
Functional Requirements *for* “Capital Games”

Report 1: Part 2
Software Engineering
14:332:452

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1 Functional Requirements Specification

1.1 Stakeholders

As identified previously, the primary parties interested in this platform would be students and novice investors. However, due to the popularity of related platforms, it is not unrealistic that a future incarnation of this application could be marketed actively towards target groups. For instance, students would be promoted to this service to host various competitions; introductory texts on finance could also place references here. To that end, it behooves us to cater to those primary demographics.

At the same time, gaining a sufficient user base would also open the possibility of discreetly placed advertisements throughout the application. Therefore, we can consider marketing agents to be stakeholders as well, with the caveat that the site will not initially be designed with commercial product placement in mind. Our decision reflects a popular business model for firms today, in which an easily monetizable application does not compromise its rollout with commercials which can easily be implemented later. Yet another reason is the consideration of the various business expenses associated with a commercial rollout – notably the licenses and fees associated with having a commercial (as opposed to free) service.

1.2 Actors and Goals

Guest

An unregistered visitor or a visitor who is not logged in.

- Create an account
- View top users and stocks

User

A visitor who has registered and logged in to an account.

- Join/create leagues
- Take part in competitions
- Change personal settings

League Manager

A user who created or controls a league.

- Create a league competition
- Edit league settings

Site Administrator

A user who can control key aspects of the site

- Change global settings
- Create/edit global events
- View statistics of site

Database

The unit that holds information about all users' data.

- Push data back to views about users/events
- Store new data about users/events

Financial API

The unit that knows about current financial

- Retrieve data about stocks

1.3 Use Cases

Before a user can participate in most of the functionality of our site, the user must first join or create a league. To the user, creating a league is very similar to joining a league, the notable differences being that the user becomes League Manager of a league that they create and then must also invite users to join said league. Therefore, we detail joining/creation as a single use case. User invitation, as a responsibility of the League Manager, will be explored in a later use case. One relevant aspect of the responsibility of a League Manager to the use case though, is whether a league is made public or private; that is, whether it shows up in a public league listing page or can only be joined by direct invitation from the League Manager. Thus, our first use case involves a business policy:

CG-BP01: So that a user may create a join leagues with only their friends, leagues marked as private will not show up on the league listings unless a user is a current or pending member.

Thus, a user will only be able to browse listings of public leagues or private leagues to which they have access.

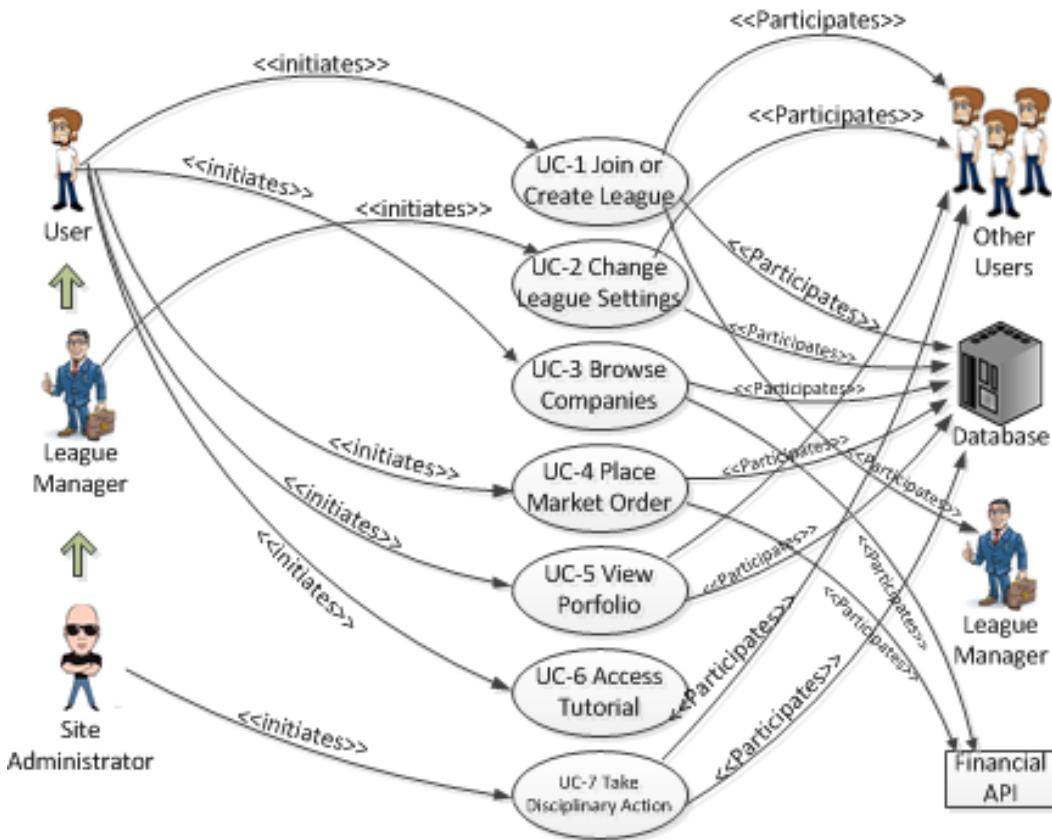


Figure 1.1: This graphic illustrates the relationships between the core actors of our platform.

| Use Case UC-1 Join or Create League | |
|---|--|
| Related Requirements: | ST-2, ST-21 |
| Initiating Actor: | User |
| Actor's Goal: | To join or create a fantasy finance league |
| Participating Actors: | Database, Other Users, League Managers |
| Preconditions: | <ul style="list-style-type: none"> -If joining a league, either a public league exists and has open positions or player has been invited to a private league -User is logged in |
| Postconditions: | The Database is updated to reflect the creation of or addition to the league |
| Flow of Events for Main Success Scenario: | |
| → | 1. User navigates to leagues listing page |
| ← | 2. System displays public and pending private leagues available for the User , sorted by date created |

| | |
|--|--|
| → | 3. User selects join on a league in which they are interesting in joining and to which they have access |
| ← | 4. System authorizes user and registers User into that league, notifying Database to update to reflect this change |
| Flow of Events for Extensions (Alternate Scenarios): | |
| 3a. | The user selects create league rather than join league |
| → | 1. User inputs desired league name and settings |
| ← | 2. System (a) creates the league and inputs it to the Database and (b) registers the User into that league as League Manager |
| 4a. | The user attempts to join or create a league without permission |
| ← | 1. System rejects request and delivers reason for rejection |

It is important here to note another business policy of our site relevant to the user's experience:

CG-BP02: A user is able to join an unlimited number of leagues and become League Manager for as many leagues as the user wishes to create.

Though the settings are selected when creating the league, any League Manager can change certain settings of their league at any time. These settings are comprehensive, including such items as name, privacy, number of spots, and duration. In addition, the League Manager can also manage members from the settings. However, certain settings cannot be changed after the league enters active competition, such as starting capital, commission rate, and margin, because changing primary competition rules mid-game would be unfair.

| Use Case UC-2 Change League Settings | |
|---|---|
| Related Requirements: | ST-22, ST-23 |
| Initiating Actor: | League Manager |
| Actor's Goal: | To change the settings of a league and manage its members |
| Participating Actors: | Database, other Users |
| Preconditions: | -User is the League Manager of the league -User is logged in |
| Postconditions: | -The league settings have been changed as desired and the Database reflects the changes |
| Flow of Events for Main Success Scenario: | |
| → | 1. League Manager selects the league settings option from the league page |
| ← | 2. System requests the current settings from the Database and presents them to the League Manager along with options to change select settings |
| → | 3. League Manager updates the settings, such as privacy, league name, number of spots, and managing users |

| | |
|---|--|
| ← | 4. System sends the updated settings to the Database |
| Flow of Events for Extensions (Alternate Scenarios): | |
| 1a. The User selecting league settings is not the League Manager | |
| ← 1. System requests the current settings from the Database and displays them, but does not provide ways to change them | |
| 4a. The League Manager has altered the status of a league member | |
| ← 1. System will request the Database to update the User's status in the league, be it becoming league manager or removing that User's instance from this league (banned) | |

It is of some concern that League Managers may become abusive of their powers, and therefore it is important to create a policy to explicitly state how this power is treated. In modern fantasy leagues (such as football, baseball, etc.), the League Manager does not typically have their power moderated, and this has not caused any problems in the success of these fantasy websites. The ability to leave a league and join another is left to the users if they feel that their league manager has become abusive. Their joining of the league acts as an implicit contract to accept of the League Manager's settings. However, if this League Manager becomes a problem and users bring it to an administrator's attention, disciplinary action may be taken. Thus we generate the next site policy:

CG-BP03: A League Manager is able to change the status of users in their league without moderation. However, if a League Manager is deemed abusive, a site administrator may take disciplinary action against them.

Core to our site is the ability of the user to have access to information about companies so that the user may make informed decisions on how he would like to invest. As this is so crucial to the functionality of this project, it is absolutely necessary to make information easily available to the user and presented in a way that is clear and easy to understand. Therefore, the search of companies as mentioned in ST-3 should be simple to use and intuitive and the display of company profiles as mentioned in ST-4 should be such that a user can easily access any desired information about the company's financial performance.

| Use Case UC-3 Browse Companies | |
|---|---|
| Related Requirements: | ST-3, ST-4 |
| Initiating Actor: | User |
| Actor's Goal: | To bring up information on a desired company |
| Participating Actors: | Database, Financial API |
| Preconditions: | -Financial API is accepting inquiries -User is logged in |
| Postconditions: | -None worth mentioning |
| Flow of Events for Main Success Scenario: | |

| | |
|---|--|
| → | 1. User begins entering a search term |
| ← | 2. System makes suggestions for companies in real-time |
| → | 3. User enters search term or selects a suggestion |
| ← | 4. System (a) requests information from Financial API and (b) displays the information to the user in a clear and interactive manner |
| Flow of Events for Extensions (Alternate Scenarios): | |
| 1a. | The User selects a direct link to a company rather than enter a search term |
| ← | 1. Same as step 4 above |
| 3a. | The search term is invalid, i.e. the company does not exist |
| ← | 1. System informs user company does not exist and offers similarly titled companies as links |

Note that the exact way in which the information requested from the Financial API is displayed to the user is not specified in this use case. This will be described instead in later sections about on-screen appearance requirements as to try to separate the functionality of the site and design of the site as separate as possible.

