Capstone Proposal

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**Description**

InvestEd is a project aimed towards helping educate people about investing. This project is geared towards providing a safe environment where users can learn and apply their knowledge in a virtual environment. Doing so will hopefully get the idea of investing to a broader audience so they can be invested towards their future. Once the user has the confidence, and knowledge, in their investing goals they can apply it to the real world if they feel like it. Overall InvestEd is going to be an application in which people can be introduced into the world of investing in a safe manner, without having to worry about certain issues such as overcomplication, fear, and trust.

**Core Requirements**

* User account creation (Using Proper Salt and Hashing)
* Users having the ability to make investments (mainly stocks) in a virtual environment
* Users can view their virtual investment portfolio
* Users having the ability to update account information
* Users having the ability take lessons (most likely in the form of reading/quizzes, currently)
* Mobile Application containing a Home, Portfolio, Search, Lesson, and Profile Page
* Email Notifications for various events (i.e. Two Factor Authentication, Account Creation, etc.)
* A functional relational database for storing user, investment, and lesson information, and more

**Stretch Requirements**

* Implementation of a front-end website to reach and give more access to users
* Implementation of a social aspect to the application
  + Users could friend other users
  + Users could post about their thoughts
  + Users could view other users’ virtual portfolios
  + Users if they are friends could view lesson progression
* Implementation of real-world investments
  + Would require the implementation of the Alpaca API
  + Would require the implementation of the Plaid API

**Tech Stack**

\***:** I will have to take time to learn as that technology is new to me

^ : This is technology I will use if I get to it

* JavaScript
  + React Native, for mobile application\*
  + React, for web implementation\*^
* Java
  + SpringBoot, for the REST API
  + javax.mail, for mail notifications
  + junit, for testing methods
* Python
  + Flask/ or Django, for getting stock information and data processing\*
  + yfinance module, for getting actual live and historical data of investments
  + pytest, for testing methods
* RabbitMQ
* MySQL
* Redis
  + For a cache layer to MySQL, since MySQL is slow
* Docker
* Kubernetes\*
* AWS\*
  + For all my cloud servicing, orchestration, and hosting

**Proposed Schedule**

**Sprint 1:**

* Setting up database schema/class diagrams
* User/Account API
  + This will include authentication tokens (will have to learn)

**Sprint 2:**

* Implementation of Database Schema
* Begin coming up with Lesson Ideas
* Stock API
* Start InvestEd API, which deals with lessons, virtual portfolios (including trading), and possibly social aspect

**Sprint 3:**

* Refine and overlook Stock and User/Account API
* Continue work on InvestEd API

**Sprint 4:**

* Refine and overlook InvestEd API
* Begin work on UI for Mobile Application
  + Starting page navigation

**Sprint 5:**

* Continue working on UI for Mobile Application
  + Working on individual pages
* Begin Testing UX

**Sprint 6:**

* Begin connecting what I have of the front end to the API’s
* Continue work on UI for Mobile Application
  + Continue off on whatever page I was working on from last sprint

**Sprint 7/8:**

* Overlook previous work
  + If anything needs complete it will get priority (more than likely it will be the UI)
* After overlooking begin possible beta testing of the application
  + From beta tester feedback implement suggestions

**Sprint 9/10:**

* Refine previous work form both beta testing and my work I have completed
* Possibly look at stretch goals if completed previous sprints
* Get ready for Capstone Presentation

Thank you for your time! It is really appreciated, and any critics are welcome, I want to make this the best I possibly can :) Also I know towards the end of my proposed schedule is probably a little weak, but it will probably change as time goes on when I get started!