Design Document

for

BUY N' SELL SYSTEM

Version 1.0

Prepared by Team 8:

(Based on SRS Version 1.1 prepared by Team 8)

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Glossary

Buyer	A user who wants to buy an item or has placed a bid on an item.
Seller	A user who puts up a product for sale/auction on the site.
User	Any person with a valid NITC mail id .
Administrator	Refers to the person in charge of monitoring the website and activities relating to its functionalities.
NITC	National Institute of Technology Calicut
ER diagram	Entity Relationship diagram
OTP	One Time Password

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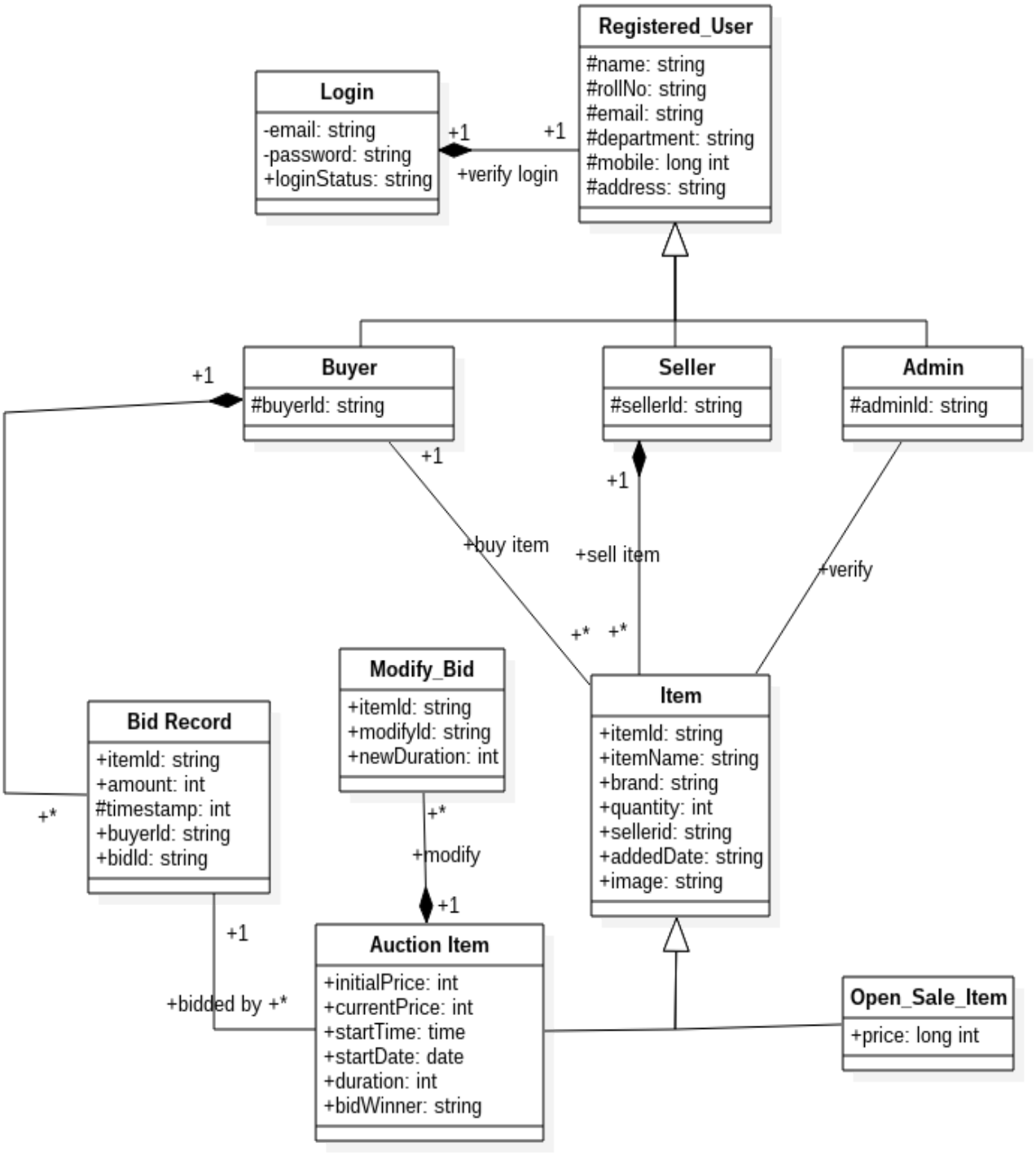
1. Detailed Design through UML diagrams

