
Design Document

for

The Dorm Room Dealer

Version <1.1>

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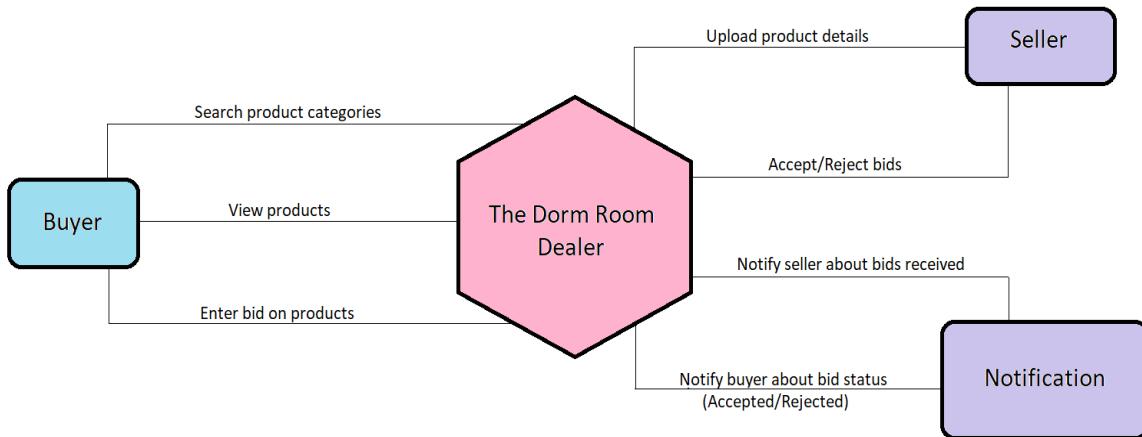
Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1.1	Akshat Gupta Akhil Sagwal Akshat Sarthak Motwani Milan Anand Raj Devesh Shukla Rahul Rustagi Vaibhav Chirania	This version contains details of the user interface diagrams, use case diagrams, class diagrams, sequence diagrams, and state diagrams for our software.	10/02/23
1.2	Akshat Gupta Akhil Sagwal Akshat Sarthak Motwani Milan Anand Raj Devesh Shukla Rahul Rustagi Vaibhav Chirania	This version contains the updated interfaces of the website, updated use case diagrams, updated class diagrams, updated sequence diagrams and updated architecture diagram.	23/04/23

1 Context Design

1.1

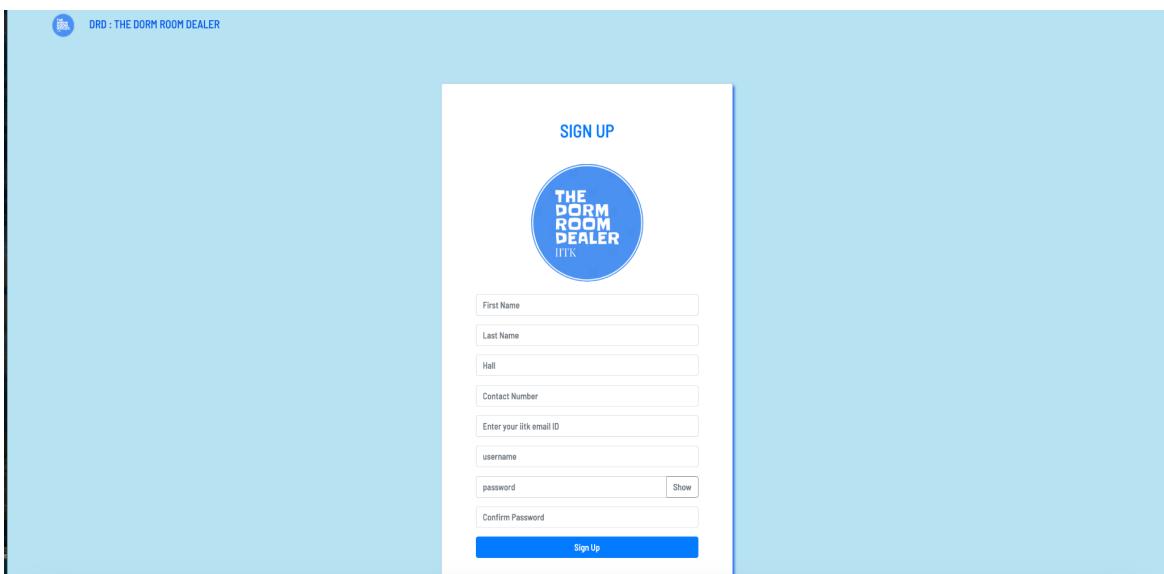
1.2 Context Model



1.3 Human Interface Design

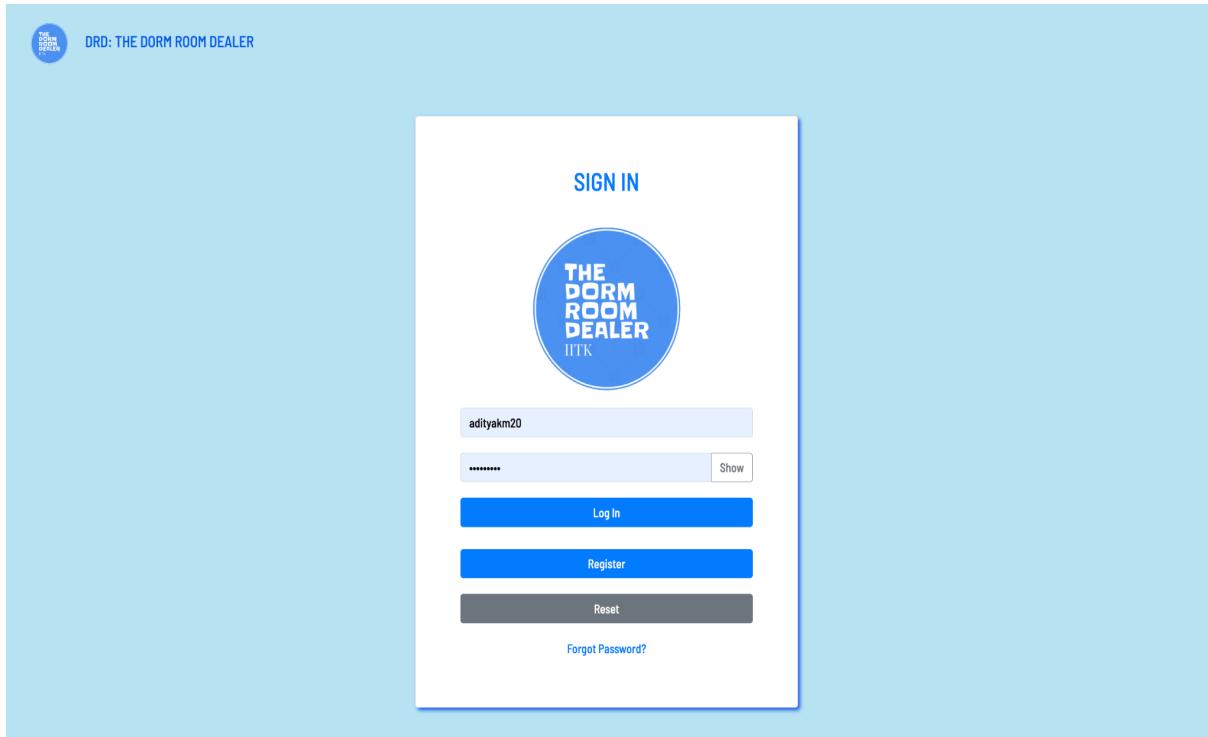
A) Sign Up Page

This page allows users to create a new account and register for the portal. The page design should prioritize user-friendliness and simplicity to make the sign-up process as seamless as possible. The page should contain fields for users to enter their personal information, such as their name, email, and password.



B) Login Page

This page allows registered users to access their accounts and start buying or selling products easily. The page's design should be simple and easy to understand so that users can quickly log in to their accounts with little effort. The page contains fields for users to enter their email and password and options to reset their password if needed.



C) Feed Page of available products

After login, each website page starts with a navigation bar, as seen in the image below. It contains links to the home page, a link to adding an item ('Add Item'), a link to a dashboard that shows user information and history, a link to a notification tab that shows all the updates for any user, and finally a link to logout from the website.

The home page displays a list of all the products available for sale and allows users to browse and interact with the products. Users can search for products using tags or filter them through price or other parameters. The page's design should be visually appealing and organized, making it easy for users to find what they want. The feed should be set up to work well on both desktop and mobile devices, making it easy to filter and look for products. The design should also make it easy to interact with the products, like seeing more information about them and starting a purchase.

Products that are up for sale in the future are listed on the home page under a different title - 'Future Auctions' .

THE DORM ROOM DEALER

Home Add Item Dashboard Notifications Logout

SELECT CATEGORY: All categories SORT PRODUCT BY: Start Date

Live Bids

		
Product : Bottle Current Price: ₹ 462 Hall: 12 View and Bid	Product : Bag Current Price: ₹ 515 Hall: 3 View and Bid	Product : Heater-2 Current Price: ₹ 1000 Hall: 12 View and Bid
		

Future Auctions

		
Product : Dummy-1 Base Price: ₹ 100 Auction Start Date : April 29, 2023, 7:23 p.m. Auction End Date : April 30, 2023, 7:23 p.m.	Product : Dummy-2 Base Price: ₹ 200 Auction Start Date : May 10, 2023, 7:24 p.m. Auction End Date : May 24, 2023, 7:24 p.m.	Product : Dummy-3 Base Price: ₹ 300 Auction Start Date : May 31, 2023, 7:25 p.m. Auction End Date : June 1, 2023, 7:25 p.m.
		
Product : Dummy-4 Base Price: ₹ 800 Auction Start Date : May 30, 2023, 7:25 p.m. Auction End Date : June 7, 2023, 7:25 p.m.	Product : Charger Base Price: ₹ 900 Auction Start Date : April 29, 2023, 7:26 p.m. Auction End Date : May 6, 2023, 7:26 p.m.	Product : Heater Base Price: ₹ 1500 Auction Start Date : April 29, 2023, 1:31 a.m. Auction End Date : May 31, 2023, 1:31 a.m.

