Transaction Cordinator: Requirements and Specifications

Joshua Lee, Damon McCormick, Kim Ly, Chris Orimoto,
John Wang, and Daniel LeCheminant

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1 Document Revision History

Revision 2.1 Second Final Draft, submitted 2004-10-18

Revision 2.0 Second version, released for internal review with *new additions italicized* and replaced text (`parenthesized and in fixed-font`) as demonstrated within this line

Revision 1.2 Final Draft, submitted 2004-09-27

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Revision 1.0 Released for internal review

2 Abstract

There are several documents associated with any real estate transaction. These documents are handled by several parties, including not only the buyers, sellers and their agents, but also several other people involved in different aspects of the transfer process. Any one part of the transaction may involve several documents, each having specific parts that need to be handled by different people. Unfortunately, the sheer mass of paperwork makes it difficult for the people involved to keep track of the various deadlines and requirements of each document. This is a serious problem, because every incomplete or overdue document has the potential to stall the entire transaction process. To prevent this from happening, the job of "transaction coordinator" was created; This person's sole assignment is to track documents through their different stages of completion. Our application, *TheTA (The Transaction Assistant)* (`the Online TC (transaction coordinator)`) is a tool which would schedule and notify involved parties regarding each of these documents. The tool would have a built in knowledge of each of the papers, including their timeframes and the parties involved. *TheTA* (`the Online TC`) would provide instant, online access to information about all the documents related to a real estate transaction.

3 Customer

The primary customers of this service are people directly involved in the buying or selling of real estate. That may entail proper real-estate agents, transaction coordinators, or even property owners selling their own homes. It would save any of these customers a lot of time, headache, and baby-sitting of papers. The customer that we have contacted is a real estate agent, and happens to be the proposal author's (Joshua Lee) father. He has expressed interest in the exact service our software intends to provide.

4 Competitive Landscape

4.1 Overview

Software designed for Realtors are more established than we had originally thought it was. What some of us believed to be quite an innovative field in software services was actually visited as early as the early '90s. (See Figure 1 for a list of facts we compiled about 3 of our competitors.) A few sites on the web contain large indices of software targeted at improving a real estate agent's management resources.

As quoted by the main website of Z-Law, "In these pages you'll find the largest selection of real estate software available anywhere." Z-Law provides a comprehensive list of software that covers all of the Real Estate Broker Requirements our own product will have. As claimed by the site:

> "The Complete Real Estate Software Catalog offers the largest selection of real estate software for agents, brokers, Realtors, real estate investors, developers, landlords, property managers, mortgage brokers and loan agents and builders, contractors and appraisers and real estate lawyers who need real estate software or Realtor software or legal form software or property management software or real estate agent software or real estate investment analysis software to manage their real estate business more profitably and efficiently."

Notable observations of the listed software products are that they all seem to be very expensive for what very little they do. They are all specialized and particular in their function, rarely having multiple features beyond those that serve their primary function.

An example of this is www.LawFirmSoftware.com's HUD-1 RESPA Settlement Statement, which (true to its name) apparently only handles HUD-1s (preparation and printing).

Another obvious weakness is that their products are (from our point of perspective) quite expensive. Their product is sold in individual pieces, each one at a substantially high cost. If we could offer a product that offers many of the same features sold by software advertised on Z-Law for a fraction of the price, we should be able to sell our product to less established real estate agencies.

4.2 Conclusion

The above are 3 examples of the types of competitors we have in the market. The companies that have realtors as clients range wildly from those individual software developers bordering on free-lancing (spectrumconcepts) to Research and Development branches of large, prevalent real estate companies.

Prices for these competitor products also cover a wide range from an affordable price barely reaching $100 to thousands of dollars. The lower priced products competing against us do not offer as many features as what we intend our finished product to have. If we successfully complete our product with all of the features we originally intend it to have and sell it for an affordable price ($100-$200), we will safely secure at least a few customers.