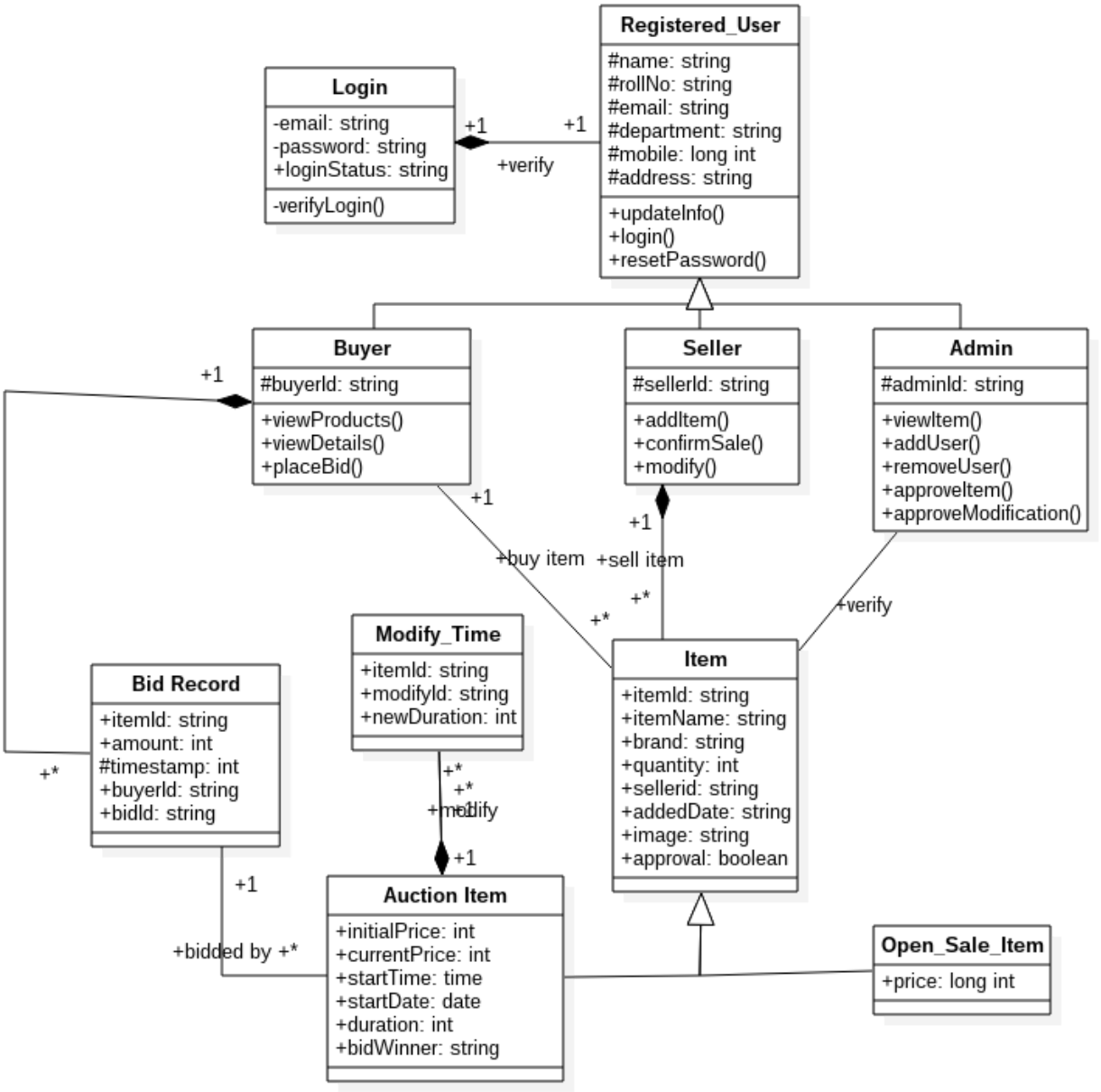
1.1 System Model using Class Diagram

The class diagram provides a detailed picture regarding various functionalities of the system. It contains the properties related to each class within the system and the corresponding functions required to manipulate them.

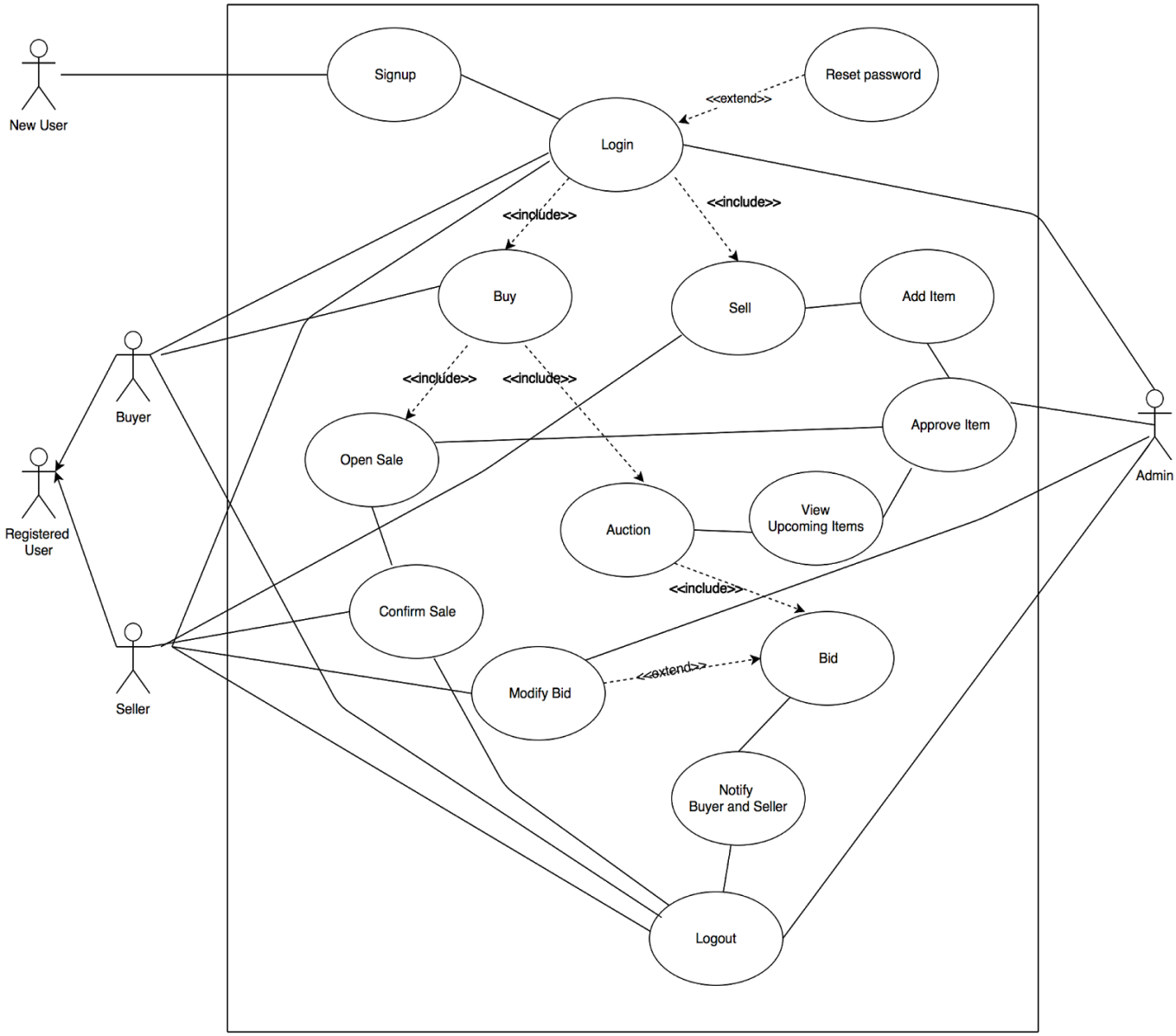
1.1.1 Domain Model


Registered_User
#name: string
#rollNo: string
#email: string
#department: string
#mobile: long int
#address: string
Login
-email: string
-password: string
+loginStatus: string
+1
+1
+verify login
Buyer
#buyerId: string
Seller
#sellerId: string
Admin
#adminId: string
+1
+1
+1
+buy item
+sell item
+verify
+*
+*
Modify_Bid
+itemId: string
+modifyId: string
+newDuration: int
Item
+itemId: string
+itemName: string
+brand: string
+quantity: int
+sellerid: string
+addedDate: string
+image: string
Bid Record
+itemId: string
+amount: int
#timestamp: int
+buyerId: string
+bidId: string
+*
+*
+modify
+1
+1
+bidded by +*
Auction Item
+initialPrice: int
+currentPrice: int
+startTime: time
+startDate: date
+duration: int
+bidWinner: string
Open_Sale_Item
+price: long int