D) Interface for uploading the Product details

A seller can upload the product details of her product to be listed in the portal through the 'Add Item' interface. This page opens when the seller clicks on the 'Add Item' link on her navigation bar. The seller must upload the following details -

- Name of the product
- Images of the product
- Tag (for search filter)
- Description of the product
- Location of the product (Hall)
- Starting Price of the product
- Dates when the auction of the product shall begin and end

The screenshot shows the 'ADD ITEM' page of a web application. The header 'THE DORM ROOM DEALER' is at the top, followed by a navigation bar with links: Home, Add Item, Dashboard, and Logout. The main content area is titled 'ADD ITEM'. It contains several input fields and file upload buttons:

- Item name:** Input field with placeholder 'Enter item name'.
- Tag:** Input field with placeholder 'Select item tag'.
- Profile image:** File upload button with placeholder 'Choose File' and 'No file chosen'.
- Description:** Input field with placeholder 'Product Description'.
- Hall:** Input field with placeholder 'Product Hall'.
- Set base price:** Input field with placeholder 'Price'.
- Optional image1:** File upload button with placeholder 'Choose File' and 'No file chosen'.
- Auction Start date :** Date input field with placeholder 'dd/mm/yyyy, --:--'.
- Optional image2:** File upload button with placeholder 'Choose File' and 'No file chosen'.
- Auction End date :** Date input field with placeholder 'dd/mm/yyyy, --:--'.

At the bottom of the form is a green 'Upload' button.

E) Detailed View of a Product

Whenever a buyer wants to know more about the product, he/she will need to click on it. On such a click, he/she will be redirected to a new page, including the product details and an option for the user to bid on the product. The details would include photographs, name, the product's category, some description about it, and a field to enter their bidding amount if the buyer wants to bid for the product. The bidder would not be allowed to bid an amount lesser than the product's current price.

THE DORM ROOM DEALER

[Home](#) [Add Item](#) [Dashboard](#) [Logout](#)

Product Details

Name:	Bag
Tag:	Others
Description:	Bag
Base Price:	₹500
Current Price:	₹515
Hall:	3
Auction ends on:	May 6, 2023, 1:20 a.m.
	
Profile Image:	
Enter Amount for Bid: <input type="text" value="Enter your amount"/> <input type="button" value="Bid now"/>	

F) Notification Menu

Notifications are there to notify the account user of any updates for their actions. The seller will get to know about any new bids. The buyer will get to know if their bid is successful or not. These notifications are listed on a separate tab on the navigation bar.

THE DORM ROOM DEALER

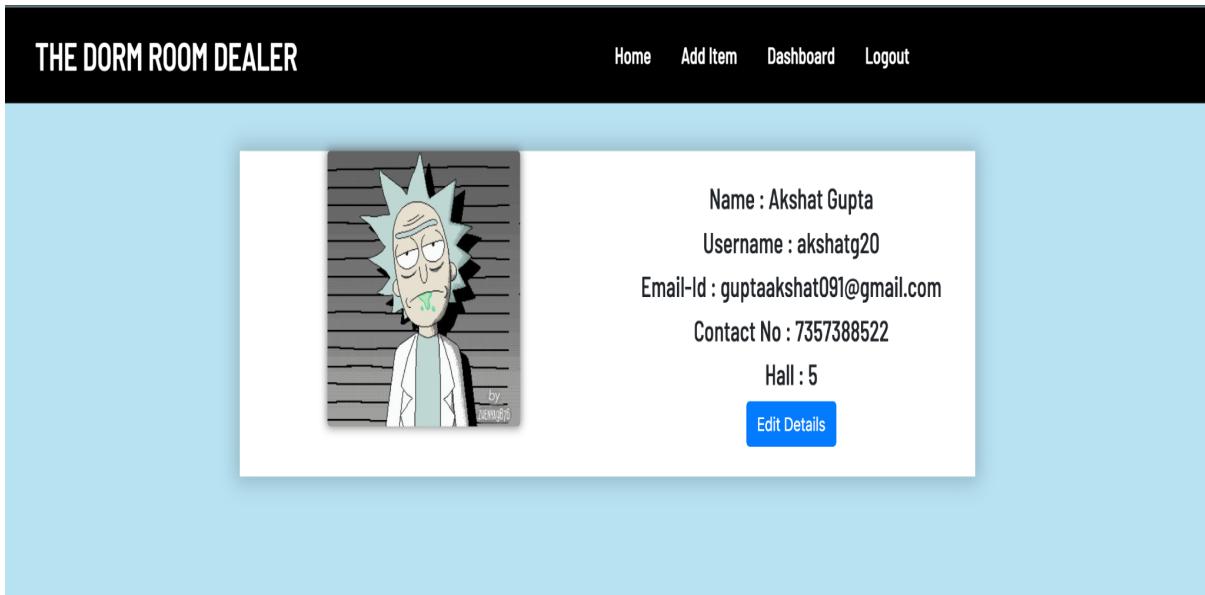
[Home](#) [Add Item](#) [Dashboard](#) [Logout](#)

Recent Notifications

Your item - Bottle was bidden by guptaakshat091@gmail.com, at Rs461.	April 6, 2023, 8:31 p.m.
Your item - Bottle was bidden by guptaakshat091@gmail.com, at Rs460.	April 6, 2023, 8:28 p.m.
Your item - Bottle was bidden by guptaakshat091@gmail.com, at Rs455.	April 6, 2023, 8:26 p.m.
Your item - Bottle was bidden by guptaakshat091@gmail.com, at Rs452.	April 6, 2023, 8:25 p.m.
Your item - Bottle was bidden by guptaakshat091@gmail.com, at Rs450.	April 6, 2023, 8:47 p.m.
Your item - Watch was bidden by guptaakshat091@gmail.com, at Rs3001.	April 6, 2023, 1:56 a.m.
Successful Registration!	

G) User Dashboard - Profile Interface

The Dashboard tab on the navigation bar redirects the user to a page that shows them their personal information, including their name, username, email-id, contact number, and hall of residence. It also allows them to edit their information through an 'Edit Details' button. The page subsequently shows the user their history on the page.



H) User Dashboard - History Interface:

This interface contains two sections - “**Selling History**” and “**Buying History**”.

In “**Selling History**” are listed the products that the user has listed for sale on the platform, currently, in the future, or in the past. Each section is paginated to a limit of four products, beyond that, products would be shown on subsequent pages. The user also can end the auction for their live listings. This would automatically select the highest bidder at that point as the winner of the auction.

In the “**Buying History**” section are the products the user had bid for, currently or in the past.

The History interface shows the complete details of the product, including their -

- Name
- Current price and Base Price

- Start and End date of the auction
- Status

SELLING HISTORY

Your Live Auction Products :

Watch

Current Price : ₹3002 Base Price : ₹3000
Auction Start Date : April 6, 2023, 1:32 a.m.
Auction End Date : May 24, 2023, 1:32 a.m.
Status : Bidded



[End Auction For this Product](#)

Your Future Auction Products:

Heater

Current Price : ₹1500 Base Price : ₹1500
Auction Start Date : April 29, 2023, 1:31 a.m.
Auction End Date : May 31, 2023, 1:31 a.m.
Status : Yet to be auctioned



Your Past Auction Products :

BIDDING HISTORY

Your Live Bids:

Cycle

Current Price : ₹2504 Base Price : ₹2000
Auction Start Date : April 6, 2023, 1:16 a.m.
Auction End Date : May 6, 2023, 1:16 a.m.
Status : Bidded



Your Past Purchases:

[Page 1 of 5.](#) [Next](#) [Last »](#)

I) Edit Profile Page

On the edit profile page, the user can change any of the personal information they entered when they signed up for the app.

