E-City Stocks
Software Requirement Specification
For Software Engineering

Version 1.0

Revision History

Date	Version	Description	Author
22/10/08	1.0	Draft	Edwin Guzman
23/10/88	1.1	Draft	Edwin Guzman
24/10/88	1.2	Final	Edwin Guzman

E-City Stock Founders

Name	Role
Edwin Guzman	Project Manager, coder
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Jose Diaz	Back-end Programmer, coder

Table of Contents

Software Requirements Specification

1.   Introduction

1.1   Purpose
E-City Stocks (ECS) is intended to be a system where users can deal with stocks.

This Document is meant to show features of E-City Stocks. Therefore, it will serve as a guide to developers and as a legal document for the prospective client.

1.2   Scope
Here we describe what ECS features are in the scope of the software

In Scope:
   a.   System Administrators manage the users and stocks in the system. They collect system statistics as well as processing complaints made.
   b.   Stock Owners can post, bid, buy, sell, or stop a stock they own. They can also file complaints against PTs.
   c.   Professional Traders can bid, buy, or sell stock they own. They can also file complaints against SOs and PTs and quit from the system.
   d.   Each stock has a price history, the name of the owner, and a unique number. Each stock also has two bidding prices and the SO will decide who to sell it to based on bidding price.
   e.   Users using this software will obtain a better knowledge of how the stock market works.

1.3   Definitions, Acronyms, and Abbreviations

Acronyms and Abbreviations
a. ECS: E-City Stocks.
b. SRS: Software Requirements Specification.
c. GUI: Graphical User Interface.
d. SA: System Administrator.
e. SO: Stock Owner.
f. PT: Professional Trader.
g. OU: Ordinary User
h. CB: Casual Browser.
i. FSM: Finite State Machine.
j. DB: Database.
k. ERCD: Entity-Relation Class Diagram.

Definitions
a. Servlet: Java Servlet allows programmers to use Java to create dynamic content
    on web pages.
b. Stock: Also referred to as a share and equity share, a stock means a small
    ownership of a specific company or corporation.

1.4   References
Appendix A: User Interface Prototypes
Index

1.4   Overview
The rest of this SRS is organized as follows:
a. Section 2: Gives the overall description of ECS. It contains the Use-Case
    diagram for ECS. Section 2 also contains assumptions and dependencies of the
    system.
b. Section 3: Gives specific software requirements and functionalities in the form
    of Mini Use-Case diagrams along with accompanying Collaboration diagrams,
    Finite State Machine of the system, and ER Class diagram of the system. This
    section also contains supplementary software requirements of the system.
c. Section 4: Gives supporting information for the software. It contains user-
    interface prototypes in the appendix, which is required by the system, as well as
    an index to make this SRS easier to use.

2. Overall Description

2.1 Use-Case Diagram
a.
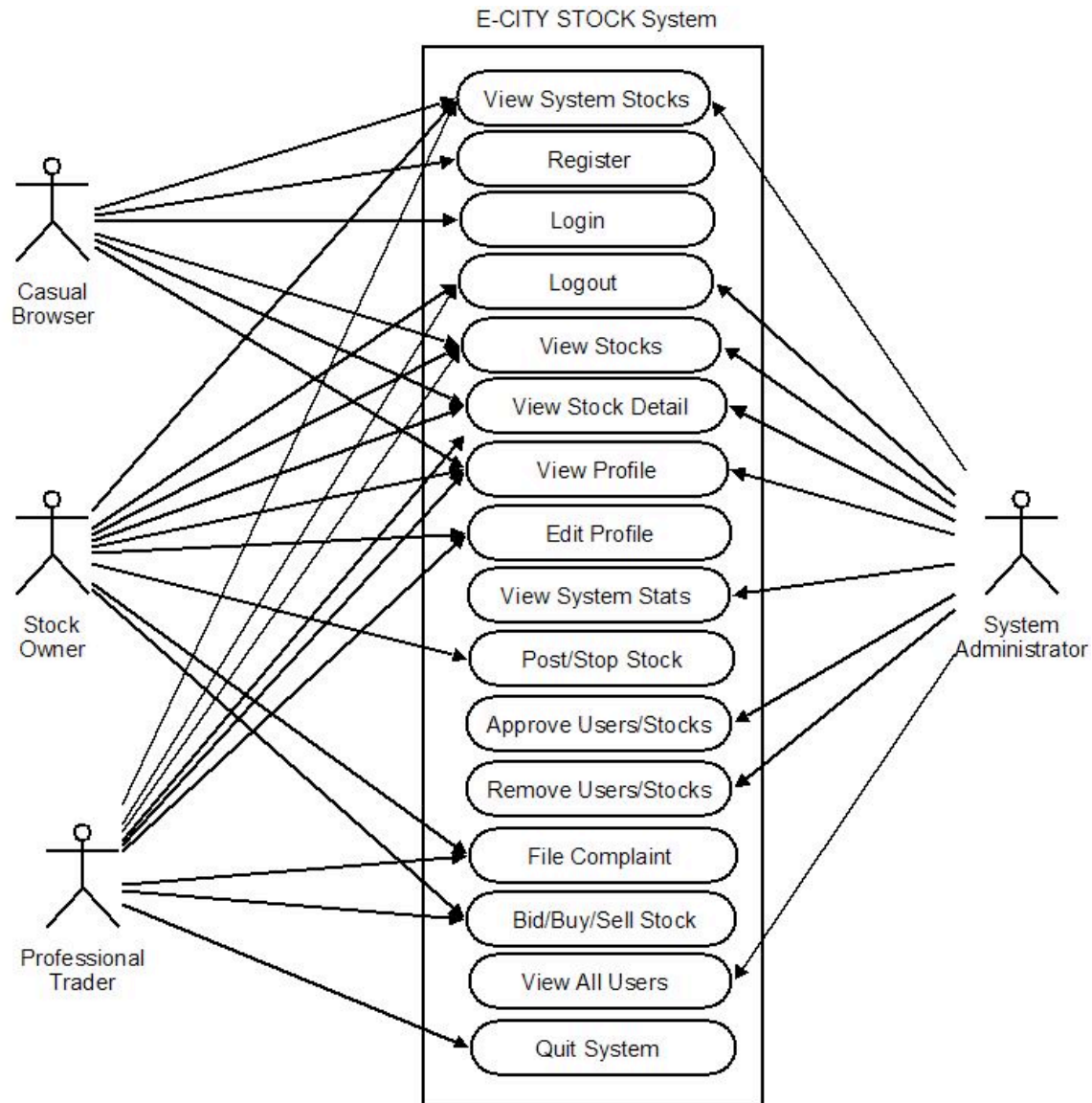
b. Use-Case Descriptions

<u>View System Stock</u>: Presents the user with a list of companies and brief information of their stocks.

<u>Register</u>: Allows a CB to apply to the system.

<u>Login</u>: Allows a CB to input his/her username and password and then have access to the system as a SO or a PT.

<u>Logout</u>: Allows a user in the system to exit from the system.

<u>View Stocks</u>: This presents a more detail list of all the stocks in a company.

<u>View Stock Detail</u>: This presents a detail description of each stock including high and low bidding and selling prices, as well as price history and owner.

<u>View Profile</u>: The user is presented with a Stock Owner, Professional Trader, or his own profile. If a user is viewing his own profile, different functionalities will be available to that user depending on his user type.

<u>Edit Profile</u>: A Stock Owner or Professional Trader can edit his/her own information that appears on the profile.

<u>View System Statistics</u>: This presents the SA with all current data of the systems including all users and all stock.

<u>Post New Stock</u>: Stock Owner can request a new stock to be posted. System Administrator reviews the request and either approves or rejects the request. If approved, a new stock will be posted under the ownership of the Stock Owner.

<u>Stop Stock</u>: Stock Owner can request to stop one of his stock. The System Administrator then approves or rejects the request. If approved, the stock will no longer be in the system.

<u>Approve New User</u>: Consists of a list of users who have register into the ECS system and are awaiting approval from the System Administrator.

<u>Remove User</u>: Consists of a list of ECS users who have been flagged, have run out of money, or have quit the system and await removal by the System Administrator.

Approve New Stock: Consists of a list of new stocks that are awaiting approval into the ECS system from the System Administrator.

Remove Stock: Consists of a list of stocks that have been stopped by their respective Stock Owner and await removal by the System Administrator.

File Complaint: Users can make complaints against other users depending on their user types. Stock Owners can only file complaints against Professional Traders. Professional Traders can file complaints against both Stock Owners and other Professional Traders. Once complaints are filed, they're queued in a list that will be reviewed by the System Administrator. If a user has at least 3 complaint tags, their account may be frozen.

Bid: Stock Owners and Professional Traders are allowed to place bids on stocks.

Buy: Stock Owners and Professional Traders are allowed to buy stocks.

Sell: Stock Owners and Professional Traders can sell their own stock but a Professional Trader cannot sell his stock if he does not have enough money.

View All Users: This displays all the users in the system for the SA to check on.

Quit System: A Professional Trader can quit the system, thus deleting his account. Once the Professional Trader's quit system request has been queued, the System Administrator reviews the request and either approves or rejects the request. If approved, the Professional Trader's account will be deleted, along with all of his assets recorded in the system.

2.2   Assumptions and Dependencies

    a.   Users who register as SO or PT have knowledge of stocks and how the stock market works.

    b.   Web based application requires an Internet browser, preferably Internet Explorer 6.0 or higher.

    c.   Our system requires an Internet connection.

3.   Specific Requirements

3.1   Collaboration Diagrams

A. View System Stocks
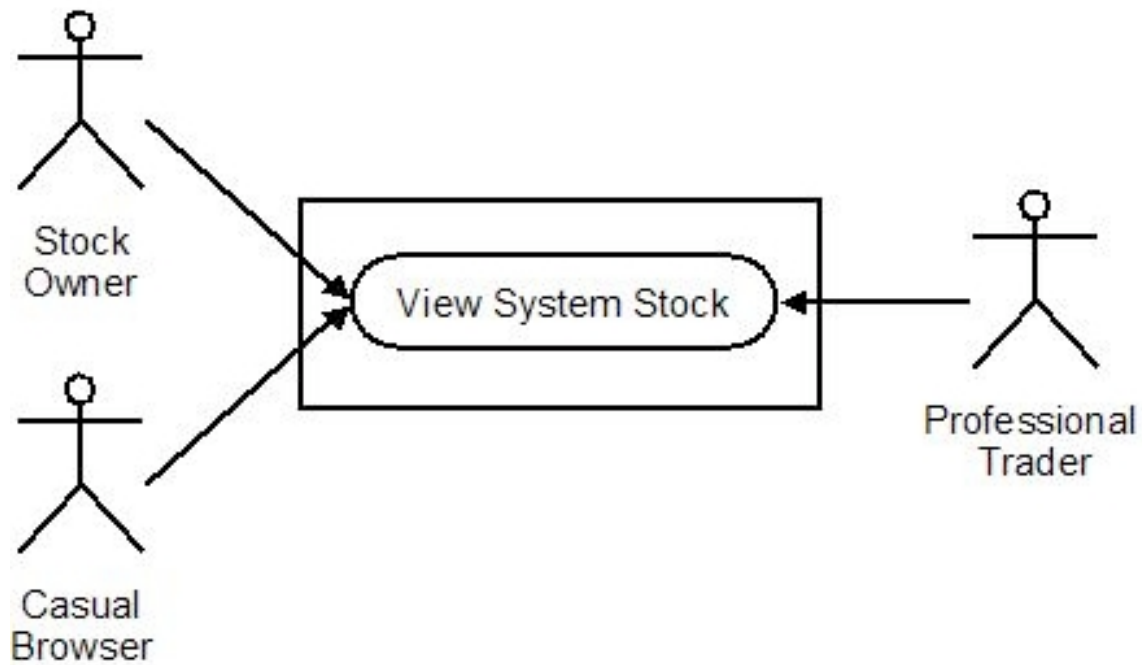
FIGURE A.1
View System Stocks Use-Case Diagram
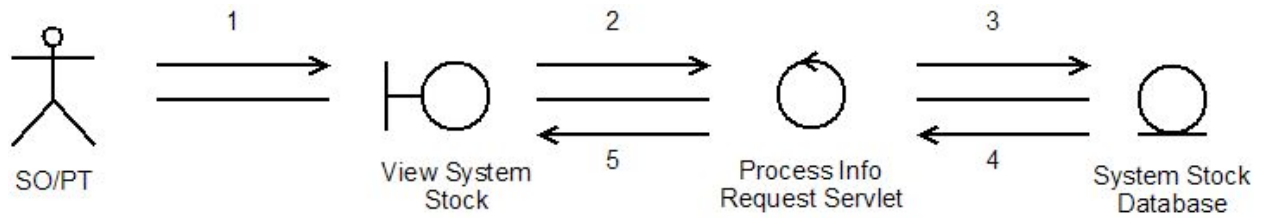
FIGURE A.2
View System Stock Collaboration Diagram