The goal of browsing companies ultimately is for the user to gain the knowledge needed to place market orders. Market orders are the atomic action of our site; i.e. the center point of every league is the user's ability to initiate transactions in an attempt to invest their money as best they can.

| Use Case UC-4 Place Market Order | |
|--|--|
| Related Requirements: | ST-5 |
| Initiating Actor: | User |
| Actor's Goal: | To place a market, stop, or limit order |
| Participating Actors: | Database, Financial API |
| Preconditions: | -Financial API is accepting inquiries -User is logged in -User is a member of a league |
| Postconditions: | -User's portfolio is updated to reflect change in position |
| Flow of Events for Main Success Scenario: | |
| → | 1. User selects the league in which they would like to place the order |
| ← | 2. System displays prompt for market order, including type, amount, and company |
| → | 3. User fills out form and requests the order be placed |
| ← | 4. System (a) requests market price from Financial API and (b) places the order into the Database |

| | |
|---|--|
| ← | 5. The order either resolves or expires, and the System updates the User's position in the Database accordingly |
| Flow of Events for Extensions (Alternate Scenarios): | |
| 1a. | The User chooses to place a market order from a company's profile rather than from the league page |
| → | 1. The User selects which league in which to place the order |
| ← | 2. The System takes the User to league marker order prompt as described in Step 2 above, with the prompt for company already filled out |
| → | 3. Go to Step 3 above |
| 4a. | The User does not have enough money or margin to place the order |
| ← | 1. The System informs the User that they do not have enough money or margin to place the order and returns them to the market order prompt |

The potential kinds of orders referenced in the above use case are defined in the glossary. The details on the necessary computations to enact these orders will be defined in a section later on.

In order to keep track of their own finances and any of their fellow league member's finances, a user must be able to view member portfolios. This keeps with the competitive nature of our site in addition to allowing the user to track their own progress.

| Use Case UC-5 View Portfolio | |
|---|--|
| Related Requirements: | ST-6, ST-7, ST-11 |
| Initiating Actor: | User |
| Actor's Goal: | To view one's own finances or another's finances |
| Participating Actors: | Database, other Users |
| Preconditions: | <ul style="list-style-type: none"> -User is a member of a league -User is logged in -Database is tracking user's position |
| Postconditions: | -None worth mentioning |
| Flow of Events for Main Success Scenario: | |
| → | 1. User selects a league member's profile |
| ← | 2. System requests that member's information from the Database and displays it in an organized and graphical manner to the User |
| Flow of Events for Extensions (Alternate Scenarios): | |
| 2a. | The User is viewing their own portfolio |
| ← | 1. The System gives the System options to place market orders related to their existing positions |

Once again, the exact display of information is not defined in the use case, but rather will be explored further in the section about user interface specifications. Next to discuss is the tutorial as referenced in ST-8. We consider this to be one of the main aspects that separates us from previous iterations of fantasy stock leagues; our site will educate users new to finance and enable them to learn all about the world of finance and how to invest, in addition to how these subjects relate to the use of our site.

| Use Case UC-6 Access Tutorials | |
|--|---|
| Related Requirements: | ST-8 |
| Initiating Actor: | User |
| Actor's Goal: | To become educated in finance |
| Participating Actors: | None |
| Preconditions: | -User is logged in |
| Postconditions: | -None worth mentioning |
| Flow of Events for Main Success Scenario: | |
| → | 1. User selects the tutorial option from the site's main page |
| ← | 2. System displays possible topics on which the User may be educated on |
| → | 3. User selects topic |
| ← | 4. System presents an interactive tutorial to the User , which will be further elaborated upon in a later section |

In order to maintain a clean fantasy finance experience for our regular users, site administrators will reserve the ability to moderate other users—issuing warnings, suspensions, or even bans for abusive activity. To put it explicitly:

CG-BP04: Site administrators will warn, suspend, or ban users for abusive activity—this includes aggressive behavior on league comments or user messages, spamming users, joining numerous leagues without active participation, and anything else that is deemed to harm the experience for other users.

| Use Case UC-7 Take Disciplinary Action | |
|---|--|
| Related Requirements: | ST-27 |
| Initiating Actor: | Site Administrator |
| Actor's Goal: | To take action against an abusive User |
| Participating Actors: | Database, Users |
| Preconditions: | -Initiating actor is a Site Administrator -There are outstanding abuse reports |
| Postconditions: | -The Database is updated to reflect any actions taken against the User |

| | |
|---|--|
| The abuse report shows that it has been resolved on the administration page | |
| Flow of Events for Main Success Scenario: | |
| → | 1. Site Administrator selects the site administration page option from the main screen (only viewable by Site Administrators) |
| ← | 2. System makes a request to the Database and displays all outstanding abuse reports |
| → | 3. Site Administrator (a) selects an abuse report, (b) reviews the report, and (c) selects what action is to be taken (if any) |
| ← | 4. System implements the action selected by the Site Administrator and updates the Database accordingly |