THE DORM ROOM DEALER

Home Add Item Dashboard Logout

EDIT PROFILE

First Name

Last Name

Email

Contact Number

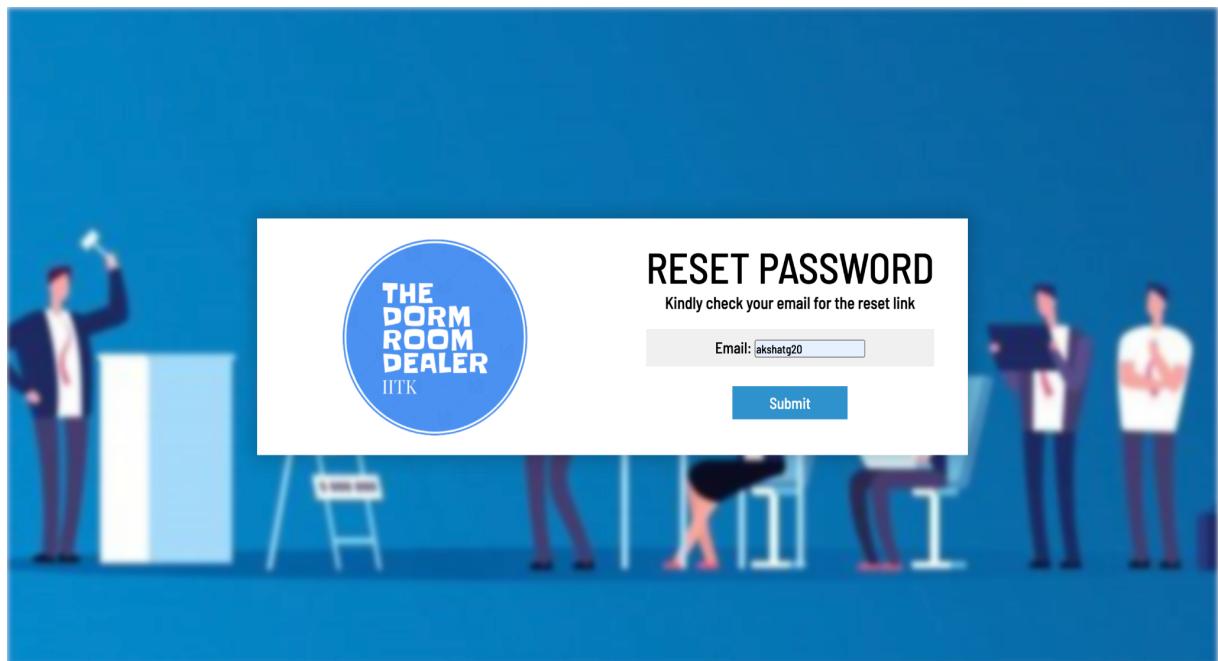
Profile Picture
 No file chosen

Hall

Save Changes

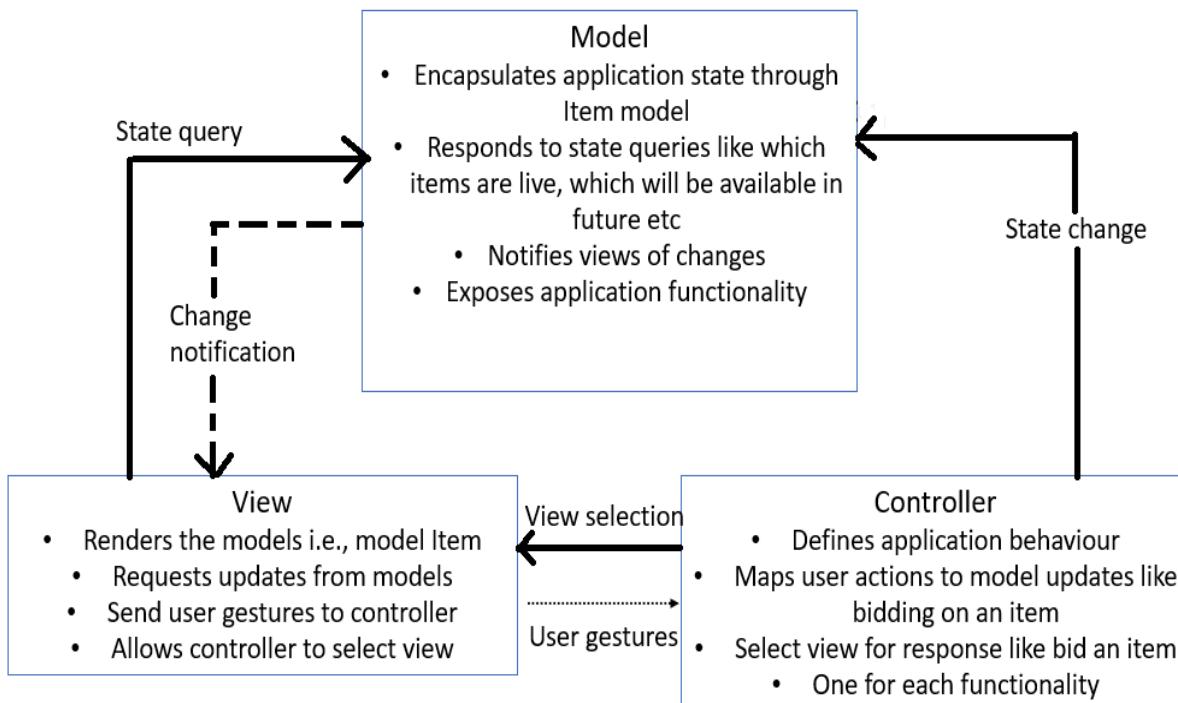
J) Forgot Password Interface

On the login/landing page of the website, there is a “Forgot Password” link at the bottom. Upon clicking this, the user is redirected to this page, where the user can reset their password by entering their email address. This sends a verification link to their email address which allows them to reset their password.



2 Architecture Design

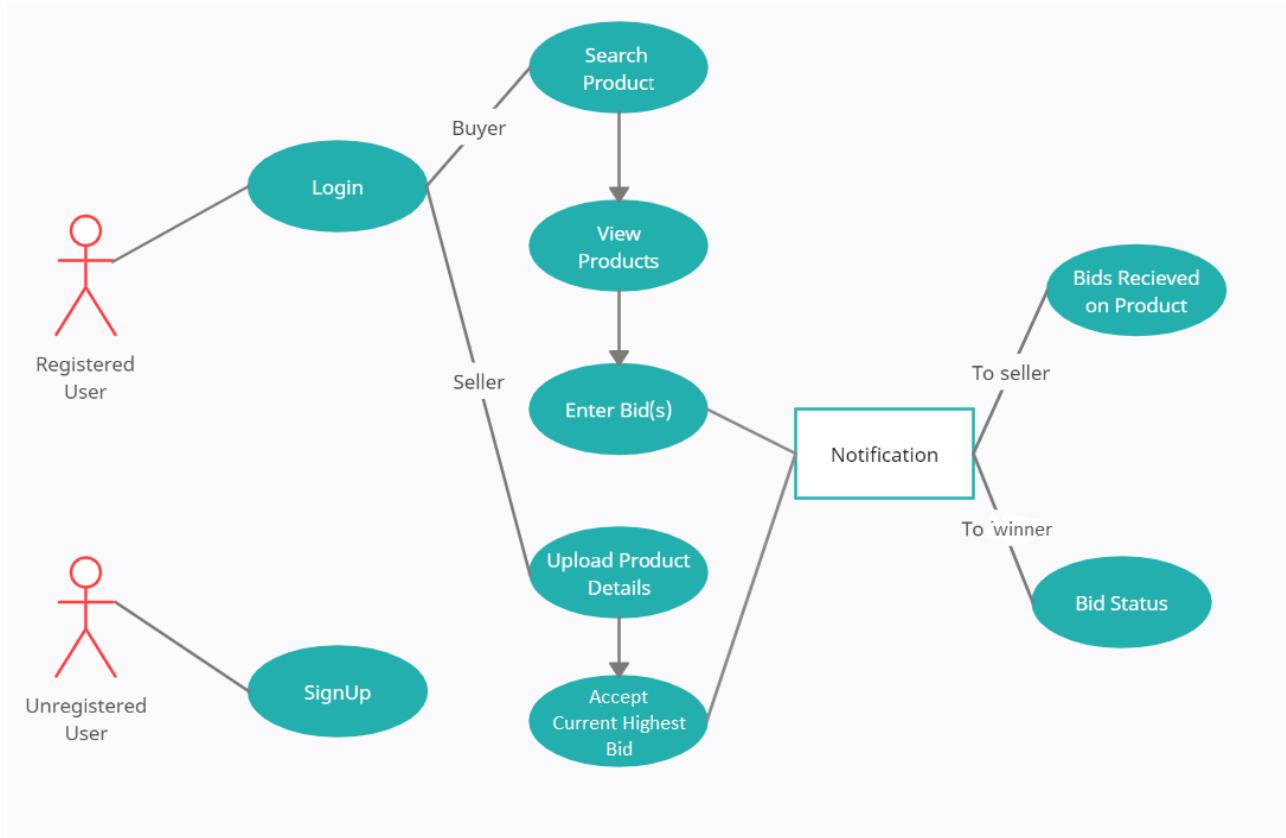
Our website has Model-View-Controller architecture. The Model-View-Controller (MVC) architecture is suitable for e-commerce websites as it separates the data, business logic, and presentation layers. This separation makes it easier to maintain and scale the platform. MVC promotes modularity, making it easier to modify and extend the codebase. Additionally, MVC facilitates code organization and reuse, which can lead to faster development and reduced costs. Overall, MVC provides a solid foundation for building a robust and reliable e-commerce platform.



3 Object Oriented Design

3.1 Use Case Diagrams

Overall Use Case Diagram

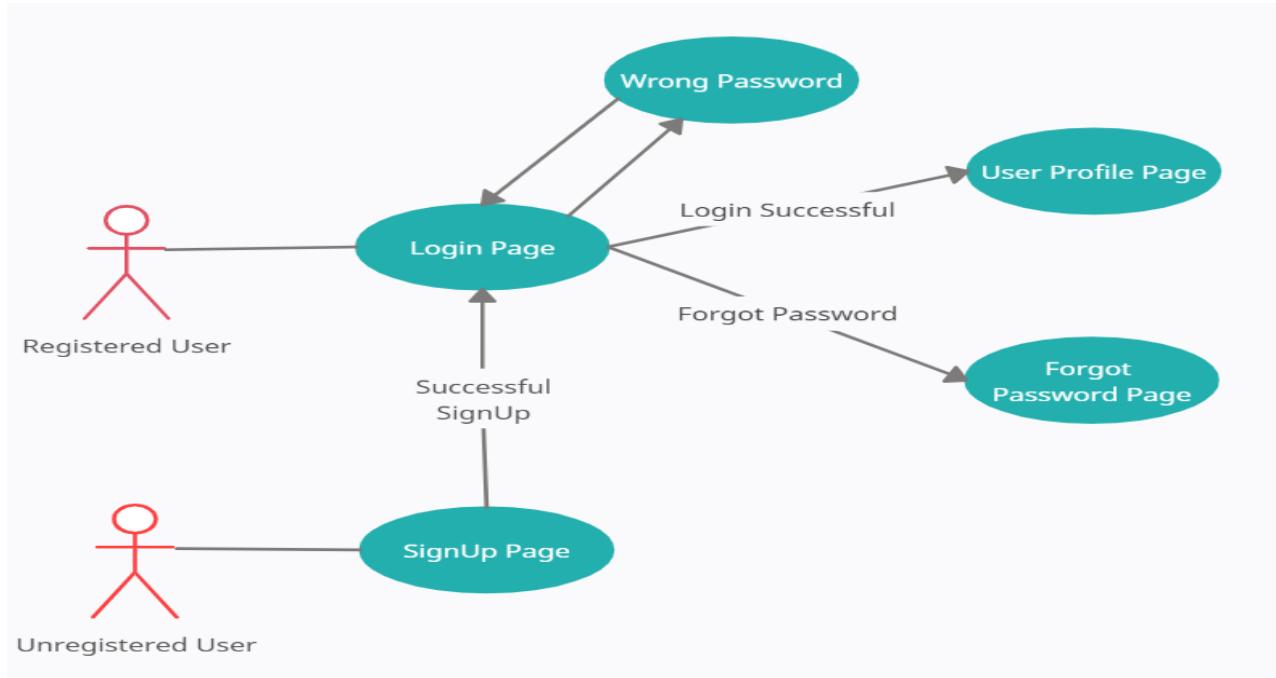


Description of the Overall Use Case Diagram

This use case is a high-level graphical representation of how a user would interact with our software. An unregistered user has to get registered in the portal by signing up. A registered user can then login into the portal using their login credentials. If a user has logged in with the purpose of buying a certain product, she can search that product category, and view the listed products, and if she likes a particular listed product, she can enter a bid for that product. Alternatively, if a user has logged in with the purpose of selling a product, she can upload the details of her product to be listed in the portal. After the product has been listed and some bids from the prospective buyers on that product have been received, the seller can choose to end the auction and accept the highest bid. Alternatively, the seller can also wait for the auction to end by default at the end date and the winner is then the highest bidder before the end date. For each bid received on a product, the system sends a notification to the seller of that product specifying the amount