1. Any user clicks on the "View System Stocks" link.
2. Information is passed to the Process Info Request Servlet.
3. Data is retrieve from the database.
4. The database returns the data to the Servlet.
5. The data is passed to the View System Stock interface and is shown to the user.
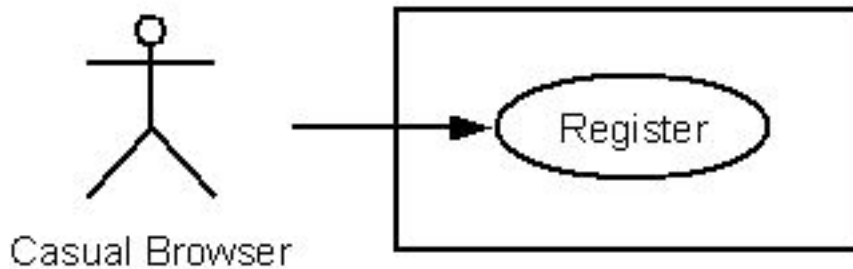
B. Register

FIGURE B.1
Register Use-Case Diagram
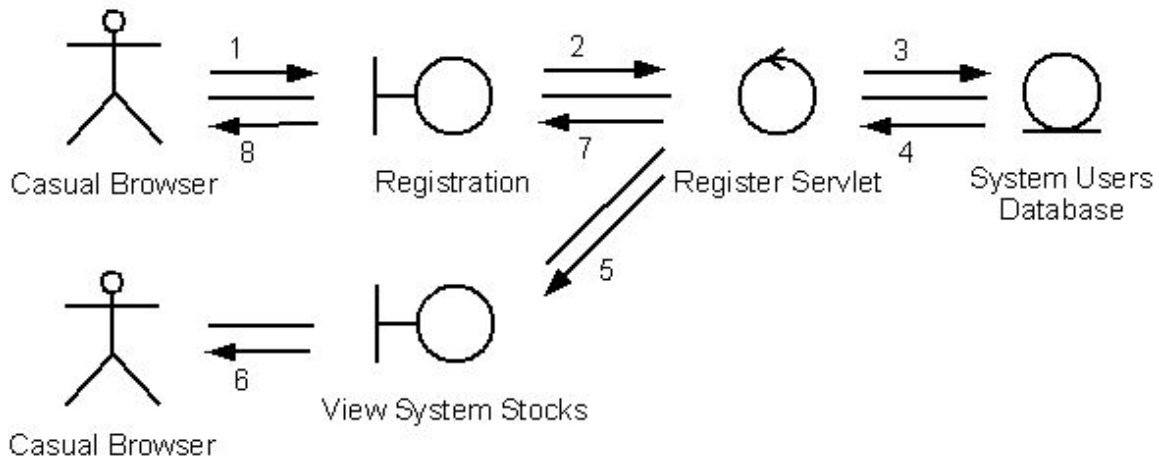
FIGURE B.2
Register Collaboration Diagram

1. The Casual Browser enters information and clicks "Submit".
2. The information is processed in the Register Servlet.
3. The information is passed to the System Users Database and a new user is created.
4. The information is passed back to the Register Servlet.
5. The information is then passed to View System Stocks interface.
6. The Casual Browser is told that he has to wait for approval from the System Administrator.

Exceptional Case:
1. The Casual Browser enters information and clicks "Submit".
2. The information is processed in the Register Servlet.
7. The information given has a mistake and is returned to the Registration interface.
8. The Casual Browser is told that his information is incorrect and that he has to fix his errors.
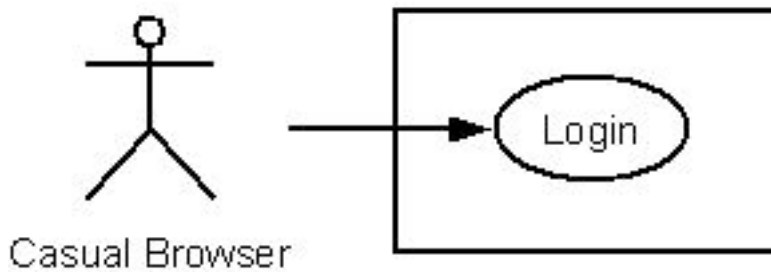
C. Login

FIGURE C.1
Login Use-Case Diagram
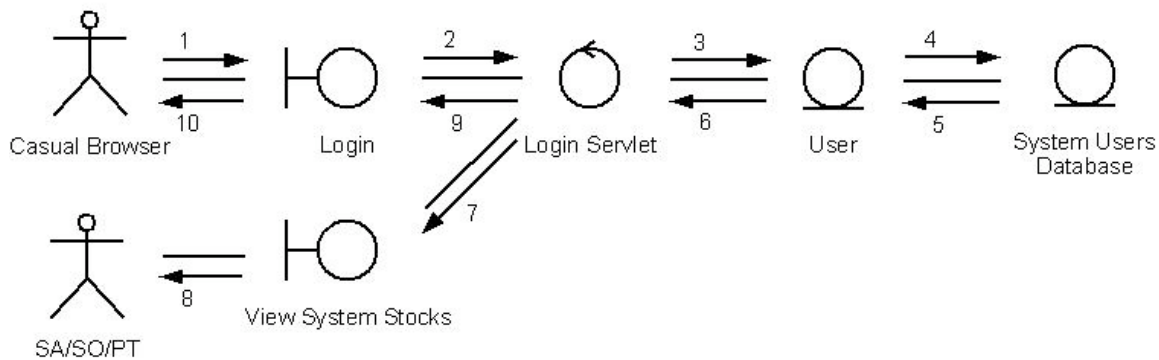
FIGURE C.2
Login Collaboration Diagram

1. The Casual Browser enters username and password and clicks "Login".
2. The information is processed in the Login Servlet.
3. The information is then passed to the User class.
4. The information is passed to the System Users Database.
5. The information is correct and is then passed back to the User class.
6. The information is passed to the Login Servlet.
7. The information is then passed to the corresponding homepage (View System Stocks interface) of the user.
8. The corresponding homepage is shown to each user.

Exceptional Case:

1. The Casual Browser enters username and password on Login interface.
2. The information is processed in the Login Servlet.
3. The information is then passed to the User class.
4. The information is passed to the System Users Database.
5. The information is wrong and is then passed back to the User class.
6. The information is passed to the Login Servlet.
9. The information is passed back to the Login interface.
10. The Casual Browser is told that the information he submitted is wrong.
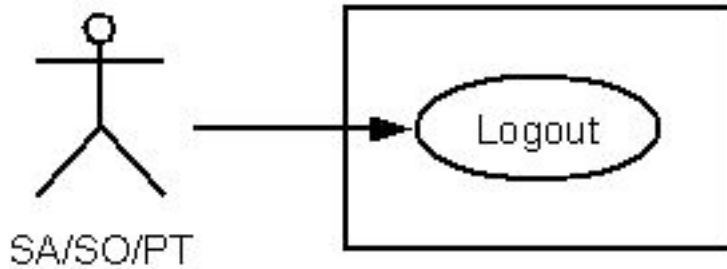
D. Logout

FIGURE D.1
Logout Use-Case Diagram
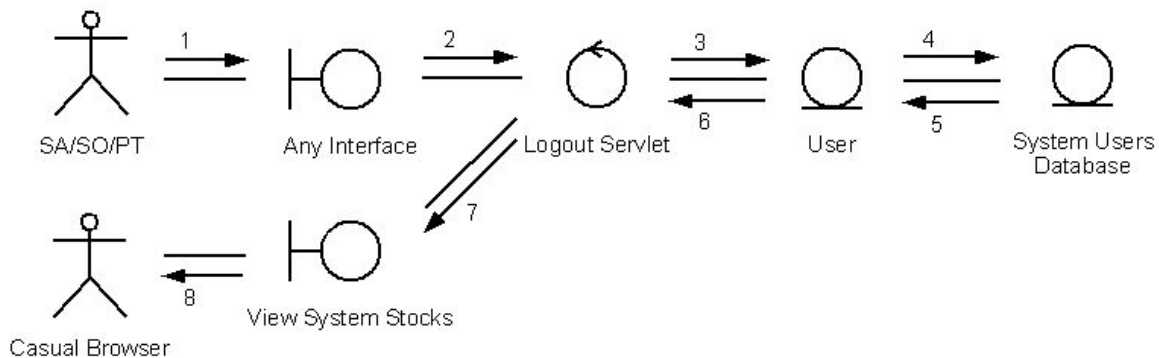
FIGURE D.2
Logout Collaboration Diagram

1. SA, SO, or PT click on logout on any interface.
2. The information is processed in the Logout Servlet.
3. The information is then passed to the User class where the user is then logged out.
4. The information is passed to the System Users Database.
5. The Database returns the information of the user's logged out status.
6. The information is processed by the Logout Servlet.
7. The logged out status is given to the homepage (View System Stocks) interface.
8. The homepage tells the user that they logged out successfully.

E. View Stocks
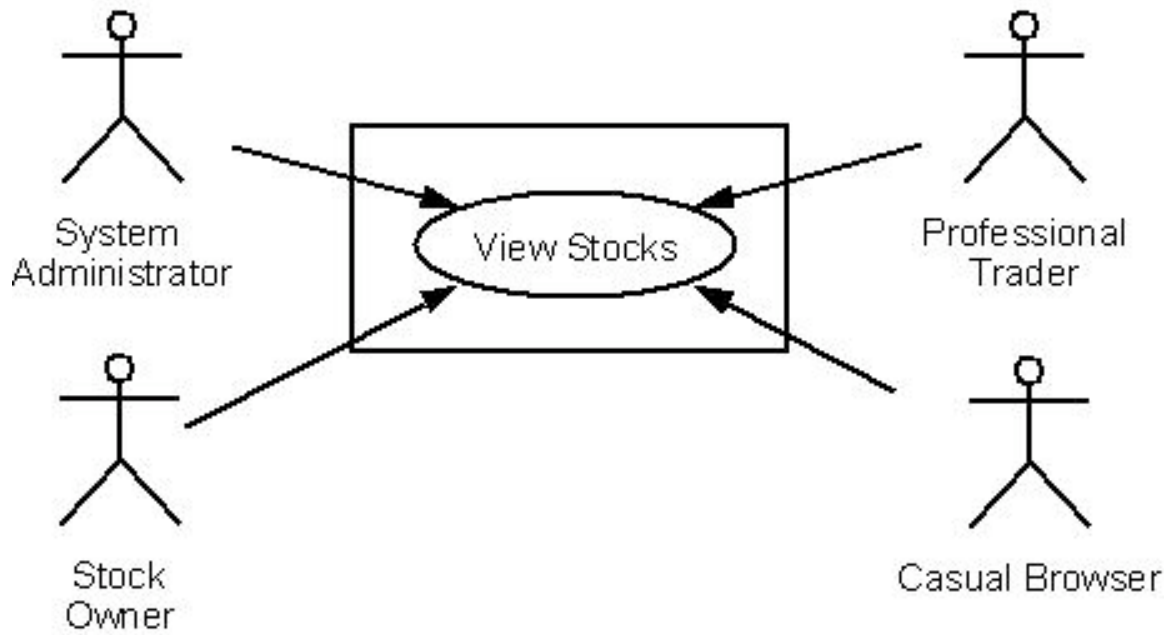
FIGURE E.1
View Stocks Use-Case Diagram
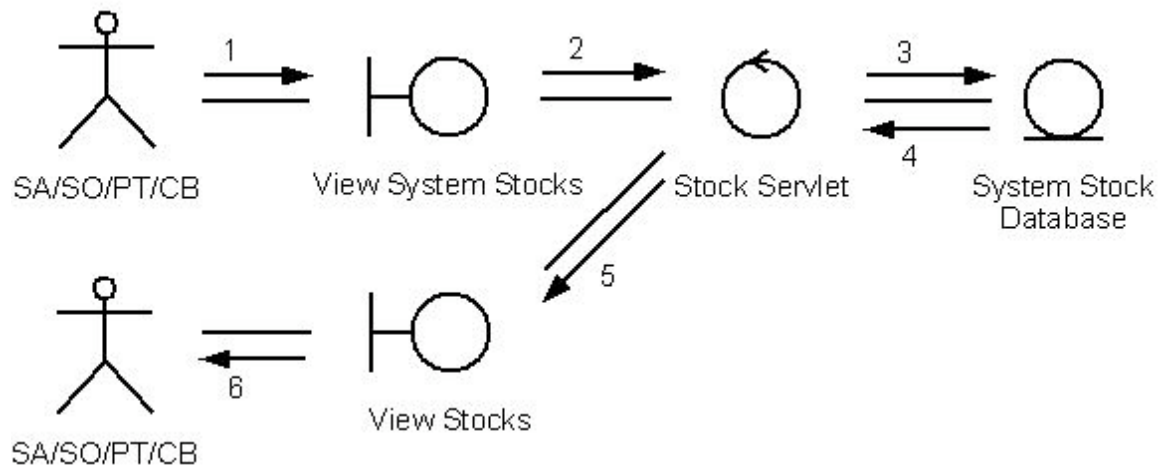
FIGURE E.2
View Stocks Collaboration Diagram