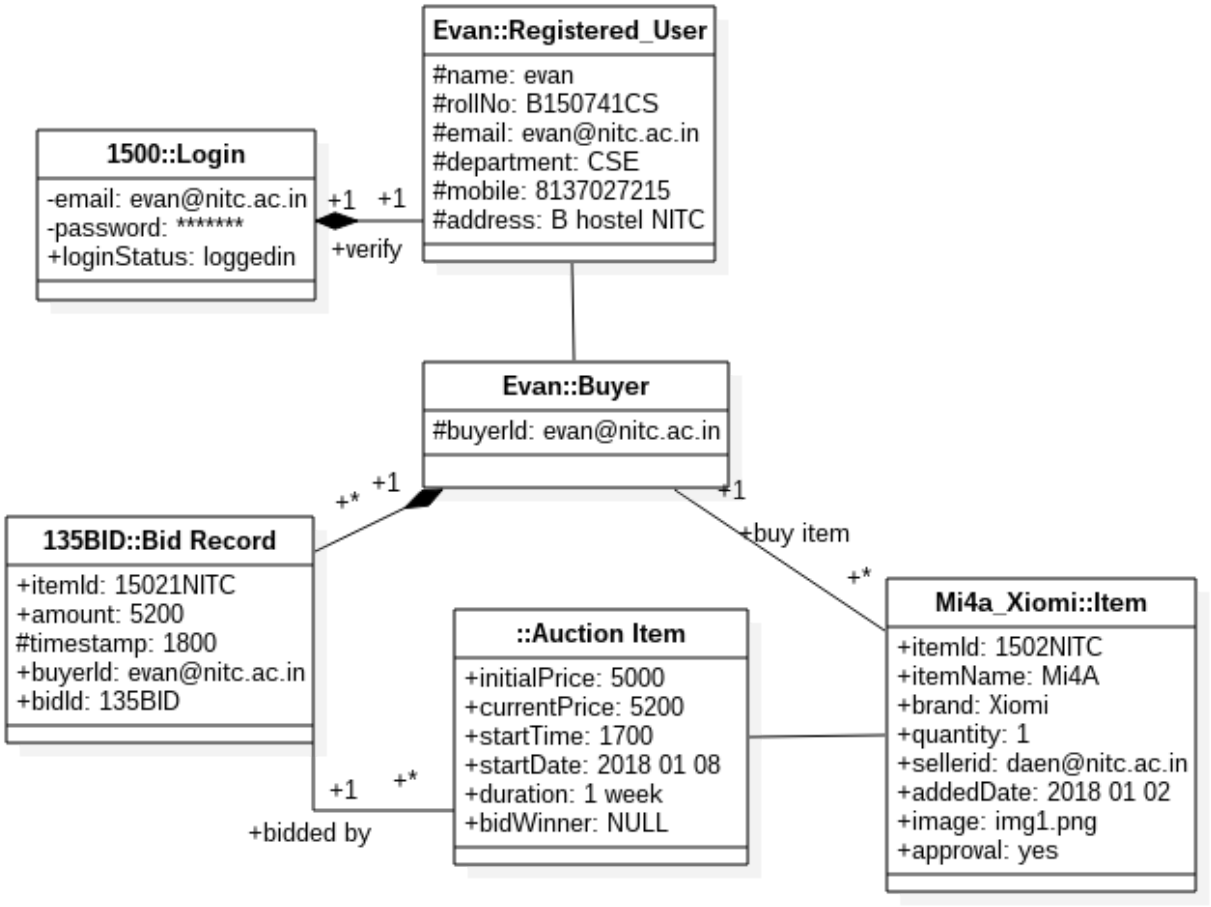
1.1.2 Implementation Model



1.2 Responsibilities - Use case Diagram



1.3 Static snapshot of the System - Object Diagram

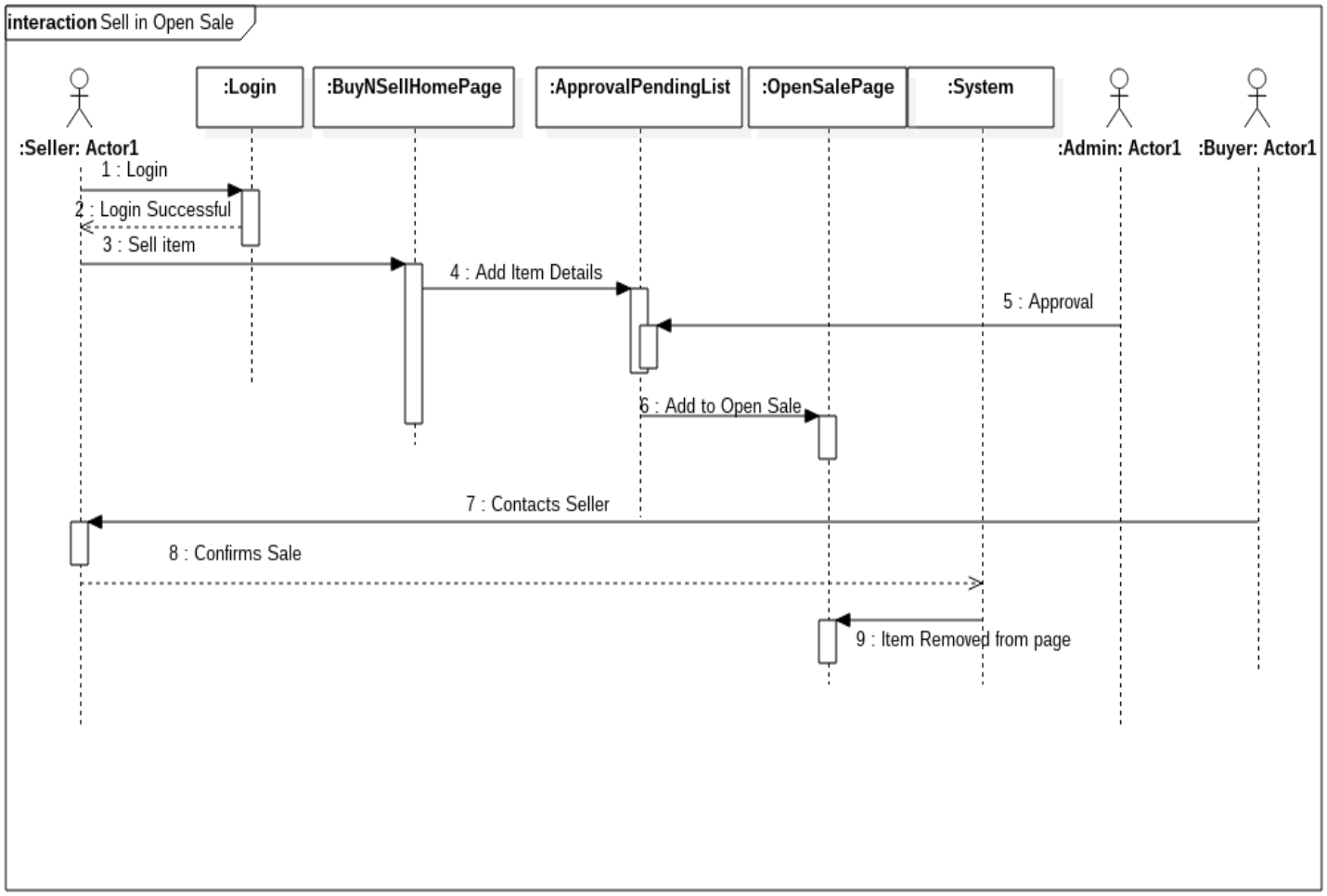


1.4 System Interactions through Sequence Diagrams

The sequence diagrams show how different objects operate with one another and in what order. It shows object interactions arranged in time sequence.

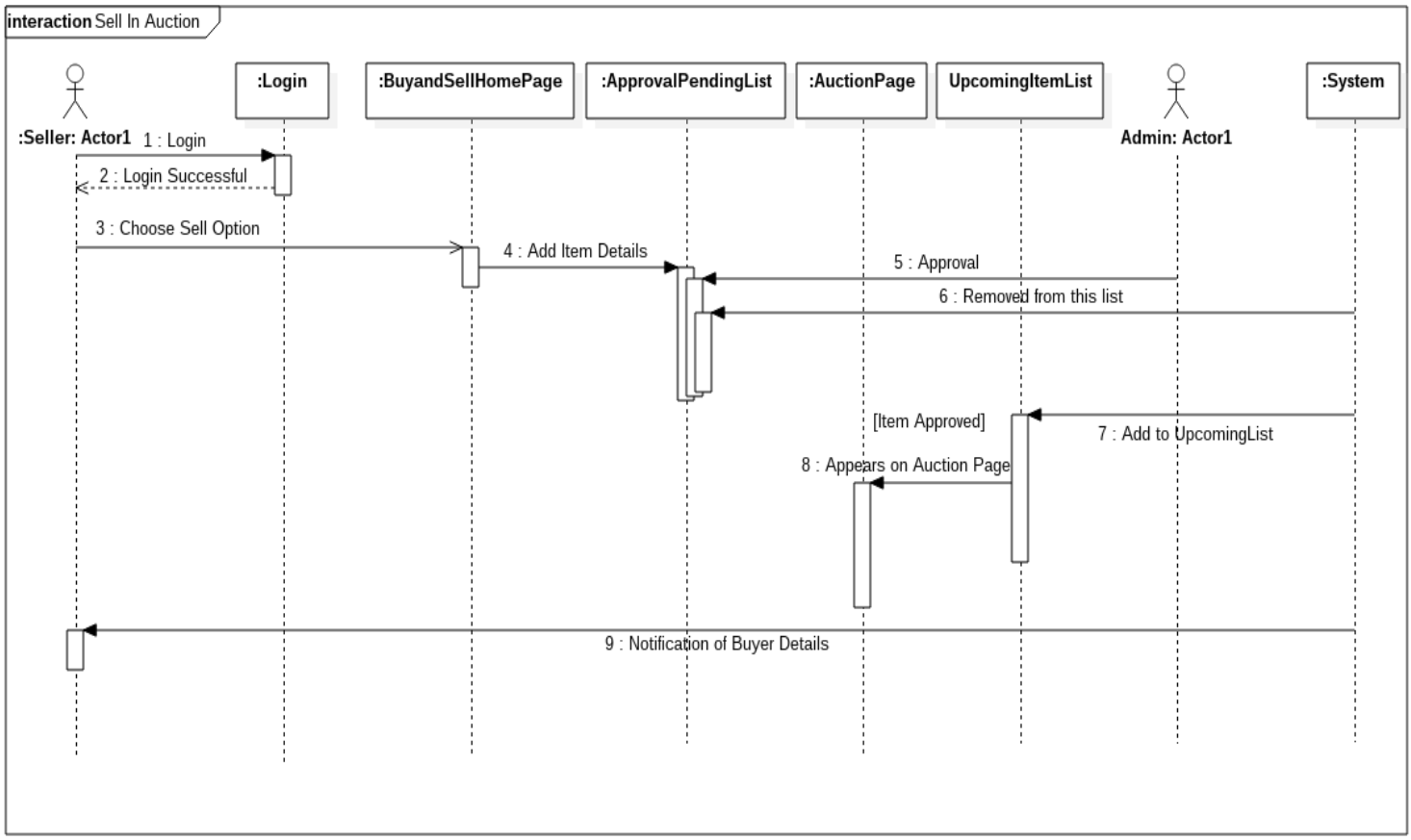
1.4.1 Open Sale Sequence diagram

This Sequence Diagram shows the steps involved in Open Sale. Seller logins and adds items to sell to the list of items waiting for approval, which will be reviewed by the admin. If the open sale item is approved, it will show up on the Open Sale page and it will be removed after the sale. If the item is rejected it will not show up in the Open Sale page and will not be put up for sale.