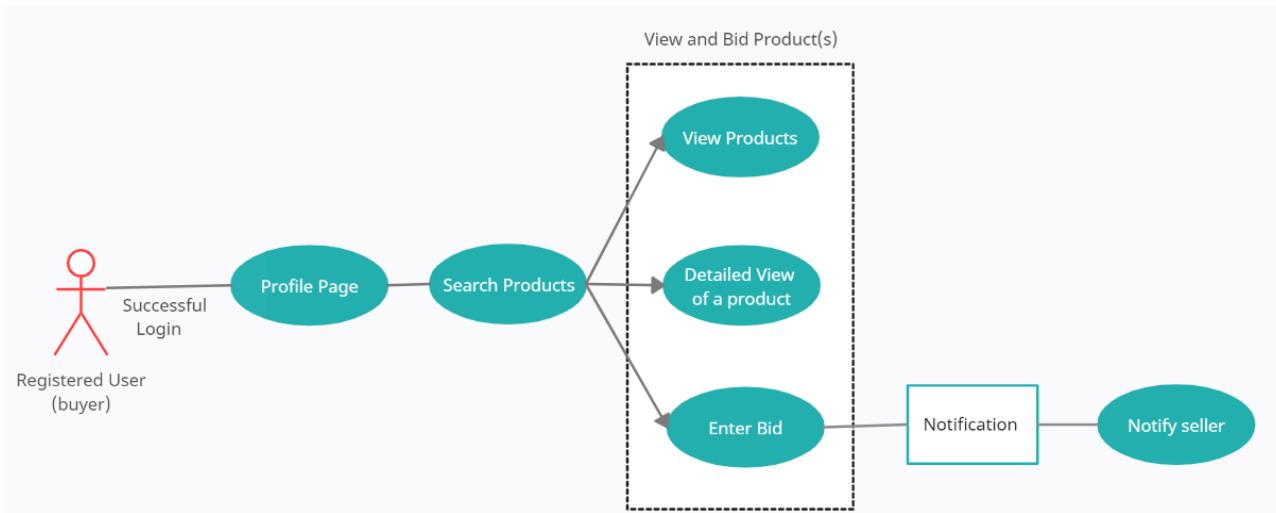
of bid entered. And at the end of the auction, the system notifies the highest bidder that they are the winner of the auction.

3.1.1 User Sign-up and Sign-in



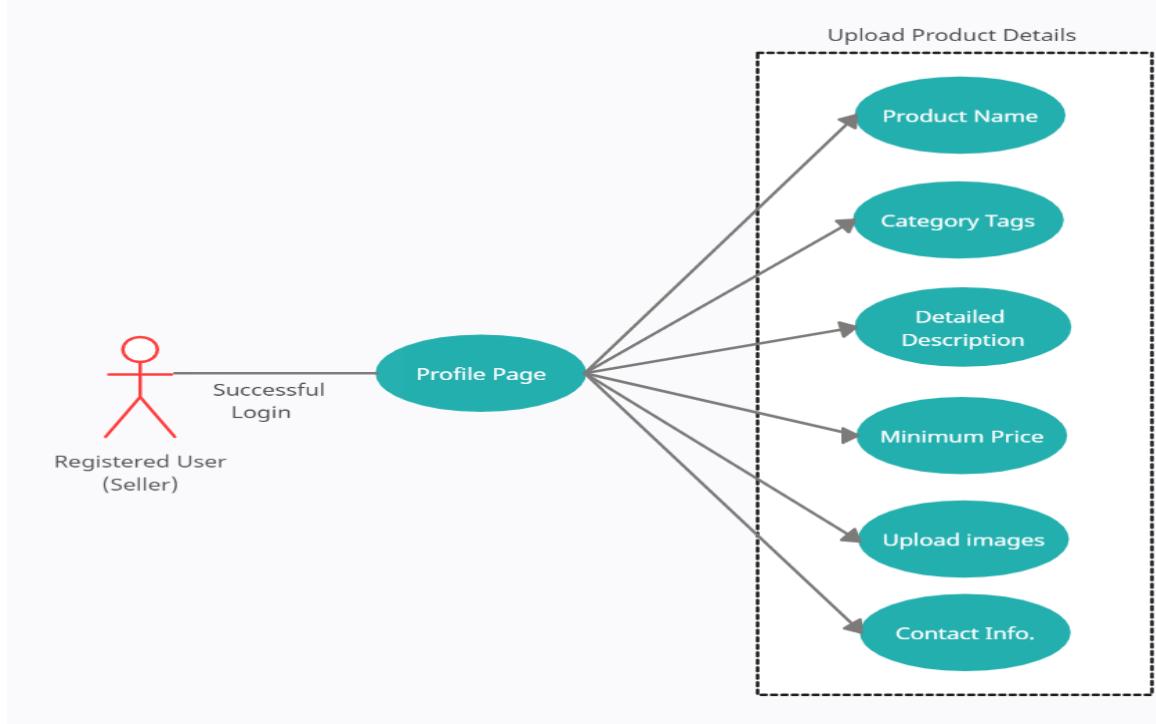
Description: The User Sign-up and Sign-in use case describes how a registered user signs in and how an unregistered user signs up in the system. If a registered user has entered the wrong password in the login page, she is redirected back to the login page. If a registered user has forgotten her password, she is redirected to the forgot password page. If the user has entered the right login credentials, her user profile opens up.

3.1.2 Display of Products and Bidding



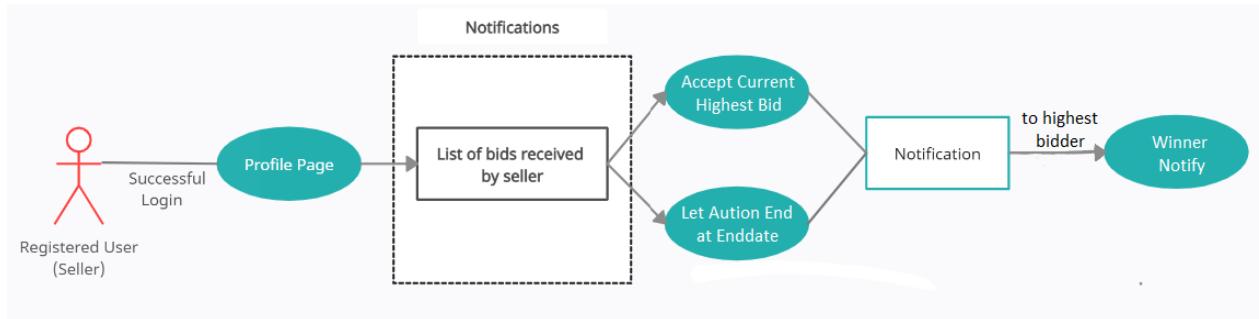
Description: This use case provides a high-level picture of how a registered user can view the products listed in the portal. The user starts by searching product categories available in the portal. Based on this search, the products are displayed. A user can also view a detailed description of each product (including the price posted by the seller). She can also place a bid for one or more products, with each product's seller receiving a notification of the same.

3.1.3 Uploading of Product Details by the seller



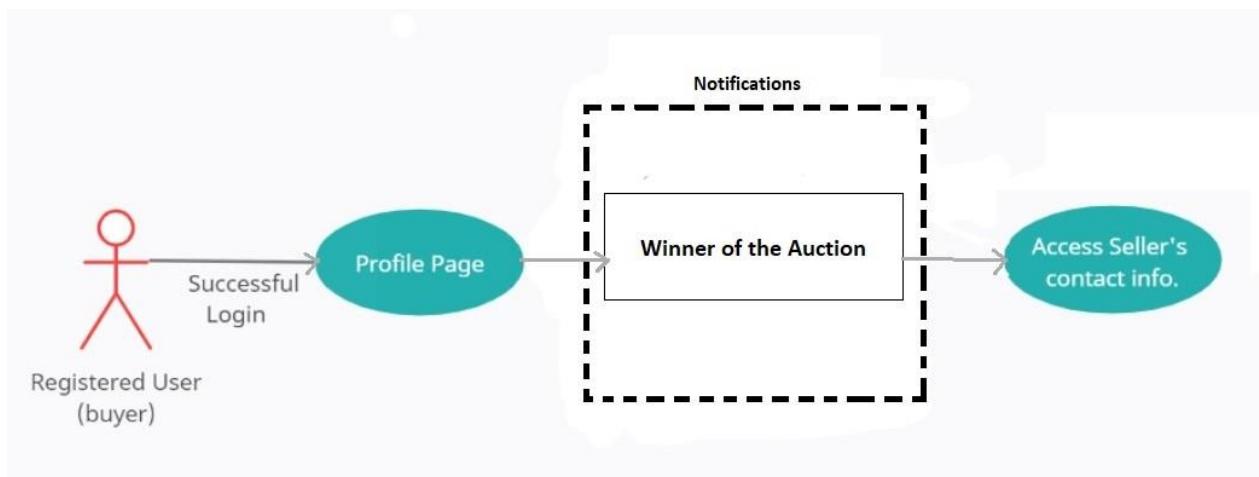
Description: This use case provides a pictorial view of how a seller can list her products in the portal. The system shall allow the user to provide the product name and the brand to which the product belongs. The seller has to provide tags for the product based on the product category, along with an elaborate description of the product. The seller has to set a minimum price below which the system shall not accept any biddings. The system shall allow the seller to upload multiple images of her product and provide her contact information.