1. Any user clicks on the stock on the View System Stocks page.
2. The stock clicked on is passed to the Stock Servlet.
3. The stock is then passed to the System Stock Database.
4. The stock is retrieved and passed back to the Stock Servlet.
5. The selected stock passes on to the View Stock interface.
6. The stock is shown to the user.
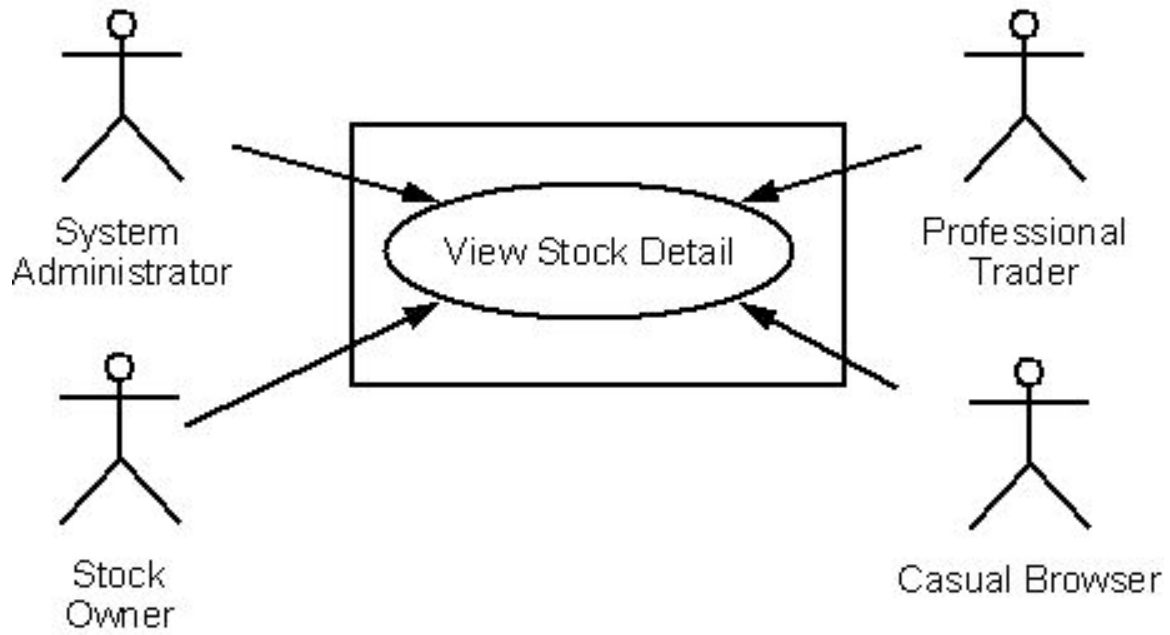
F. View Stock Detail

FIGURE F.1
View Stock Detail Use-Case Diagram
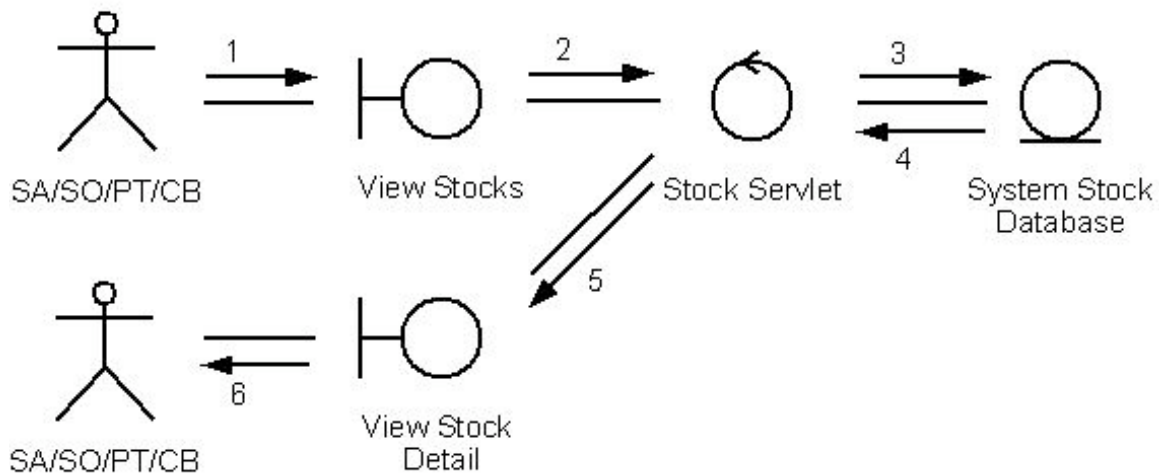
FIGURE F.2
View Stock Detail Collaboration Diagram

1. Any use clicks on the "View Stock Detail" on the View Stocks interface.
2. The information selected is passed to the Stock Servlet.
3. The information for the selected stock is gathered.
4. The database returns the information of the selected stock.
5. The information is passed to the View Stock Detail interface.
6. The selected stock is shown to the user.
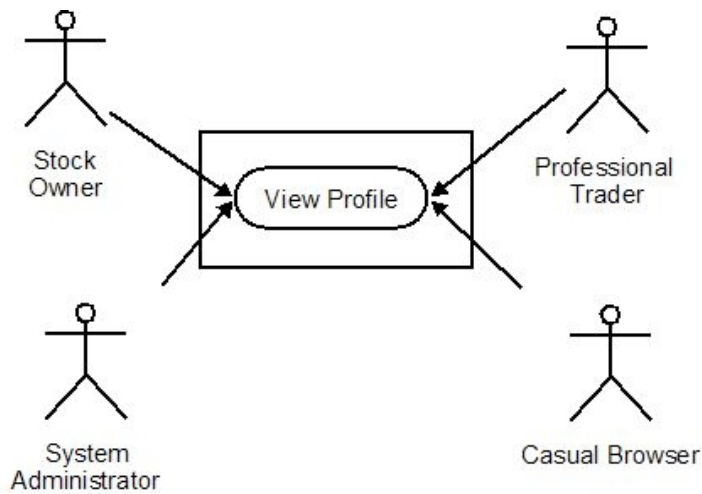
G. View Profile

FIGURE G.1
View Profile Use-Case Diagram
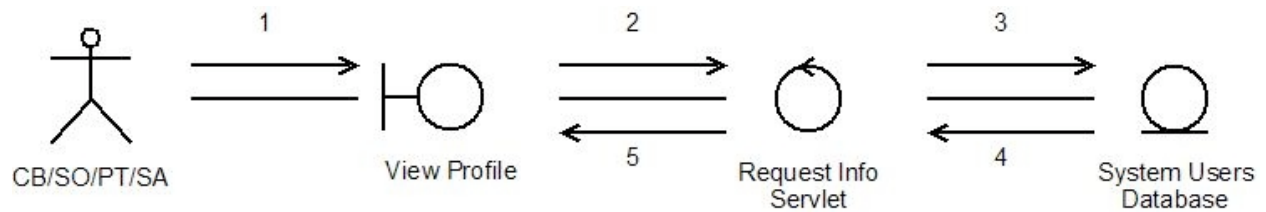
FIGURE G.2
View Profile Collaboration Diagram

1. Any user clicks on the "View Profile" link.
2. Pass information to a Servlet.
3. The Information is passed to the System Users Database.
4. Pass information back to the Servlet.
5. The information is passed to the View Profile interface which is displayed to the user.
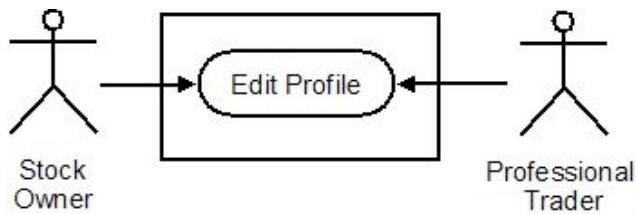
H. Edit Profile

FIGURE H.1
Edit Profile Use-Case Diagram
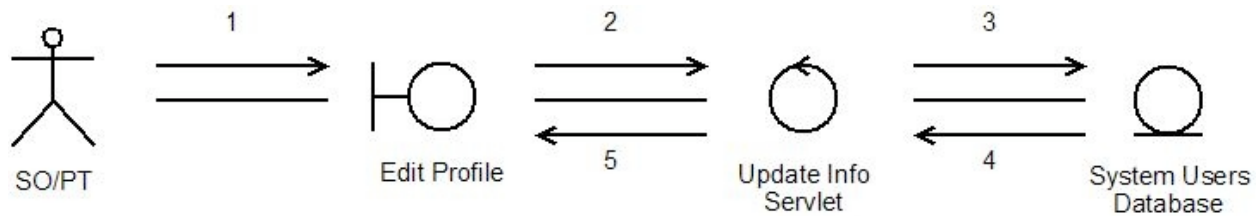
FIGURE H.2
Edit Profile Collaboration Diagram

1. SO/PT visits his/her own profile page and they click on "Edit".
2. Pass information to a Servlet.
3. Pass information to System Users Database.
4. Pass information back to a Servlet.
5. Pass information to Edit Profile interface displaying a message to the user that profile has been updated successfully

