stock chart, and the full name of the company (which would otherwise be cut off at an arbitrary point if we only used the StockQuote gem, detailed below). These three can all be found in the Stocks controller.

## Gems

**Devise** (https://github.com/plataformatec/devise)

We used Devise to handle user (member) accounts, login, registration, and security. While this gave us a secure platform to start off with and some ready-made views, it also presented us considerable challenges with modifying any member data, and with calling member functions, which we had to circumvent by creating an intermediary class called Portfolio that contained data which other controllers such as Investments needed to modify. For example, when a member creates a new investment in AAPL, their remaining funds should be reduced commensurate to the number of shares they decided to invest, multiplied by AAPL's stock price.

**Stock_quote** ([https://github.com/tyrauber/stock_quote](https://github.com/tyrauber/stock_quote))

This gem enabled us to pull a stock's name and most recent trade price from Yahoo Finance's API. It is used in the Stocks Controller, Pages Controller, and Investments Controller.

**Jquery-rails** ([https://github.com/rails/jquery-ujs](https://github.com/rails/jquery-ujs))

Helped smooth over implementation problems with the JQuery file when we were encountering unexpected errors in loading pages.

**Jquery-turbolinks** ([https://github.com/kossnocorp/jquery.turbolinks](https://github.com/kossnocorp/jquery.turbolinks))

Helps correct the page load problem, so that our toggle buttons worked even without having to reload the page.

**SendGrid** ([https://devcenter.heroku.com/articles/sendgrid](https://devcenter.heroku.com/articles/sendgrid))

This was our heroku addon. We used it to send messages to members when they first create their account in order to confirm their account. It can also be used by members to retrieve their password. It can be found in /app/mailers.


**Javascript & JQuery**

**investments.js**

Creates a toggle button for a list of stock quotes in the new investment page.

**stock.js**

Creates two toggle buttons for a list of the member's investments and a list of the 10 most recent investments. These buttons can be found in each stock's show.

**jquery.home.js** ([http://www.jqueryrain.com/?LwxWHjgA](http://www.jqueryrain.com/?LwxWHjgA))

Creates a dynamic scrolling stock ticker on the home page.