3.1.4 Bids As Seen By the Seller



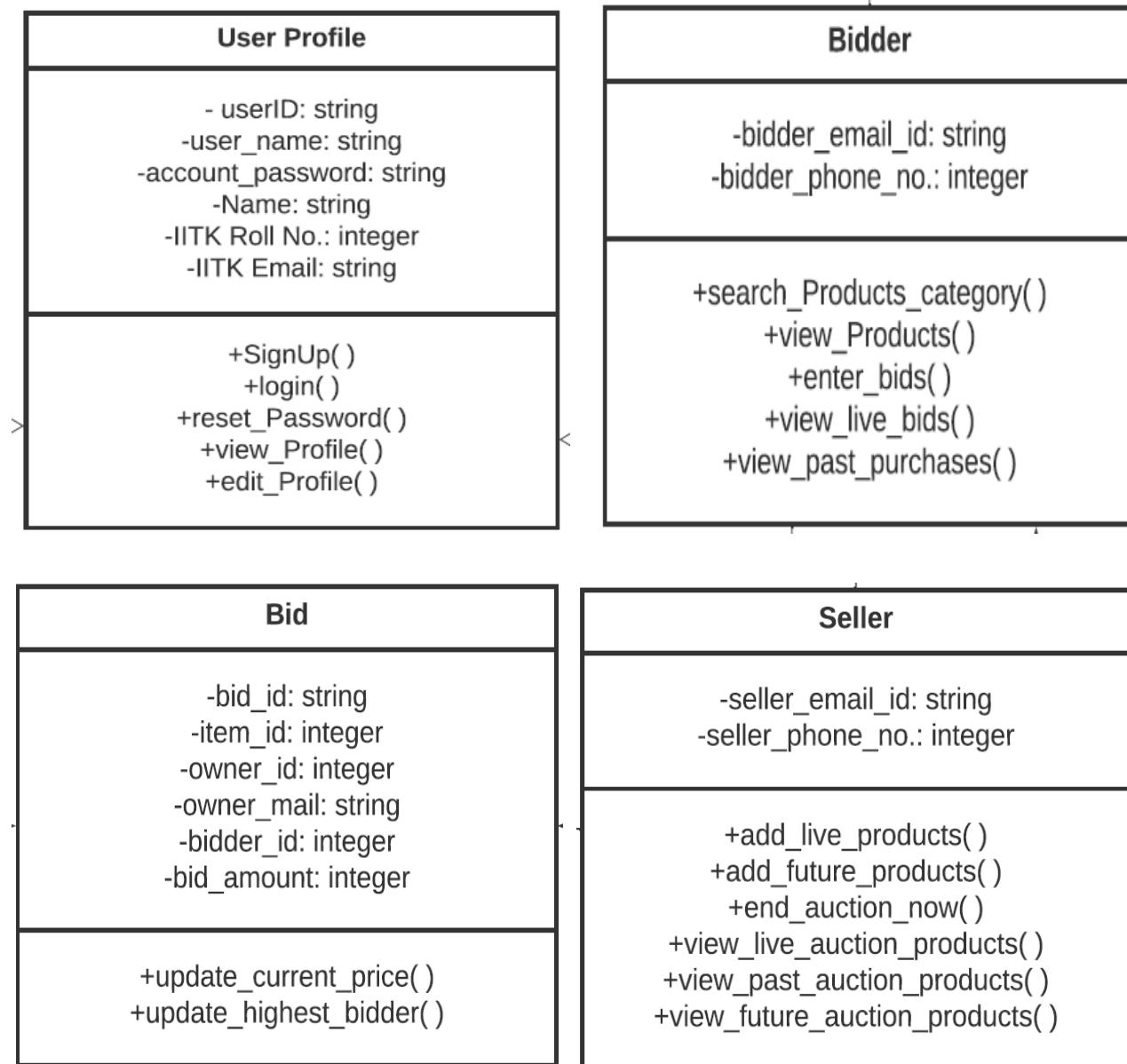
Description: This use case is a high-level portrayal of how a seller receives, through notifications, the list of bids placed on her product. At any time before the end date of the auction, the seller can choose to stop the auction and the highest bidder is the winner. Alternatively, the seller can also wait for the auction to end by default at the end date and the winner is then the highest bidder before the end date. At the end of the auction, the system notifies the highest bidder that they are the winner of the auction.

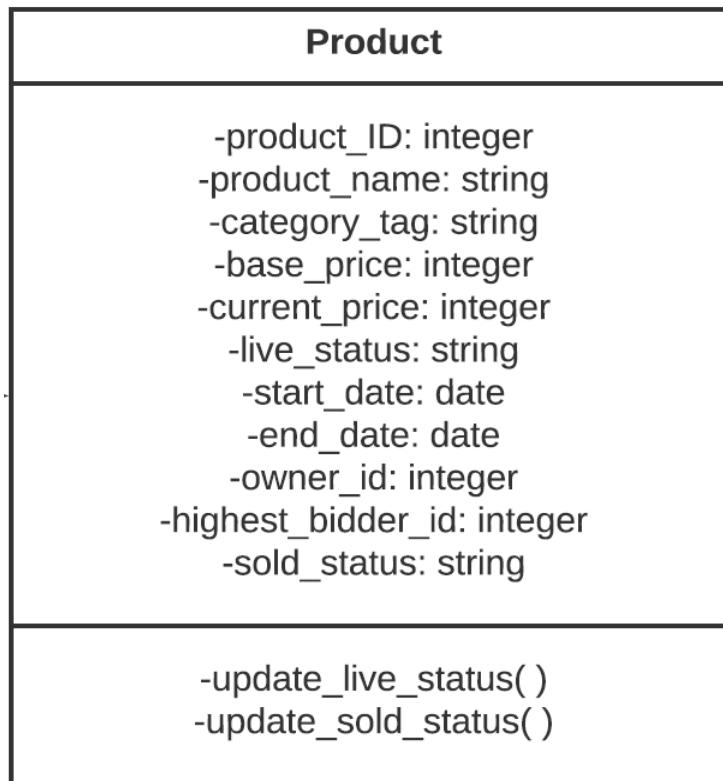
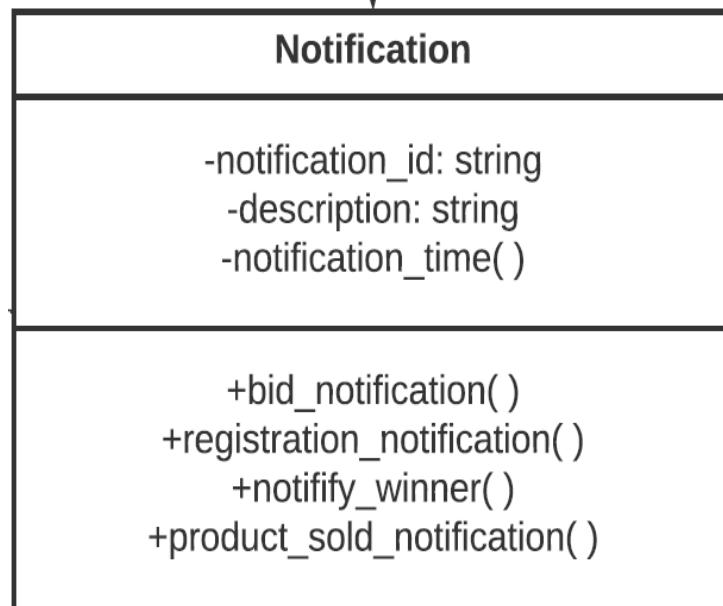
3.1.5 Acceptance of the Highest Bid



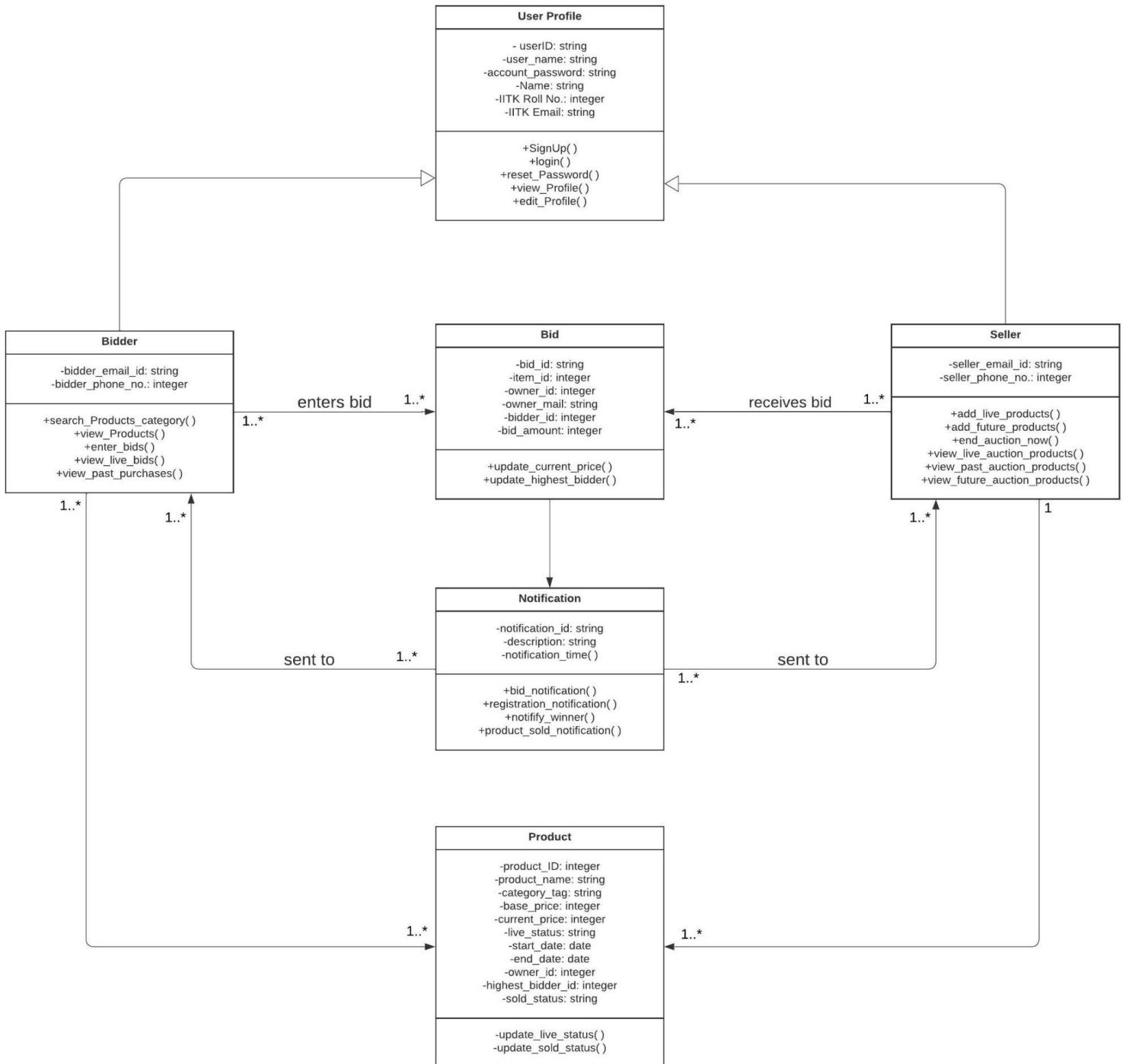
Description: This use case depicts how the highest bidder of an item is notified regarding winning the auction. The system grants that bidder access to the seller's contact information.