I. View System Statistics
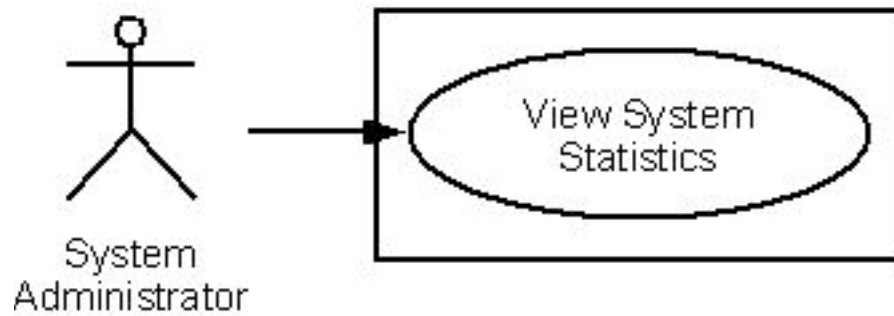
FIGURE I.1
View System Statistics Use-Case Diagram
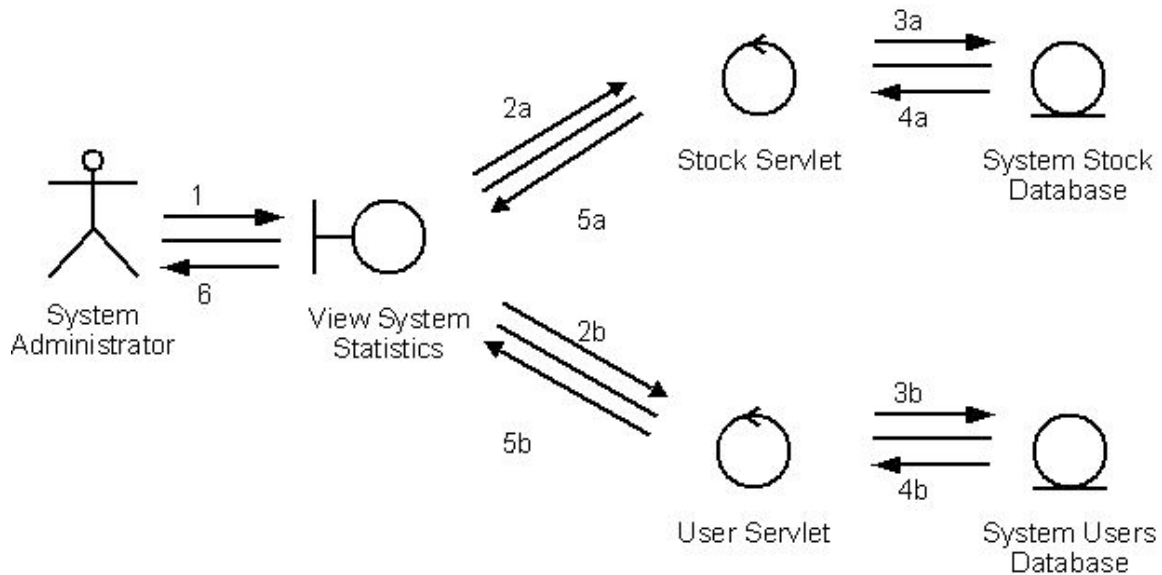
FIGURE I.2
View System Statistics Collaboration Diagram

1. The System Administrator clicks on "View System Statistics".
2a. The information is passed to the Stock Servlet.
3a. The information is then passed to the System Stock Database.
4a. The retrieved information is passed back to the Stock Servlet.
5a. The information is then passed to the View Statistics interface.
2b. The information is passed to the User Servlet.
3b. The information is then passed to the System Users Database.
4b. The retrieved information is passed back to the User Servlet.
5b. The information is then passed to the View Statistics interface.
6. The system statistics are now shown to the System Administrator.
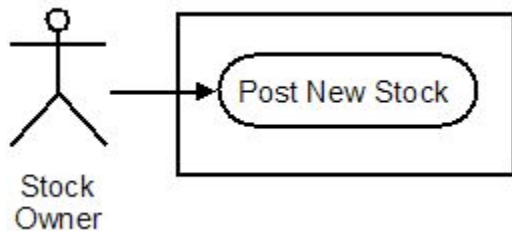
J. Post New Stock

FIGURE J.1
Post New Stock Use-Case Diagram
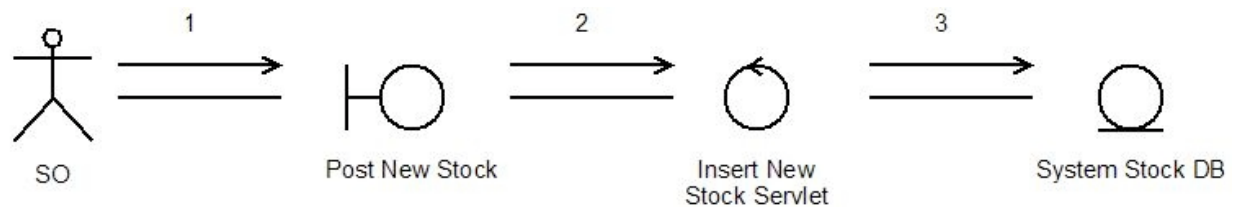
FIGURE J.2
Post New Stock Collaboration Diagram

1. SO clicks on the "Post New Stock" link.
2. Pass information to a Servlet.
3. Pass information to a database.
4. Information is passed back to the Servlet.
5. The information is given to the Poset New Stock interface.
6. The interface tells the user that they must await approval from the System Administrator.
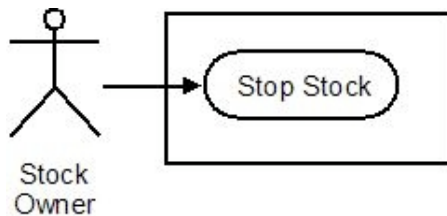
K. Stop Stock

FIGURE K.1
Stop Stock Use-Case Diagram
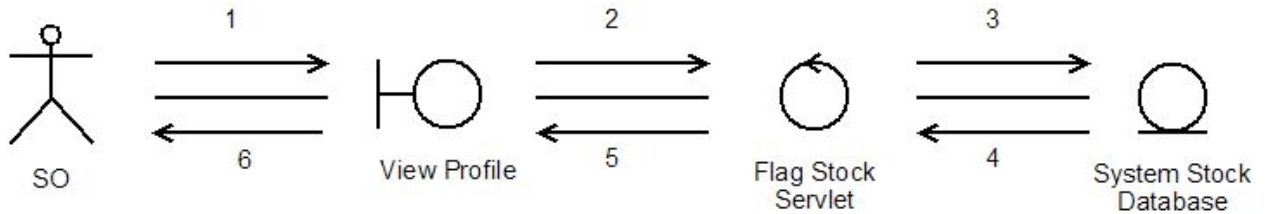
FIGURE K.2
Stop Stock Collaboration Diagram

1. SO visits his own profile – a list of the stocks he owns is displayed along with an option to stop individual stocks.
2. Pass information to a Servlet.
3. Pass information to System Stock Database, flagging the stock.
4. Pass information back to a Servlet as confirmation.
5. Pass information to View Profile – for SO – interface.
6. Display a message to the Stock Owner that his stock has been queued. If SA has approved the stop request, display a message that his stock has been stopped.
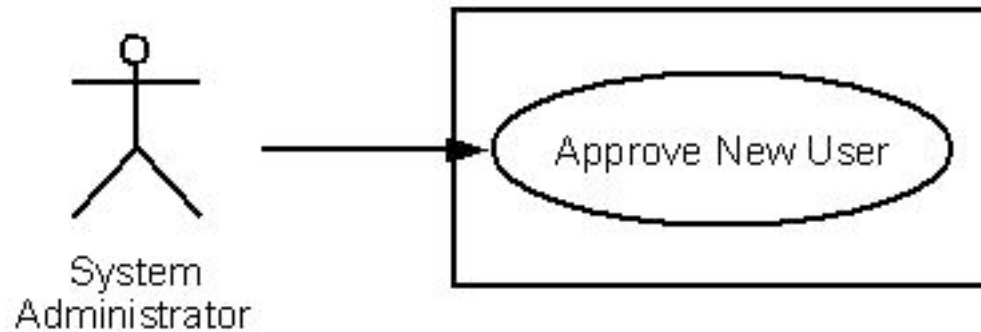
L. Approve New User



FIGURE L.1
Approve New User Use-Case Diagram
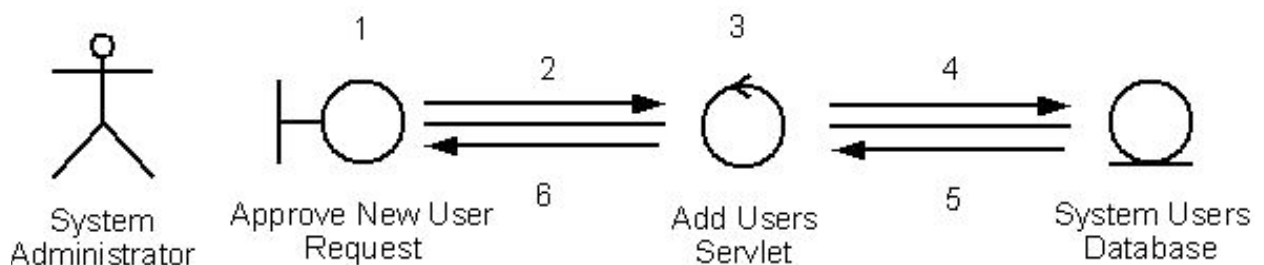
FIGURE L.2
Approve New User Collaboration Diagram

1. User Interface displays all the new users awaiting approval from SA. SA can select an individual or multiple user requests.
2. Transmit the list of selected user to the server.
3. The Servlet parses the user list.
4. Insert approval for selected users into the System Users Database.
5. Retrieve any pending user approval in the system.
6. Returns an updated list of pending user approval.
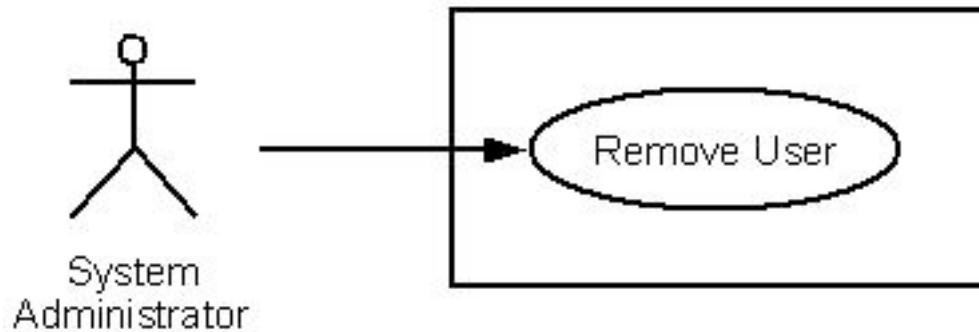
M. Remove User

FIGURE M.1
Remove User Use-Case Diagram
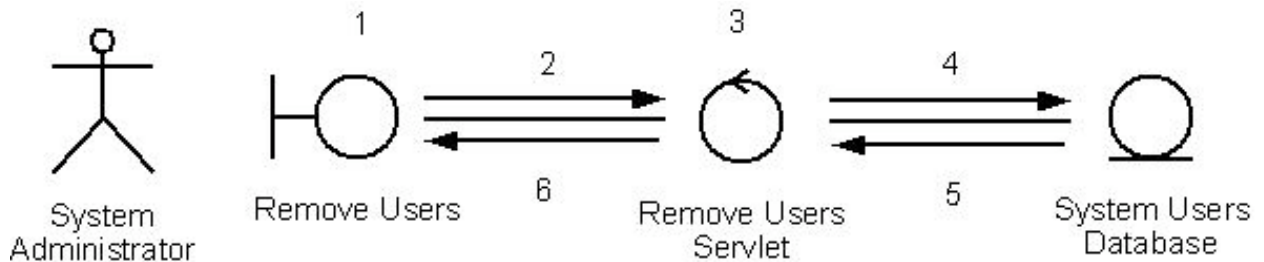
FIGURE M.2
Remove User Collaboration Diagram

1. User Interface displays all the users to be removed from the system by the SA. SA can select individual or multiple users from the list.
2. Transmit the list of selected user to the server.
3. The Servlet parses the user list.
4. Delete selected users from the System Users Database.
5. Retrieve any pending user removal in the system.
6. Returns an updated list of pending user removal.
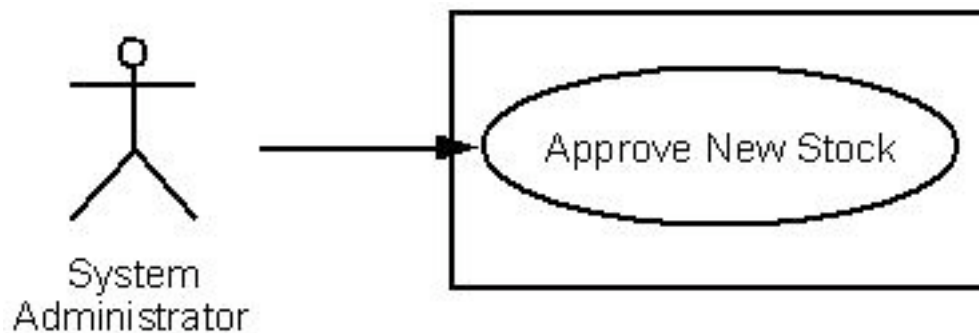
N. Approve New Stock