1.4 System Sequence Diagrams

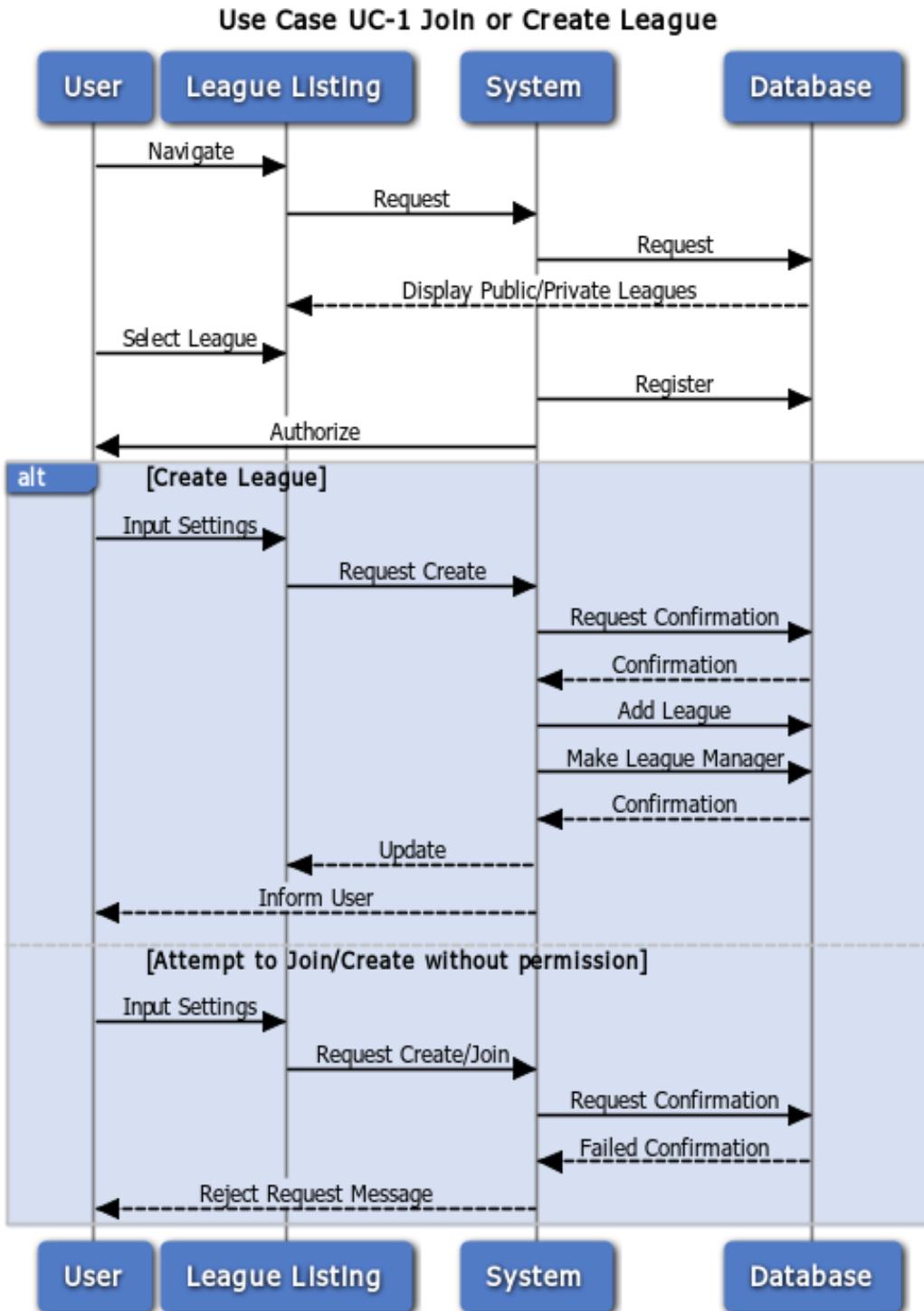


Figure 1.2: Sequence Diagram for UC-1 on page 4

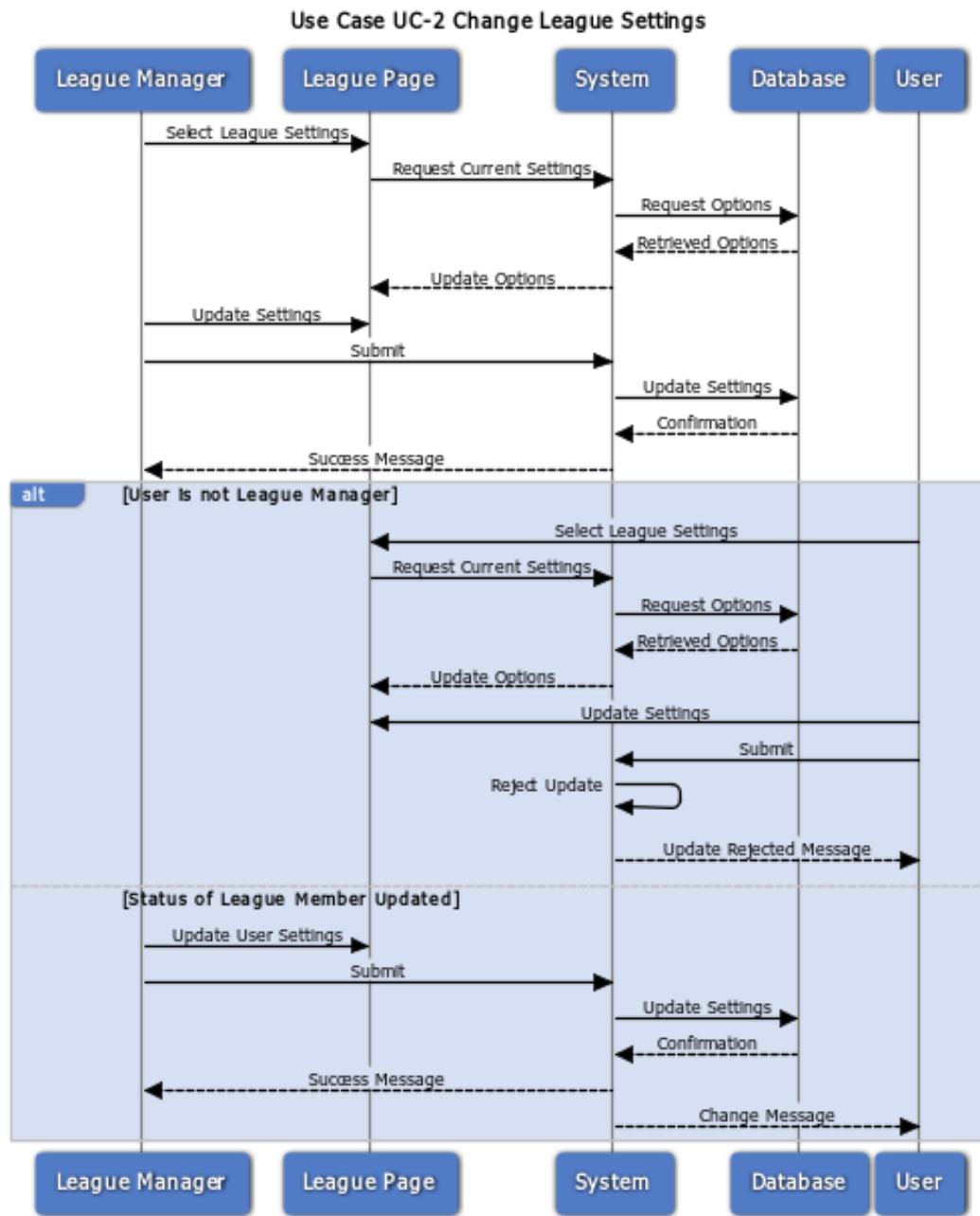


Figure 1.3: Sequence Diagram for UC-2 on page 6

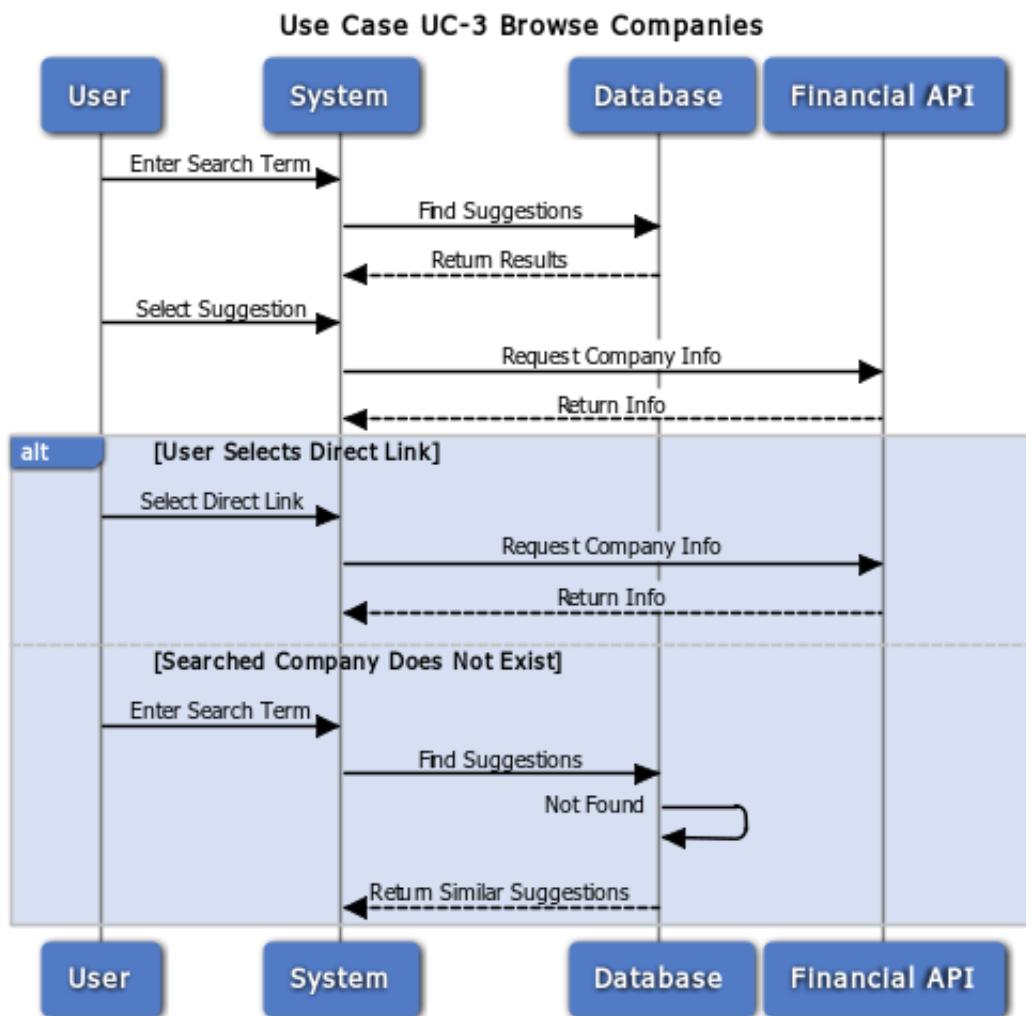
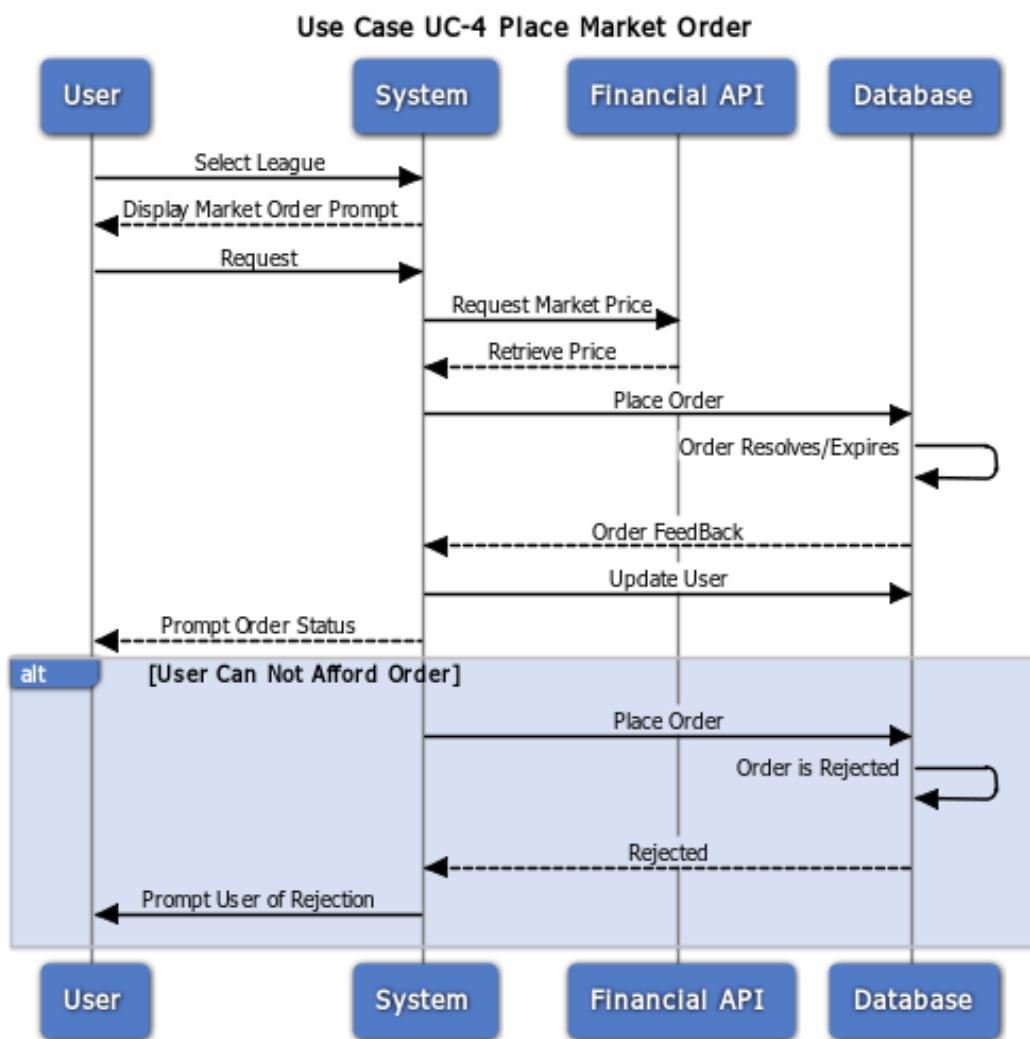


Figure 1.4: Sequence Diagram for UC-3 on page 7

Figure 1.5: Sequence Diagram for UC-4 on page [8](#)

