Software Requirements Specification

for

Web-Based Auction System

Version 1.0 approved

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Group 2

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Table of Contents

Revision History

Name	Date	Reason For Changes	Version

Introduction

Purpose

The purpose of this document is to present a detailed description of the Web-based auction system. It will explain the purpose and features of the system, the constraints under which it must operate, and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the system.
This software system will be a Web auction system for a bidder, an auction seller, or an auction house. The SRS document covers the whole system.

Document Conventions

Every requirement statement is to have its own priority.

Intended Audience and Reading Suggestions

This document is intended for developers, auction house related staff and general users. The document includes an overview of the auction system, as well as overall description, system features and other requirements. It is recommended that the reader first read the introduction section to understand the functionality of the system. It is recommended that developers read the system features in detail, and that auction house staff and users read the User Documentation carefully.

Project Scope

This software system will be a web-based auction system for an auction house to carry out and manage its online auctions.
This system will be designed to maximize the auction house's ability to launch auctions by moving the auctions online, free from the restrictions of holding in-person auctions due to the current COVID-19 pandemic. By maximizing the auction house's ability to launch online auctions, the system will meet the auction house's needs of continuous stable operations while remaining easy to use and understand.
More specifically, the system is designed to allow bidders and sellers to connect and make transactions online. The software is designed to allow more users, both sellers and bidders, to engage in online auctions utilizing web development tools and relational databases.

References

MySQL documentation. https://dev.mysql.com/doc/. Oct 23, 2021.
HTTP documentation. https://httpwg.org/specs/. Oct 23, 2021.

Overall Description

Product Perspective

The product is a new, self-contained product. The SRS covers the whole product, including the functionalities of bid, sell and system administration.

Product Features

The product has two types of users: common users and system administrators, and common users can be either sellers or bidders in different transactions. Users need to register and login to perform other actions.

After registering and logging in, a common user can have various actions. When not engaged in a transaction, he can modify his profile, check his transaction history and view all items. He can choose to become a seller, who can create a request to sell, and after the auction, he can receive the money from the bidder via system, or have the option to give up selling or keep selling after a transaction fails. He can also choose to become a bidder, who can “follow” an auction and bid; after the auction, the successful bidder is asked to pay in some time, and not paying in time would cause the transaction to fail.

A system administrator can verify a transaction, change the status of a transaction, and chat with common users. Common users cannot chat with each other.

User Classes and Characteristics

The system administrators are expected to be Internet literate, be able to use online chat systems, be able to use a search engine and be able to use buttons, pull-down menus, and similar tools.
The common users are expected to be Internet literate, be able to use online chat systems, be able to use a search engine and be able to use buttons, pull-down menus, and similar tools.

Operating Environment

The software will need to operate via Google Chrome 95.0.4638.54 or above, Firefox 93.0 or above, or Internet Explorer 11.0.

Design and Implementation Constraints

The software will need to comply with the management protocols of the auction house. The software will need to use MySQL as database management supporting software.
The software will need to protect the privacy of all users, such as blocking common users from seeing others’ private information (e.g. payment information).
The software only supports English.

User Documentation

User Manual.