3.2 Class Diagrams





Overall Class Diagram

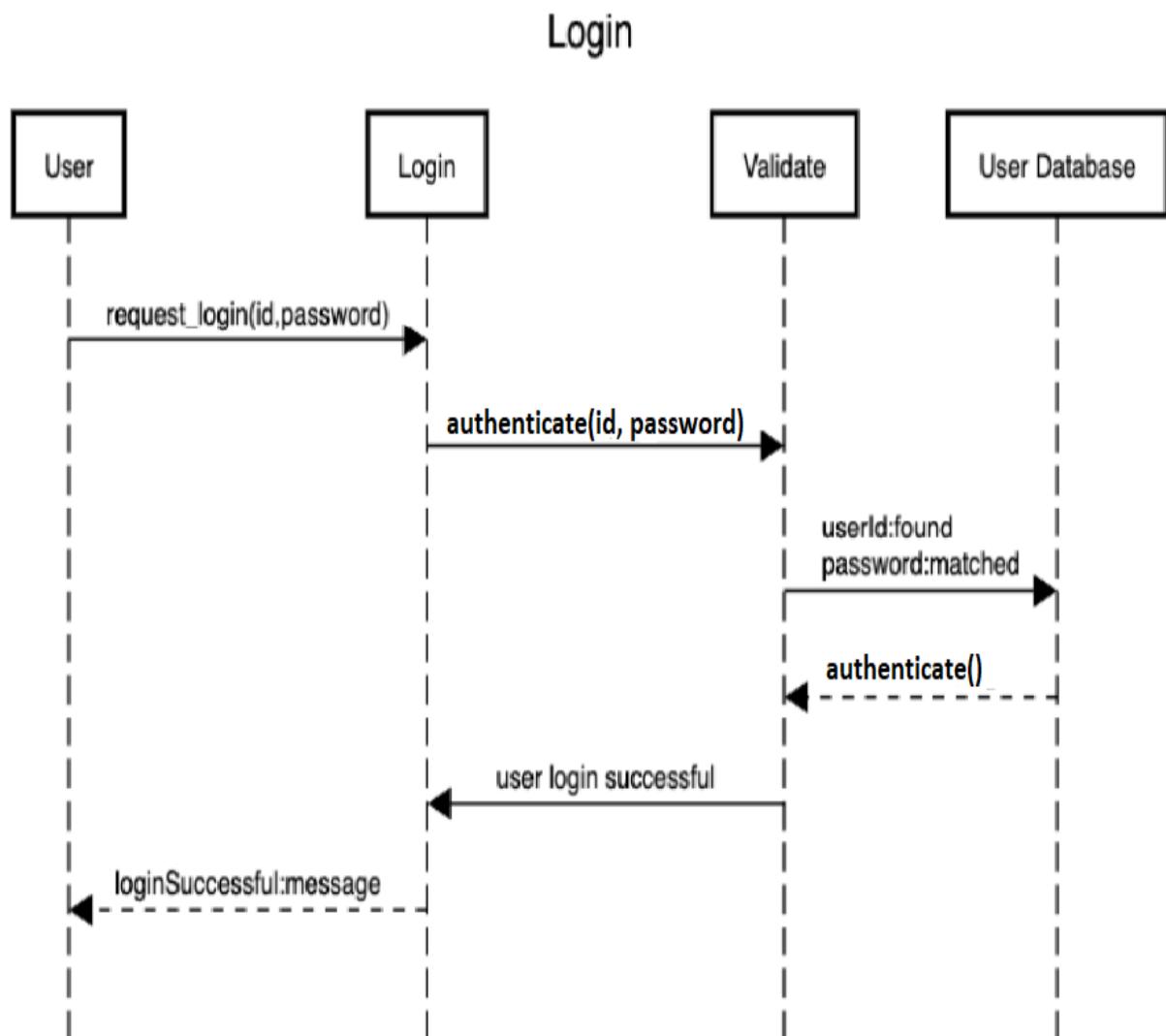


Description of some non-trivial functions associated with classes in the class Diagram:

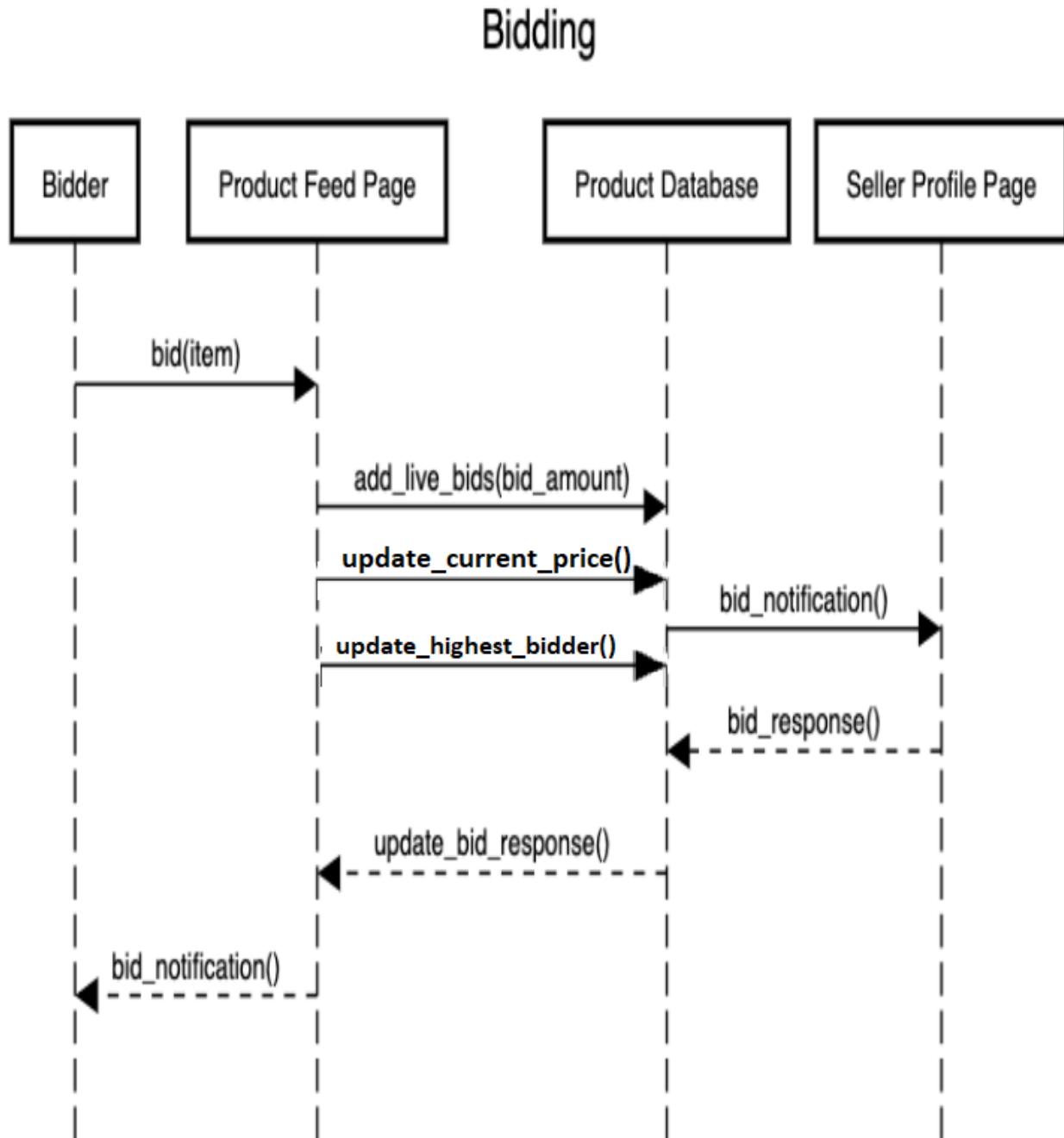
- `search_Products_category()`: Facility for a user to search products by category
- `view_live_bids()`: Facility for a user (bidder) to view all the live bids placed by him/her
- `view_past_purchases()`: Facility for a user to view all of their past purchases
- `update_current_price()`: A new bid updates the current price of the item
- `update_highest_bidder()`: A new bid updates the highest bidder corresponding to that item
- `add_live_products()`: A user (seller) has the facility to add an item by setting the start date as now
- `add_future_products()`: A user (seller) has the facility to add an item by setting the start date at a future date
- `end_auction_now()`: A seller has the facility to end auction for a live product even before its end date
- `view_live_auction_products()`: Facility for a user to see all his uploaded items which are currently live
- `view_past_auction_products()`: Facility for a user to see all his past uploaded items (for which the auction has ended)
- `view_future_auction_products()`: Facility for a user to see all his uploaded items whose auction will start at a future date
- `bid_notification()`: Notification to the seller informing him/her about the amount of bid placed.
- `notify_winner()`: Notification to the winner of the auction (highest bidder)
- `product_sold_notification()`: Notification to the seller of the item, whose auction has ended and there exists a highest bidder for that item
- `update_live_status()`: Update the status of the product as either “live” or “past” or “future” based on the current date and time
- `update_sold_status`: Update the sold status of the product as either “unsold” or “bidded” or “sold”.