Figure 1: Competitor Information

Company	Z-LAW	Argosy Legal Sys	Spectrum Concepts
Product	None (Advertiser)	Power Closer TM	TrustBoss 2000W
Website	www.z-law.com	www.argosylegal.com	spectrumconcepts.net
Customers	RE/MAX Prudential Century 21 ERA Coldwell Bankers Keller Williams Realty Executives	*No Comment*	*No Comment*
Price (Lowest)	$90 (Different Product)	$500 (Single User)	$100
Price (Highest)	Over $800	$800 (Network Version	N/A
Threat	Moderate - Could use them to advertise our product	High - Very similar product to ours	Low - Low website activity, product is primarily an accounting program
Company	eFrogg.com	Center for REALTOR	Stewart Realty Solutions
Relevant Product	eFrogg Client Service Center	Retreiver	Stewart Realty Solutions
Cost	$350-$1500	*No Comment*	Free

5 User Requirements

5.1 Overview

There are four types of users that will interact with the system: real estate brokers, sl clients of real estate brokers (`customers`), form-approving agents, and the system administrator.

Each type of user has different requirements for the system; This section will delineate each user's requirements.

5.2 Real Estate Broker Requirements

1. Enter user names and temporary passwords for *clientele* (`buyers and sellers`)

2. Associate transaction and forms with *clientele* (`buyers and sellers`)

3. Grant and revoke access to transactions to *clientele* (`other real estate brokers`)

4. Enter forms with accompanying description and explanation

5. Reuse previously entered forms chosen and searchable by form title

6. Cancel transactions in progress

7. Set permissions for *clientele* (`buyers and sellers`) on a per form basis

8. Enter deadlines on a per form basis

9. *Roll back a transaction to a previously correct state if a mistake occurs* (`Enter relational deadlines between related forms`)

10. Easily readable display of deadlines for all *cleints* (`customers`), and similar per *cleint* (`customer`) display on a selectable basis

11. Set up email lists for *cleints* (`customers`)

12. Upload and storage of Adobe pdf files for printout, fax, and email based distribution of forms

13. Supply links to related sites and documentation for transactions and forms

14. Set up transaction types and specify the common forms used in that specific transaction

15. Reuse previously entered transactions

16. Create and delete form-approving agents

17. Grant and revoke form-approving agent's read-only access to selected forms

18. Privacy maintained via use of encrypted connections

5.3   *Clientele Requirements* (`Customer Requirements`)

1. Login grants access to specific *cleint* (`customer`) data

2. Authentication prevents access to other *cleints* (`customers`) data

3. See progress of transaction

4. See upcoming deadlines for forms

5. See estimated time until the end of the transaction

6. Download pertinent forms as pdf files

7. Input *cleint* (`customer`) data

8. Access to real estate brokers contact information

9. Receive emails regarding changes and progress in current transaction

10. Privacy maintained via use of encrypted connections

11. Cancellation of transaction in process

12. Change contact and authentication information for their login account

5.4 Form-Approving Agent Requirements

1. Login to TC

2. Change contact and authentication information for their account

3. View and download forms requiring approval

4. Upload approver versions of forms

5. Authentication prevents access to any forms they are not specifically granted access to

5.5 System Administrator Requirements

1. Install system and initialize system defaults

2. Create and remove users (both *cleints* (`customers`) and brokers)

3. Grant and revoke permissions for users

4. Low level access to troubleshoot any arising problems during a transaction

6 Use Cases

6.1 Background Information

A real estate transaction begins when a real estate agent finds someone who wants to sell their house. This agent will list the house on the market, and buyer agents, representing their clients, make offers on this house. There can be many offers on a house but only one offer is accepted and this is when the transaction process starts. This is where our program becomes used. There are thirty documents that must be signed in a timely manner for the deal to go through, which requires much organization. Thus, the real estate agent selling the house, called the listing agent, hires a transaction coordinator (TC) to use our transaction program in order to expedite communication between all parties involved in the deal: the buyer and seller agents, the buyer and seller, and the TC.

6.2 Must Have Cases

Logging in The system must know whom it is serving. The TC logs into the website with her user name and password. She is authenticated and can create a transaction. Real estate agents and their *cleints* (`customers`) are also required to log in before they are able to view the transaction they are involved in.

Acceptance test: A TC, real estate agent, and *cleint* (t customer)all log in, each should only be able to see their allowed data.