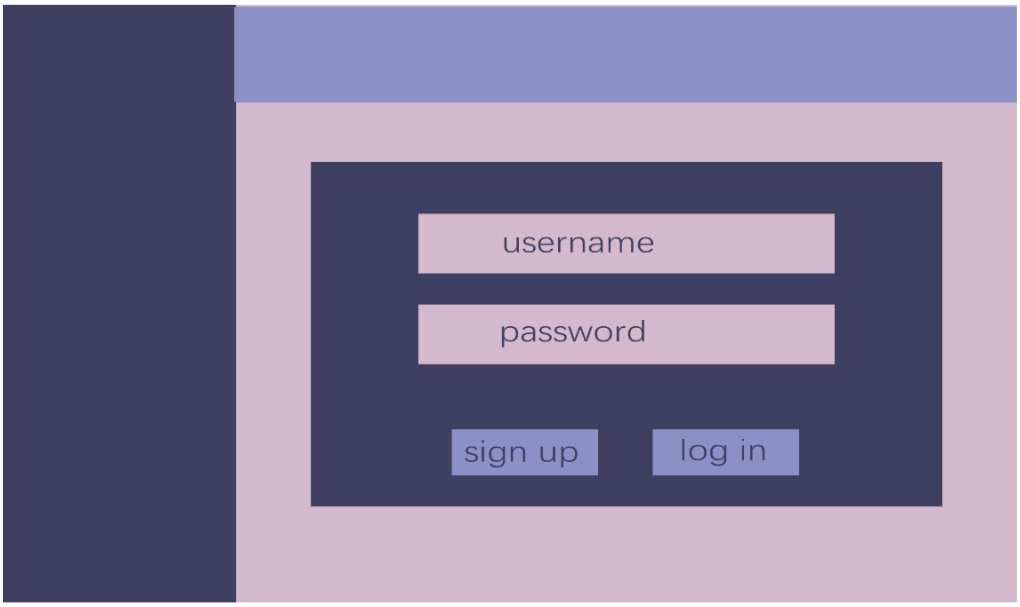
Assumptions and Dependencies

The software will use MySQL as supporting software for database management.
The software will need to operate via Google Chrome 95.0.4638.54 or above, Firefox 93.0 or above, or Internet Explorer 11.0.