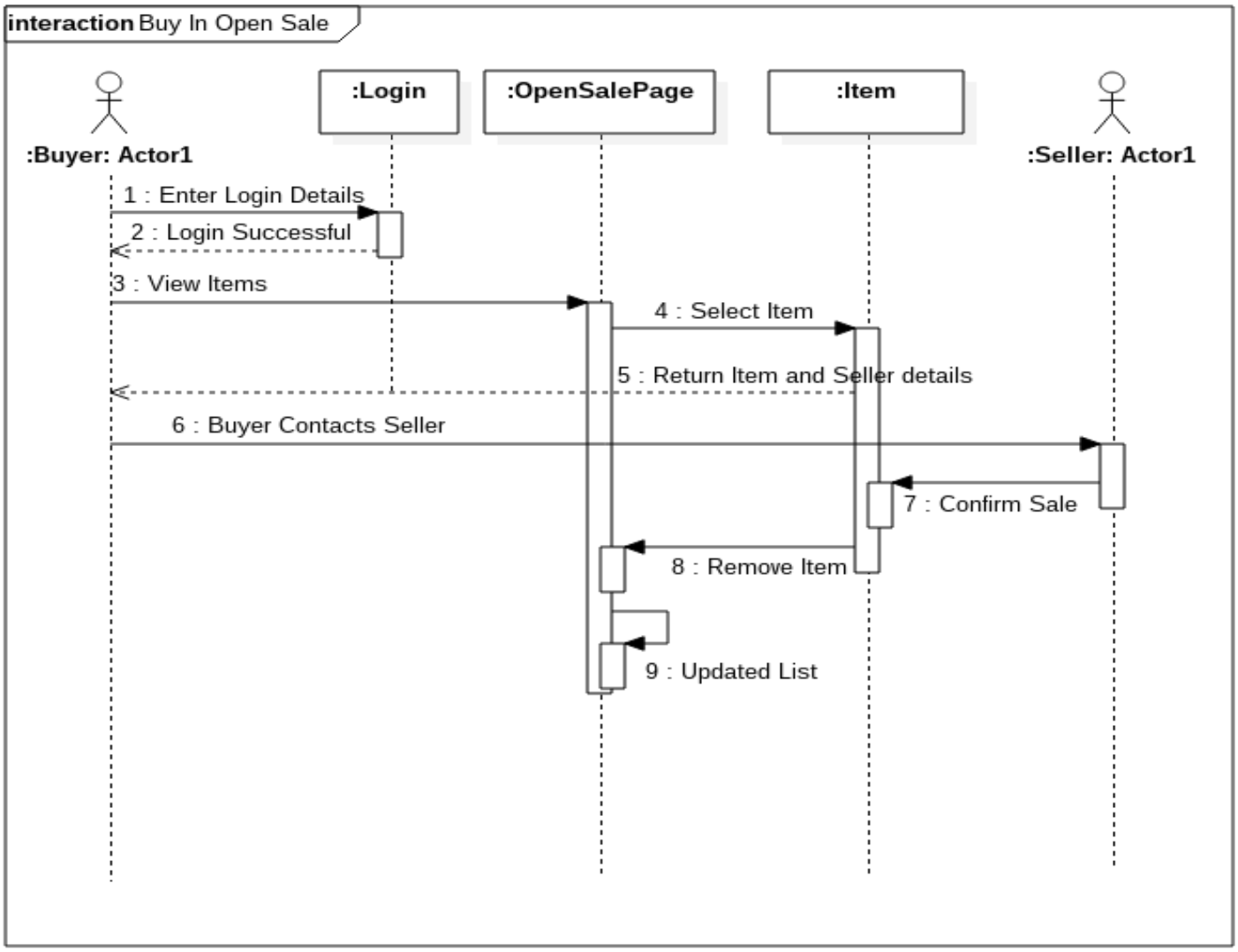
1.4.2 Auction Sale Sequence diagram

This Sequence Diagram shows the steps involved in auction sale. Seller logins and adds items to sell to the list of items waiting for approval, which will be reviewed by the admin. If the auction item is approved, it will show up in the Auction page and it will be removed after sale. If the item is rejected it will not show up in the Auction page and will not be put up for auction.



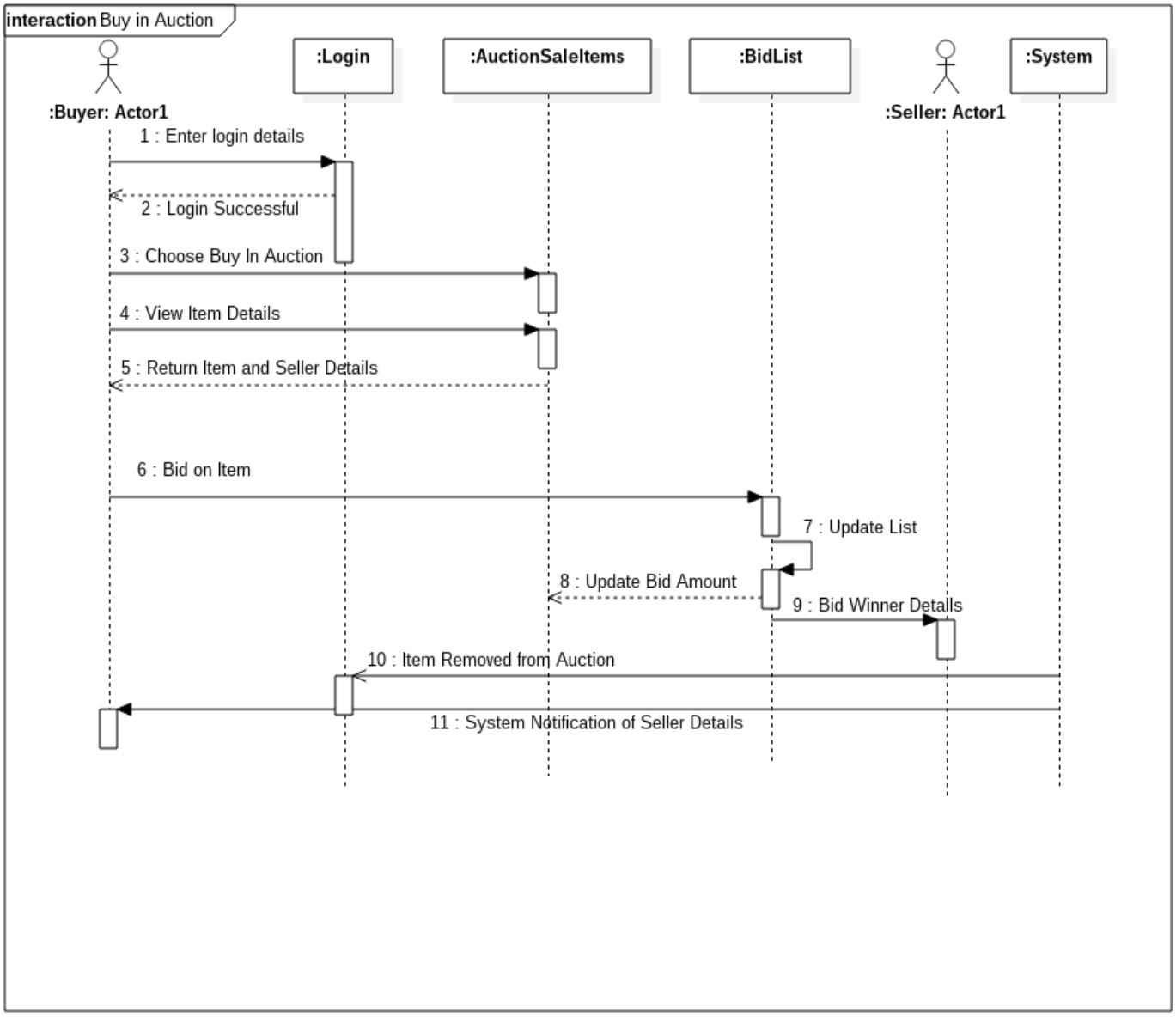
1.4.3 Buy in Open Sale Sequence diagram

This Sequential Diagram shows the steps involved in buying an item from open sale. Buyer logins and views items in the open sale page and select item which the user wants to buy. Buyer will be able to see item details and seller details. After the item is bought it will be removed from the Open Sale Page and notification will be sent to buyer by the system.