FIGURE N.1
Approve New Stock Use-Case Diagram
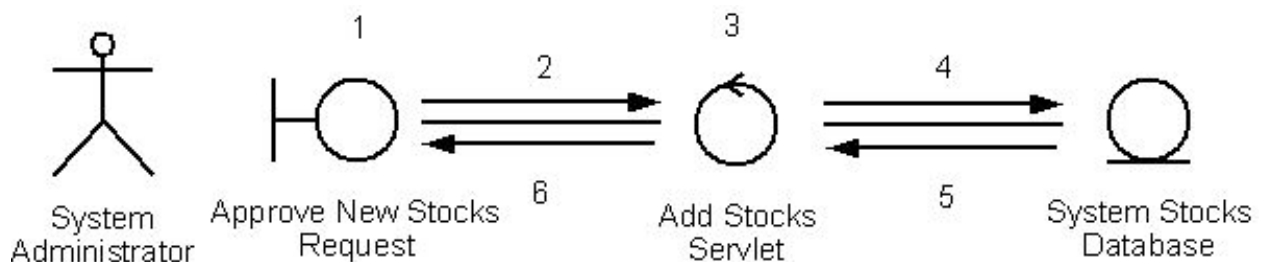
FIGURE N.2
Approve New Stock Collaboration Diagram

1. User Interface displays all the new stocks awaiting approval from SA. SA can select an individual or multiple stock requests.
2. Transmit the list of selected stocks to the server.
3. The Servlet parses the stock list.
4. Insert approval for selected stocks into the System Stocks Database.
5. Retrieve any pending stock approval in the system.
6. Returns an updated list of pending stock approval.
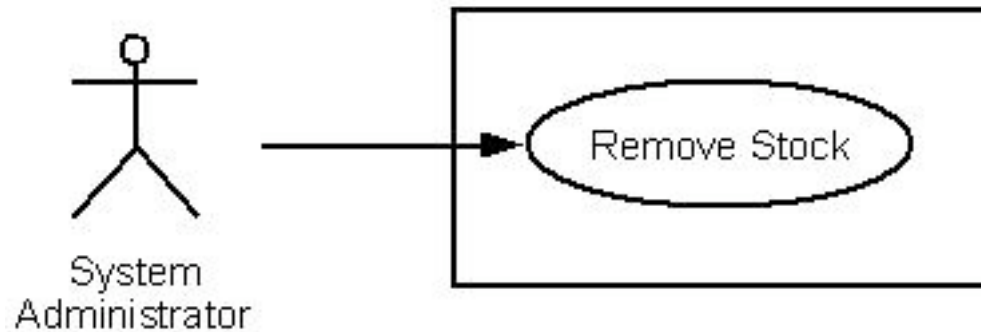
O. Remove Stock

Figure O.1
Remove Stock Use-Case Diagram
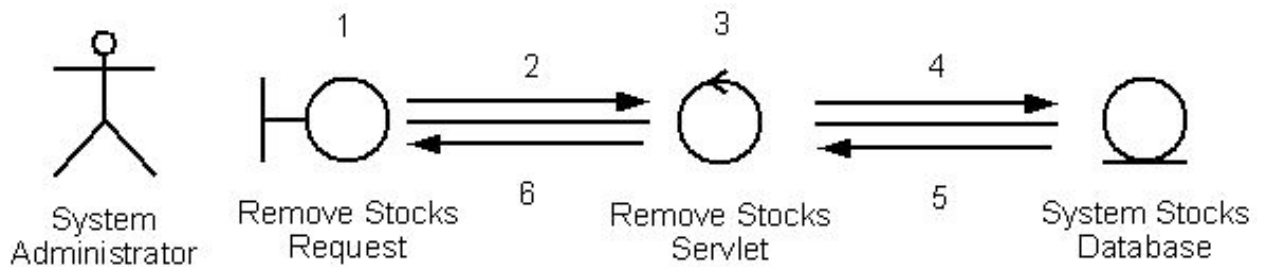
FIGURE O.2
Remove Stock Collaboration Diagram

1. User Interface displays all the stocks that have been stopped by their SO and are awaiting removal from the system by the SA. SA can select individual or multiple stocks from the list.
2. Transmit the list of selected stocks to the server.
3. The Servlet parses the stock list.
4. Delete selected stocks from the System Stocks Database.
5. Retrieve any pending stock removal in the system.
6. Returns an updated list of pending stock removal.
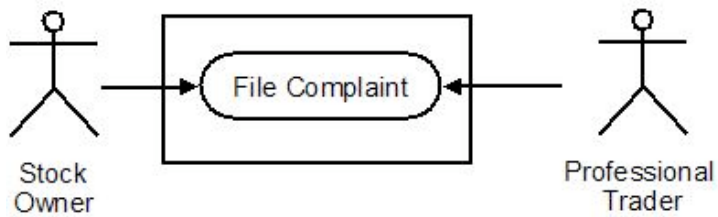
P. File Complaint

FIGURE P.1
File Complaint Use-Case Diagram
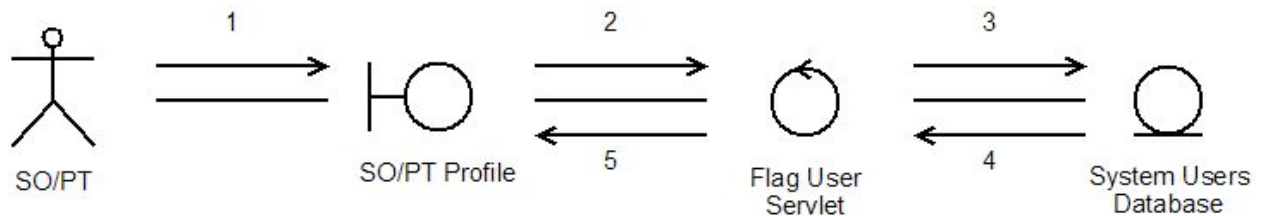
FIGURE P.2
File Complaint Collaboration Diagram

1. SO/PT clicks on "File Complaint" button.
2. Pass information to the Flag User Servlet.
3. Pass information to the database, flagging the user complained against.
4. Pass information back to Flag User Servlet.
5. Display message on GUI for successful complaint.

Q. Bid
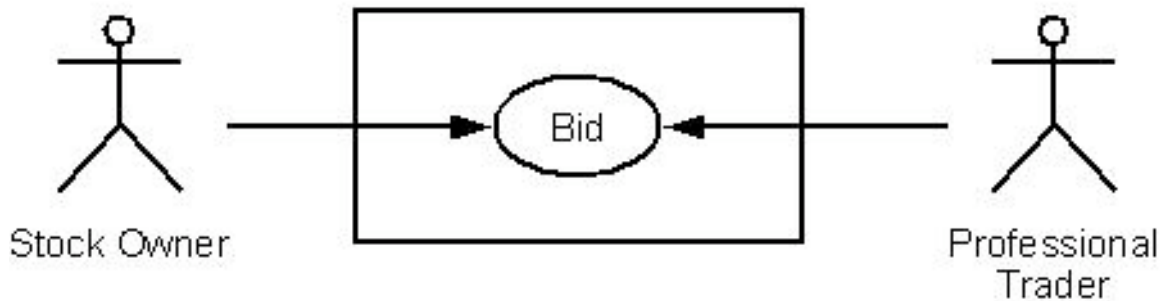
FIGURE Q.1
Bid Use-Case Diagram
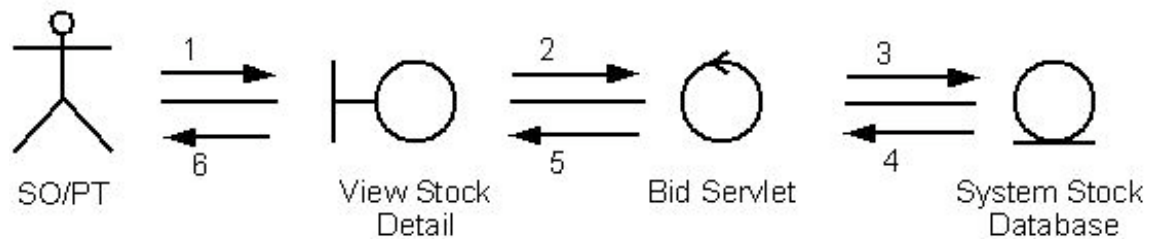
FIGURE Q.2
Bid Collaboration Diagram

1. Stock Owner or Professional Trader click on "Bid".
2. The stock that is being bid on is passed to the Bid Servlet.
3. The stock is processed as having a bid and is passed to the System Stock Database.
4. The stock is returned to Bid Servlet.
5. The data is passed back to the View Stock interface.
6. The user now sees the bid he placed on the stock.

R. Buy
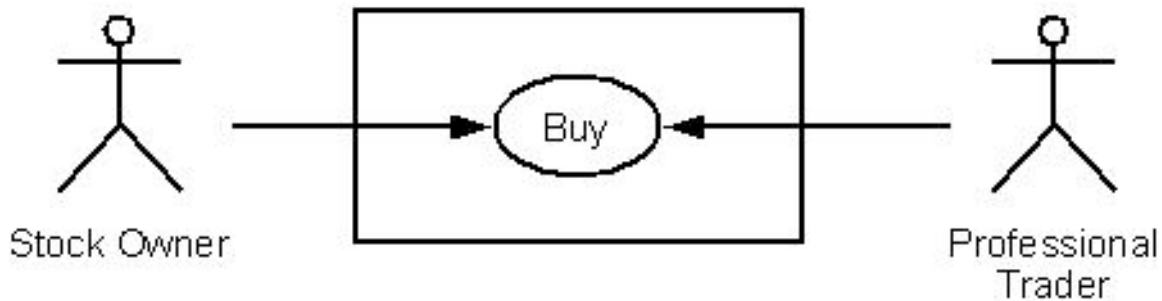
FIGURE R.1
Buy Use-Case Diagram
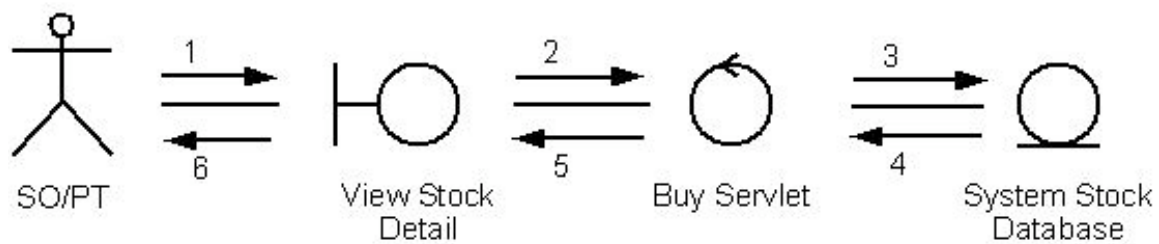
FIGURE R.2
Buy Collaboration Diagram

1. Stock Owner or Professional Trader clicks on "Buy".
2. The stock that is being bought is passed to the Buy Servlet.
3. The stock is processed as being bought and is passed to the System Stock Database.
4. The stock is returned to Buy Servlet.
5. The data is passed back to the View Stock interface.
6. The user waits until the owner approves.