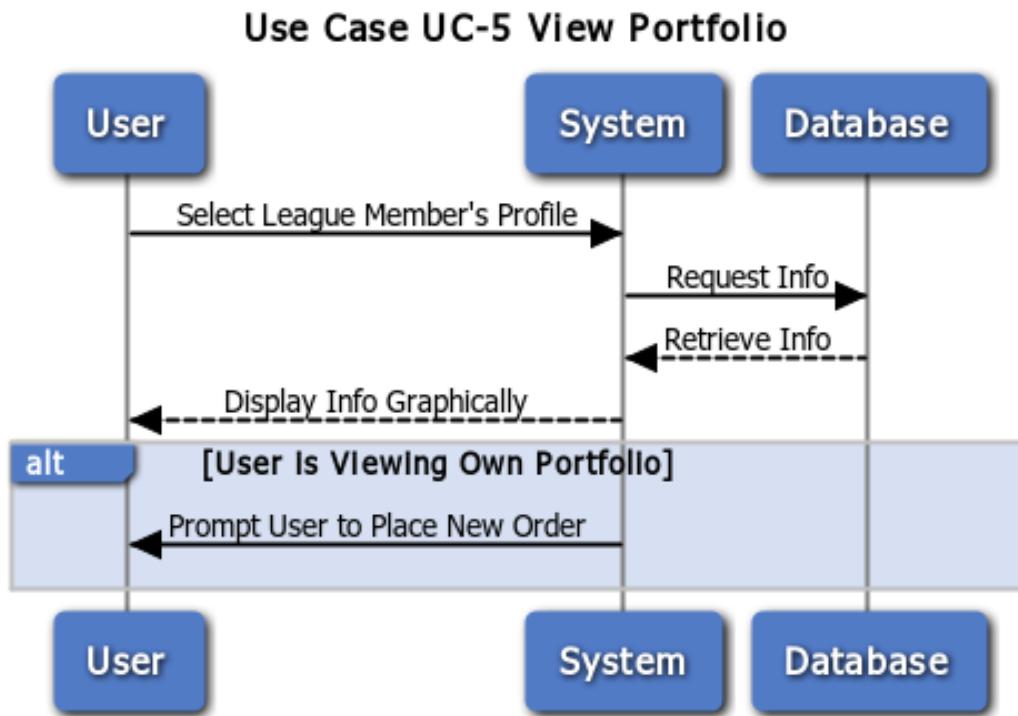


Figure 1.6: Sequence Diagram for UC-5 on page 9

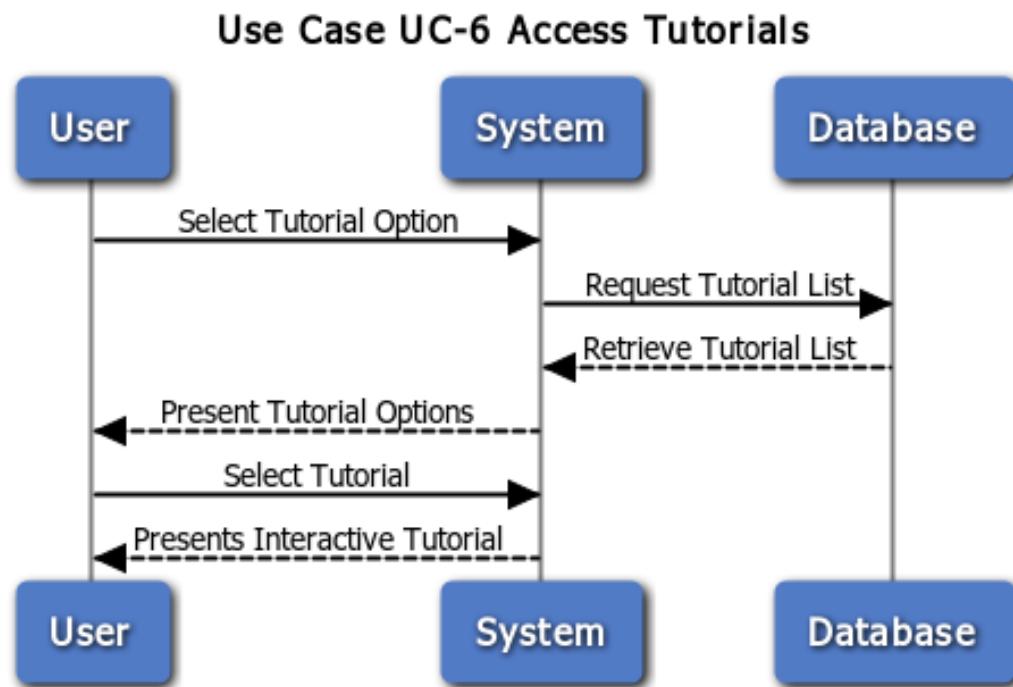


Figure 1.7: Sequence Diagram for UC-6 on page 10

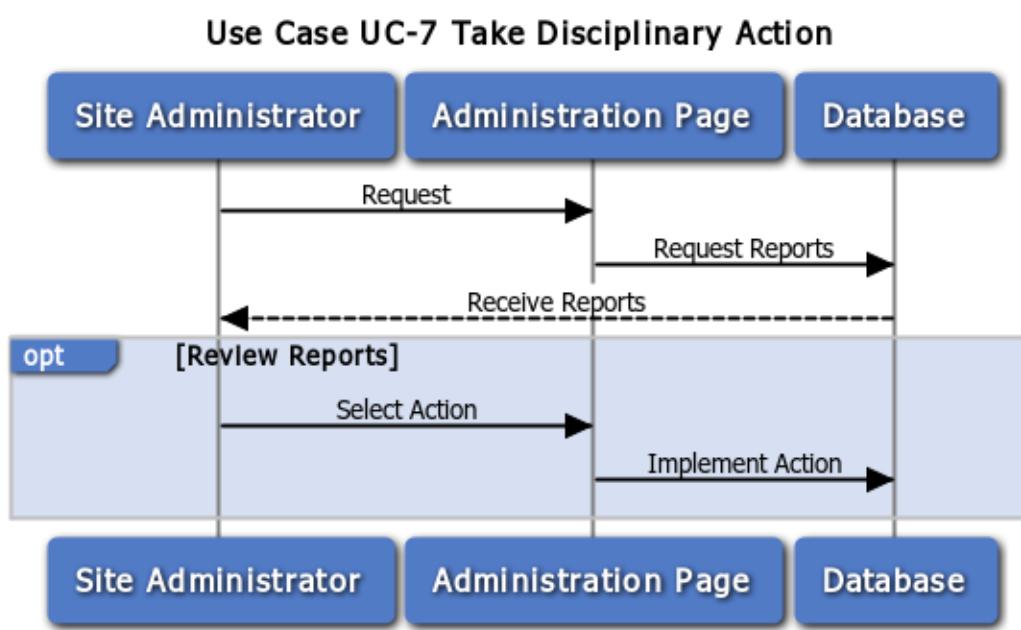


Figure 1.8: Sequence Diagram for UC-7 on page 10

2 User Interface Specification

2.1 Preliminary Design

The user interface of CapitalGames emphasizes easy to understand graphical representations of financial metrics pertaining to various aspects of trading and the economy in general. In addition, color harmony and adequate space distribution is a priority to provide a pleasant user experience. A UI design built on top of the responsive Bootstrap UI framework was chosen due to its extensive support for many UI components needed in the application. The center of the CapitalGames experience is the dashboard where a user can quickly see an overview of his/her performance in all leagues, join new leagues and learn more about finance. Each primary view is presented below with particular attention having been put into a consistant and uniform user experience. Each view is annotated with applicable use cases so that a sequence of views can be determined for each use case.

2.2 User Effort Estimation

Capital Games will utilize a streamlined user interface that has become rampant in modern web design. Essentially, all user interaction regarding login/sign-up and even actual interactions with their fantasy leagues and league portfolios can all be done within at most ten clicks and 50 keystrokes for data entry, and most of these interactions are in the registration process.

1. Login/Registration: 2 mouse clicks and 50 keystrokes
 - a) Click Login/Register on the corner of the header.
 - b) Data entry (20 keystrokes for username and password). (In addition, for registration, 10 to confirm password, 15 for e-mail address, and 5 for CAPTCHA for spambot control over the login/registration interfaces) In addition, all these keystrokes can be simplified

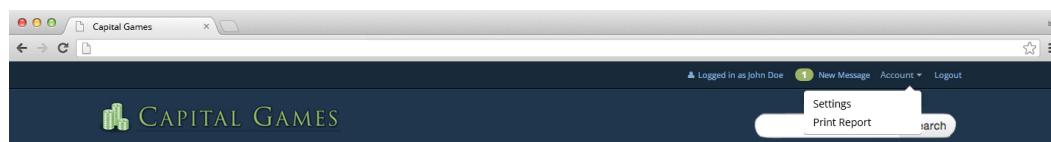


Figure 2.1: The header was designed to provide a persistant area for search and account management. It also establishes the branding of our application which is important for future recognition. It features the search field with auto-complete functionality.

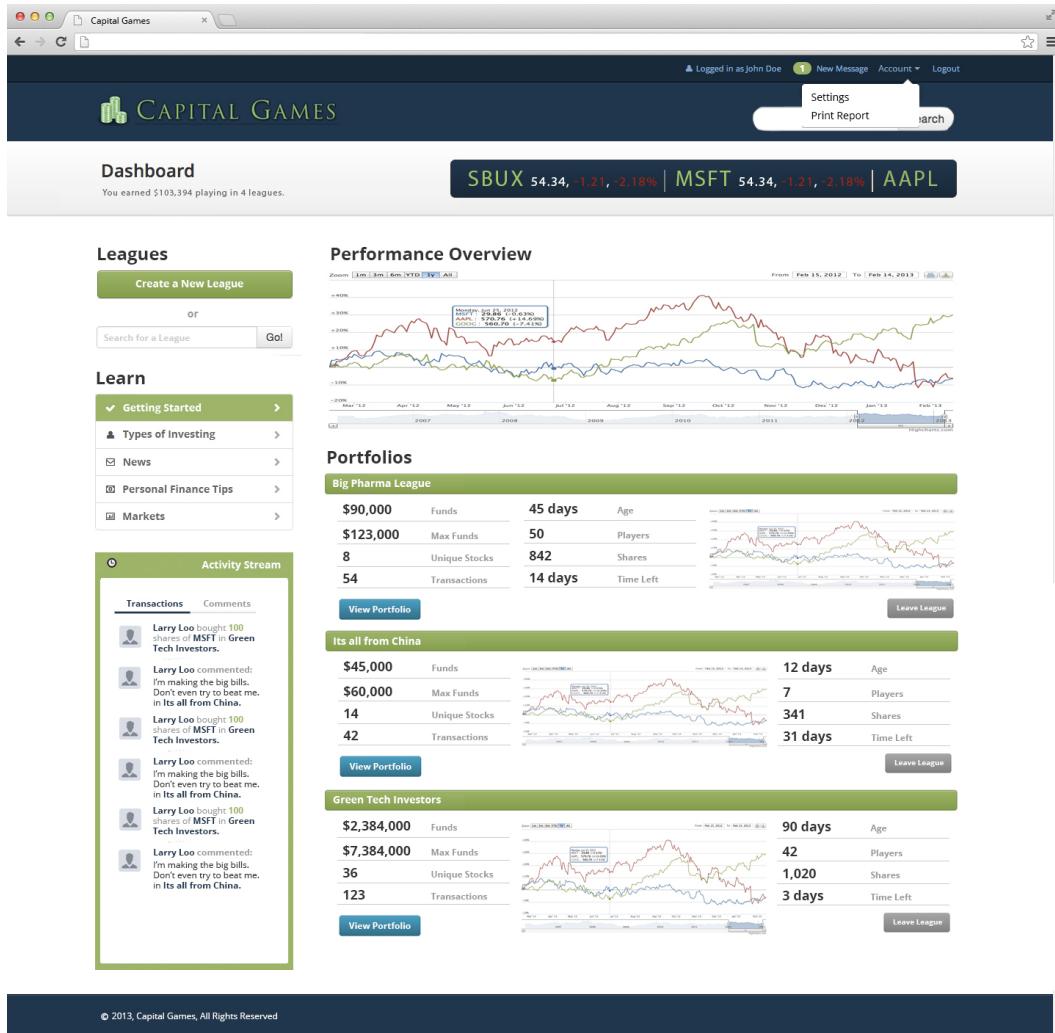


Figure 2.2: The dashboard was designed to conveniently notify the user of his/her performance in all leagues. This is done with the prominent graphic at the top of the content body as well as with all the brief views of active portfolios.

in one click with Facebook integration, in which the site will pull their Facebook login data and use it for Capital Games.