Setting up transaction template This feature saves customary due dates and documents to be reused in future transactions. This makes the process more efficient so the TC does not have to retype in customary data each time a new transaction is started.

Acceptance test: A TC clicks on a button to start a new transaction template and enters in the required data: the required documents and usual due dates. There should now be a saved template that she can use for future transactions which has all the normal due dates and documents.

Setting up transactions using a template This allows the user the ability to quickly setup new transaction based on a template which has all the customary due dates and documents. This can be a cash offer template, 30-day closing template or 45 day closing template. This way, the user only needs to update the exceptions for each transaction. Items that are unique to each transaction are the property information and contact information of real estate agents and their clients. If these are previous users of the system, then their contact information should be stored and automatically filled in when the TC selects a user from a stored address book. (see useful case, address book)

Acceptance test: The TC clicks on a "create transaction using template" button. She enters in the property information and any exceptions to the deal. She also sets up a total of 4 accounts, for the buyer and seller and representing agents, so that they can view the progress of the transaction. These created accounts are emailed to the clients and they should each be able to log in and adhere to the restrictions in the log in case. The system is now accountable and will keep track of when documents are due.

Preferences At the system level or initial system setup, each user should be able to set their preferences. For the clients and agents, how often they would like to be alerted if at all by the system. This can range from instant updates, daily emails, or none at all. For the TC, they can enable or disable certain features.

Acceptance test: A client will set a preference and will receive emails at the set preference. The TC can set her own preferences for how to view the system.

Privacy of Data Buyer and seller agents should not be able to see the contact information for a client they are not representing. Each should only be able to see their own clients. Clients should only be able to see their own transactions and no other transactions other then their own. A TC should be able to see all transactions and all information.

Acceptance test: Each person who logs in should be able to only see what is described above, nothing more or less.

Daily updates The listing agent and buying agent have access to the created transaction. They can log in to see the progress of the deal, as can their clients. Time passes and documents are signed. Each document that is finished and has all required signatures is updated in the system by the TC. Individual signatures on each document are also updated as they are received.

Acceptance test: The TC receives a faxed document with three of four required signatures, (The buyer, the buyer's agent, and the seller). She updates this in the system. The system sends out an email to all parties (based on set preferences) reflecting the update. The fourth signature comes in (the seller's agent) The system sends out an email to all parties saying this document has been completed.

Notification of Delay The listing agent is happy to find that all is well in the first two weeks. However, next week one document is delayed because the buyer or seller fails to turn it into the TC on time. This delinquency is flagged by the system and the real estate agent responsible is emailed to rectify this with their client.

Acceptance test: A document is past due. The instant that it is late, an email is sent out to the agent responsible (either buyer or seller).

Closing of deal Once a transaction has been recorded in escrow, the deal is complete. The buyer has a new house, the seller is paid, and commission checks are written to the transaction coordinator and real estate agents. The system will store the transaction in the archive with a tag as a completed deal.

Acceptance test: when all documents are recorded by the TC as complete and the date of escrow is past, the transaction is tagged as complete and stored in the archive. All parties are notified of this event.

Cancellation of transaction Unfortunately suppose the buyer of a house loses his job, and as a result, loses his loan for the house. He can no longer purchase the desired house and the deal will not go through. If a deal fails to close then the system should store the transaction in the archive with a tag as a "failed transaction". The real estate agents and transaction coordinator can make personal notes about case for f their own future reference.

Acceptance test: TC clicks on cancellation of transaction and must explain why. Transaction is tagged by system as failed and put in the archive.

6.3 Optional Cases

Post messages Suppose that a realtor, TC, or *cleint* (t customer)has a question. They want to know if it is possible to extend escrow an additional 15 days. They can post this question instead of calling. The realtor can respond and reply to the message. This acts as a newsgroup and keeps a record of the exchange of information. It is a good reference when a party forgets certain details.

Acceptance test: A user can post a message privately to another party or to everyone. The message can be viewed at least until closing.

6.4 Useful Cases

Address book If a transaction coordinator often deals with a certain set of agents and does not want to reenter their contact information each time, she should be able to use an address book and have the system fill in their information.

