

Requirements and Design Specification Document

BidHub

“Revolutionizing Auctions in the Digital Age”

Project Code: — — —

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1 Introduction

The BidHub represents the fusion of traditional auction concepts with modern digital convenience. The system will be paperless, transparent, and secure, providing a safe environment for online users. The main users of the system consist of registered bidders, sellers, and institutes(private and government). Institutes will have the capability to list their surplus items, referred to as Institute Surplus Item (ISI). This document serves as your gateway to understanding the essence of this system, its objectives, and its role in reshaping the auction landscape.

1.1 Scope

The scope of the BidHub is determined by the variety of things it can do to help with online auctions. It includes user registration, allowing buyers and sellers to create accounts; auction listings, enabling sellers to list items for auction; bidding, permitting registered buyers to place bids; auction management tools for sellers; transparent transactions through displayed bidder information; notifications for auction outcomes; separate dashboards for buyers and sellers; secure escrow service for holding funds during auctions; relisting option for unsold items; and a specialized verification process for government organizations as sellers. Exclusions from the system involve financial transactions, shipping, legal advice, customer support, and item authentication. The BidHub aims to streamline online auctions, ensuring transparency, convenience, and accessibility while leaving aspects like payments, shipping, and legal considerations to external processes and services.

1.2 Definition of Terms, Acronyms and Abbreviations

ISI Institute Surplus Item

VAR Virtual Auction Room

1.3 References

1. Research Gate - Analysis, Design and Implementation of a Web -Based Online Auction System
2. Relevant Software - Guide to Building an Auction Website or System
3. IJRPR - Online Auction System

2 Overall Description

The BidHub operates as an online platform, linking buyers and sellers in a virtual auction environment. It offers a digital alternative to traditional auctions, enabling remote participation and convenient bidding. Users can register as buyers or sellers, create auction listings, place bids, and manage auctions. The system ensures transparency by displaying bidder information and implements an escrow service to hold funds during transactions. It caters to diverse users, including registered buyers, sellers, and institutes looking to list surplus items (referred to as an ISI) participating as sellers. The system adheres to secure online transactions and data privacy regulations. It relies on stable internet connectivity and assumes users have basic computer literacy. Dependencies include external payment gateways for financial transactions and accurate product descriptions from sellers. With requirements divided into subsets, including user registration, auction management, and specialized verification for institute sellers, the system establishes a seamless online auction experience.

3 Specific Requirements

3.1 Functional Requirements

3.1.1 User Registration

- The system shall allow users to register as buyers.
- The system shall provide users with the option to register as either buyers or sellers.

3.1.2 User Authentication and Role-based Access

- The system must securely authenticate users.
- The system shall grant access to users based on their assigned roles, which can include roles such as buyers and sellers.

3.1.3 Account Verification and Password Reset

- During the registration process, the system shall require users to complete account verification.
- Additionally, the system shall offer an optional feature for users to reset their passwords.

3.1.4 Distinct Virtual Auction Rooms

- The system shall provide separate virtual auction rooms categorized by item types.

3.1.5 Auction Listing Creation

- The system shall enable sellers to create auction listings within relevant item categories.
- Additionally, the system shall allow organizations to register as sellers and list items for auction.

3.1.6 Auction Viewing and Bidding

- The system shall provide buyers with the capability to view and access designated auction rooms.
- Buyers shall have the ability to place competitive bids on items of interest.

3.1.7 Bid Verification and Confirmation

- The system shall prompt users to verify and confirm the bid amount before confirming a bid.
- Additionally, the system shall perform the following checks:
 - If it's the user's first bid, their account funds must be greater than the base price of the item.
 - If others have placed bids, the user's funds must be greater than the latest bid or the top bid.

3.1.8 Multiple Bids on a Single Item

- The system shall allow users to place multiple bids on a single item if desired.

3.1.9 Real-time Bid Updates

- The system must provide real-time updates to reflect the current highest bid during an auction.

3.1.10 Top Bids Display

- The system shall display the top five (or top three) bids for each auctioned item.

3.1.11 Transparency in Bidding

- The system shall display bidder information, including usernames or aliases, alongside bid details for transparency.

3.1.12 Auction Notifications

- The system shall send notifications to the winning bidder upon the completion of an auction.
- Additionally, the system shall notify all participants when an auction concludes.

3.1.13 Buyers' Dashboard

- The system shall provide buyers with dashboards that enable them to manage their active bids, review their bidding history, and access information about won auctions.

3.1.14 Sellers' Dashboard

- The system shall offer sellers dashboards that allow them to manage their auction listings, oversee ongoing auctions, and adjust their account settings.

3.1.15 Escrow Service

- The system shall implement an escrow service that will hold funds until the completion of a successful auction.

3.1.16 Auction Management for Sellers

- Sellers shall possess the capability to manage their auction listings, make updates to item details, and initiate the closure of auctions.
- For items that remain unsold for a period of two weeks, the system shall provide a relisting option. After two weeks of duration, users may list the item again.

3.2 Non-Functional Requirements

3.2.1 Usability

- The user interface should be intuitive and easy to use, catering to both experienced and new users. It will feature clear menus, buttons, and navigation elements, all designed with consistent patterns for a seamless experience. The system will prioritize user-centric design to ensure usability without a steep learning curve.

- All user interactions and actions should have clear and concise instructions.
- The system shall provide tooltips and contextual help to guide users through complex processes.
- Fonts, colors, and layout elements should be chosen to enhance readability and visual appeal.

3.2.2 Reliability

- The system shall have a target uptime of 99.9%, minimizing downtime and disruptions to users.
- Critical data shall be backed up regularly to prevent data loss in case of hardware failures or system crashes.
- The system should have built-in error handling mechanisms to gracefully manage unexpected errors and prevent crashes.

3.2.3 Performance

- The system shall support concurrent access by a large number of users, with a target response time of under 2 seconds for most user interactions.
- The system should be able to handle a high volume of simultaneous bids and auctions without significant performance degradation.
- Load testing will be conducted to ensure the system's performance under peak usage conditions.

3.2.4 Supportability

- The system shall be compatible with modern web browsers, including Chrome, Firefox, Safari, and Edge.
- The system shall provide clear and accessible documentation for users, administrators, and developers.
- Maintenance and updates should be easily deployable without causing disruptions to users.

3.2.5 Design Constraints

- The system's user interface design shall comply with modern design principles, incorporating responsive design for optimal viewing on different devices.
- The system's architecture shall be designed to ensure data security and user privacy, adhering to industry best practices and legal regulations.
- The system shall utilize existing technology stacks, including the MERN (MongoDB, Express.js, React, Node.js) stack for web development.

3.3 Online User Documentation and Help System Requirements

- **User Documentation:** The system aims to offer comprehensive online documentation accessible to users. This documentation will provide clear guidance on system features and procedures, aiding users in navigating the platform effortlessly.
- **Frequently Asked Questions (FAQ):** The system will include a dedicated "Frequently Asked Questions" section. This section will compile commonly asked questions along with their answers to provide quick solutions to users' inquiries.
- **Contact Us Page:** A "Contact Us" page will be available to users for direct communication with the support team. Users can submit queries, concerns, or feedback through this page, ensuring timely and personalized assistance.

3.4 Licensing Requirements

The licensing requirements for the BidHub encompass the following considerations:

- **Updates and Upgrades:** The licensing terms guarantee that users are entitled to receive software updates and upgrades throughout the 6-month subscription period. This ensures the BidHub remains up-to-date with the latest features and security enhancements.
- **Support and Maintenance:** Licensing agreements specify that maintenance will be available for 24/6 on-premise, and it will be charged separately from the subscription. Technical support includes assistance in resolving technical issues, software bugs, and related support during the subscription period.
- **Usage Restrictions:** Licensing terms establish usage restrictions, limiting DDOS protection to 500 requests every 30 minutes to prevent abuse.
- **Compliance:** The licensing agreement ensures compliance with relevant laws, regulations, and industry standards. It also outlines the consequences of non-compliance.
- **Transferability:** Users understand that the subscription license is non-transferable and applies only to the original purchaser or organization.
- **Termination Clause:** The agreement outlines conditions for license termination, such as violation of terms, non-payment, or stipulated scenarios.
- **Ownership:** Clarification of software ownership is provided. Licensing specifies that users are granted the right to use the software within the subscription period, while ownership remains with the vendor.
- **Jurisdiction:** The agreement specifies the jurisdiction under which any legal disputes related to the licensing will be resolved.

Please carefully review and adhere to these licensing requirements before subscribing to and utilizing the BidHub.

3.5 Legal, Copyright, and Other Notices

The legal, copyright, and other notices for the BidHub encompass the following aspects:

3.5.1 Copyright Notice

The BidHub is protected by copyright law. All rights are reserved. This notice specifies ownership of the software and any associated materials. It outlines the rights and restrictions related to the use, distribution, and modification of the software.