2. League Portfolio Interaction: Buy/Sell, 3 clicks and 10 keystrokes
 - a) Click Portfolio tab in navigation menu header.
 - b) Hover over any company listing on the page with your cursor and click Buy/Sell.
 - c) Input amount of shares you want to buy/sell.
 - d) Click to confirm.
3. Create Fantasy League: 10 clicks and 10 keystrokes
 - a) Click League tab in navigation menu header.
 - b) Click Create New League in submenu.

The screenshot shows a web browser window for 'Capital Games'. The title bar says 'Capital Games'. The top navigation bar includes 'Logged in as John Doe', 'New Message' (with 1 notification), 'Account', and 'Logout'. Below the title bar is the 'CAPITAL GAMES' logo with three green bars.

The main content area is titled 'Leagues' and displays a message: 'There are currently 74 leagues active, 44 of which are public and 30 of which are private.' A 'Create a New League' button is visible. On the left, there's a sidebar titled 'Learn' with sections like 'Getting Started', 'Types of Investing', 'News', 'Personal Finance Tips', and 'Markets'. A central table lists 10 leagues:

| Name | Permission | Members | Slots Open | Actions |
|----------------------|------------|---------|------------|---|
| Green Tech Investors | Public | 45 | 5 | View League Join League |
| Its all from China | Public | 34 | 4 | View League Join League |
| Big Pharma League | Private | 25 | 5 | View League Request Entry |
| Green Tech Investors | Public | 45 | 4 | View League Join League |
| Its all from China | Private | 34 | 7 | View League Request Entry |
| Big Pharma League | Private | 25 | 5 | View League Request Entry |
| Green Tech Investors | Public | 45 | 8 | View League Join League |
| Its all from China | Private | 34 | 10 | View League Request Entry |
| Big Pharma League | Public | 25 | 4 | View League Join League |
| Green Tech Investors | Public | 45 | 5 | View League Join League |
| Its all from China | Public | 34 | 1 | View League Join League |

Below the table is an 'Activity Stream' section showing five transactions from 'Larry Loo': buying 100 shares of MSFT in Green Tech Investors, commenting twice about making big bills and not wanting to be beaten, and buying another 100 shares of MSFT. Navigation buttons 'Prev' and 'Next' are at the bottom of the stream.

At the bottom of the page is a footer: '© 2013, Capital Games, All Rights Reserved'.

Figure 2.3: The leagues view was designed to cleanly display all leagues which a user might be interested in. It is used both when browsing and when searching for a particular league.

- c) Enter League Name and Click Checkboxes for desired rules.
- d) Click to confirm.
4. Company: 3 clicks and 4 keystrokes
 - a) Press the Trade button
 - b) Select Buy/Sell
 - c) Type in number of stocks
 - d) Click to accept
5. League Users: One click
 - a) To view all members of the league, click See All Members
 - b) As an Administrator or League Manager, deleting comments is one click on the delete button next to a comment

The screenshot shows a web browser window for 'Capital Games'. The title bar says 'Capital Games'. The top navigation bar includes links for 'Logged in as John Doe', 'New Message' (with a notification count of 1), 'Account', and 'Logout'. Below the navigation is the 'CAPITAL GAMES' logo and a search bar.

The main content area is titled 'Administration'. A message at the top states: 'There are currently 40 active users, out of a total of 150 users playing in 40 leagues.' On the left, there is a sidebar with a tree view:

- Leagues** (selected)
- Users**
- Comments**
- Announcements**
- Statistics**

The main content area is titled 'Leagues' and contains a table with the following data:

| ID | Name | Administrator | Members | Actions |
|----|----------------------|---------------|---------|---|
| 1 | Green Tech Investors | Larry Loo | 45 | View League Delete League |
| 2 | Its all from China | Larry Loo | 34 | View League Delete League |
| 3 | Big Pharma League | Larry Loo | 25 | View League Delete League |
| 1 | Green Tech Investors | Larry Loo | 45 | View League Delete League |
| 2 | Its all from China | Larry Loo | 34 | View League Delete League |
| 3 | Big Pharma League | Larry Loo | 25 | View League Delete League |
| 1 | Green Tech Investors | Larry Loo | 45 | View League Delete League |
| 2 | Its all from China | Larry Loo | 34 | View League Delete League |
| 3 | Big Pharma League | Larry Loo | 25 | View League Delete League |
| 1 | Green Tech Investors | Larry Loo | 45 | View League Delete League |
| 2 | Its all from China | Larry Loo | 34 | View League Delete League |

Below the table are navigation buttons: 'Prev', '1' (highlighted in green), '2', '3', '4', and 'Next'.

At the bottom of the page, a footer bar displays: '© 2013, Capital Games, All Rights Reserved'.

Figure 2.4: The administration area is a multi view component enabling administrators to manage all aspects of the system from user management to viewing overall system statistics.

6. League Manager: Four clicks

- Click League Settings
- Click Users tab
- Edit anything
- Click Save Changes

7. Messages: 2 clicks plus message

- Click friend from drop down list
- Enter message
- Click send

The screenshot shows a web browser window for 'Capital Games'. The title bar says 'Capital Games'. The top navigation bar includes 'Logged in as John Doe', a notification icon (1), 'New Message', 'Account', and 'Logout'. The main header features the 'CAPITAL GAMES' logo with three green bars. Below it is a search bar with a 'Search' button.

The main content area is titled 'Administration'. A message states 'There are currently 40 active users, out of a total of 150 users playing in 40 leagues.' On the left, there's a sidebar with a 'Leagues' section containing 'Users', 'Comments', 'Announcements', and 'Statistics' with arrows indicating they can be expanded.

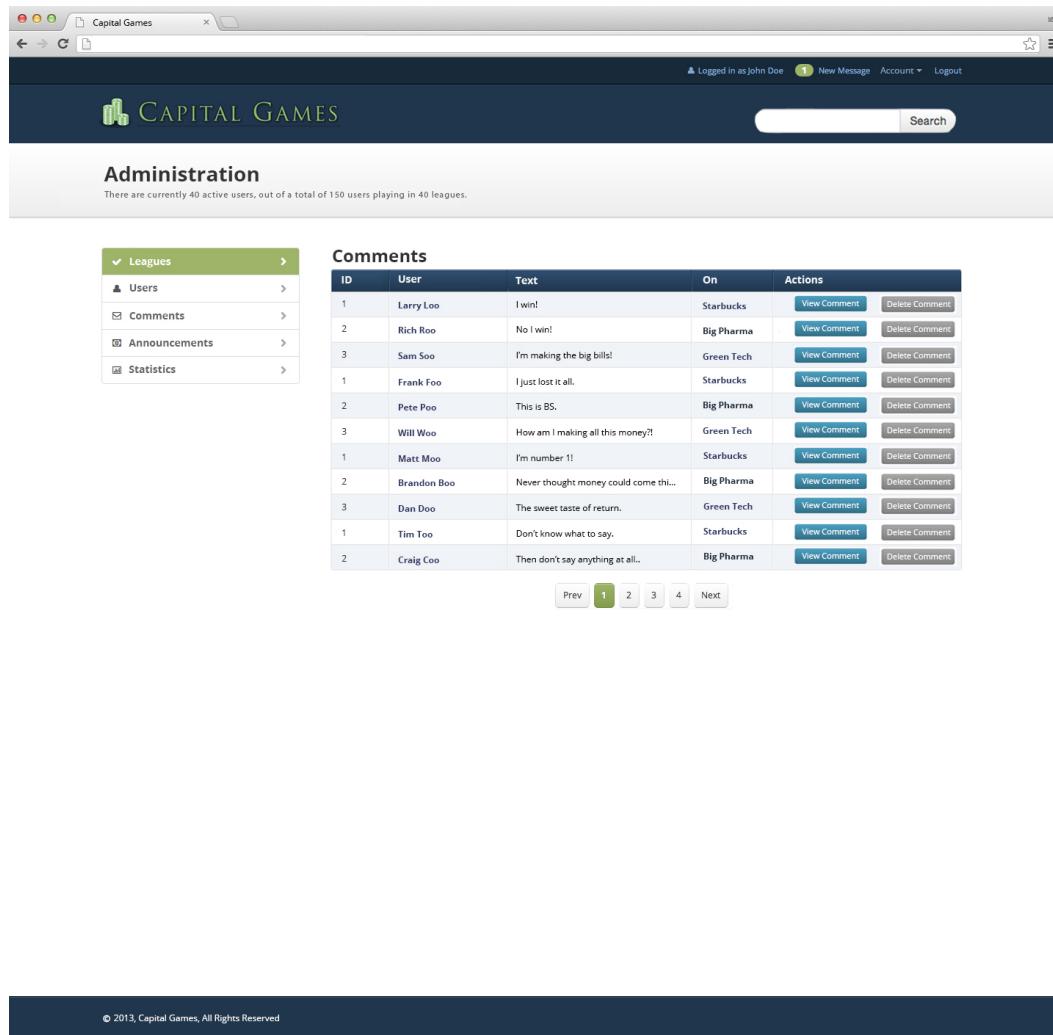
The central part of the screen is a table titled 'Users' with the following columns: ID, Name, Leagues, Reported, and Actions. The data is as follows:

| ID | Name | Leagues | Reported | Actions |
|----|-----------|---------|------------------|---|
| 1 | Larry Loo | 7 | Abusive Language | View Profile Ban User |
| 1 | Jimmy Joo | 4 | Cheating | View Profile Ban User |
| 1 | Pete Poo | 10 | Being Lame | View Profile Ban User |
| 1 | Dan Doo | 3 | Abusive Language | View Profile Ban User |
| 1 | Tony Too | 6 | Abusive Language | View Profile Ban User |
| 1 | Frank Foo | 2 | Abusive Language | View Profile Ban User |
| 1 | Rich Roo | 2 | Abusive Language | View Profile Ban User |
| 1 | Matt Moo | 1 | Abusive Language | View Profile Ban User |
| 1 | Will Woo | 4 | Abusive Language | View Profile Ban User |
| 1 | Sam Soo | 5 | Abusive Language | View Profile Ban User |
| 1 | Harry Hoo | 3 | Abusive Language | View Profile Ban User |

Below the table are navigation links: 'Prev', page numbers '1' (highlighted in green), '2', '3', '4', and 'Next'.

