# Project Proposal:
# Bulls and Bears

Software Engineering
14:332:452

## Team 1:

David Patrzeba
Eric Jacob
Evan Arbeitman
Christopher Mancuso
David Karivalis
Jesse Ziegler

January 28, 2014

Hyperlinks:

Webapp Link
Project Repository
Reports Repository

Revision History:

| Version No. | Date of Revision |
|---|---|
| v.1 | 1/26/2014 |

# Contents

# 1 Team Profile

Team 1 will be working on Project 5: Stock Market Investment Fantasy League and have named their project "Bulls and Bears" for the tentative future. This project is intended to serve as an exercise in software engineering focusing on building experience in the design, architecture, construction, test, and maintenance of a small-to-mid sized complex software application.

At this time a project lead has not been elected, but David Patrzeba will be acting as technical lead. All members will have input on the decisions of the team and communication is being facilitated by a project mailing list, git repositories, a wiki, and google+ hangouts.

## 1.1 David Patrzeba

David is proficient with the Java, C, and C++ languages, RESTful APIs, SQL, and is highly familiar with iterative software design and object oriented design patterns. David also has experience with Android development, relational database schema, and user experience. David will be acting as a technical lead on the project.

## 1.2 Eric Jacob

Eric is proficient with the Java, C, and C++ languages, and SQL. Eric also has experience with Bash scripting and Python.

## 1.3 Evan Arbeitman

Evan is familiar with the C++ programming language.

## 1.4 Jesse Ziegler

Jesse has experience with the C and C++ languages.

## 1.5 David Karivalis

David is proficient with the PHP, Java language. David is familiar with C, JavaScript, and HTML/CSS. David has experience in iOS and Android development, user experience, and photoshop. David will be the UI lead.

## 1.6 Christopher Mancuso

Chris is familar with the C++ language.

# 2 Project Proposal

Team 1 has elected to work on Project 5: Stock Market Investment Fantasy League with the goal of implementing a web application. We intend to use a RESTful API for executing all requests by the end user allowing easy expansion to the desktop and mobile application domains. We are deploying to a DigitalOcean Virtual Private Server (droplet) which will allow us to scale as necessary, both vertically and horizontally.

The goal of our web application is to act as the initial and primary interface to our backend services. These will include the ability to conduct buy, sell, short, stop, and limit orders on at least the NYSE and NASDAQ stock exchanges. We also plan to support global leader boards, individual leagues with goals (eg. first to double their money, first to gain 8% in a day, etc...), and global achievements (similar to xBox achievments).

Because our project will be built using RESTful principles, it will be able to act as a platform that can be extended by third parties to implement new and innovative features. Some scenarios include trading tutorials, and stock prediction integration. These are not of our primary concern.

## 2.1 Resgistration

The customer should be able to register and login to the system in a simple and straight forward manner requesting the least amount of information necessary in order to use the system.

The project plans to use OpenID in order to perform authorization and validation of our users. It also allows the project to easily scrape data from our users and prefill their profile for them. This should also allow the project to integrate easy with social media.

## 2.2 Social Media Integration

The customer should be able to push messages to their social media personality.

The project will initially integrate with social media to push out messages about trades and achievments. This feature will be able to be turned on and off by the end user, and will support multiple social applications.

## 2.3 Transactions Ticker

The customer should see a ticker of the most recent trades scroll across the bottom of their screen at a speed such that they can read and process the information easily.

The project plans to implement a static transactions ticker which will scoll across the bottom of the users screen similar to what you would see on CNBC. It will be visible to all users of the website, whehter logged in or not. We will also include the indices of the Dow Jones Industral Average (DJIA), the Standards & Poor 500 (S&P500), and the NASDAQ in a static box also much like you would see on CNBC.

## 2.4 Unified Interfaces

The customer should experience a unified experience across mobile, tablet, and desktop browswers. The customer should be able to use the three major modern browsers.

The project plans to use Bootstrap to provide mobile first front-end for the website. By doing this, it allows the project to provide a consistant user experience across all platforms. This also serves as a first iteration into the mobile/tablet market and gives us a good blue print for a second iteration focused on native mobile/tablet applications.

## 2.5 Portfolio Management

The customer should be able to place orders to buy, sell, short, stop, and limit on any tradeable asset available on the NYSE and the NASDAQ. The customer should be able to cancel any pending orders that have not gone through.

## 2.6 Graphs and News

The customer should be presented with a news feed related to his portfolio, and should be able to manipulate graphs lllllin order to compare performance of a variety of tradeable assets.

The project plans to implement interactive charting for your portfolio using HighStock. This will allow end users to conduct analysis on their portfolio using visual aids. The project will also implement a news feed, which will update with the latest finacial news for companies that are in your portfolio, and companies that you may be tracking.

## 2.7 Email Updates

The end user should be able to receive email updates at a frequency that they choose.

The project will facilitate a variety of email updates to the end user. Some examples are transaction confirmation, daily, weekly and monthly portfolio updates, league updates, and site updates. The user will be able to select which email updates they would like to suscribe to.

## 2.8 Educational Interfaces

The project plans to implement definition boxes for investment terms across the website. Certain terms (eg. P/E) will be highlighted and by mousing over them a dialogue box will pop up with a definition and links to external resources for a more in depth analysis.

## 2.9 Leagues

Users should be able to create, modify, and participate in leagues that agree to a customizable set of rules to determine a winner.

## 2.10 Achievments

Users should receive recognition of achievments accomplished, eg: earn 10% in a month.

# 3 Product Ownership

The project has identified 10 core pieces of functionality which will be implemented by a team of two with the first name listed set as the go to man for that given piece of functionality. Every team member will be assigned a minimum of 3 pieces of functionality to be responsible for and will be lead on no more than two pieces of functionality.

## 3.1 Registration Functionality

Evan Arbeitman and Christopher Mancuso

## 3.2 Social Media Integration Functionality

Jesse Ziegler and Eric Jacob

## 3.3 Transaction Ticker Functionality

David Karivalis and Evan Arbeitman

## 3.4 Unified Interface Functionality

David Karivalis and Eric Jacob

## 3.5 Portfolio Managment Functionality

David Patrzeba and David Karivalis

## 3.6 Graphs and News Functionality

Christopher Mancuso and Jesse Zeigler

## 3.7 Email Update Functionality

Evan Arbeitman and Jesse Zeigler

## 3.8 Educational Interface Functionality

Eric Jacob and Christopher Mancuso

## 3.9 League Functionality

Jesse Zeigler and Eric Jacob

## 3.10 Acheivments Function

David Patrzeba and David Karivalis