1.4.4 Buy in Auction Sale Sequence diagram

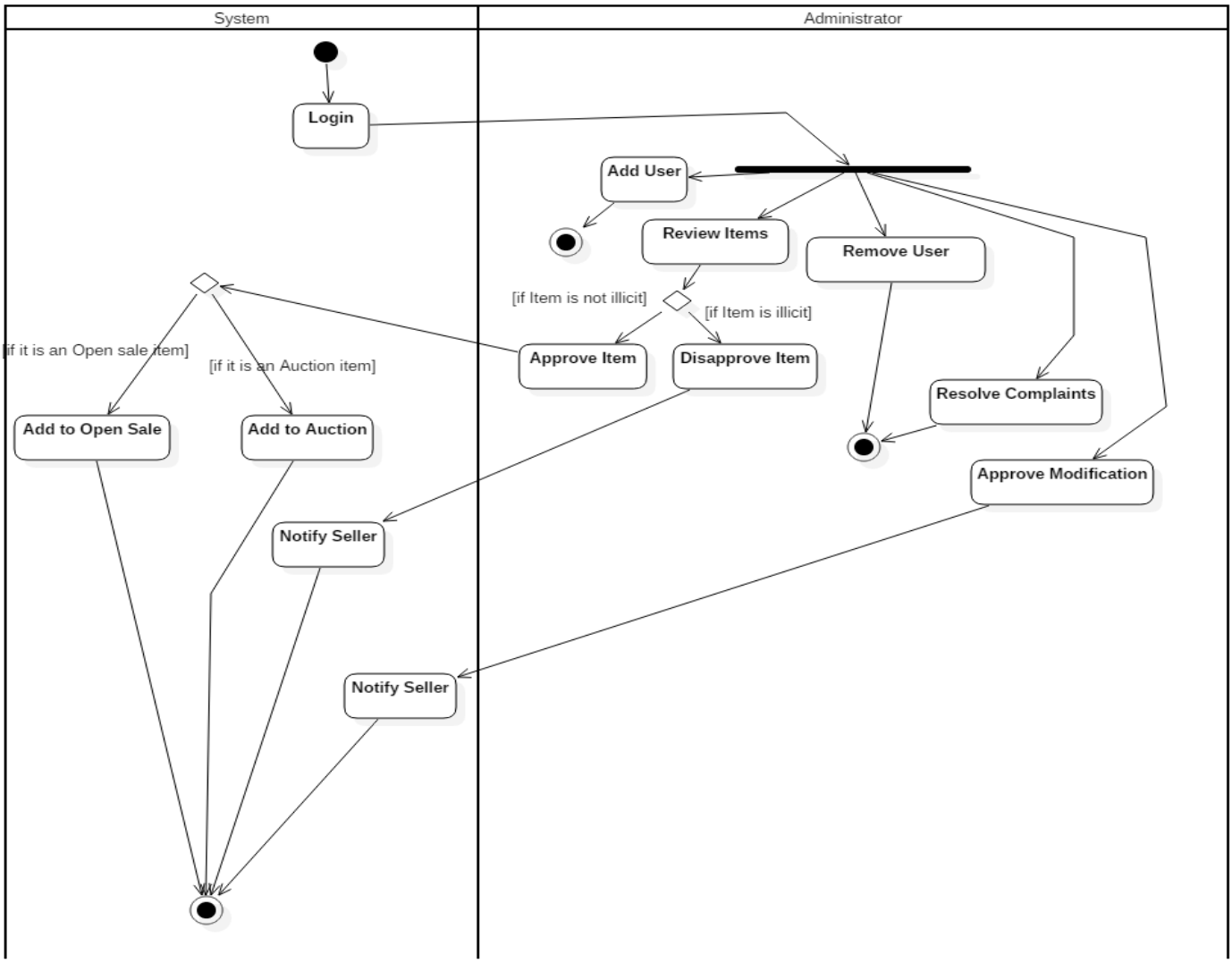
This Sequential Diagram shows the steps involved in buying an item from auction sale. Buyer will be able to see the auction items.He/She can bid for the item. The highest bid value wins the auction and the highest bidder is informed . The seller receives notification about buyer details.