3.5.2 Disclaimer of Liability

The BidHub's use is at your own risk. The system's disclaimer of liability outlines the extent of the software's responsibility for potential issues or damages. It clarifies that the software provider is not liable for any direct or indirect consequences of using the software.

3.5.3 Terms of Use

By accessing the BidHub, users agree to the terms of use. These terms define the conditions under which users can access and utilize the system. It covers aspects such as acceptable usage, prohibited activities, and user responsibilities.

3.5.4 Privacy Policy

Protecting user data is essential. The privacy policy outlines how user data is collected, stored, and used within the system. It addresses data protection, user consent, and measures taken to safeguard sensitive information.

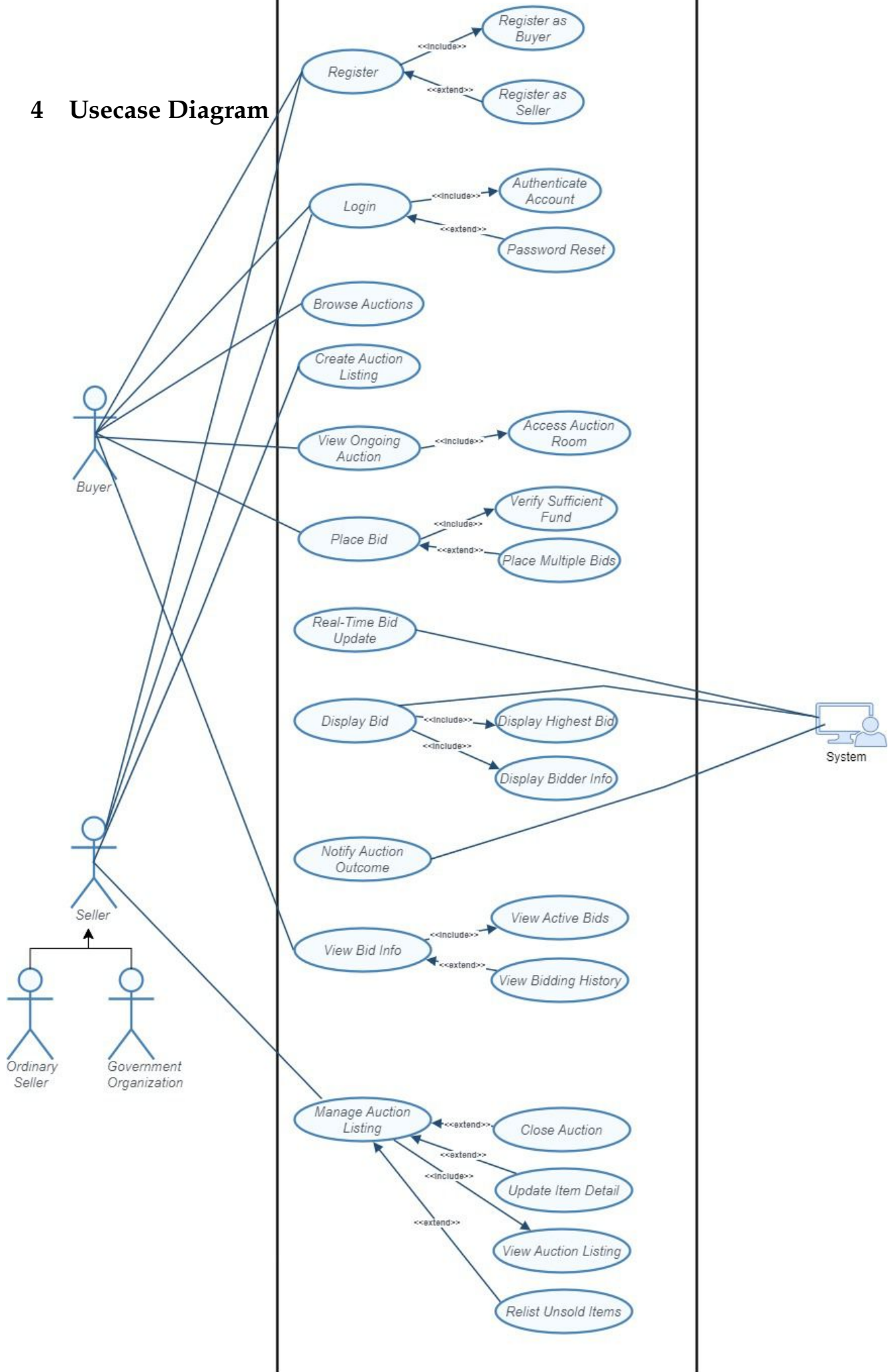
3.5.5 Third-Party Notices

The BidHub may include third-party software or components. Relevant notices about these components are provided here, including attributions, licenses, and any modifications made to these components.

3.5.6 Jurisdiction

Any legal disputes or concerns related to the BidHub will be addressed within the jurisdiction specified in the notices.