Acceptance test: The user will try and select a person from the address book and the system should automatically enter in the stored information

7 User Interface Requirements

7.1 Concepts

7.1.1 View appropriate data in database

1. *User must be able to ubiquitously and easily access our TheTA website*

2. *User must be able to see appropriate schedule in calendar form*

3. *User must be able to download forms made available online by administrator or real estate broker*

7.1.2 Manipulate data to database

1. *User must be able to post notes to any chosen day on the calendar*

2. *User must be able to post deadlines on any day on the calendar if they have privileges to do so*

3. *User must be able to change documents if they have privileges to do so*

7.1.3 Security

1. *Users can only see, modify, or create documents that they are given access to*

2. *Account system to authenticate users and maintain privileges*

3. A user account is required to login and use the system

4. Administrator is given complete access to accounts

7.2 Priorities

The first priority is security. This system is designed to help transaction coordinators and real estate agents communicate between each other and clients. Security must be maintained in traditional, offline real-estate deals, and our software and service must respect that. A great deal of private information is exchanged in a typical transaction, and TheTA must be able to ensure the confidentiality of any information that passes through it. This means setting up an account system with privilege management by an administrator who will grant all other rights to users.

Proper data manipulation is the second priority. This web-based user interface is the only means by which users can add and change the data in the database. Direct access to the database is not allowed by any user. The system is completely useless if such basic functionality is not present.

The third priority is that the data must be presented in an easily understandable manner. If TheTA is going to facilitate communication between transaction coordinators, real estate agents, and their clientele, then its interface must provide an improvement upon the current standard of communication between these parties. The interface must be at least familiar, if not intuitive.

7.3 Preliminary User Interface

The listing and user interface layout that appears below are preliminary examples provided to possible customers of TheTA. They are meant as development tools to collect feedback from customers for a final design. The final design will be reached by working with TheTA customers in an iterative improvement process.

1. Every feature of the program will be accessed via a GUI.

2. The user will be presented with two lists of options: one a list at the bottom of the screen and the other a set of tabs at the top of the screen. These will be the same for every page.

3. The center of the screen will be used to display and collect relevant information.

4. All information for actions will be collected via text fields and the action will be performed by clicking on a button.

5. One of the tabs at the top of the screen will be labeled "for me." Clicking on this tab will present information specific to the user.

6. The user will start with a screen with the list and the tabs and nothing in the center.

7. Specific screens include the following:

Screen A (start): The first page loaded, containing links to all available tasks.

Screen B (login): A login screen with text fields for user name and password and a button to create a new account.

Screen C (new account): An account creation screen with text fields to collect all of the user's information.

Screen D (today's schedule): A screen displaying today's schedule with a link to a calendar. (For agents)

Screen E (calendar): A calendar page that allows the user to see upcoming dates and schedule new ones. (For agents)

Screen F (announcement): A page displaying new announcements (For clients)

Screen G (check list): A checklist displaying what has been accomplished and what still needs to be done.

Screen H (transaction detail): A detailed listing of the transaction (For agents)

See Figure 2 for a graphical representation of the interaction between different screens.

8   Security Requirements

Most of the documents that our system will deal with contain confidential information. Our system must have information security as a top priority.

8.1   User Login

Although several users need to have access to several different documents, not everyone needs access to every document. For example, each potential buyer should have access to information regarding their attempt to purchase the property, but they should not have access to information about other buyers. Similarly, someone involved in the home inspection process probably has no business accessing financial information.

To regulate access, our system would assign each potential user a login name and password. A person's access to a document would depend on the privileges assigned to their account. Requiring users to log in also enables our system to track users of the system as they access different documents.

8.2   Monitoring

Every time a user accesses a document, a log entry is made. Each log entry includes information about when, from where, and by whom a document is accessed or changed. The log allows the system administrator, or other privileged users to view a record of access and change to a document. This record would be useful if problems arise where someone