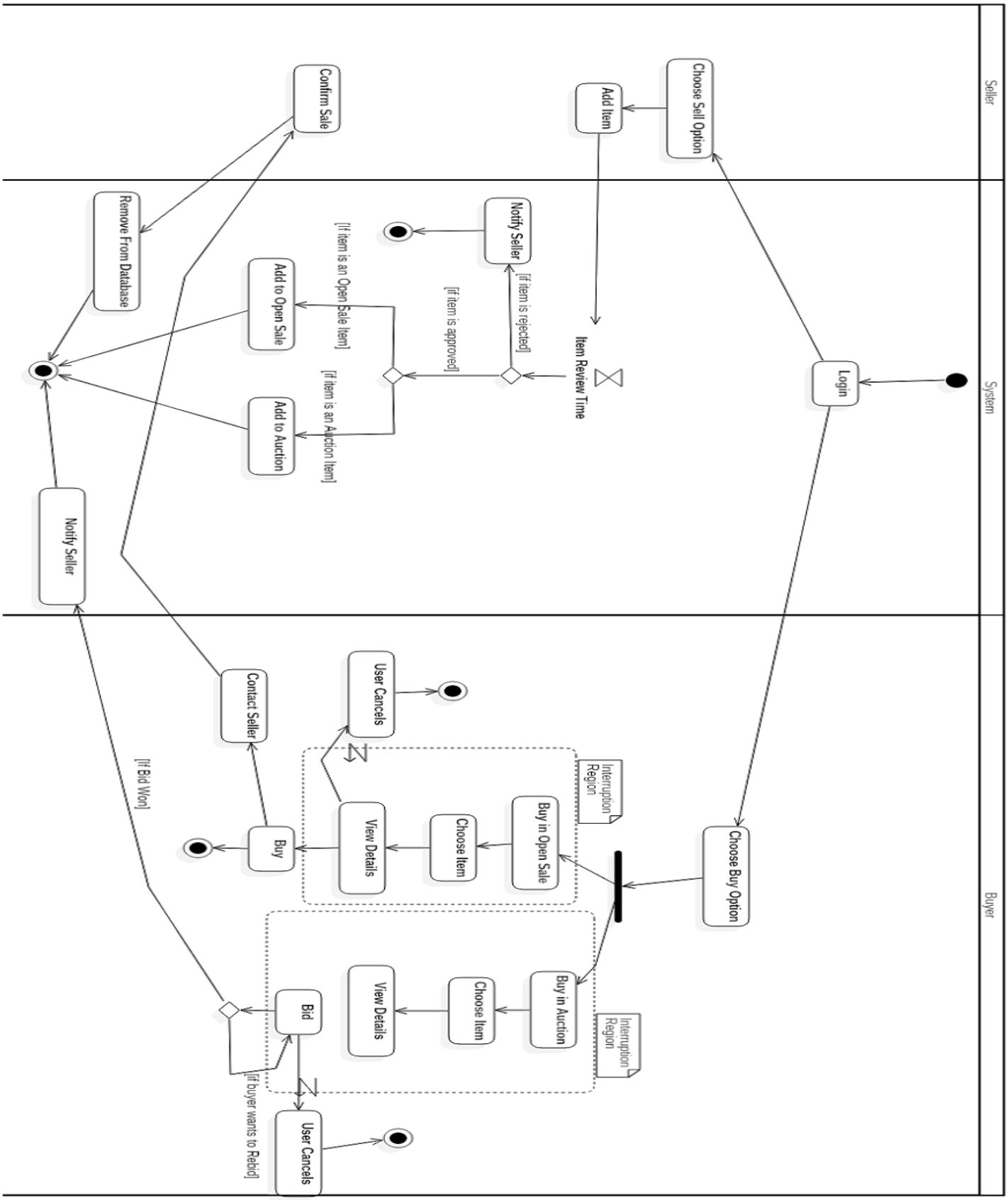
1.5 Control and Data Flows through Activity Diagrams

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams are intended to model both computational and organizational processes (i.e. workflows). An activity is a major task that must take place in order to fulfil an operation contract.

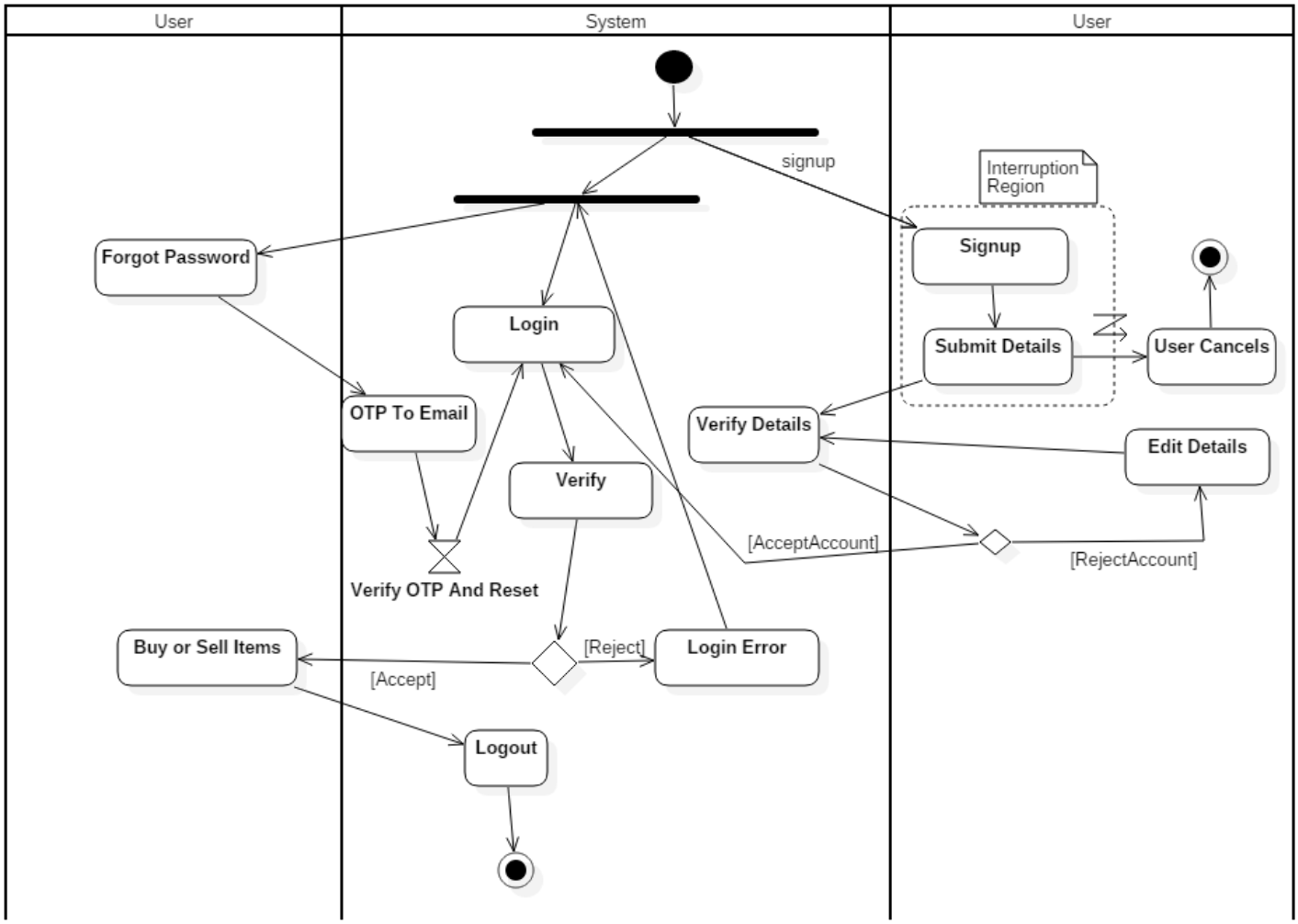
1.5.1 Administrator Activity Diagram



1.5.2 Buy and Sell Activity Diagram


Seller
System
Buyer
Choose Sell Option
Add Item
Confirm Sale
Remove From Database
Notify Seller
[if item is rejected]
[if item is approved]
[if item is an Open Sale Item]
[if item is an Auction Item]
Add to Open Sale
Add to Auction
Item Review Time
Login
Notify Seller
Contact Seller
User Cancels
Interruption Region
Buy
View Details
Choose Item
Buy in Open Sale
Choose Buy Option
[if Bid Won]
Bid
View Details
Choose Item
Buy in Auction
[if buyer wants to Rebid]
User Cancels