S. Sell
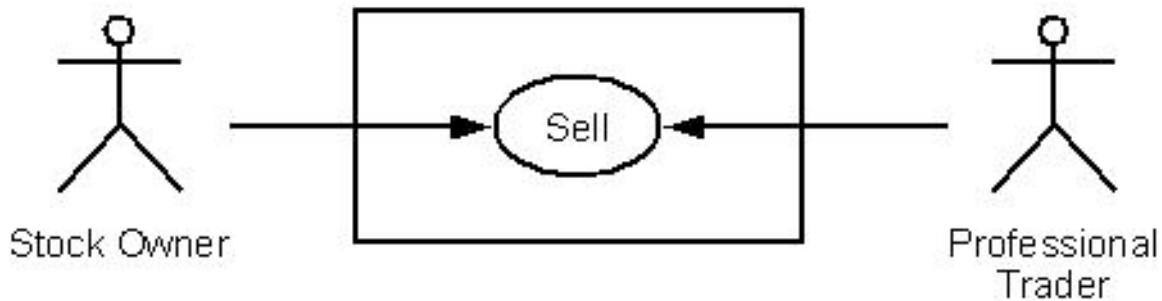
FIGURE S.1
Sell Use-Case Diagram
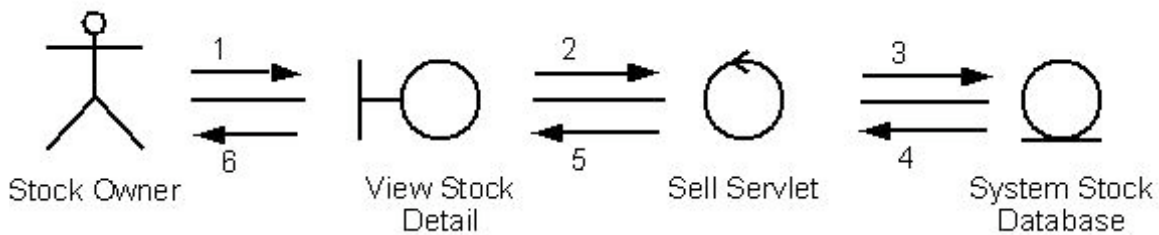
FIGURE S.2
Stock Owner Sell Collaboration Diagram

1. Stock Owner clicks on "Sell".
2. The stock being sold is passed to the Sell Servlet.
3. The stock is processed as being on sale and is passed to the System Stock Database.
4. The stock is returned to Sell Servlet.
5. The data is passed back to the View Stock interface.
6. The Stock Owner is now can now see his stock on sale.
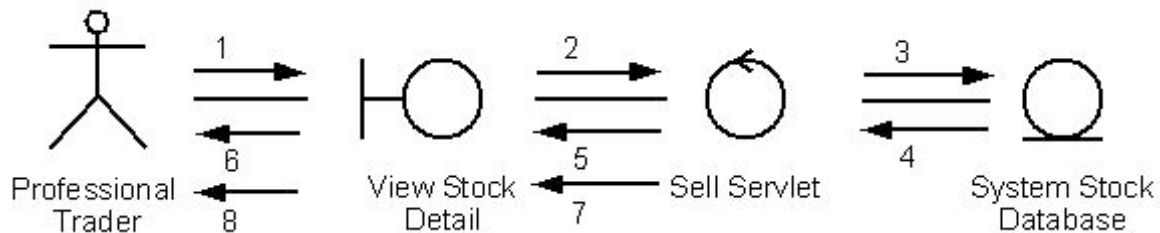
FIGURE S.3
Professional Trader Sell Collaboration Diagram

1. Professional Trader clicks on "Sell".
2. The stock being sold is passed to the Sell Servlet.
3. The stock is processed as being on sale and is passed to the System Stock Database.
4. The stock is returned to Sell Servlet.
5. The data is passed back to the View Stock interface.
6. The Professional Trader is now can now see his stock on sale.

Exceptional Case:
1. Professional Trader clicks on "Sell".
2. The stock being sold is passed to the Sell Servlet.
7. The Sell Servlet returns the stock back to the View Stock interface because the Professional Trader does not have enough money.
8. The Professional Trader is told that he does not have enough money to sell his stock.
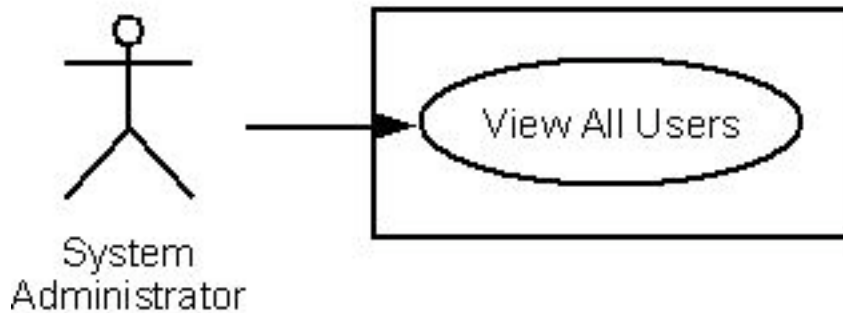
T. View All Users

FIGURE T.1
View All Users Use-Case Diagram
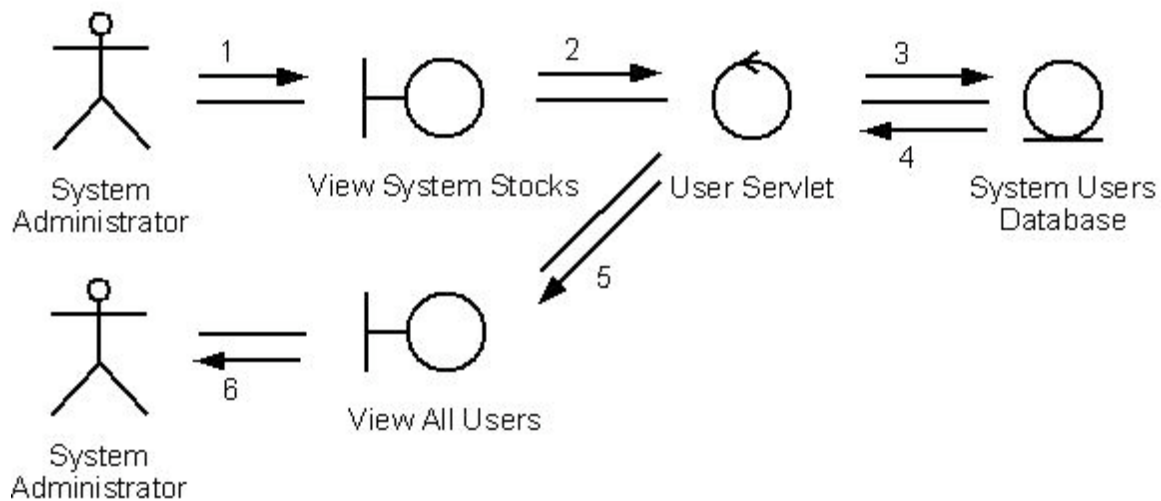
FIGURE T.2
View All Users Collaboration Diagram

1. System Administrator clicks on "View All Users".
2. The information is passed to the User Servlet.
3. All the users are processed and gathered.
4. The database returns all the users in the system.
5. User Servlet processes the information gathered and sends it to the View All Users interface.
6. The System Administrator is shown a list of all the users in the system and a link to their profiles.
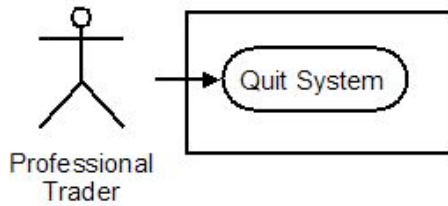
U. Quit System

FIGURE U.1
Quit System Use-Case Diagram
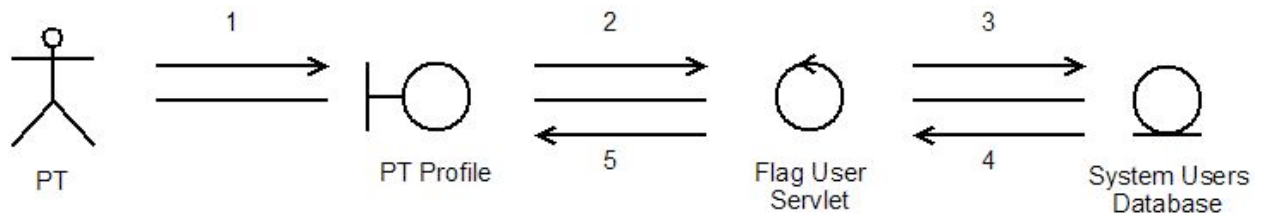
FIGURE U.2
Quit System Collaboration Diagram

1. PT clicks the "Quit from System" button.
2. Pass information to the Servlet.
3. Pass information to the System Users Database, flagging the user.
4. Pass information back to a servlet.
5. Display message on PT Profile for successful quit request.

3.2 ESC System State Diagram
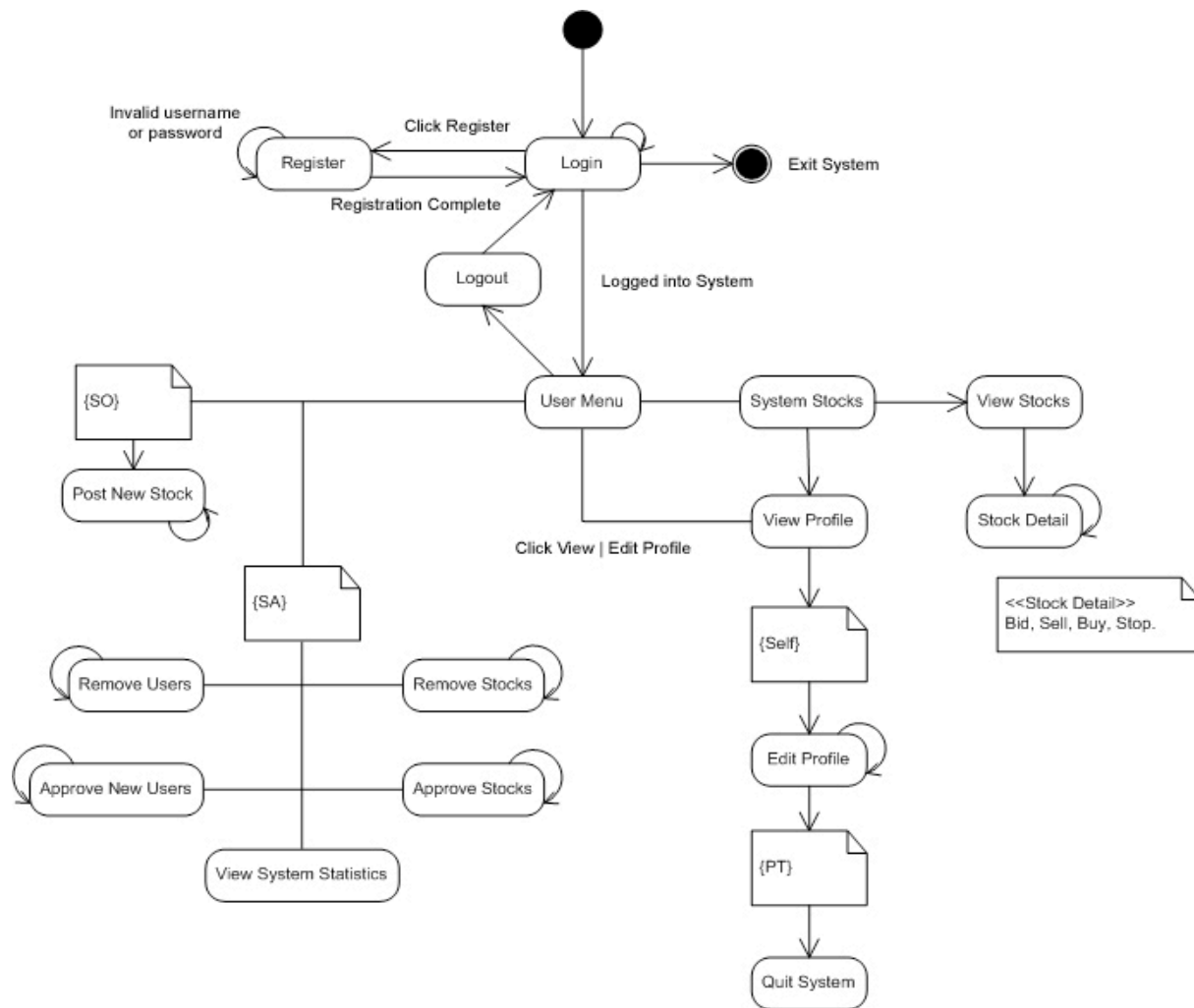
3.3 ER Class Diagram
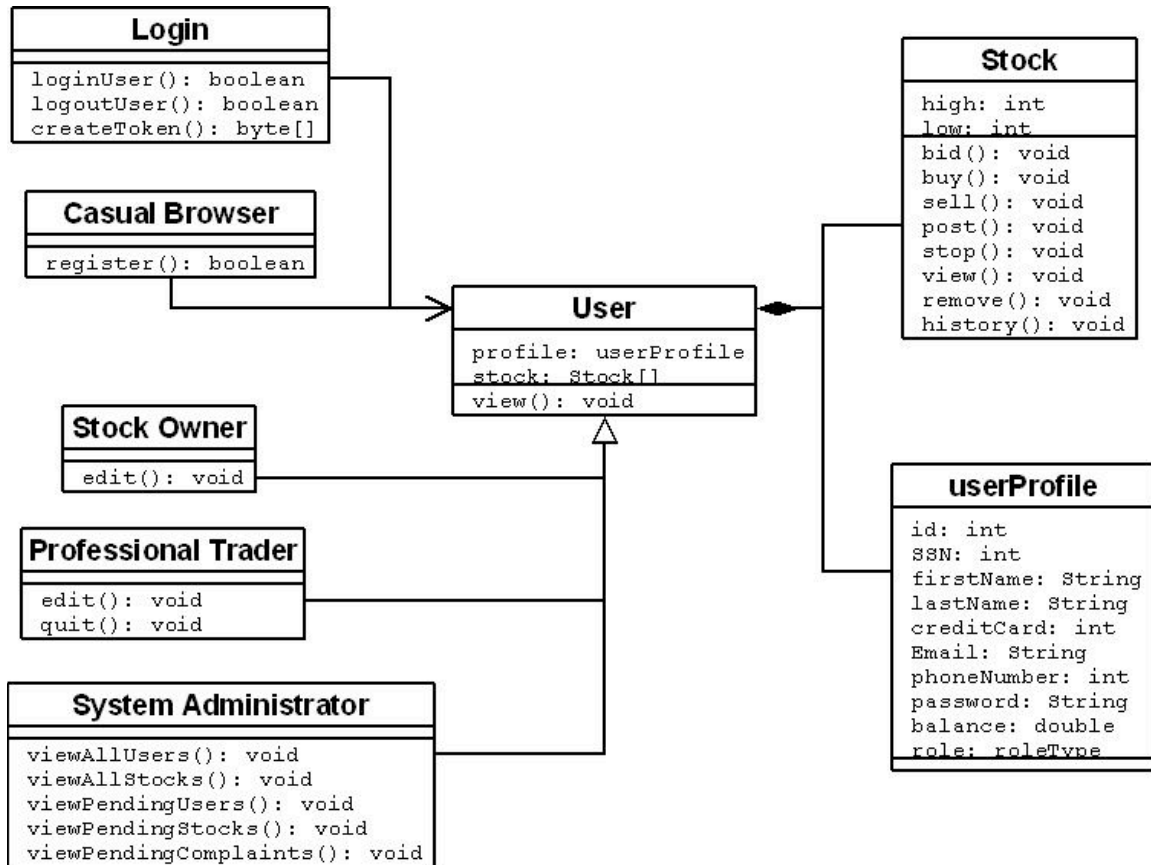
3.4 Supplementary Software Requirement