4 Usecase Diagram



5 Sequence Diagrams

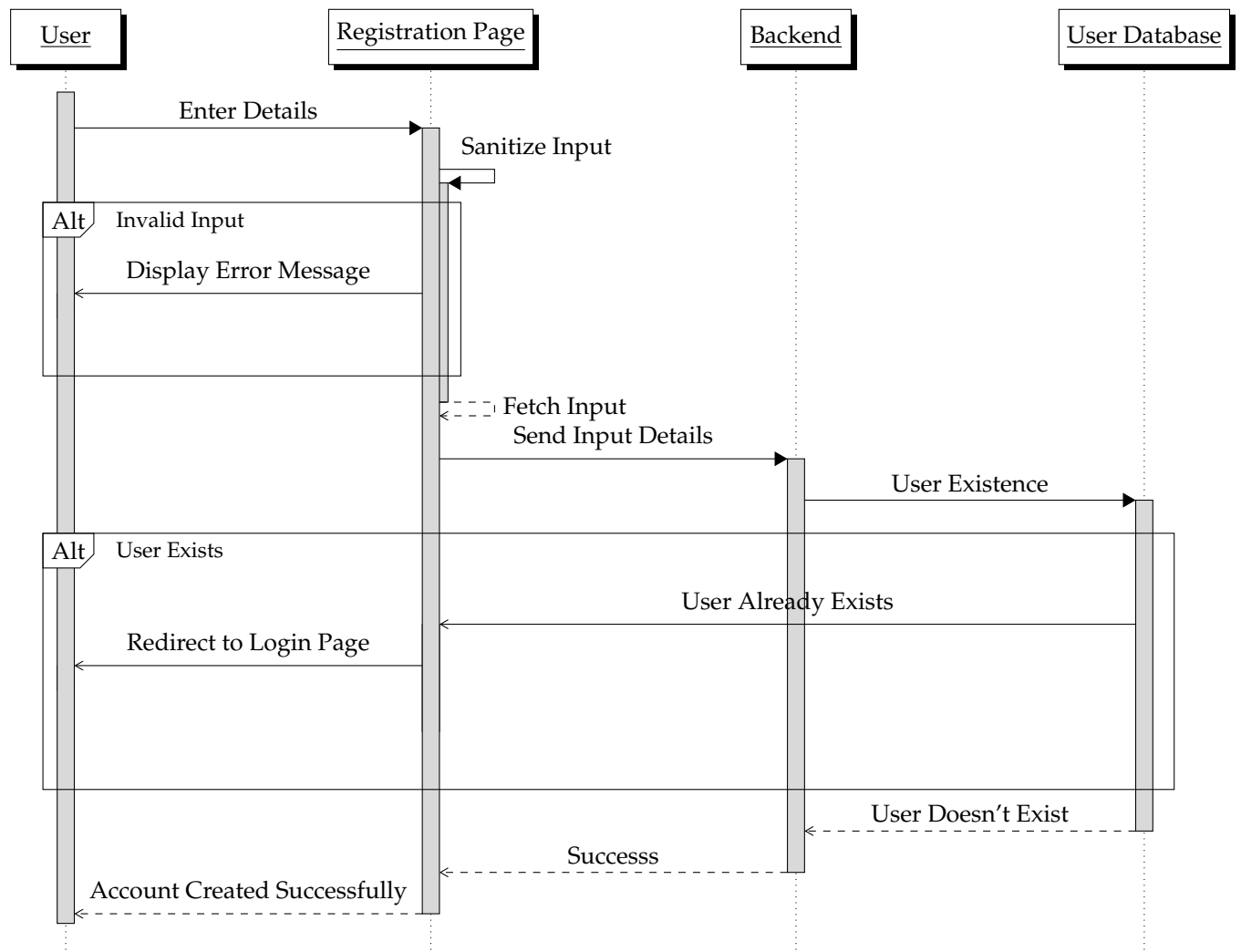


Figure 1: Registration — Sequence Diagram

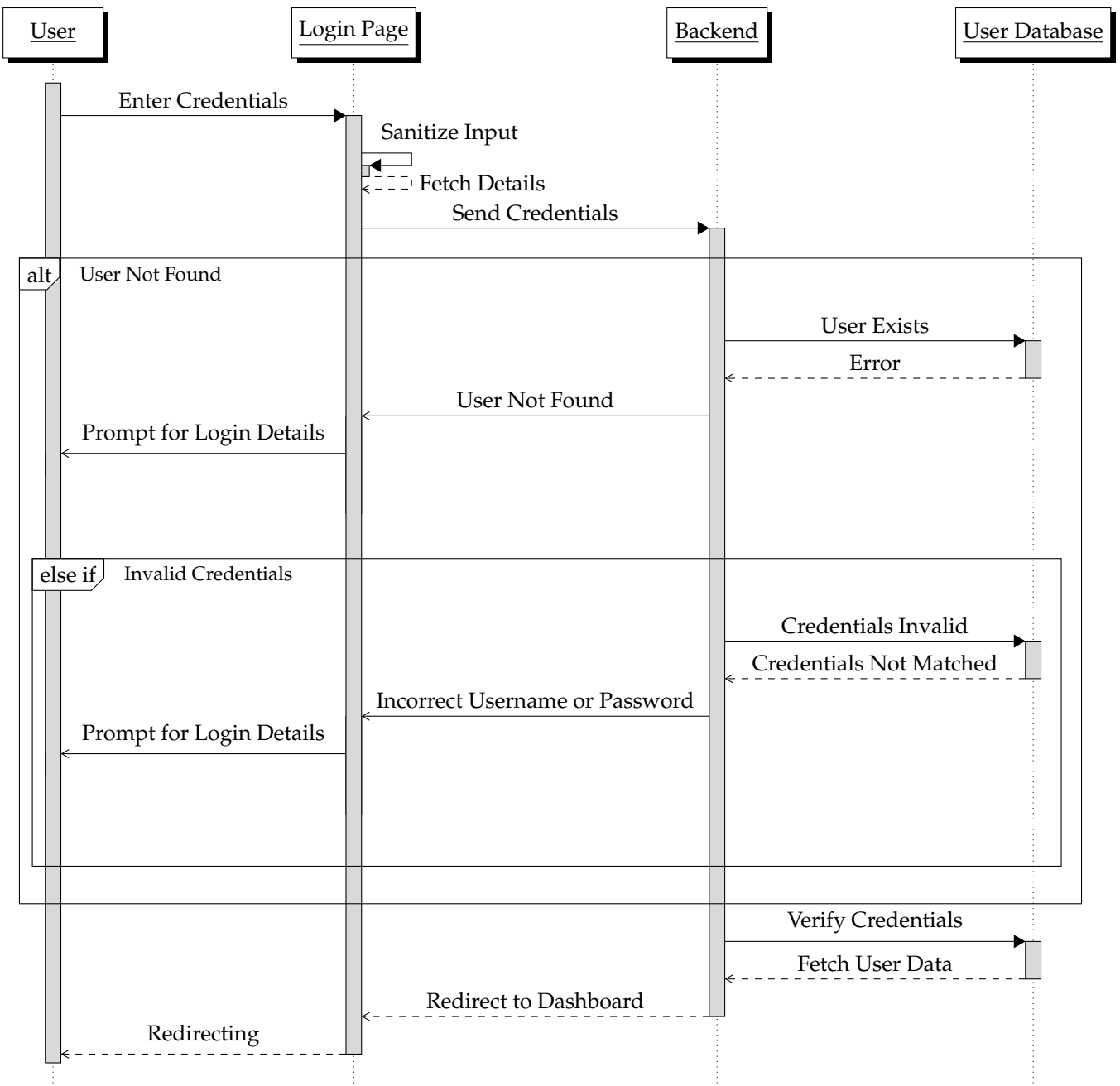


Figure 2: Authentication — Sequence Diagram

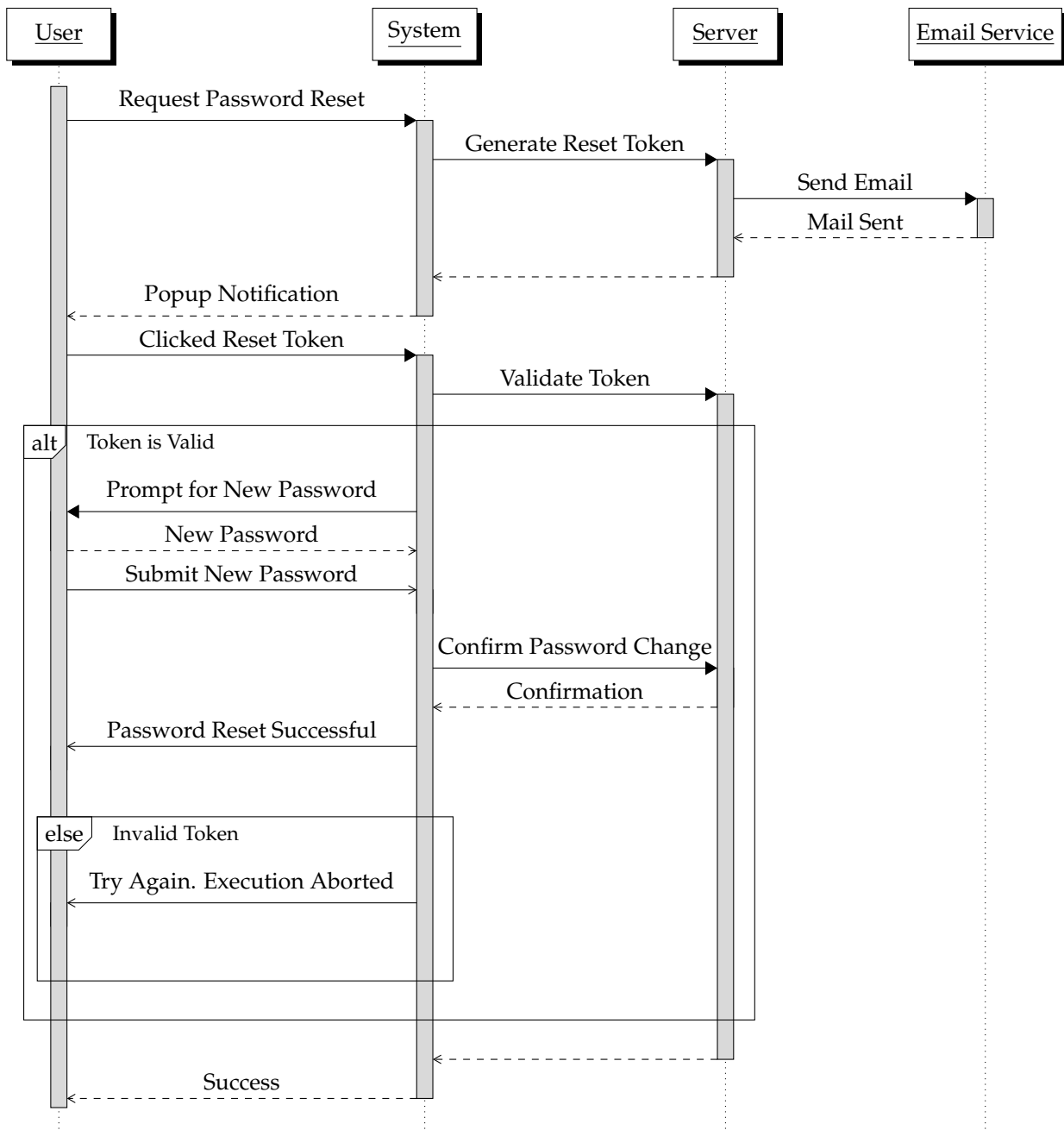


Figure 3: Password Reset — Sequence Diagram