Figure 2: Paths of Execution
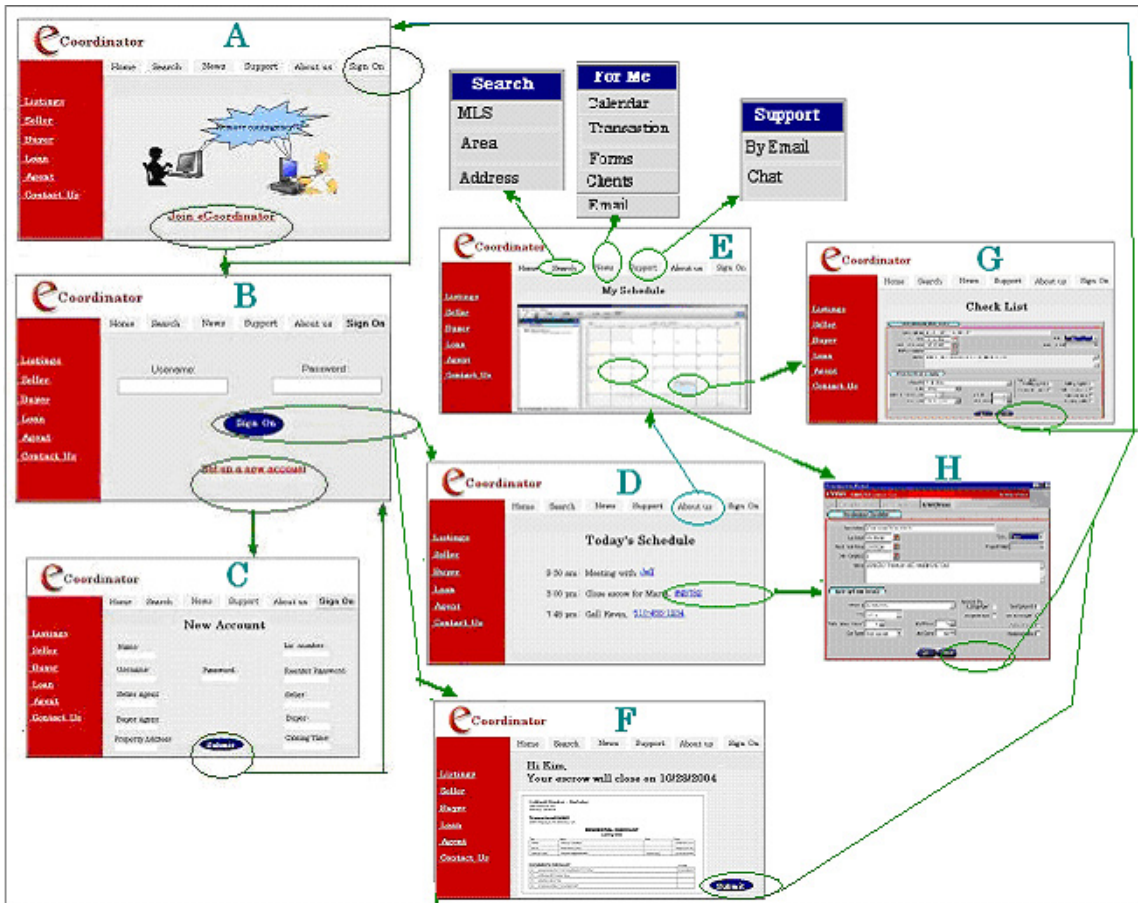
believes that their account is being inappropriately used, or that unauthorized access to a document has occurred.

8.3 Backups

If it becomes apparent that an unwanted alteration to a document has occurred, either accidentally or deliberately, it may be necessary to retrieve a previous version. Our system will keep a backup copy of every state that a document is in.

In addition to keeping copies of older versions of a document, our system will also periodically transfer a system backup to a different system, and also give users the ability to download and possibly print backup copies of the documents that they have access to. This is a precaution taken to guard against a system-wide loss of information. Should a disaster occur, the system can use the backups to restore itself back to a working state.

8.4   Encryption

As an added precaution our system will take advantage of encryption. This will prevent unauthorized users from "eavesdropping" on an authorized user's passwords, access of confidential documents.

9   System Requirements

9.1   User's System

Because our product is going to be web-based, we will have no dependence on any particular operating system or hardware configureation.

9.2   Web Browser

Internet Explorer: Version 5.5 or later version.

Netscape: Version 6.0 or later version.

Other: Any Web Browsers with 128-bits encryption.

The web browser must have JavaScript and cookies enabled.