In order to run this web application properly these software requirements must be met. At the client end, users must have a web browser that supports the standard HTML, CSS 2.0, JavaScript, and XMLHTTPRequest. It is for this reason that we strongly encourage users to use Internet Explorer 6.0 or higher. At the development end, a JDK 5.0 or higher is required and a server that supports Servlets such as J2EE or Apache Tomcat version 5.0 or higher.

4.   Supporting Information

4.1   Appendix A:
      User-Interface Prototypes:

      a. View System Stock – This is the storefront that all users see as their homepage.
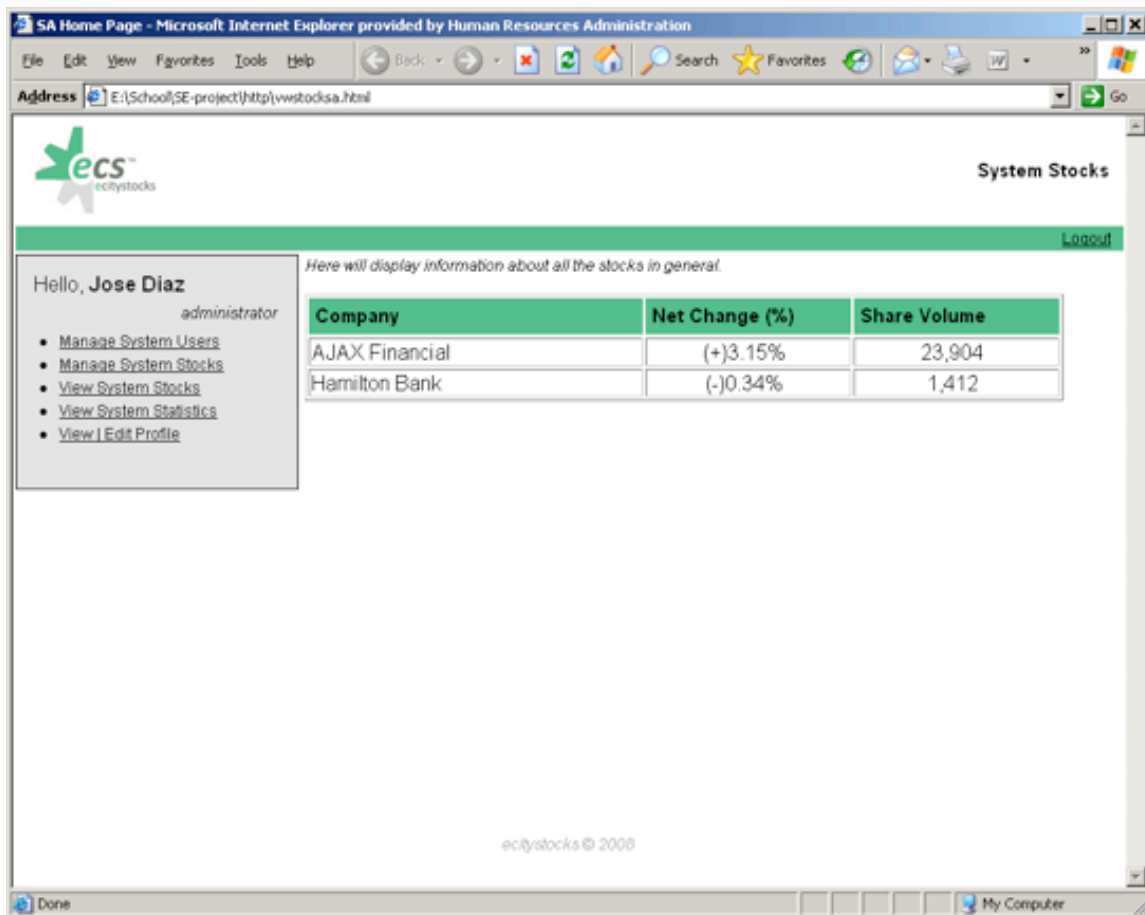
b. Register - This contains the registration view as well as the Login interface on the left side.

    c.   View Stocks – This contains the list of stocks that a company owns.

    d.   View Stock Detail – This is where a SO or PT can bid, buy, or sell stock and view stock history.

e. View Profile – The first interface is for PT and the second interface is for SO. This is where SO and PT can edit their profile and file a complaint. SO can also stop a stock and PT can quit from the system.

1:

2:

f. Edit Profile – This is where SO and PT can edit their profile and add or withdraw money.

g. View System Statistics – This is where the SA can view system-wide statistics.
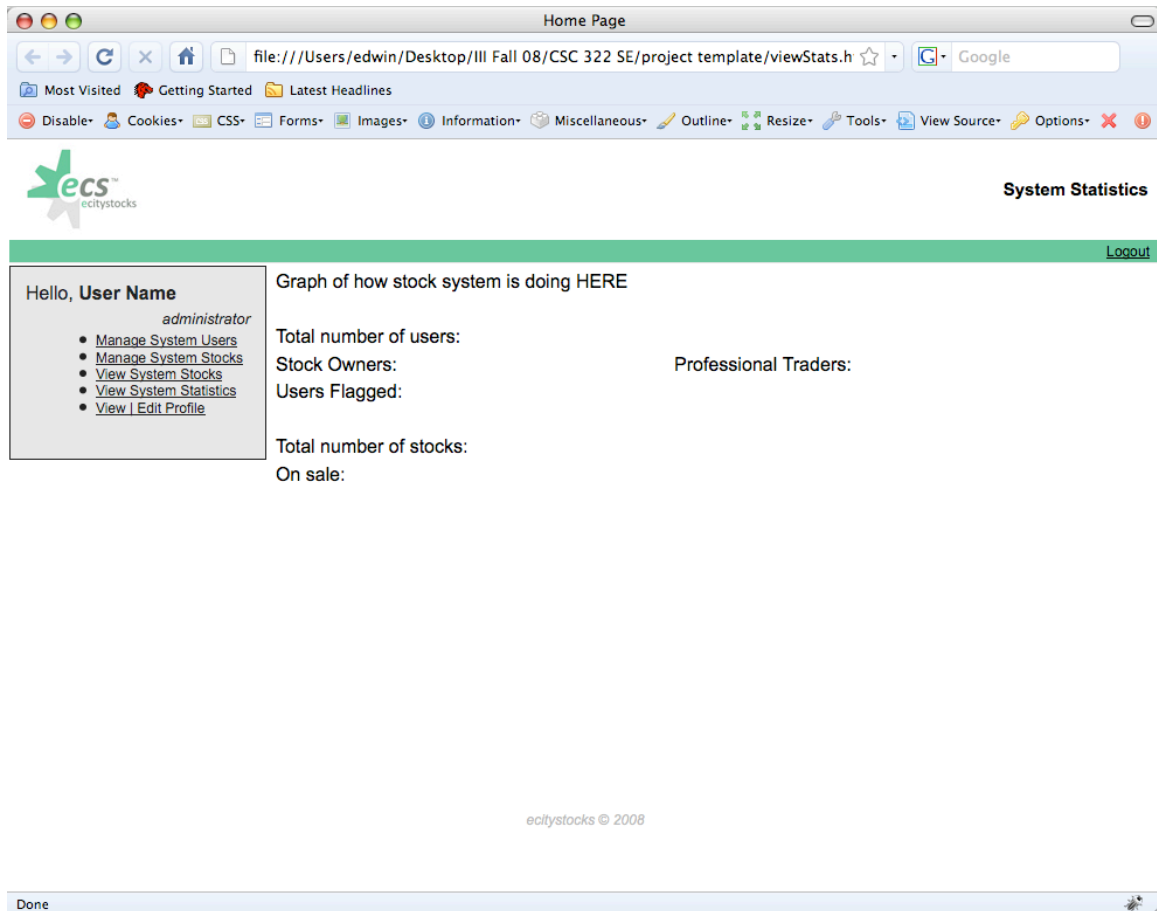
h. Post New Stock – This is where the SO can post a new stock.