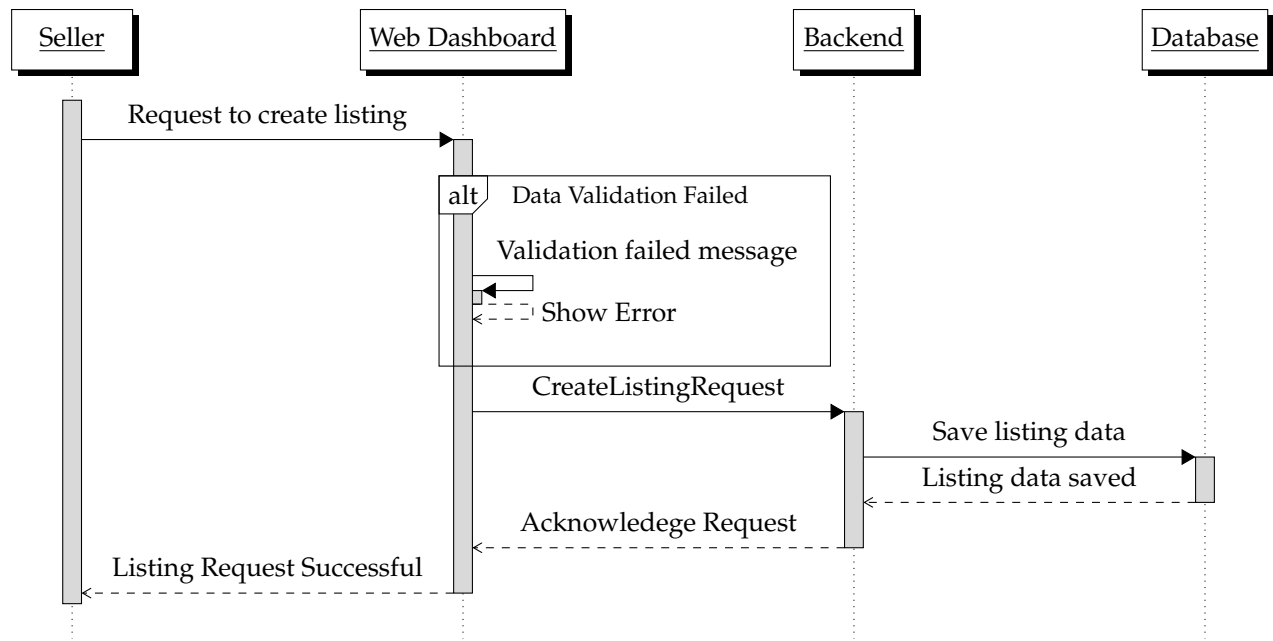


Figure 4: Create Auction Listing — Sequence Diagram

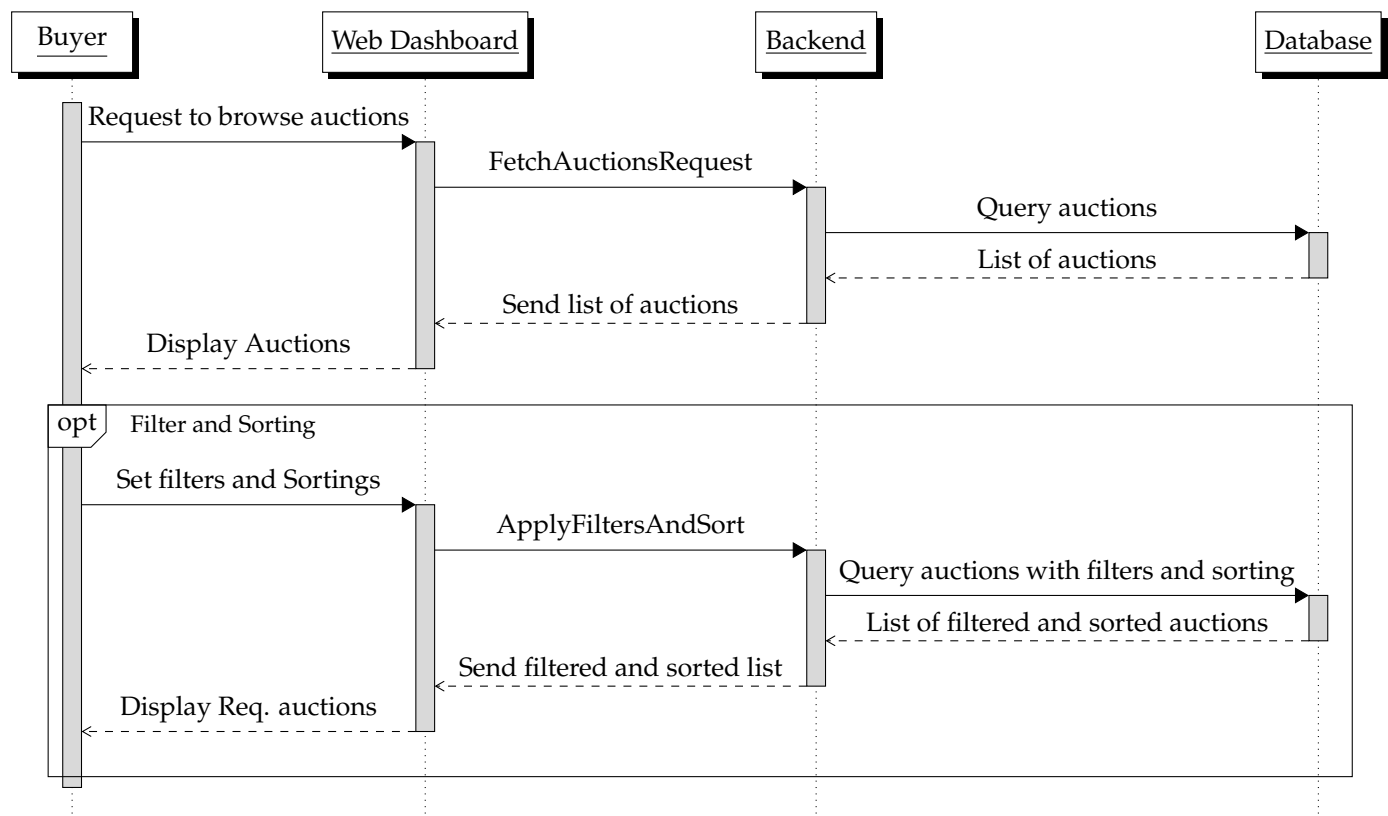


Figure 5: Browse Auctions — Sequence Diagram

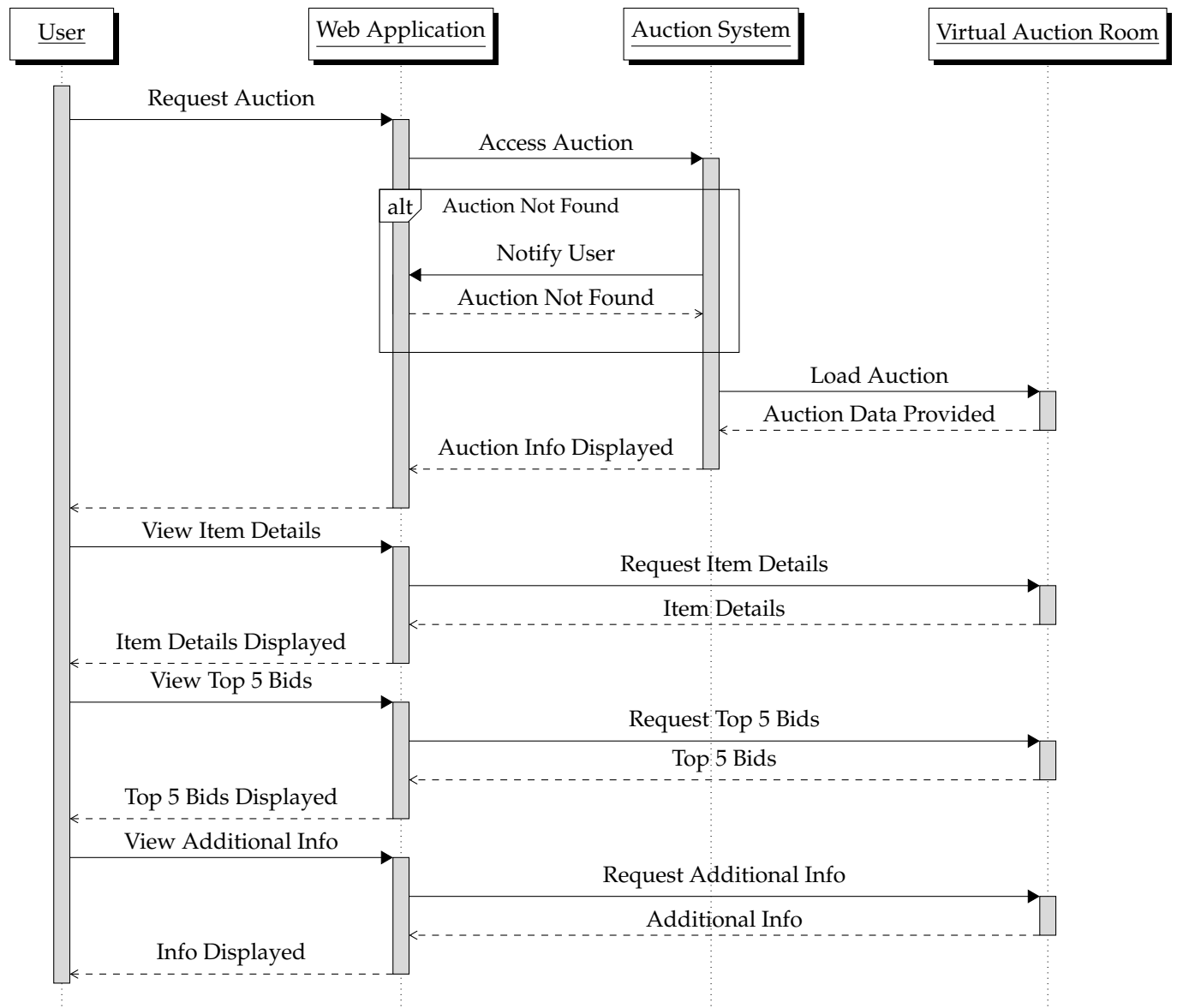


Figure 6: Access Virtual Auction Room — Sequence Diagram (View Item Details)