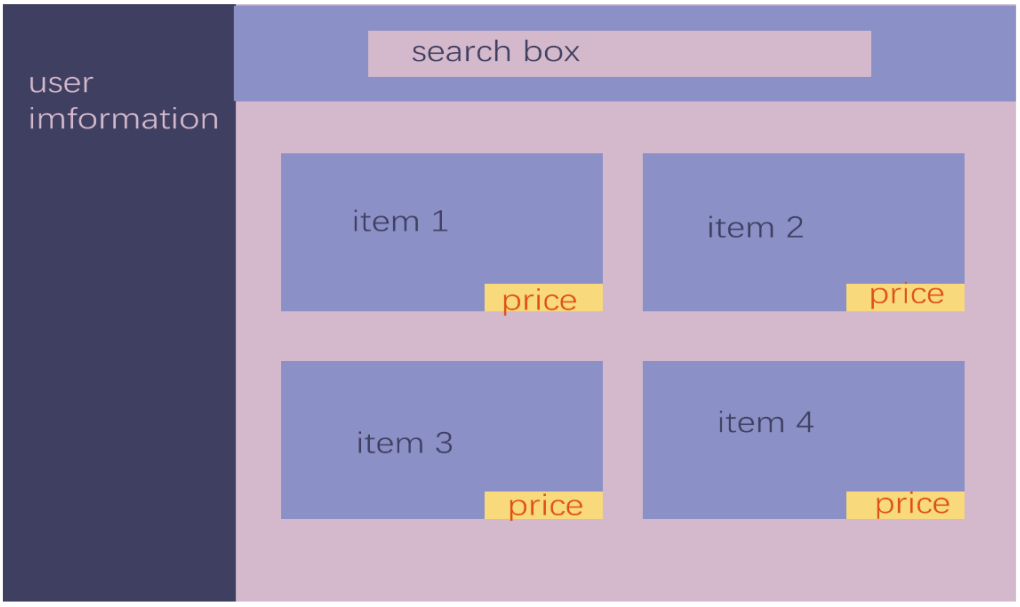
External Interface Requirements

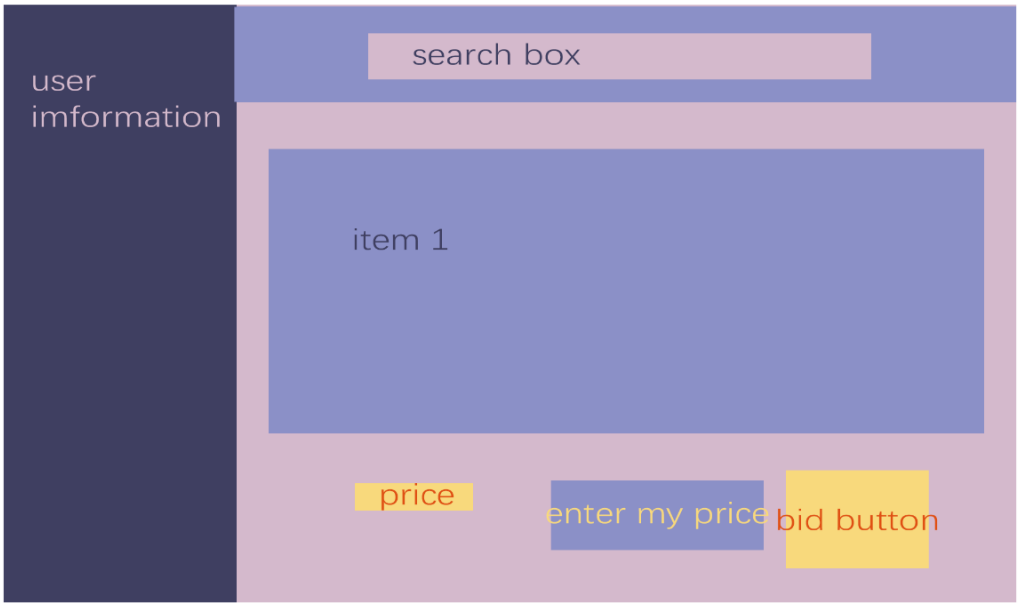
User Interfaces

There should be a sign-up and log-in page.



After successfully logging in the system, the user will be directed to the main page. Where the user will be able to use the search box and view item. By clicking on each item, the user will be able to view its information and bid.





The price in the price box should be updated in real-time.
The user will also be able to view his or her personal information by clicking on the information bar.

Hardware Interfaces

The system consists of a server and several personal computers. The server is responsible for storing data and responding to requests from the clients. The default client is a personal computer. Communication will involve HTTP and FTP.

Software Interfaces

The only link to an external system is the link to the bank system to make payment and withdraw money from the inner account, which is stored in the user database.
The Pay and Withdraw use cases send the requirement to the bank and the bank changes their status according to the information. The two use cases request the user's balance in the bank. It returns a Boolean for whether the transaction is successful or not.

Communications Interfaces

- Email: Send notifications to users
- Web browser: need to support all major browsers, such as IE, Google Chrome, Firefox
- Communication protocol: HTTP - process transaction requests, FTP - uploading product description photos

System Features

#1 Register

4.1.1 Description and Priority

the user must be able to register a new account as either a common user or an administrator, based on their choice.

To register as a common user, a username and a unique email address, and a password is needed. Other personal information (gender, age, credit card No.) are optional.

to register as an administrator, besides a username and a unique email address, he also needs to input the 6-digit prefixed code provided by his company to be authenticated.

benefit: 1

penalty: 9

cost: 1

risk: 9

4.1.2 Stimulus/Response Sequences

There should be two types of templates of the register page, one for common users and one for administrators, based on the users' choice from radio box.

1. the user must provide all the required information in boxes before they can click on the "register" button.
2. the system should check the validity of the email address. If the email address already exists, return an error message telling the user that this account has already existed. If the email address is valid, send a code to this email account.
3. If successful, redirect the user to "log-in" page.
4. There should also be a "go to login page" option.

4.1.3 Functional Requirements

#2 Login

4.2.1 Description and Priority

the user should be able to login as a common user or an administrator based on their option.

benefit: 1

penalty: 9

cost: 1

risk: 8

4.3.2 Stimulus/Response Sequences

1. users need to input their email address and associate password to log in. Invalid account or password will return an error message.
2. There should also be a "forget password" and a "go to register page" option.