The footer contains the copyright notice: '© 2013, Capital Games, All Rights Reserved'.

Figure 2.5: This portion of the administration area contains a top-down view of comments posted by users in various locations, and the ability to ban them with a single click.



The screenshot shows a web-based administration interface for 'Capital Games'. At the top, there's a navigation bar with links for 'Logged in as John Doe', 'New Message', 'Account', and 'Logout'. Below the navigation is the 'CAPITAL GAMES' logo and a search bar. The main content area is titled 'Administration' and displays a message: 'There are currently 40 active users, out of a total of 150 users playing in 40 leagues.' On the left, there's a sidebar with a 'Leagues' section containing 'Users', 'Comments', 'Announcements', and 'Statistics' items. The main content area is titled 'Comments' and contains a table with the following data:

| ID | User | Text | On | Actions |
|----|-------------|---------------------------------------|------------|---|
| 1 | Larry Loo | I win! | Starbucks | View Comment Delete Comment |
| 2 | Rich Roo | No I win! | Big Pharma | View Comment Delete Comment |
| 3 | Sam Soo | I'm making the big bills! | Green Tech | View Comment Delete Comment |
| 1 | Frank Foo | I just lost it all. | Starbucks | View Comment Delete Comment |
| 2 | Pete Poo | This is BS. | Big Pharma | View Comment Delete Comment |
| 3 | Will Woo | How am I making all this money?! | Green Tech | View Comment Delete Comment |
| 1 | Matt Moo | I'm number 1! | Starbucks | View Comment Delete Comment |
| 2 | Brandon Boo | Never thought money could come thi... | Big Pharma | View Comment Delete Comment |
| 3 | Dan Doo | The sweet taste of return. | Green Tech | View Comment Delete Comment |
| 1 | Tim Too | Don't know what to say. | Starbucks | View Comment Delete Comment |
| 2 | Craig Coo | Then don't say anything at all.. | Big Pharma | View Comment Delete Comment |

Below the table, there are navigation buttons: 'Prev', '1' (highlighted in green), '2', '3', '4', and 'Next'.

At the bottom of the page, a dark footer bar contains the text: '© 2013, Capital Games, All Rights Reserved'.

Figure 2.6: This portion of the administration area contains a top-down view of comments posted by users in various locations, and the ability to delete them with a single click.

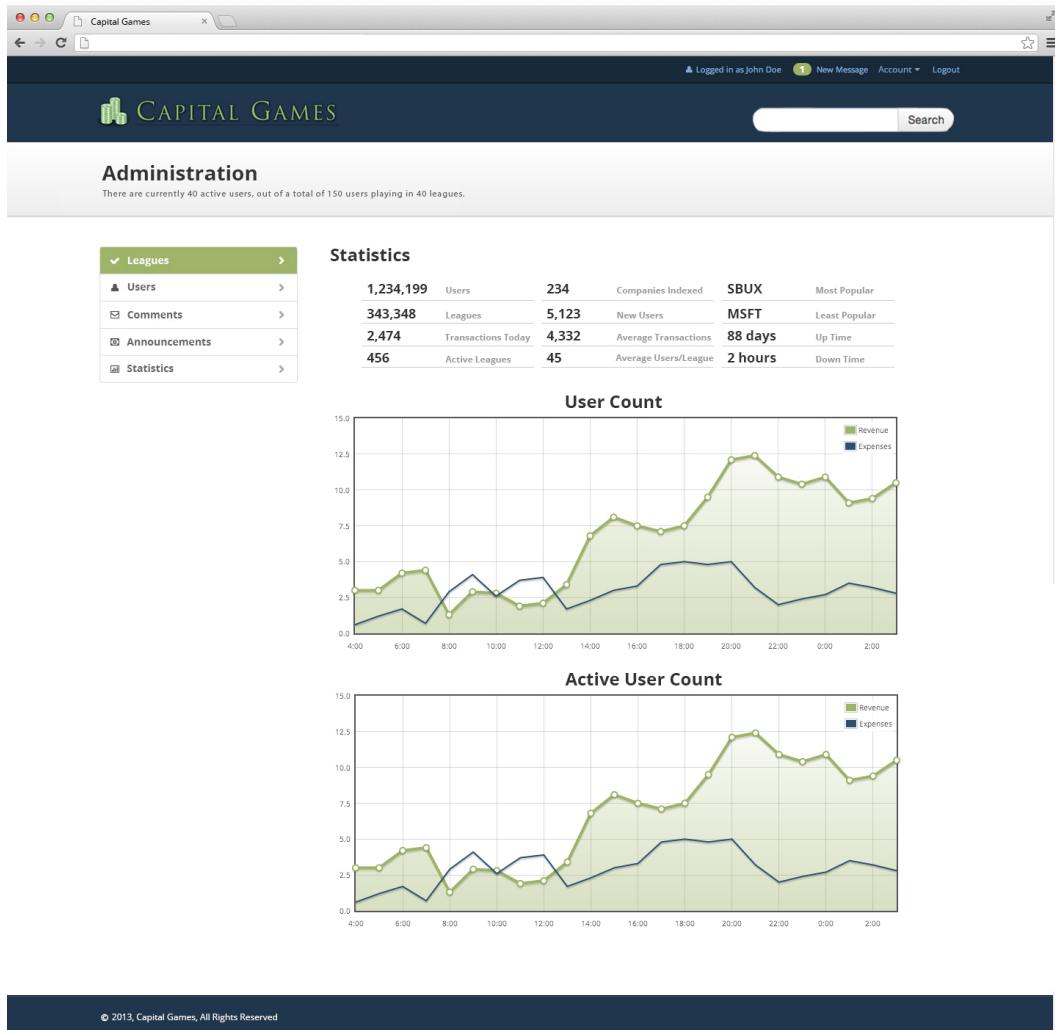
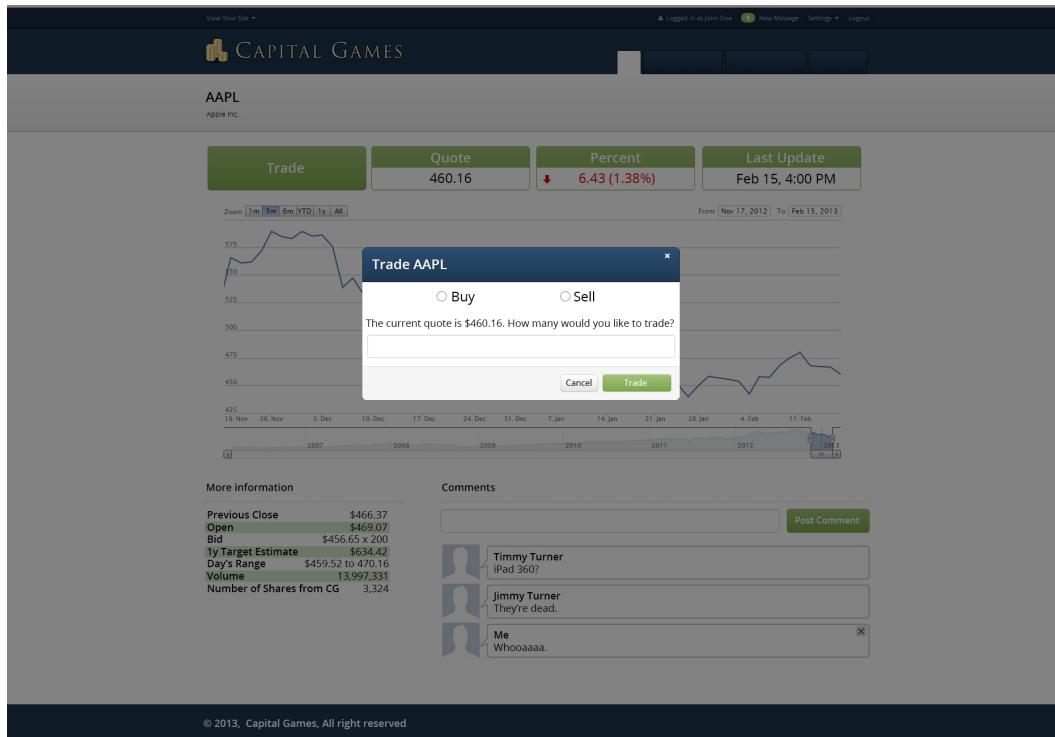


Figure 2.7: This section of the administration area contains statistics of interest.



Figure 2.8: From the Company page, you are able to view details statistics about certain companies after being linked to it or searching for it. Major details, such as the quote, are up at the top while further details are at the bottom. A user can comment on the company on the bottom right. If you decide that you want to trade, you simply press the trade button and a box will pop-up, giving you options for the trade.



The screenshot shows a web application interface for a financial league. At the top, there's a dark header bar with a logo, user status (Logged in as John Doe), and navigation links (New Message, Settings, Logout). Below the header, the title "CAPITAL GAMES" is displayed above a sub-section for "The Money M4kers". This section includes a small icon, a brief description ("We're the best league ever ever ever."), and a green "Join this League" button. To the right, key statistics are shown in boxes: "Members: 1030", "Start Date: 1/23/13", and "End Date: 1/23/13".

The main content area features a ranking table for the league members:

| Rank | Username | Market Value |
|------|----------|--------------|
| 1 | cuffo | \$1,000,000 |
| 2 | red | \$999,999 |
| 3 | rethage | \$999,998 |
| 4 | rabin | \$999,997 |
| 5 | adler | \$999,996 |
| 6 | palum | \$999,995 |
| 7 | marcic | \$1 |
| 8 | name | \$0 |
| 9 | canada | \$0 |
| 10 | hello | \$12,232,234 |

A green button at the bottom of this table says "See all members".

On the right side, there's a sidebar with sections for "First place receives \$100,000" (with a placeholder image for the current holder) and "Second Place" and "Third Place" (both currently empty). Below this, there are two columns: "Activity" and "Comments".

Activity:

- Announcement: Hey guys. I'm the admin.
- Timmy Turner: Bought 200 shares of MSFT
- Timmy Turner: Sold 200 shares of MSFT
- Timmy Turner: Bought 200 shares of MSFT
- Timmy Turner: Sold 200 shares of MSFT

Comments:

- Timmy Turner: What are we doing about this loser?
- Timmy Turner: First!

At the bottom of the page, a footer bar contains the text "© 2013, Capital Games, All rights reserved".

Figure 2.9: From this page, you are able to view a certain league. Up at the top are the main facts about the league as well as a button to join/quit the league and the icon for it. In the middle, there is a ranking system to show the users in the highest standing. Down at the bottom, you can see the activity and also comment on the league itself.