i.   Approve New User – This is where the SA approves users who have recently registered to ECS.
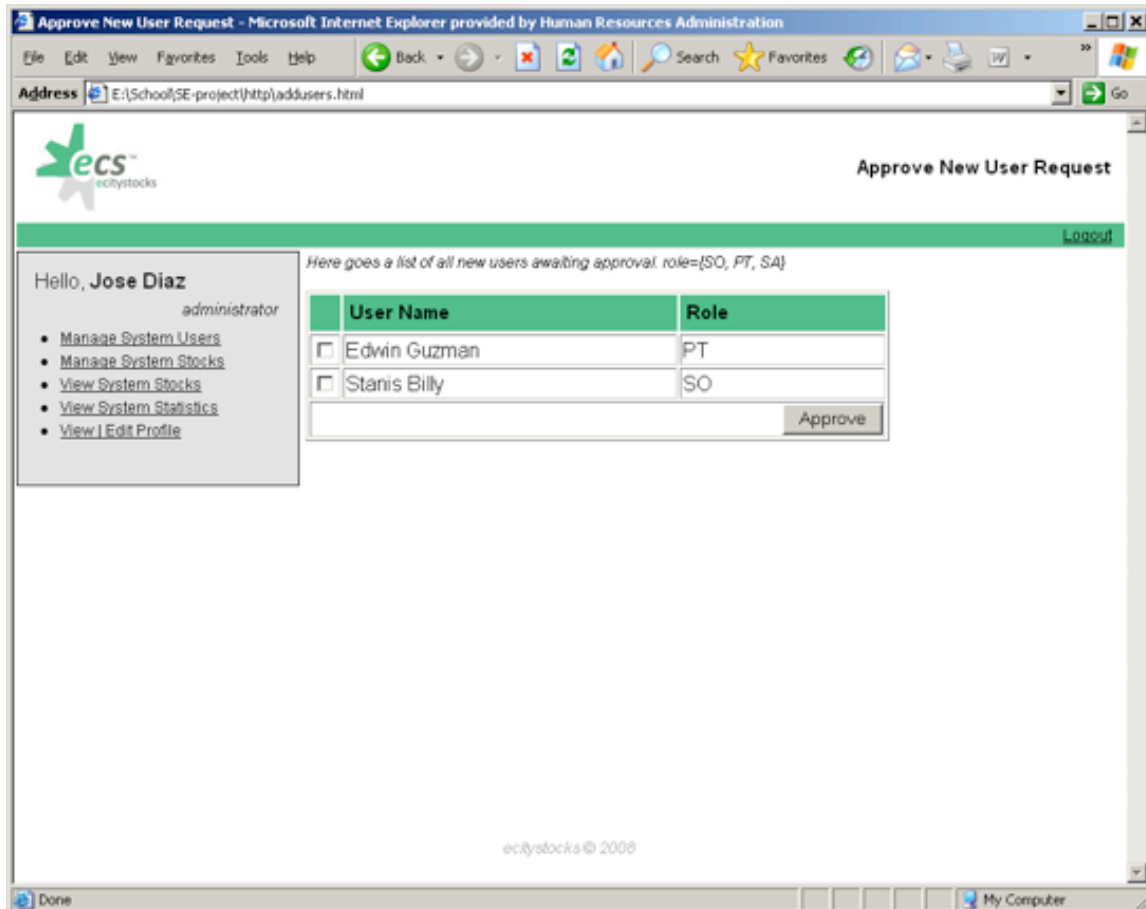
j. Remove User – This interface shows the SA users that have been flagged or who want to quit from ECS.
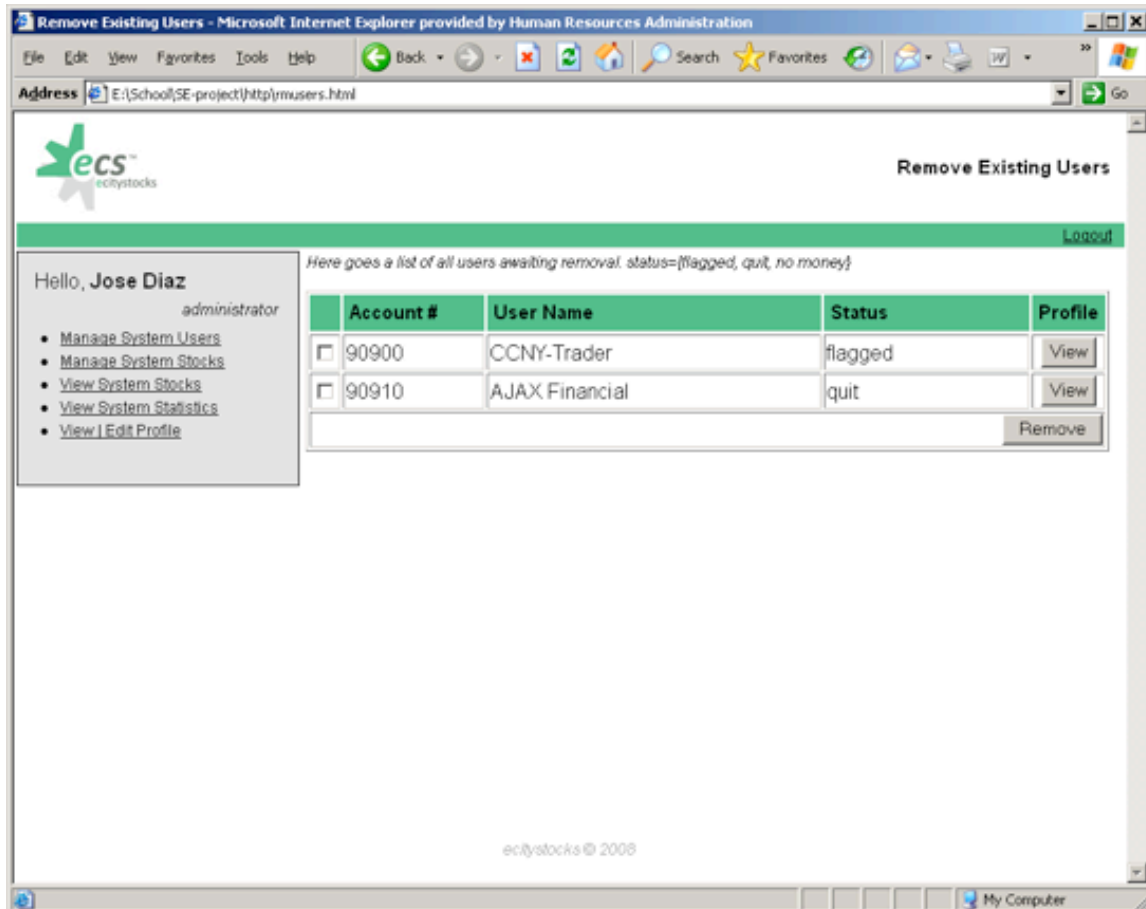
k. Approve New Stock – This interface gives a list of stocks that wait approval from the SA.
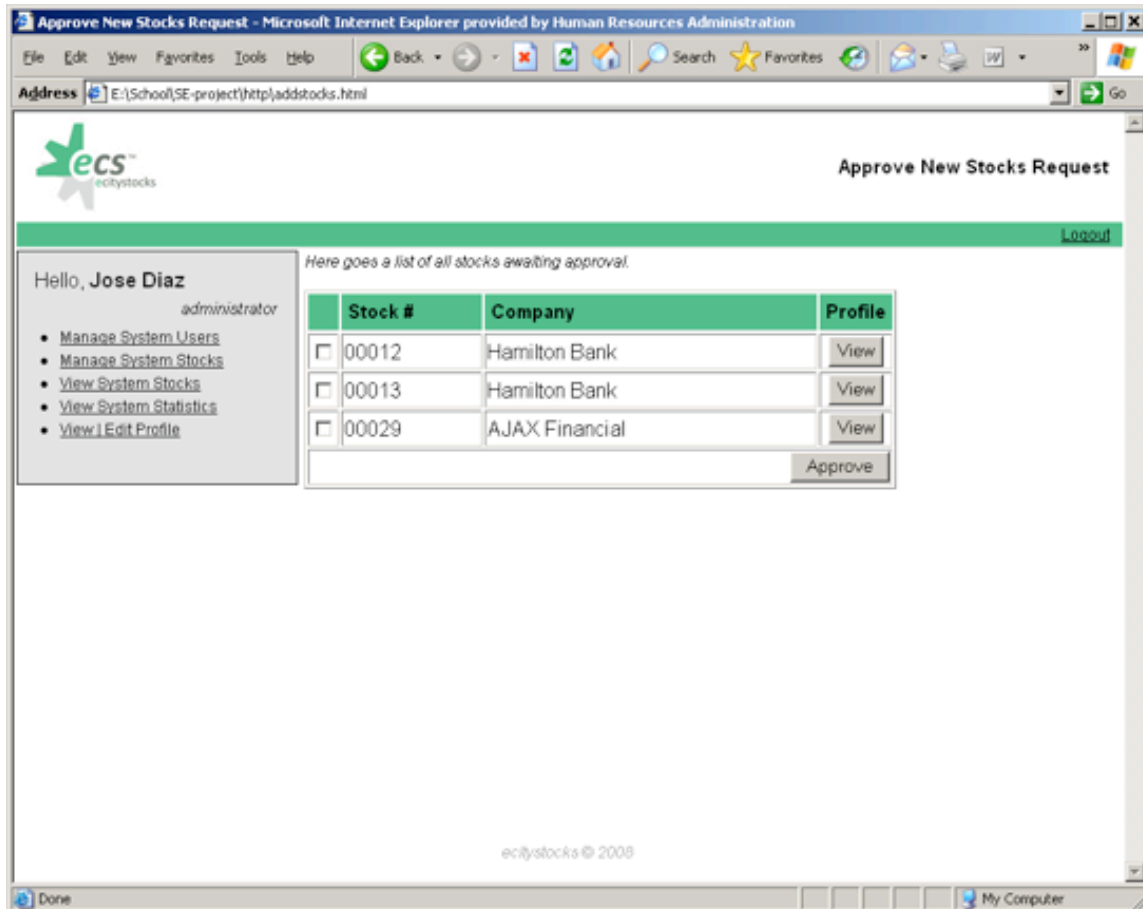
l. Remove Stocks – This interface gives a list of stocks that have been stopped by SO and await removal from the SA.
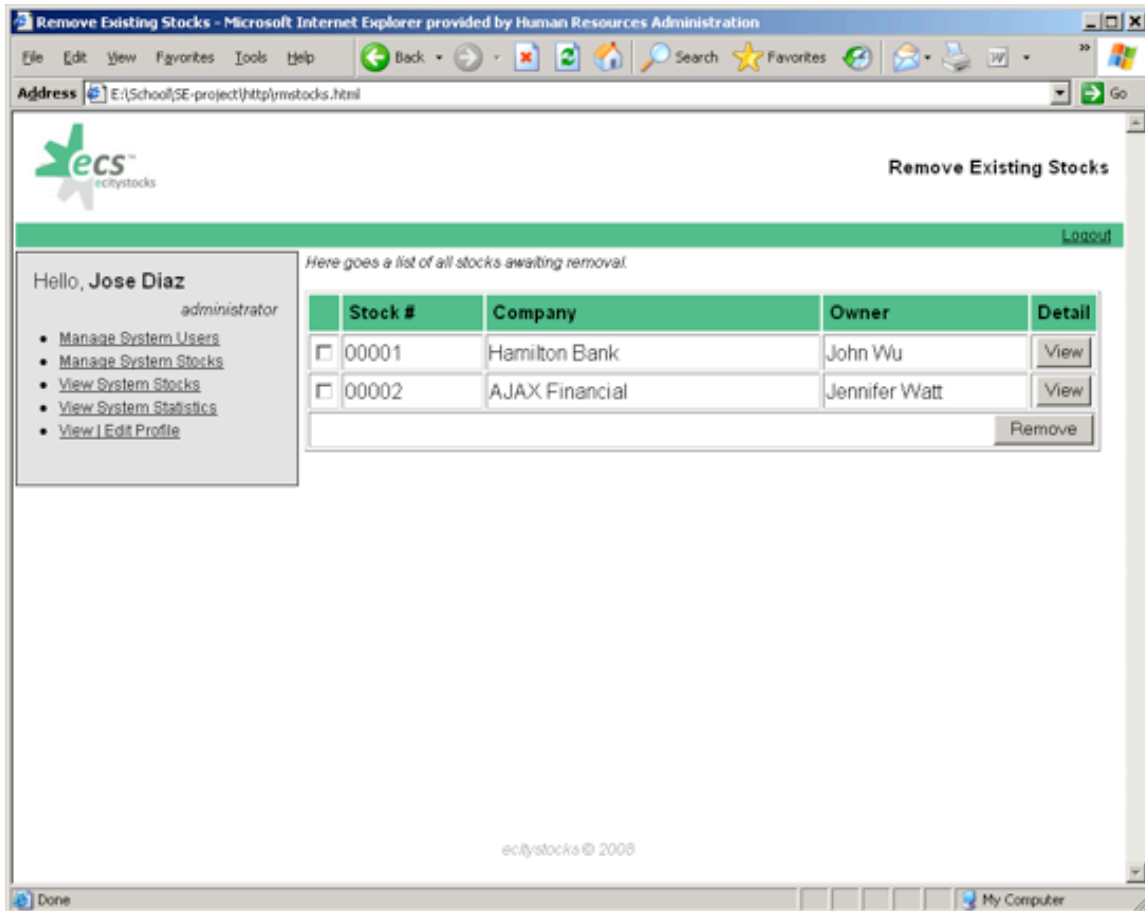
m. View All Users – This shows the SA all the users in the system along with ID and user type.