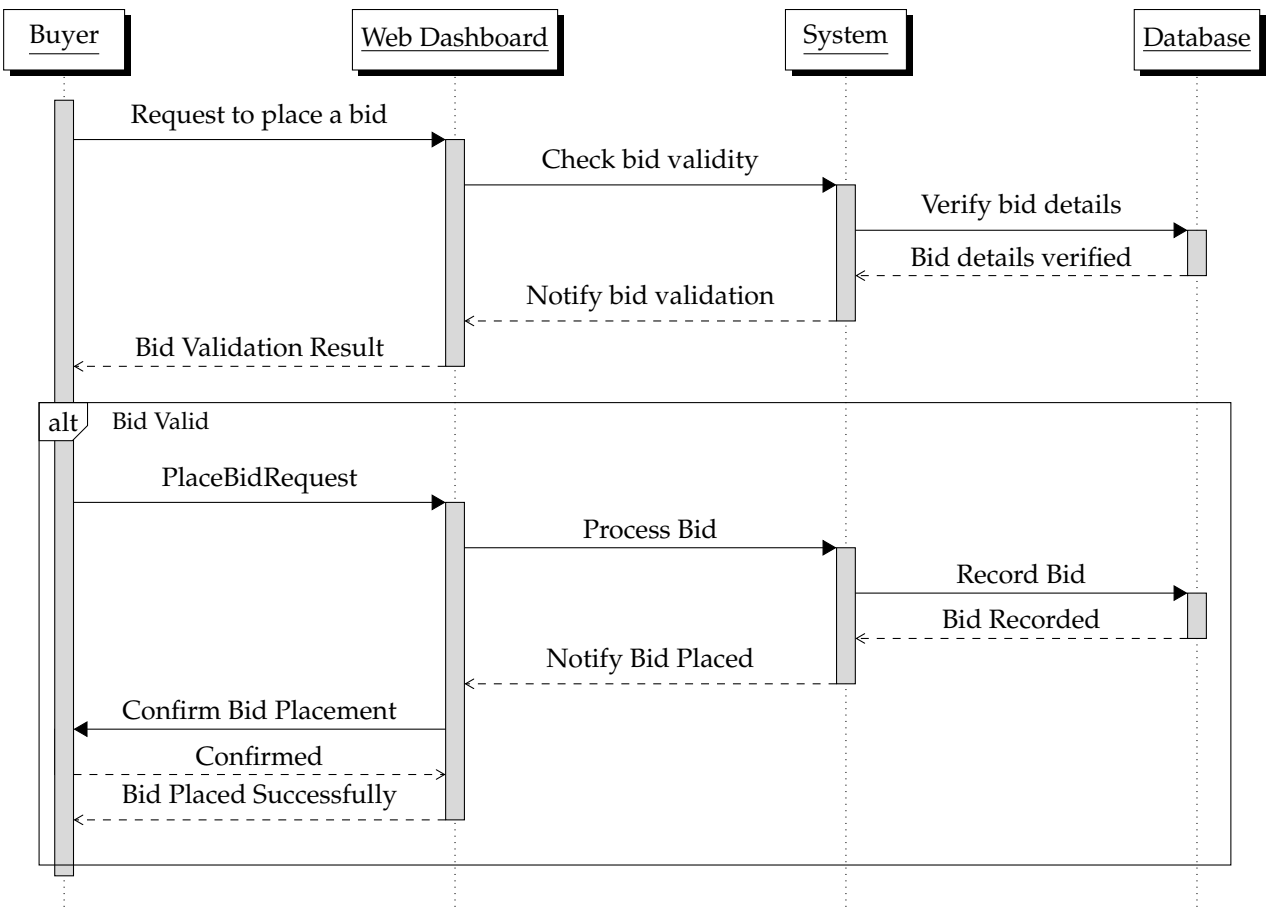


Figure 7: Place Bid — Sequence Diagram

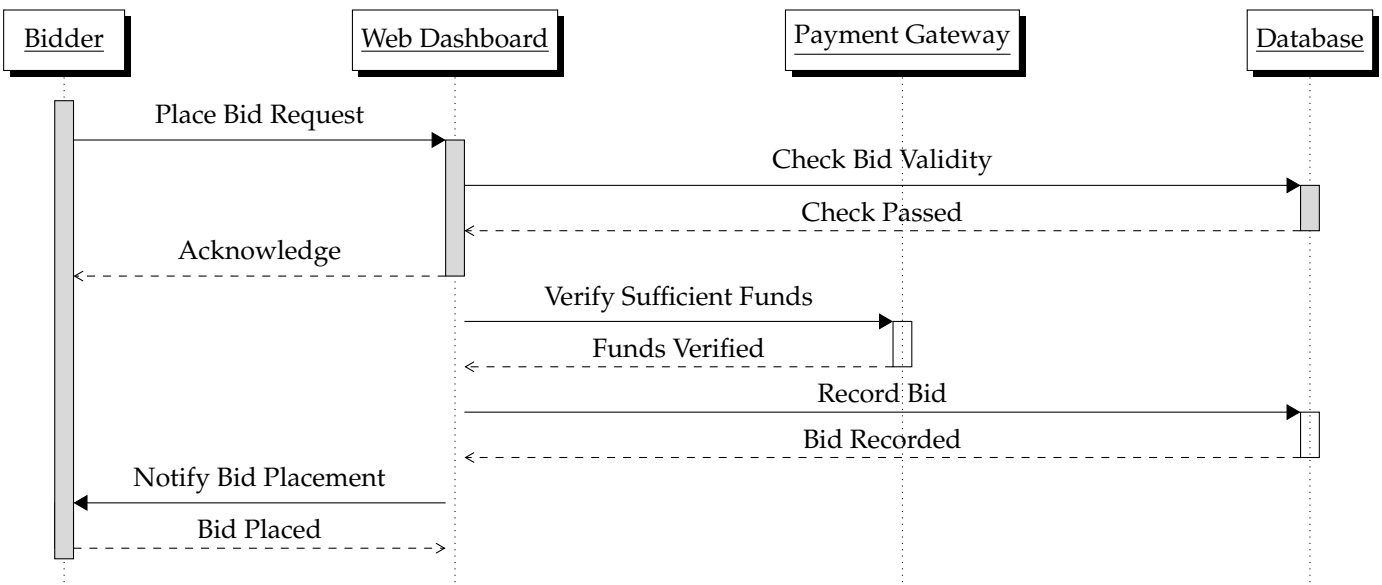


Figure 8: Sufficient Funds — Sequence Diagram

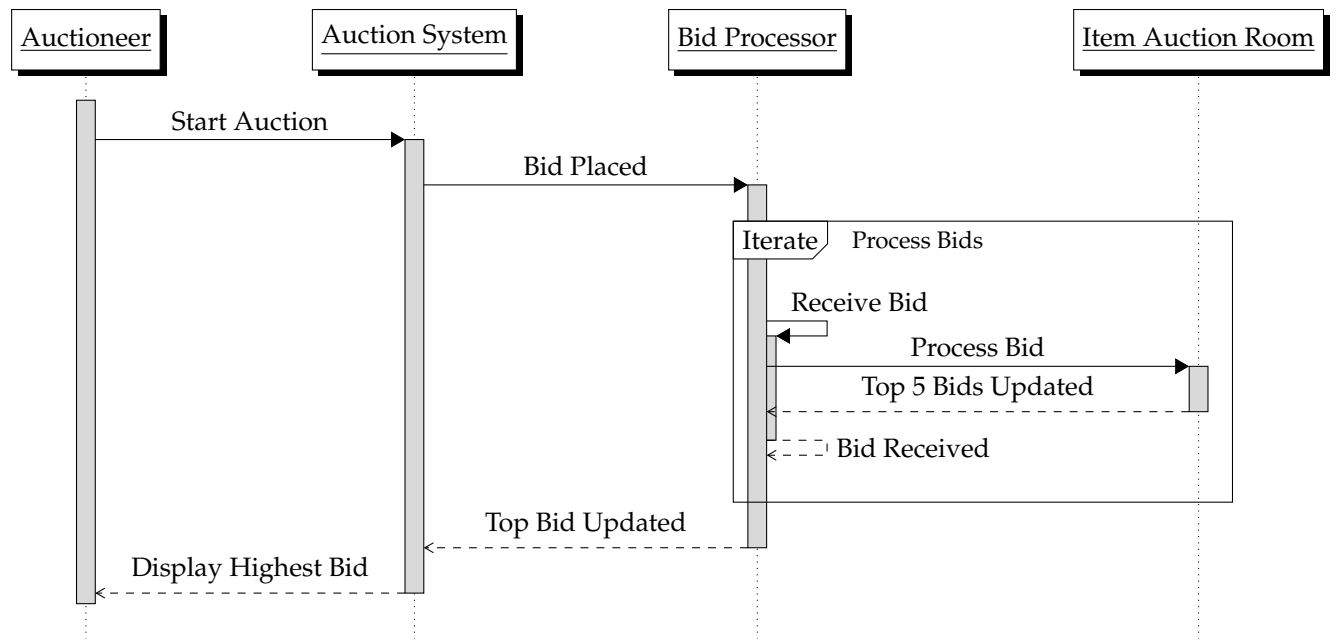


Figure 9: Real-time Highest Bid Update — Sequence Diagram

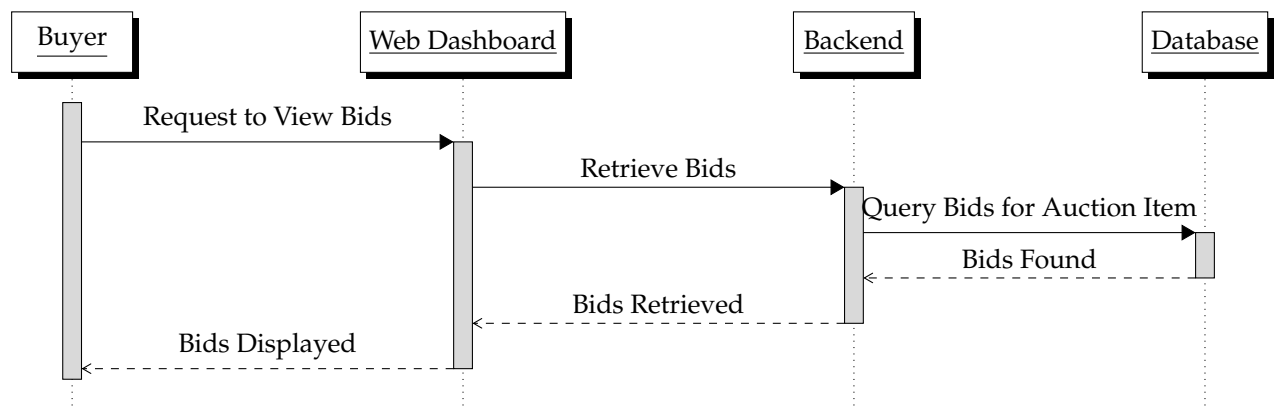


Figure 10: Display Bids — Sequence Diagram

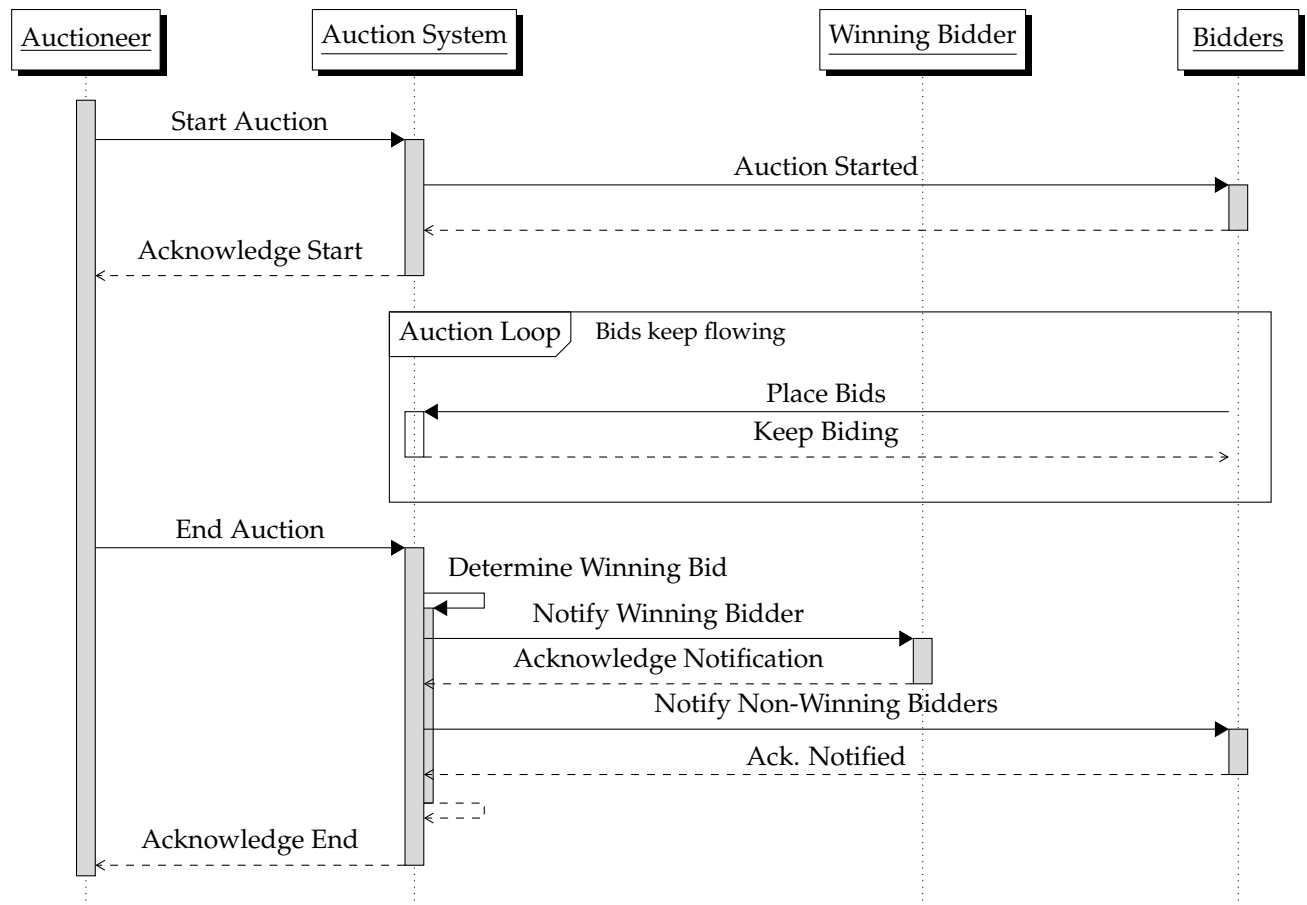


Figure 11: Notify Auction Outcome — Sequence Diagram

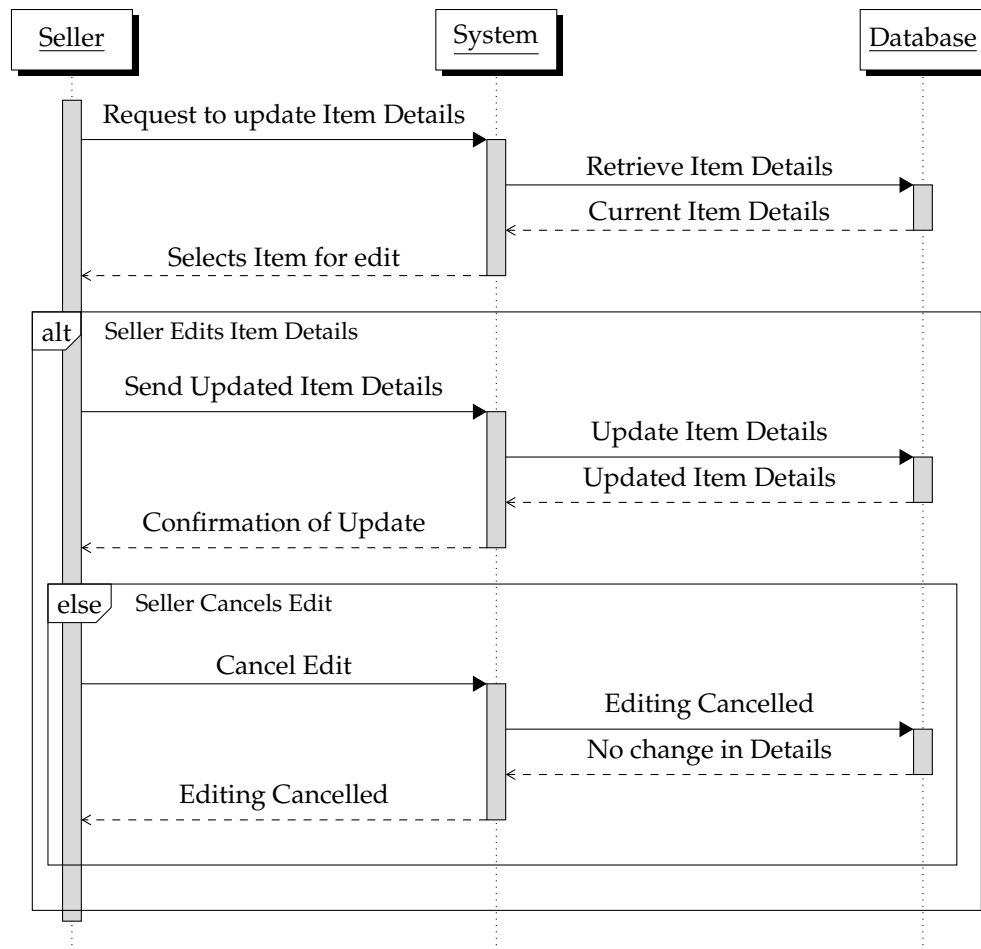