The screenshot shows a web application interface for managing a league. At the top, there's a navigation bar with links for 'View Your Site', 'Logged in as John Doe', 'New Message', 'Settings', and 'Logout'. The main header is 'CAPITAL GAMES' with a logo of three stacked gold bars.

The page title is 'The Money M4kers' with the tagline 'We're the best league ever ever ever.' Below the title is a summary table:

| League Settings | Members | Start Date | End Date |
|-----------------|---------|------------|----------|
| 1030 | 1/23/13 | 1/23/13 | |

Below this is a table showing member statistics:

| Rank | Username | Market Value |
|------|----------|--------------|
| 1 | cuffo | \$1,000,000 |
| 2 | red | \$999,999 |
| 3 | rethage | \$999,998 |
| 4 | rabin | \$999,997 |
| 5 | ader | \$999,996 |
| 6 | pakum | \$999,995 |
| 7 | maric | \$1 |
| 8 | name | \$0 |
| 9 | canada | \$0 |
| 10 | helio | \$12,232,234 |

A green button at the bottom of this section says 'See all members'.

To the right, there's a sidebar with sections for 'First place' (placeholder), 'Second Place', and 'Third Place'. The 'First Place' section shows a user profile for 'cuffo' with a picture, market value (\$1,000,000), portfolio value (\$886,429), % return (40.94%), last activity (Bought 3 GOOG), and friends (1230).

Below the member table is a section titled 'Activity' showing recent posts from users like Timmy Turner:

- Announcement: Hey guys. I'm the admin.
- Bought 200 shares of MSFT
- Sold 200 shares of MSFT
- Bought 200 shares of MSFT
- Sold 200 shares of MSFT

On the right, there's a 'Comments' section where Timmy Turner has posted: 'What are we doing about this loser?' and 'First!'

At the bottom, a copyright notice reads '© 2013, Capital Games, All right reserved'.

Figure 2.10: A league admin will see the join/quit button on a league as the settings page for them. When they click on that, they are brought to a page that gives them many settings they can change for the league, the most typical being the name, description and icon.

This screenshot shows the 'Edit Basic Settings' page for the league 'The Money Makers'.

The left sidebar has a navigation menu with tabs: 'Basic' (selected), 'Users', 'Comments', 'Security', and 'League Statistics'.

The main content area is titled 'Edit Basic Settings' with a note: 'There are many settings that the admin can change, but here are a few of the most common ones. For more settings, look around in the tabs to your left.'

Form fields include:

- 'League Name': 'The Money Makers' (with a note: 'Your members will be notified that the group's name has changed if you choose to do so.')
- 'Short Description': 'We're the best league ever ever ever.'
- 'League Icon': A placeholder image of the current icon, with a 'Select File' button.

At the bottom are 'Save Settings' and 'Cancel' buttons.

At the very bottom, a copyright notice reads '© 2013, Capital Games, All right reserved'.

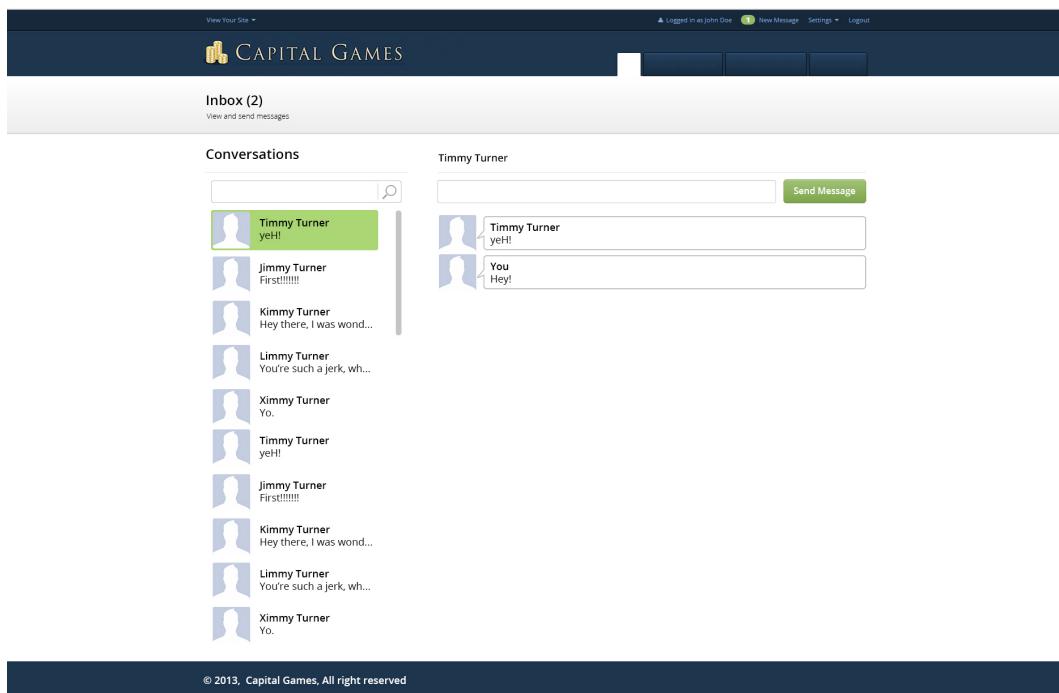


Figure 2.11: A league admin will see the join/quit button on a league as the settings page for them. When they click on that, they are brought to a page that gives them many settings they can change for the league, the most typical being the name, description and icon.

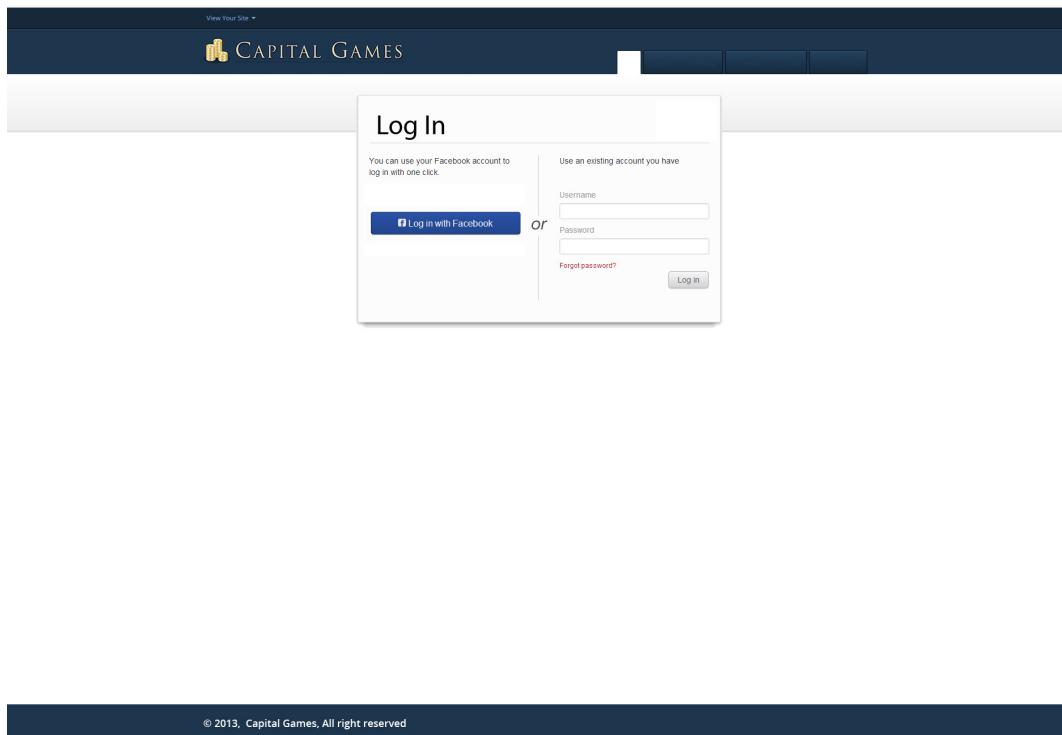


Figure 2.12: Users would be able to login simply by clicking a login button on the top-right hand corner of the screen, which would take them to a prompt in which they can enter their username and password. This would only require one click and about 20 keystrokes from any page of the website. Users logged in to facebook may also take advantage of Facebook integration and instantly log in with 1 click.

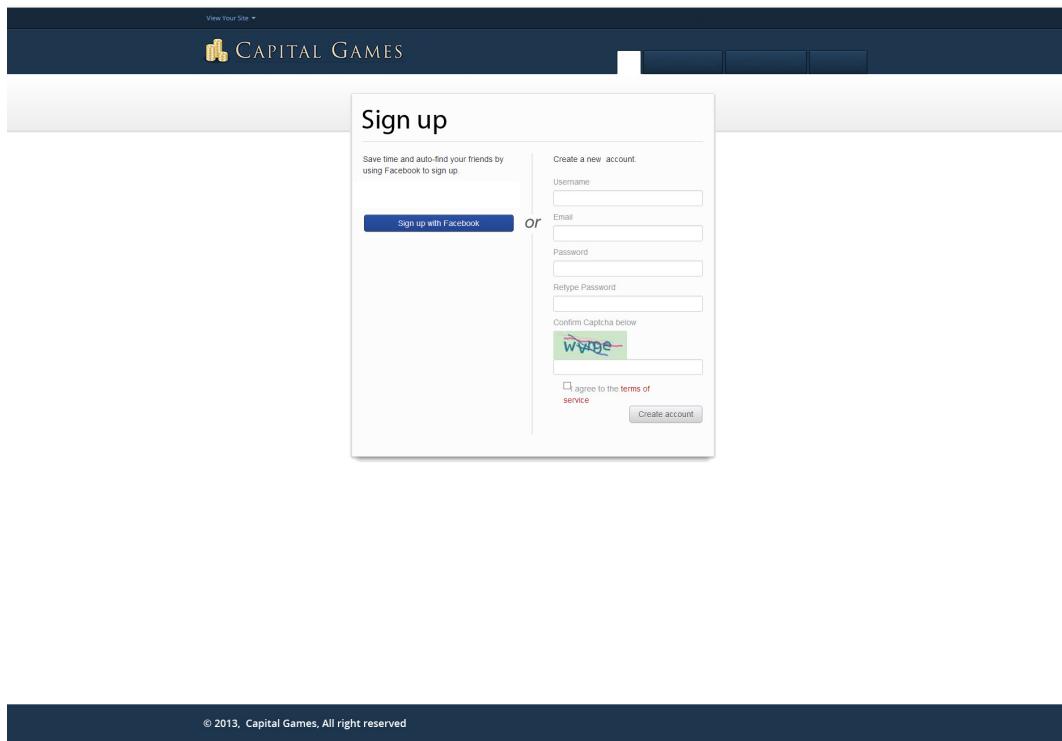


Figure 2.13: Users who are not logged in will also have the “Sign Up” button available to them in the header that will enable them to register for Capital Games. This can be accomplished within 1 click and 50 keystrokes. A user logged in to facebook may also instantly register within 1 click.