3.3 Sequence Diagrams

3.3.1 User Login

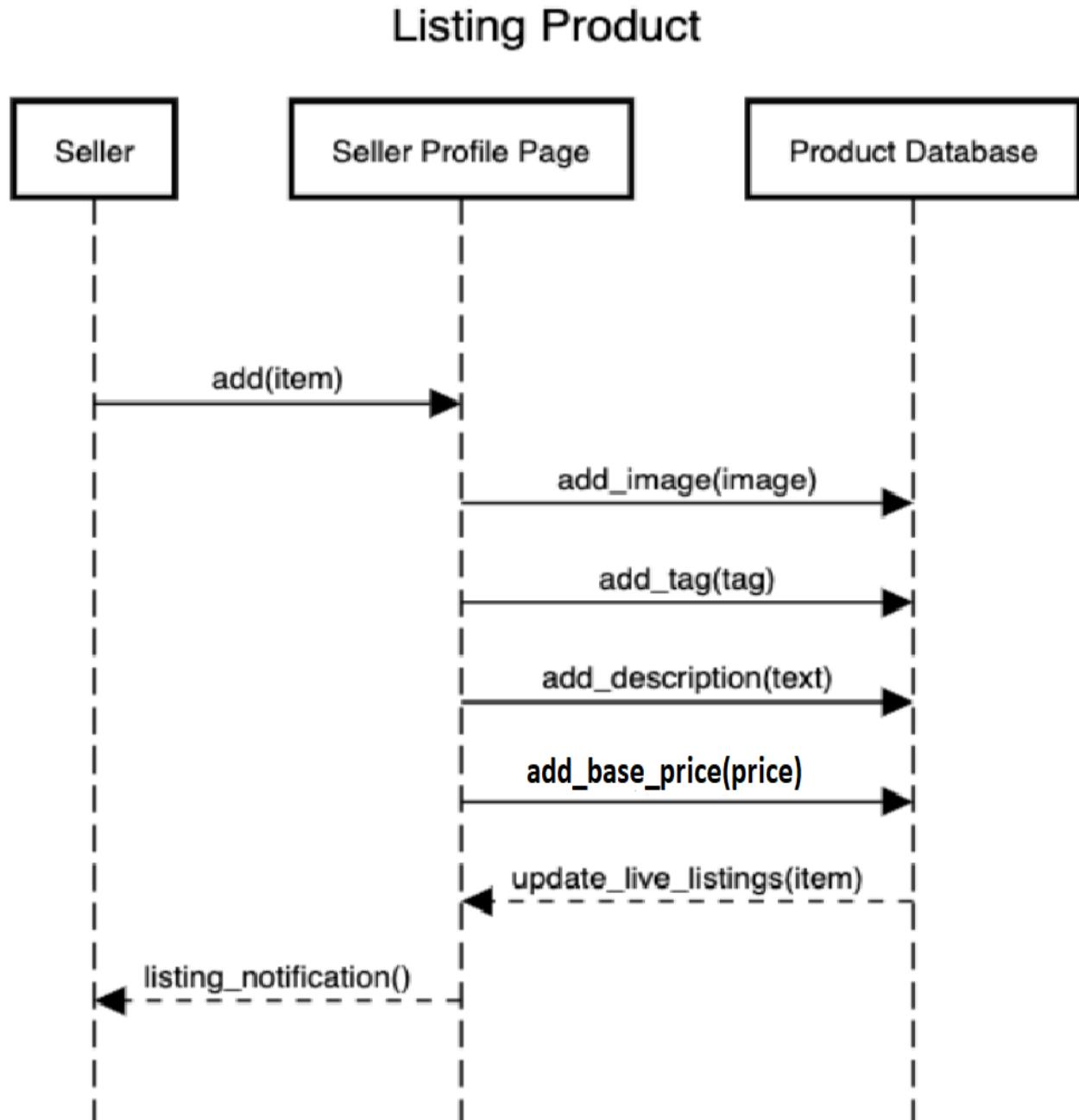


3.3.2 Bidding for a product



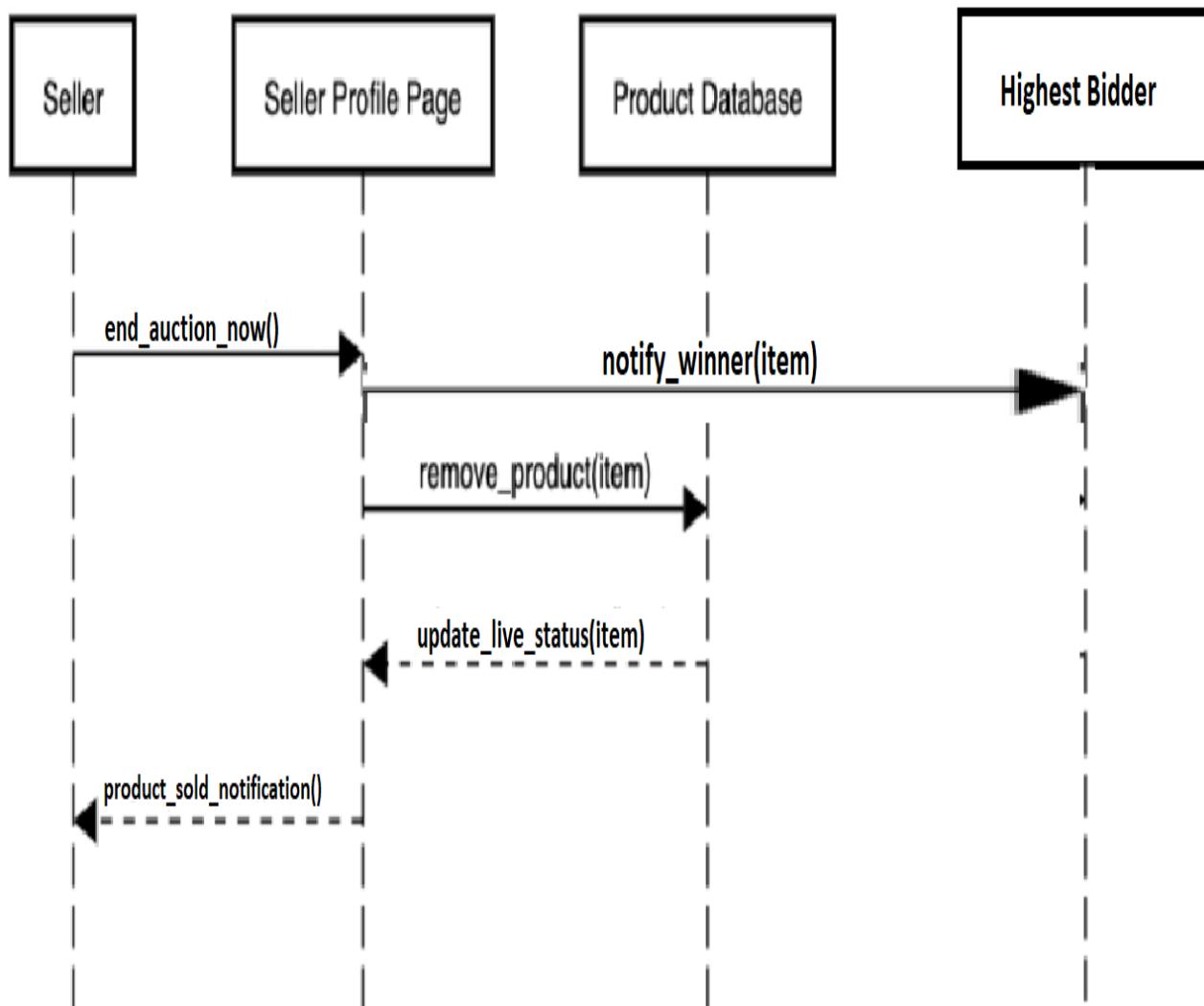
Note: The seller has two choices, either to close the auction immediately or to let it continue. If he chooses to end the auction, the product is removed from the home page and its status is marked as sold in the database. Else the auction is to be continued. The `bid_response()` essentially updates the product status in case the buyer ends the auction.