10   Specification

10.1   Top Level Flowchart

The majority of user interaction will be in the "ForMe" forms, as this area is designed to contain information that the user is most likely to be interested in. The rest of the sections of software are either "behind the scenes", like the controller, or likely to be used less frequently.

10.2   The "Controller"

The "Controller" section (Figure 4) of our program controls which forms a user of our system has access to. It handles all the user login procedures, as well as granting access based on privileges.

10.3   The "ForMe" Page

The "ForMe" page (Figure 5) is intended to be the focus point of all the information that our program is monitoring. It provides links to and information about all pending transactions, and anything in the system that needs attention.
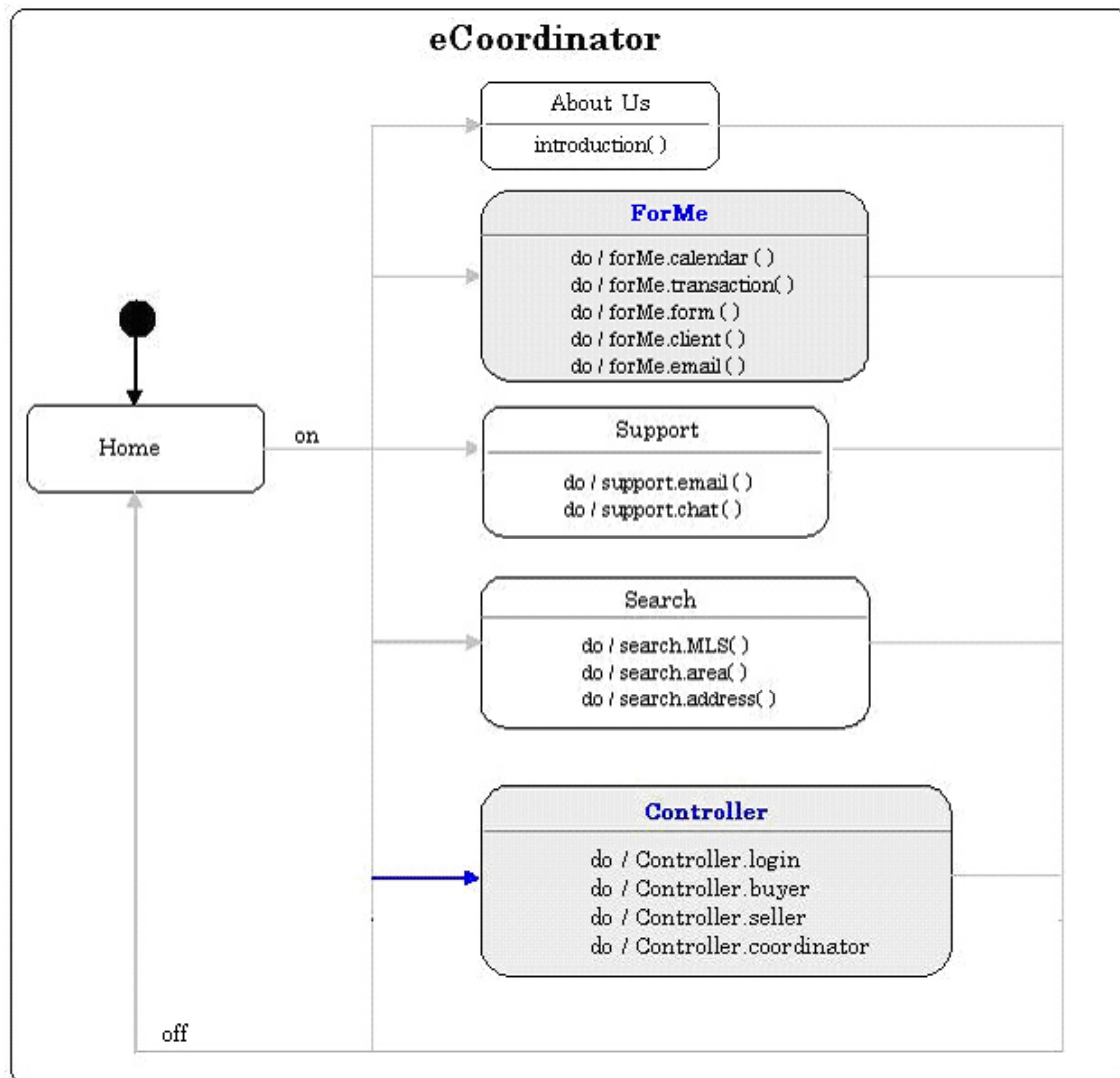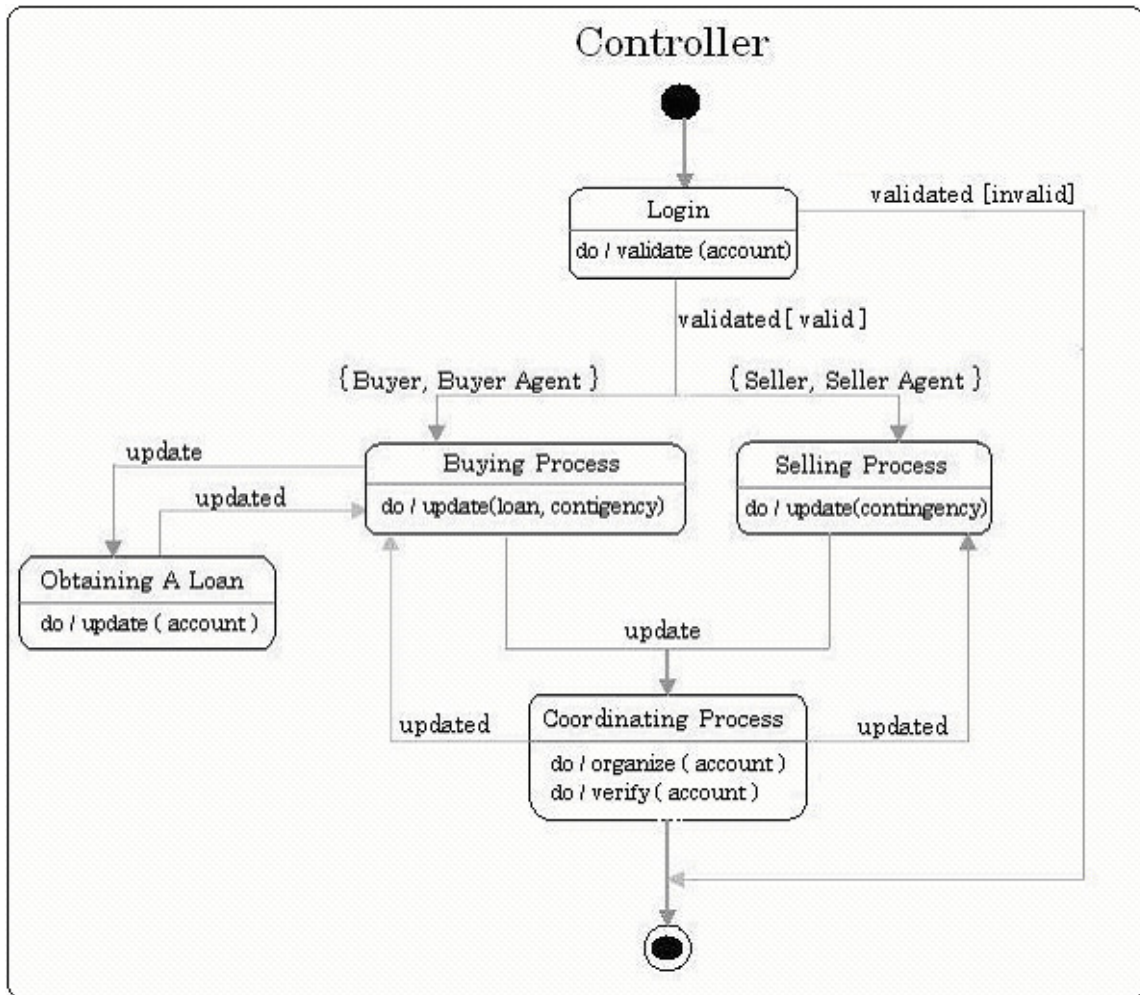
Figure 3: Top Level Flowchart

Figure 4: Controller Flowchart

Figure 5: The "ForMe" Flowchart