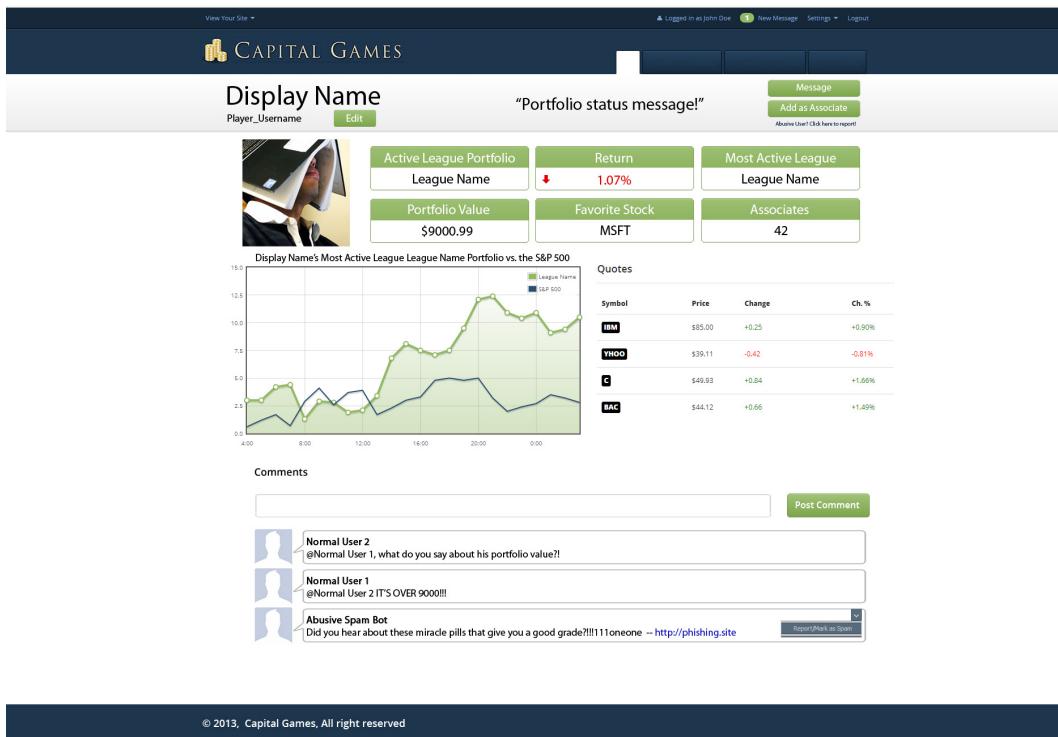


Figure 2.14: Users may access their Portfolio by clicking a menu tab in the top header of the website. This view enables them to conveniently see a summary of their return, active league, portfolio value, stock, and other data pertaining to their stock. They would be able to edit it in one click via the edit button.

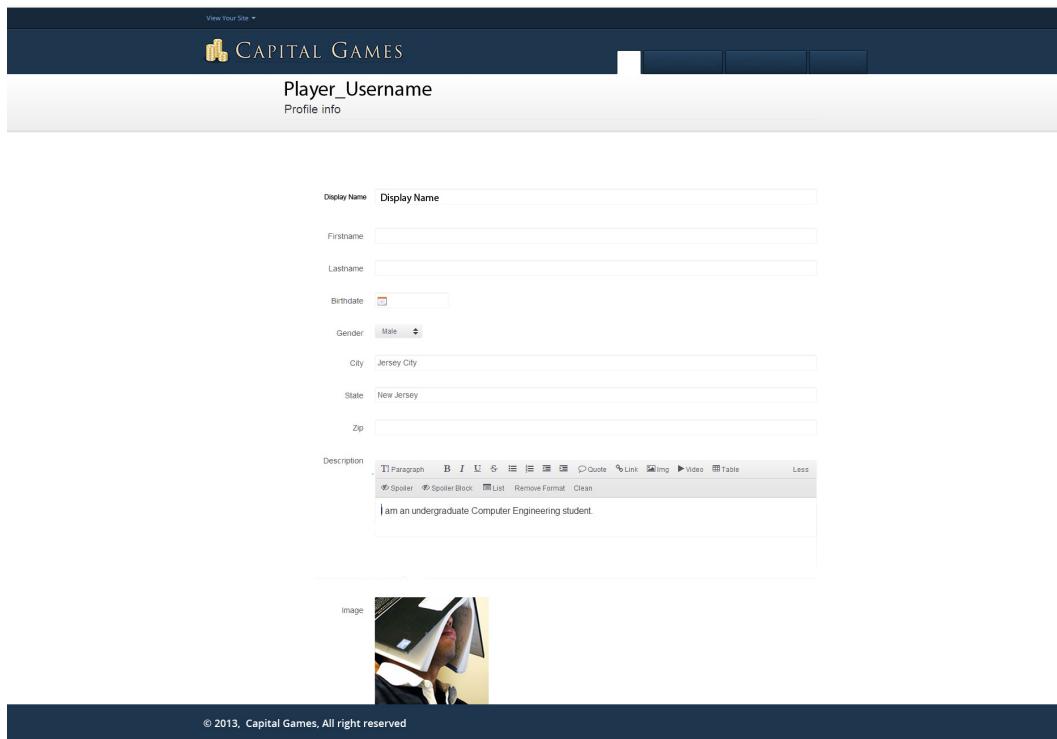


Figure 2.15: Upon clicking the “Edit” button on their portfolio page, users will also be able to manage profile items such as their display name, e-mail address, and other optional information they may choose to disclose, such as their name.

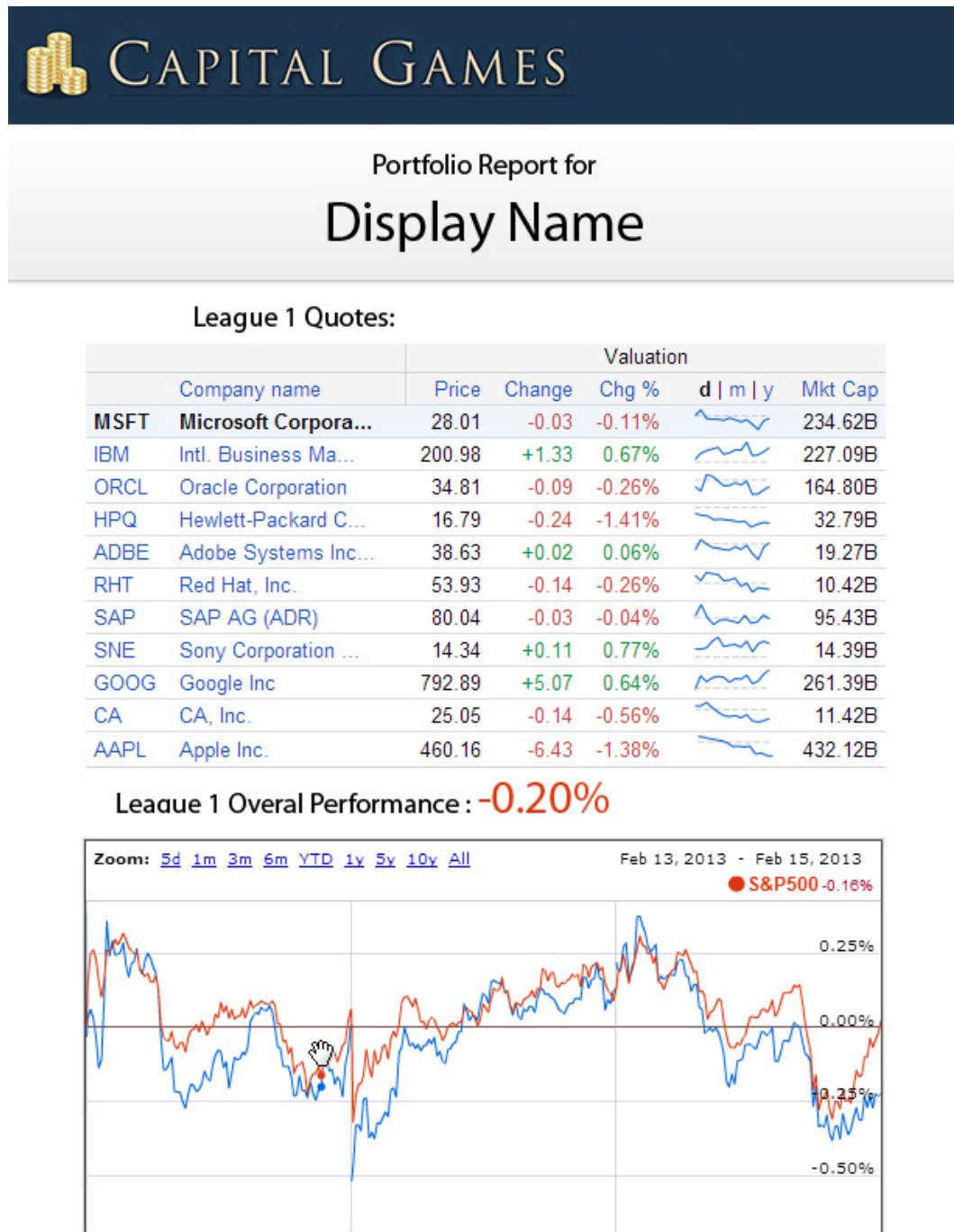


Figure 2.16: Users may choose to view a summary report of a league portfolio, only requiring one click from the portfolio page which would sum to two clicks.

3 Project Management

3.1 Contributions

| Category | Points | Names | | | | | |
|-------------------------------|-----------|--------|--------|--------|--------|-------|---------|
| | | Jeff A | Eric C | Nick P | Jeff R | Val R | Dario R |
| Project Management | 10 Points | 0% | 0% | 0% | 0% | 0% | 0% |
| Customer Requirements | 9 Points | 0% | 0% | 0% | 0% | 0% | 0% |
| System Requirements | 6 Points | 0% | 0% | 0% | 0% | 0% | 0% |
| Functional Requirements | 30 Points | 0% | 0% | 0% | 0% | 0% | 0% |
| User Interface Specifications | 15 Points | 0% | 0% | 0% | 0% | 0% | 0% |
| Domain Analysis | 25 Points | 0% | 0% | 0% | 0% | 0% | 0% |
| Plan of Work | 5 Points | 0% | 0% | 0% | 0% | 0% | 0% |