4.1.3 Functional Requirements

REQ-1: register an account

#3 post item

4.3.1 Description and Priority

The user should be able to post an item for bidding.

benefit: 8

penalty: 8

cost: 4

risk: 2

4.3.2 Stimulus/Response Sequences

1. the user should click on the “post item” button to go to the post item page
2. the user should fill in the required information before they can submit the requirement. (including name of product, images, description, price for bidding and an desired date for bidding)
3. after a successful submission, the requirement should be added to “items to be verified” and waiting to be verified by an administrator
4. if the requirement is rejected, the user should receive a notification from the system, with an comment/reason
5. user could check the status of all his items in “my items” module

4.3.3 Functional Requirements

REQ-1: log in

#4 bidding and payment

4.4.1 Description and Priority

Users must be able to view all ongoing auctions and join one of them.

benefit: 9

penalty: 6

cost: 5

risk: 6

4.4.2 Stimulus/Response Sequences

1. the user should click on the “ongoing auctions” button to view all auctions
2. user can click on one of them to join the auction room
3. during auction, user could click on 50/100/200...to bid
4. a real time highest price will be showed on the top
5. if no one offer a higher price in 30 seconds, the item is sold to the highest offer
6. transaction information is added to the database and the status is marked as “unpaid”
7. the system should send notification to both seller and buyer about this transaction.
8. if paid, status becomes “paid”. if not paid in one hour, status becomes “failed”

9. when auction completed, room closed, return error message “room does not exists” if user try to join this room

4.1.3 Functional Requirements

REQ-1: log in

#5 verifying an item

4.5.1 Description and Priority

administrators must be able to verify or reject a “post item” requirement

benefit: 8

penalty: 5

cost: 5

risk: 3

4.5.2 Stimulus/Response Sequences

1. the administrator should click on the “view requirements” to view all items to be verified
2. the administrator should be able to verify or reject a requirement.
3. the system should change the item status accordingly
4. if verified, the administrator should be able to assign a date and time for auction

4.5.3 Functional Requirements

REQ-1: log in

REQ-2: for administrators only

#6 edit profile

4.6.1 Description and Priority

all users (common users and administrators) should be able to edit his personal profile, including changing username, add images, adding credit card No.

benefit: 7

penalty: 6

cost: 2

risk: 6

4.6.2 Stimulus/Response Sequences

1. user should click on “my account” to view his personal information
2. user could click on “edit” to edit personal information
3. user could click on “submit” after editing
4. a success message should be returned

4.6.3 Functional Requirements

REQ-1: log in

#7 view all items

4.7.1 Description and Priority

all users (common users and administrators) should be able to view all the verified items.

benefit: 6

penalty: 5

cost: 6

risk: 2

4.7.2 Stimulus/Response Sequences

1. user should click on “view items” to view all verified items
2. user could click on one of them to view detailed information of the item, including price, description, and time of auction
3. user could click “follow” to follow the items he is interested in
4. user could find all followed items in “my favorites” module

4.7.3 Functional Requirements

REQ-1: log in

#8 view my items

4.8.1 Description and Priority

common users should be able to to view all the items he has posted and check the status

benefit: 4

penalty: 5

cost: 4

risk: 2

4.8.2 Stimulus/Response Sequences

1. user should click on “view items” to view all his items
2. user could click on one of them to view detailed information of the item, including price, description, and time of auction
3. user could delete an unverified item or an item of failed transaction

4.8.3 Functional Requirements

REQ-1: log in

#9 view my transactions

4.9.1 Description and Priority

common users should be able to to view all the items he has bought

benefit: 4

penalty: 5

cost: 4

risk: 2

4.9.2 Stimulus/Response Sequences

1. user should click on “view transactions” to view all items he has bought
2. user could click on one of them to view detailed information of the transaction
3. if status == not paid, the user could click on “pay” to redirect to payment page