Figure 12: Modify Auction Details — Sequence Diagram

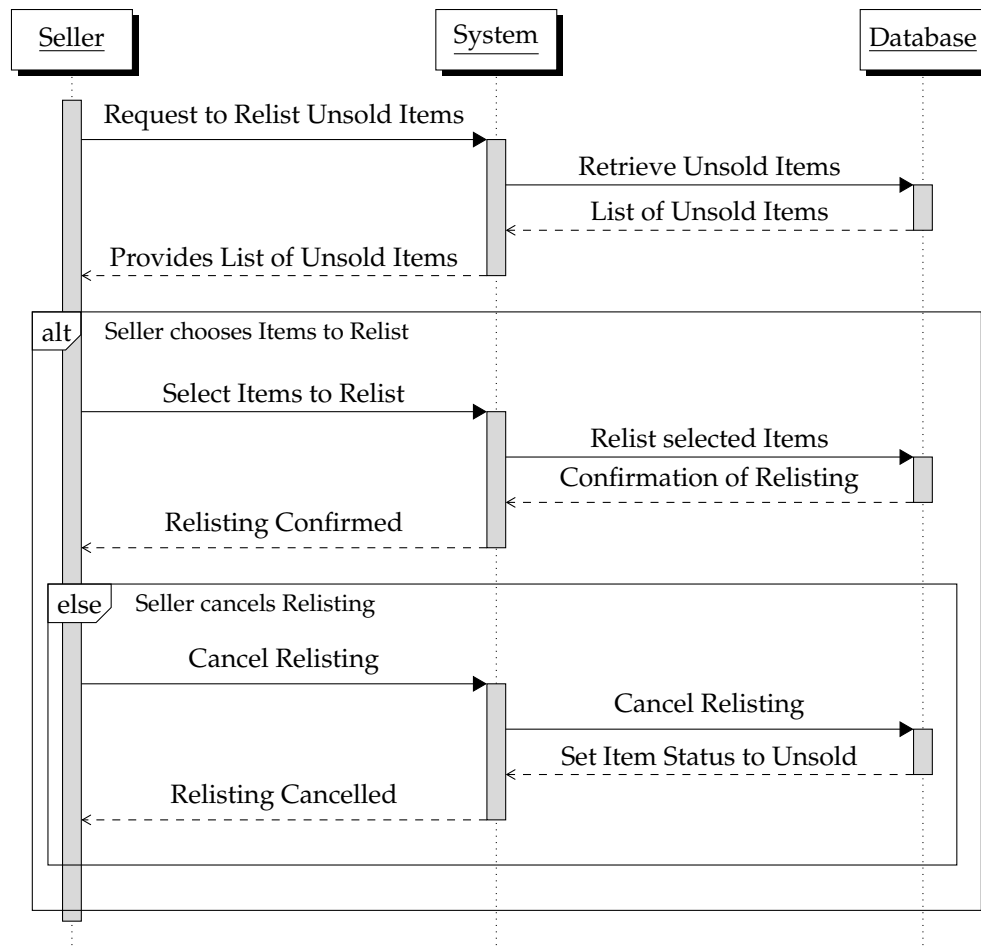


Figure 13: Relist Items — Sequence Diagram

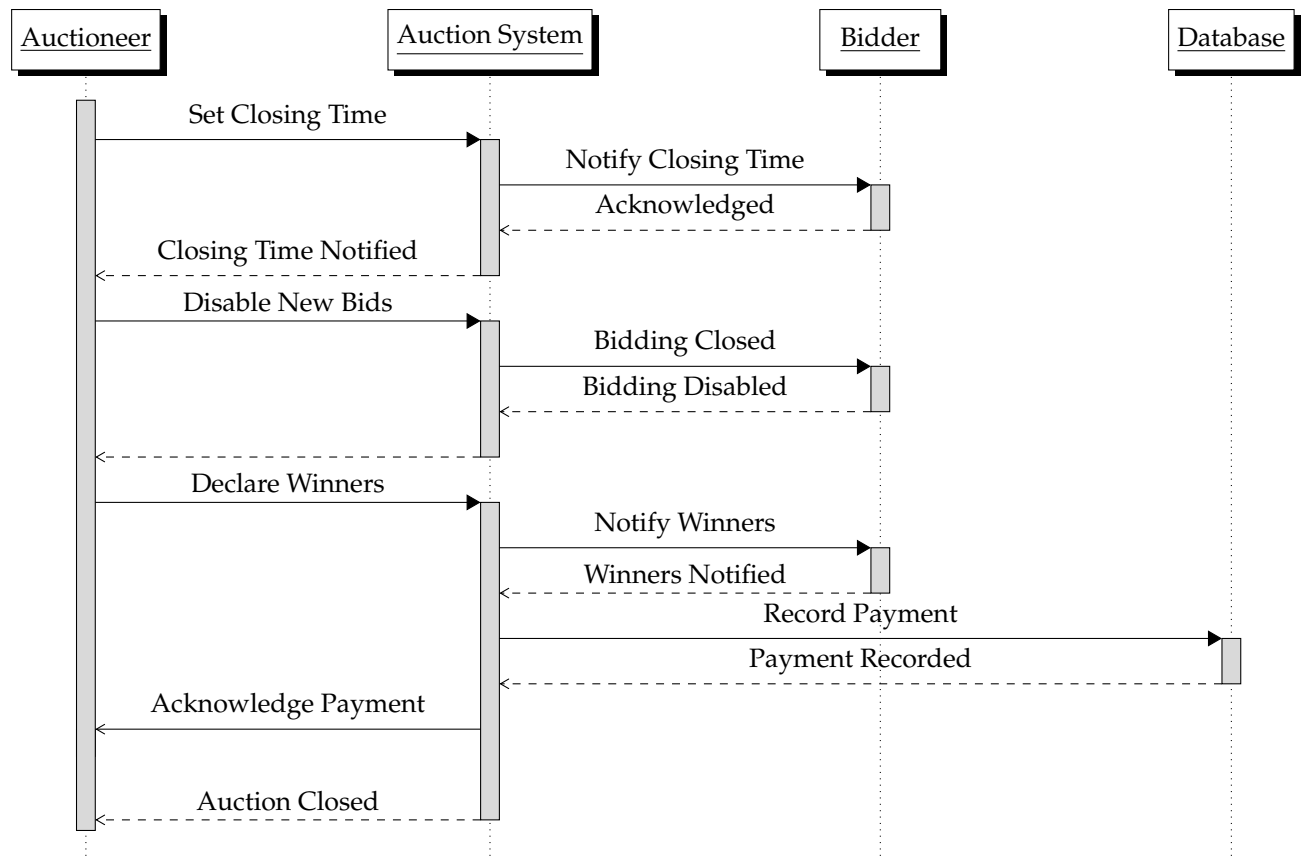


Figure 14: Closing Auction - Sequence Diagram

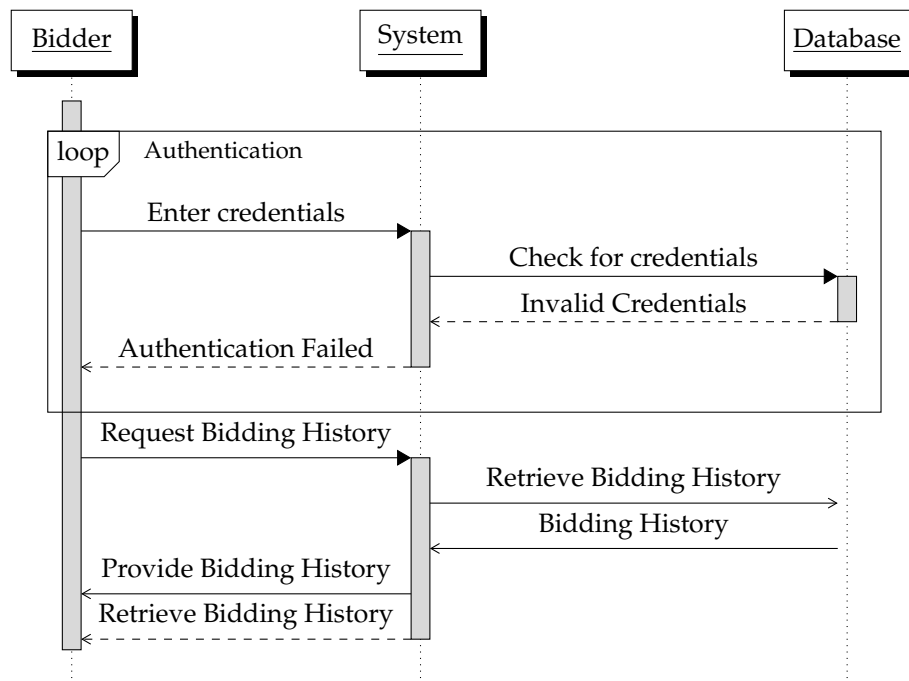


Figure 15: Bidding History — Sequence Diagram

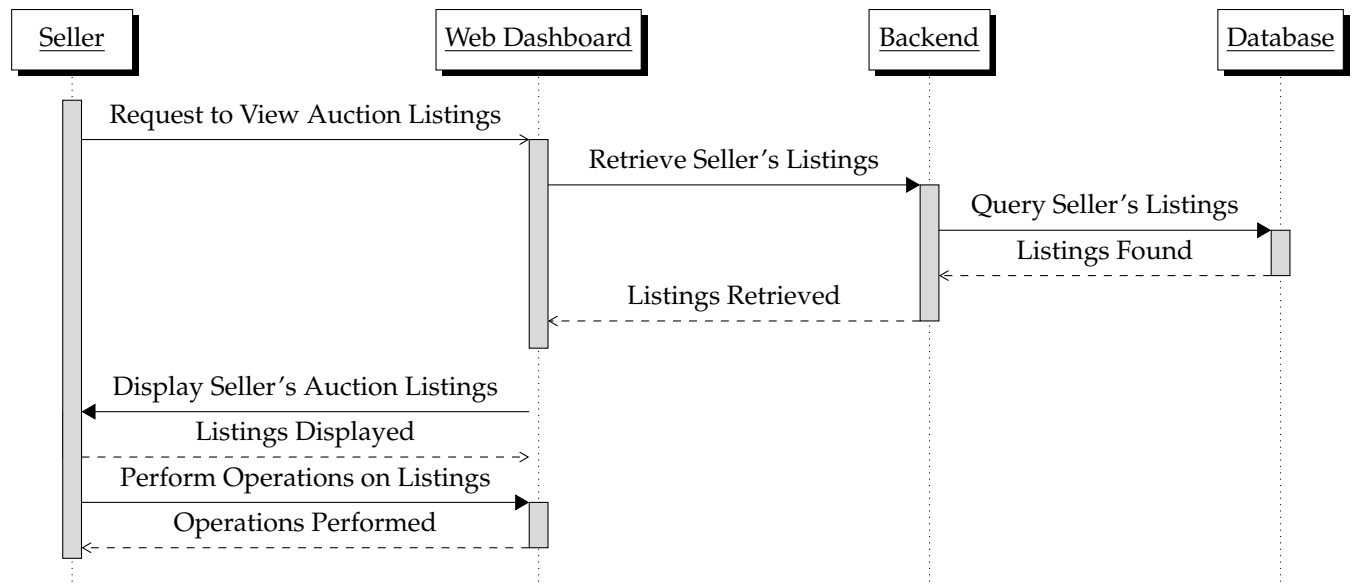
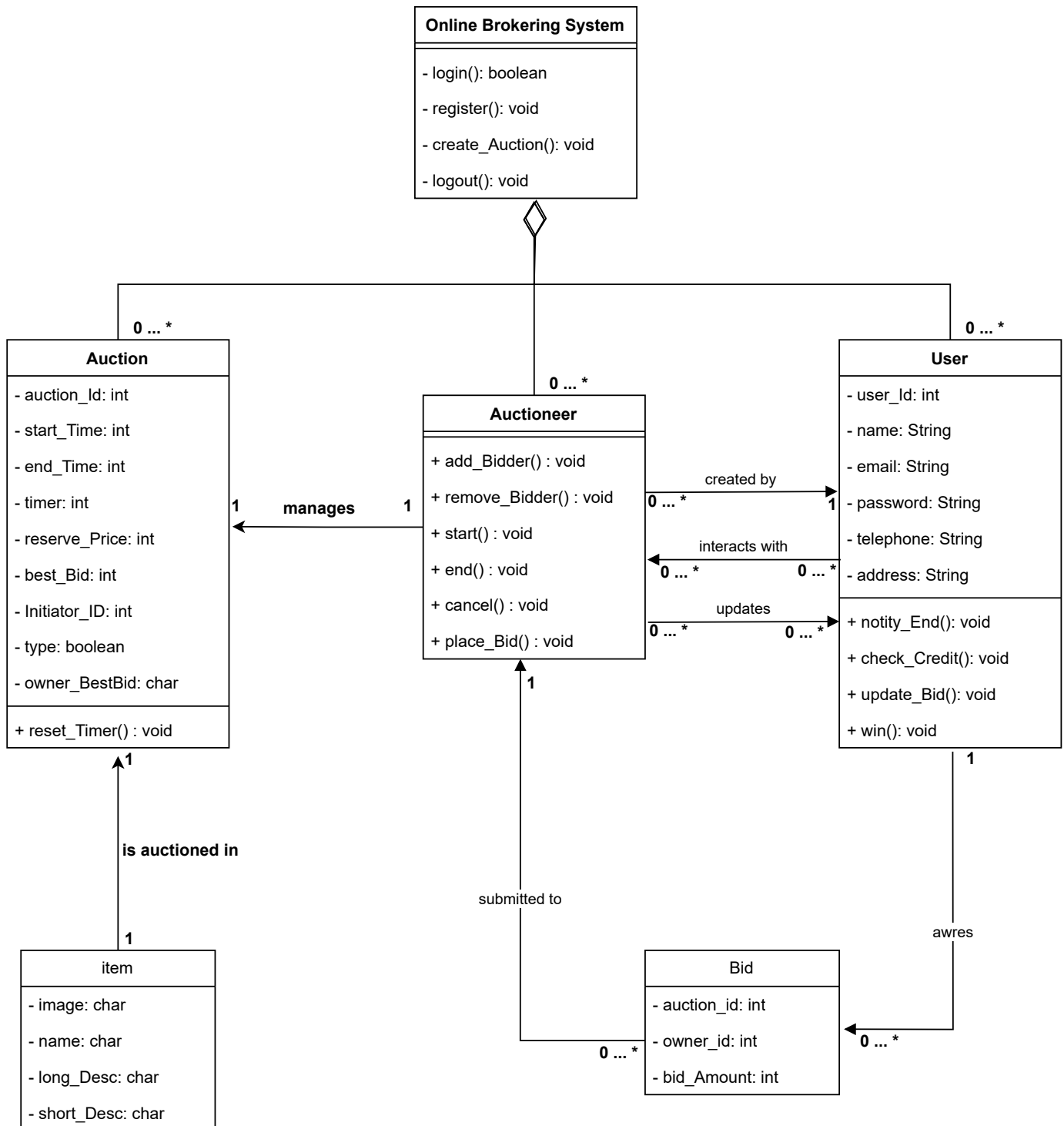


Figure 16: View Auction Listing — Sequence Diagram (Seller's View)

6 UML Class Diagram



7 Screenshots

- Rendered onto the next page

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Bugatti La Voiture Noire



Place Bid

Top #5

1. Andrew Tate	\$ 16750000
2. Bilal	\$ 16660000
3. Ali	\$ 16540000
4. Amina	\$ 16240000
5. Salman	\$ 16000000

<div>Bugatti La Voiture Noire</div> <div></div>	<div>Highest Bid</div> <div>\$ 16750000</div>	<div>Time Remaining</div> <div>00:10:21</div>	<div>Status</div> <div>In Progress</div>	<div>Cancel Auction</div>
<div>Porsche 911</div> <div></div>	<div>Highest Bid</div> <div>\$ 598300</div>	<div>Time Remaining</div> <div>01:09:00</div>	<div>Status</div> <div>In Progress</div>	<div>Cancel Auction</div>
<div>Mercedes-Benz S-Class</div> <div></div>	<div>Highest Bid</div> <div>\$ 114500</div>	<div>Time Remaining</div> <div>00:00:00</div>	<div>Status</div> <div>SOLD</div>	



Enter Opening Bid Amount

\$ 12300

Select Catagory

Furnniture

Set Time Limit

12:00:00

Begin Auction