3.3.3 Listing a Product

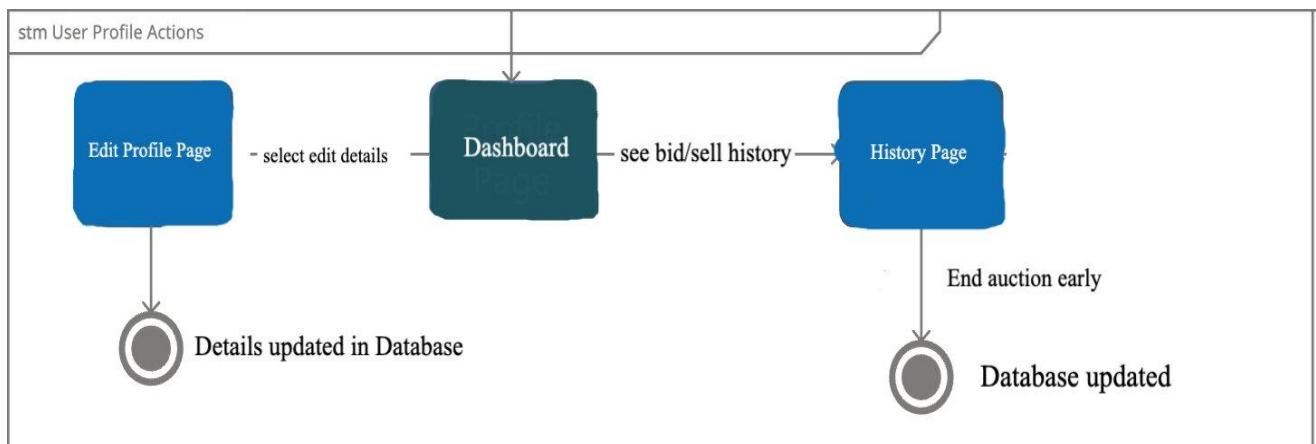
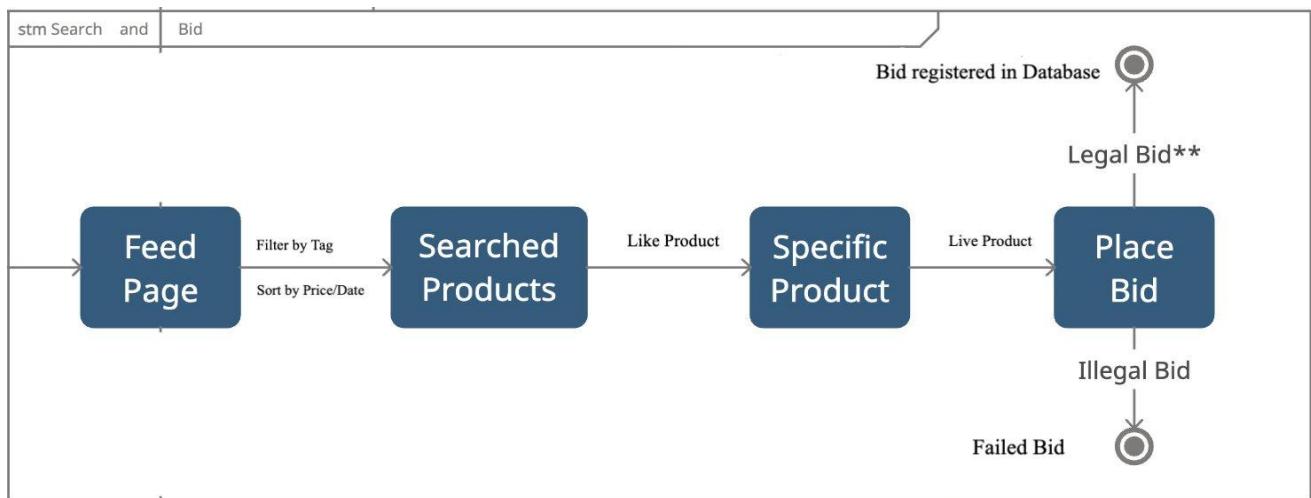
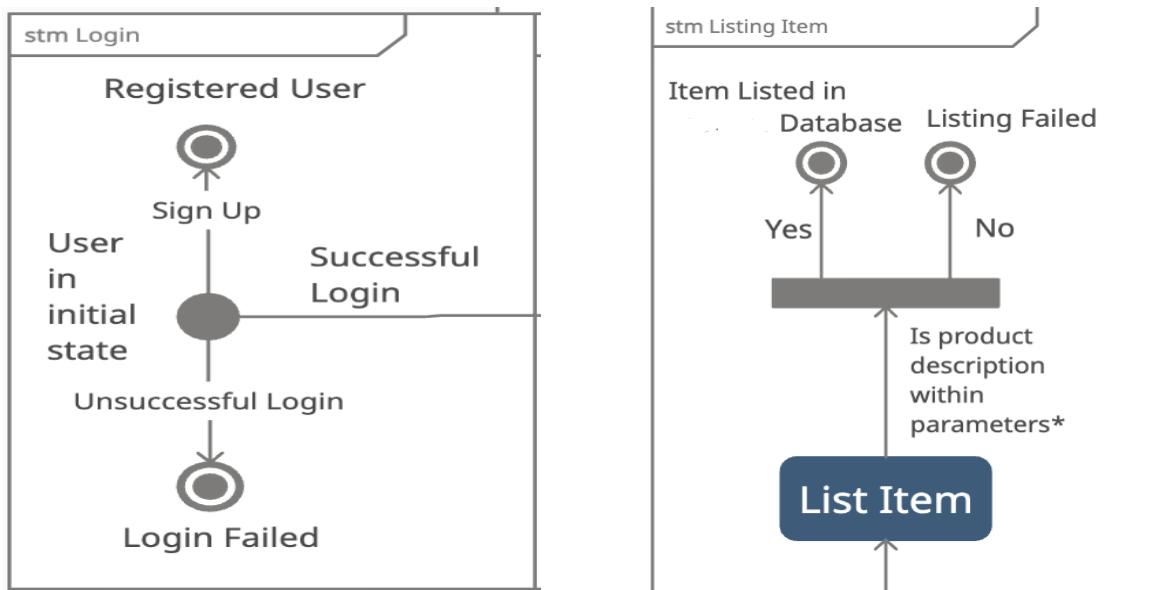


3.3.5 Ending the auction for an item

Ending the auction for an item



3.4 State Diagrams



- * For listing a product, there are certain parameters that are needed to be followed -
 - The product has to be listed for a positive price but below a limit set by the system.
 - The seller cannot leave any product description empty.

- ** A legal bid constitutes any bid that is positive and higher than the minimum price listed for the product.

4 Project Plan

<Provide a detailed plan for the implementation and testing of the software. Identify the major tasks and their dependencies. Capture the plan in a Gantt Chart. Also, for each task, identify the team member who will be responsible for completing the task.>

Task	Start Date	Expected Duration	Contributing Members	Progress
Project Ideation	09-01-23	5 days	Everyone	100%
Conceptualisation with Mentors	13-01-23	2 days	Everyone	100%
Development of SRS	13-01-23	14 days	Everyone	100%
Development of Design template	27-01-23	14 days	Everyone	100%
Logic Flow Generation	26-02-23	3 days	Everyone	100%
Backend framework generation of different class	26-02-23	5 days	Everyone	100%
Login - authorization scheme generation	26-02-23	3 days	Everyone	100%
Development of web-scraping mechanisms	26-02-23	3 days	Everyone	100%
Database Generation	5-03-23	3 days	Everyone	100%
Database integration with backend framework	10-03-23	5 days	Everyone	100%
Frontend prototype generation	26-02-23	3 days	Everyone	100%
Login and SignUp page front end implementation	26-02-23	1 day	Akshat (200080)	100%
Feed Page front end implementation	26-02-23	2 days	Akshat Gupta	100%
Uploading product details page front end implementation	26-02-23	3 days	Sarthak Motwani	100%
Notification dropdown front end implementation	26-02-23	2 days	Vaibhav Chirania	100%

Active Listings Page Front end implementation	01-03-23	2 days	Devesh Shukla	100%
Product Detailed view page front end implementation	01-03-23	2 days	Akhil Sagwal	100%
Your Biddings page front end implementation	01-03-23	2 days	Rahul Rustagi	100%
History Page front end implementation	01-03-23	2 days	Milan Anand Raj	100%
Resolution and integration of the back end with the front-end	10-03-23	5 days	Everyone	100%
Deployment	17-03-23	5 days	Everyone	100%
Alpha Release	01-04-23	5 days	Everyone	100%
Beta Release	01-04-23	5 days	Everyone	100%

Frontend

The frontend of the software shall provisionally contain the following web pages:-

- 1) SignUp Page - This page allows users to create a new account and get registered into the portal.
- 2) Login Page - This page authenticates a registered user to enter the website using her username (or IITK email address) and password.
- 3) Feed Page of Available Products - This page displays a list of all the products available for sale, and allows users to browse and interact with the products.
- 4) Interface for uploading product details - This page allows the user who wants to sell a product to upload the product details and images.
- 5) Detailed view of a Product Page - This page contains the detailed information of each product. Whenever a user clicks on a product on the feed page, the detailed view of that product page pops up.
- 6) Notification drop down menu - Notifications are there to notify the account user regarding any updates for their actions.
- 7) Active Listings Interface - The Active Listings page displays all the unsold products of a user, along with their corresponding details such as the number of bids for that product till now and the highest bid received so far for it.
- 8) Your Bids Interface - The 'Your Bids' page displays all the bids placed by the user on active products on the website.
- 9) History Page - History page shows all the bids accepted by the user as a seller and as all the items purchased by placing bids on the products as a buyer.

Backend

- 1) login: function to handle the login of a user through a POST request

- 2) register: function to handle the SignUp of a user through a POST request
- 3) home: function to render the live and future items, handles search by category through a POST request.
- 4) notifications: function to add notifications in the notifications page
- 5) dashboard: function to render profile details of a user, including the selling and bidding history. Handles the End Auction feature through a POST request.
- 6) edit_profile: function to handle the profile edit of a user through a POST request
- 7) additem: function to handle the uploading of product details through a POST request.
- 8) successfullBid: function to handle the processing of bid entered by a bidder through a GET request

5 Other Details

<This section is Optional. Please provide any other details that are suitable for being included in the design document .>

Appendix A - Group Log

<Please include here all the minutes from your group meetings, your group activities, and any other relevant information that will assist in determining the effort put forth to produce this document>

Date	Members Present	Topic of Discussion
29-01-2023	All members were present	Discussed together how the user interfaces should look like and what all features each webpage shall contain.
02-02-2023	All members were present	Distributed work on context, use case, class, sequence, and state diagrams.
06-02-2023	All members were present + TA	Discussed and clarified doubts from the TA about the architecture of our software, what all classes are appropriate to be kept in the class diagram, and doubts about the state diagram.
08-02-2023	All members were present	Reviewed all the diagrams and interfaces to make their features, functions, and attributes coherent through the design document.

All the group members were in constant touch with each other and the TA through the WhatsApp group. Some suggestions were given by the TA regarding some corrections and elaboration in the architecture diagram, class diagrams, and state diagram. All those suggestions have been seriously incorporated into the document.