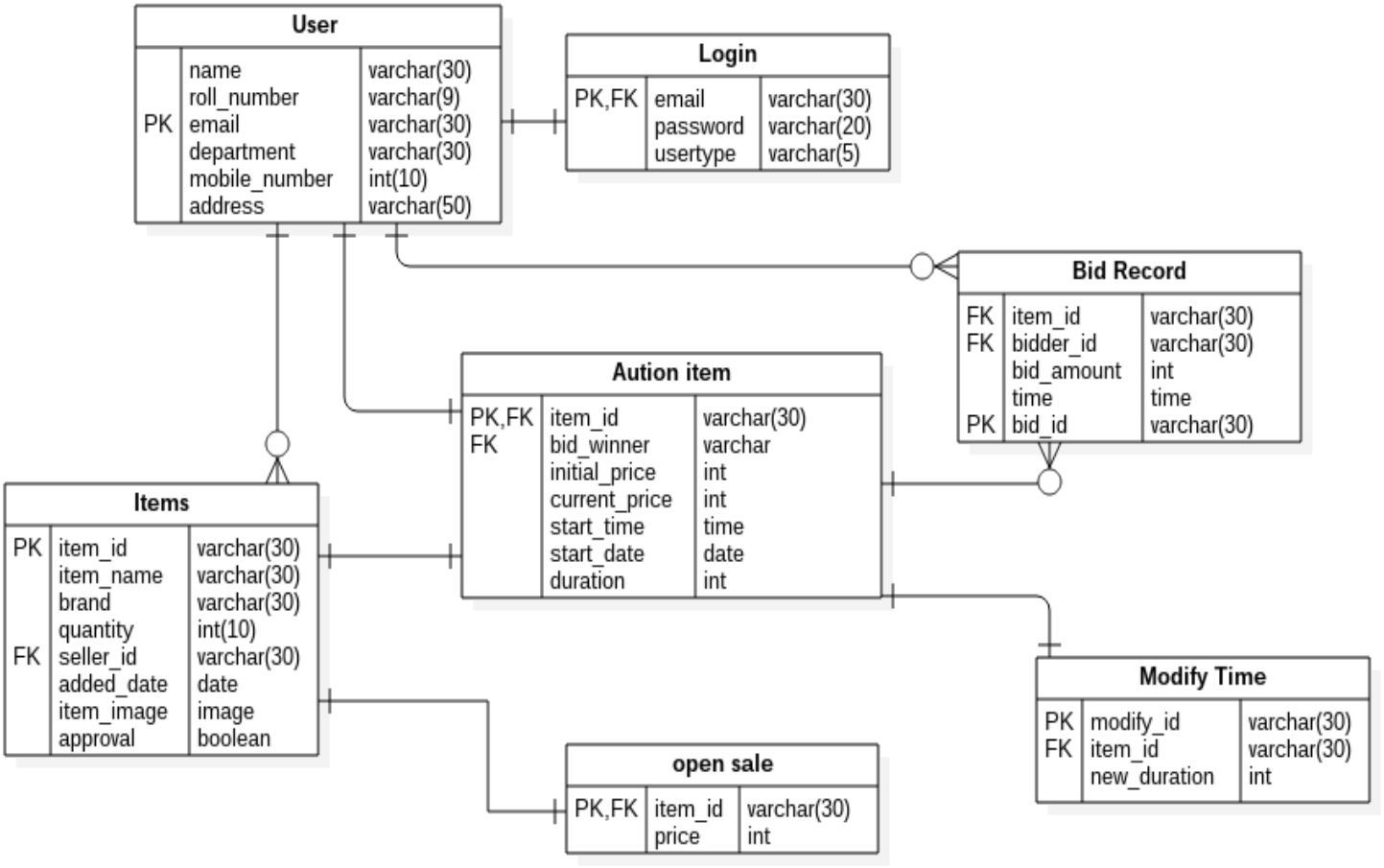
1.5.3 Login and Signup Activity Diagram



2. Database Design

The data will be stored in a relational database such that it will be free from data redundancy. The database design follows the 3rd Normal Form.

2.1 ER Diagram



3. Implementation Plans

3.1 Technology Stack

Client-Side Programming

- Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS). HTML tells a browser how to display the content of web pages, while CSS styles that content.

- JavaScript(JS),JQuery,Ajax makes web pages interactive.

Server-Side Programming

The server side isn't visible to users, but it powers the client side.

- Hypertext Preprocessor(PHP) is a general purpose programming language that allows to create dynamic content that interacts with databases.

- LAMP
  -Linux OS
  -Apache : A web server helps to execute multiple processes and threads simultaneously.
  -MySQL: Relational Database Management System
  -PHP

3.2 Work Estimates

Description	**Time Estimate (Hours)**
Developing color scheme ,Home page design	6
Implementing the database design in LAMP	5
Building admin sections in the database	5
Creating web pages based on home page design	6
Building Login/Signup,Forgot password functionalities on the web pages created and linking to the database	6
Implementing administrator functionalities and linking to the database	5
Coding Buyer sections for opensale category and linking to the database	3
Coding Buyer functionalities for Auction category and linkage to the database	4
Building Seller functionalities along with linkage to the database	4
Making web pages interactive	4
Debugging	4
Text content development/editing/proofreading	3
Testing and finalizing data driven pages	3

References

- UML class object diagram overview: https://www.uml-diagrams.org/class-diagrams-overview.html
- Activity Diagram Wikipedia: https://en.wikipedia.org/wiki/Activity_diagram
- Activity Diagram Wikipedia: https://en.wikipedia.org/wiki/Sequence_diagram
- Activity Diagram UML.org page: https://www.uml-diagrams.org/activity-diagrams.html
- Introduction to StarUML DDL :https://www.youtube.com/watch?v=ar-p8qTlq8s
- Star UML ER diagram : https://www.youtube.com/watch?v=vLulkSVJsL4
- UML class diagram tutorials : https://www.youtube.com/watch?v=UI6lqHOVHic
- Activity Diagram Tutorials : https://www.youtube.com/watch?v=XFTAIj2N2Lc&t=494s
- Sequential Diagram Tutorial : https://www.youtube.com/watch?v=cxG-qWthxt4&t=42s
- Domain Model Part A and Part B :https://www.youtube.com/watch?v=M1e2XwSADDE