4.9.3 Functional Requirements

REQ-1: log in

#10 Search for all transactions

4.10.1 Description and Priority

the administrator should be able to search for transactions based on transactionID, seller, user, price

benefit: 3

penalty: 4

cost: 5

risk: 3

4.10.2 Stimulus/Response Sequences

1. administrator could click on “search transactions” to look for specific transactions based on ID, seller, user
2. he should be able to click on one of them to view detailed information

4.10.3 Functional Requirements

REQ-1: log in

REQ-2: for administrator only

Other Nonfunctional Requirements

Performance Requirements

The product must be able to serve users 24/7 all over the world. These non-functional requirements encourage developers to consider design options that lead to a highly-scalable, highly-available, fault-tolerant architecture. In addition, the requirement to be available globally means that the product must support internationalisation, to be localised for various countries. The System will be on a server with high speed Internet capability. The software developed here assumes the use of a tool such as Tomcat for connection between the Web pages and the database. The speed of the User’s connection will depend on the hardware used rather than

characteristics of this system. The Manager will run on the editor’s PC and will contain an MySQL database. MySQL is already installed on this computer and is a Windows operating system.

Safety Requirements

Personal information leakage and property damage caused by the customer's personal negligence during the auction process shall be borne by the user personally. Information leakage and property damage caused by the logistics company during the auction process shall be borne by the logistics company. Those under the age of 18 are not allowed to register an account without permission.

Security Requirements

The absolute security of the user's personal information must be guaranteed. Users are required to verify their identity with the database before they can log in. User's payment information and related bank information must not be disclosed in any way. The user's email address must not be disclosed to outside parties. The user's purchase information must not be disclosed to outside parties.

Software Quality Attributes

- functional suitability: functional completeness, functional correctness, functional appropriateness;
- performance efficiency: time behaviour, resource utilisation, capacity;
- reliability: maturity, availability, fault tolerance, recoverability;
- usability: appropriateness, recognisability, learnability, operability, user error protection, user interface aesthetics, accessibility;
- security: confidentiality, integrity, non-repudiation, accountability, authenticity;
- compatibility: co-existence, interoperability;
- maintainability: modularity, reusability, analysability, modifiability, testability;
- portability: adaptability, installability, replaceability.

Business Rules

Common users can bid on any item under any circumstances. Common users can initiate a bid under any circumstances. The relevant staff of the auction house can withdraw an item at any time. Whenever a transaction is completed, the system automatically withdraws the auction house's commission.

Other Requirements

The software will need to support MySQL databases for information management.
The software messages (menu command strings, dialog messages, event catalogs, etc.) must be externalized in the form of message catalogs.
The software must handle file paths, within the context of the monitored application, in the localized format correctly.

The software will have to comply with the related legal documents, e.g. the Consumer Rights Act 2015.
The software will need to be used as a permanent system that can be used in the long term as a real-time transaction platform.

Appendix A: Glossary

<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.>
User, Seller, Bidder, System Administrator,

Term	***Definition***
Administrator	*Person who is in charge of system maintenance, and have more rights to the system, such as modify transaction status, search for transaction history and so on*
Auction	*An online process in which goods or property are sold to the highest bidder.*
Bidder	*Common user who choose to participate in an auction and bid to attain the item being auctioned*
Common User	*Person who has registered and is permitted to engage in auctions, including sellers and bidders.*
Database	*Collection of all the information monitored by this system.*
HTTP	*HyperText Transfer Protocol*
MySQL	*The supporting database software.*
Software Requirements Specification	*A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document.*

Stakeholder	*Any person with an interest in the project who is not a developer.*
Successful Bidder	*Bidder who has the highest bid price and can get the item after paying the price.*
User	*Administrator or common users*