Software Requirements Specification

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Abstract

This document describes the Software Requirements Specifications for the software behind an online auction website. This project is part of the course on software engineering at the Vrije Universiteit Brussel.

Revision	Date	Comment
0.1	09/11/2009	First draft

Contents

Chapter 1

Introduction

1.1 Purpose

The purpose of this document is to present an overall description and listing of the functionality of the system behind an online auction website. This document is intended for users of the system including designers, testers, implementation unit and the employer.

1.2 Scope

Salesmen is the system behind an online auction website. An auction site is a web application where users can buy and sell objects. Users can place auctions or bid on auctions of other users.
There are also some social features such as sending messages to users, add a seller to favourite sellers and a rating system for users.

1.3 Definition And Abbreviation

- *SRS*: Software Requirements Specification

- *UML*: Unified Modelling Language

- *XHTML*: Extensible HyperText Markup Language

- *HTML*: HyperText Markup Language

- *CSS*: Cascading Style Sheets

- *HTTPS*: Hypertext Transfer Protocol Secure

- *CAPTCHA*: Completely Automated Public Turing test to tell Computers and Humans Apart

1.4 Overview

Section 2 describes the general factors that affect the product and its requirements. This section does not state specific requirements. Instead, it provides a background for those requirements, which are defined in detail in Section 3 of the SRS, and makes them easier to understand.

Section 3 contains all of the software requirements, to a level of detail sufficient to enable designers to design the system to satisfy these requirements, and testers to test that the system satisfies these requirements.

Chapter 2

Overall Description

2.1 Product Perspective

The project will make use of a database and a web server that can be accessed
with any web browser. There are 4 types of users on the system: guests, reg-
istered users, administrators and banned users. Before a user can make use of
the full functionality of the site, the user has to register. The user will have to
enter some personal information in a form in order to do this. Only users of at
least 18 years old will be allowed due to legal reasons.

Both guests and users can browse the different auctions, but only registered
users can bid on auctions or place their own auctions. Users can browse through
auctions with categories or tags. Users can also search for a specific auction.

Different auctions can be created such as English auctions[2] or silent auctions[3].
When a user places an auction, he or she also has to specify payment methods,
transport methods, a minimum price, a duration for the auction and other gen-
eral information about the auction.

A user can follow an auction. The followed auctions list is a list of auctions that
interest the user but on which he or she may not have bid yet. Then when the
user wants, he or she can bid on the auction. A user can view all the auctions
he or she has bid on in the active auctions list.

When a user has won an auction, he or she can pay for the item. This will be
done through a transaction. The buyer can pay for the item by choosing on of
the payment options the seller has specified. One of these methods is through
salespal. This a personal "bank account" on the site that each user has. Buyers
can pay for items with the money on this account and sellers can receive money
on their salespal account. Users can top up their salespal account, i.e. they
transfer money to the account. When the transaction is done, buyers and sell-
ers can rate the transaction. Each user will have a rating then which is based
on the ratings of their transactions.

Users can also contact other users through personal messages. Other sellers can
also be added to a favourite sellers list, so that a user can easily check if a seller

they like has new auctions.
Administrators have some extra functionality, they can manage the users and auctions. Administrators can also retract a bid of a user.

2.2 User Characteristics

The users of the system will be users with different levels of technical expertise. Any user with a basic understanding of the internet and auctions should be able to make use of all the available functionality of the system.
There are three different types of users:

- **Guests**: These are visitors of the site which don't have an account yet or aren't logged in.

- **Users**: These are users of the site who have an account and are logged in.

- **Administrators**: These are special members of the site who manage the site.

- **Banned users**: These are users that were removed by an administrator

2.3 Interfaces

- The auction site is accessible from any operating system using a web browser and a connection to the web server running the Salesmen software

- No special hardware is required by the end-user

- The client browser must be W3C XHTML compatible

- Communication between the users and the auction site will be through HTTP communication using TCP/IP port 80

- If an error occurs during a request, the user should receive a clear error message. These errors should also be logged

2.3.1 User interfaces through forms

Account information

- Username (mandatory)

- Password (mandatory)

- Password verification (mandatory)

- E-mail (mandatory)

- E-mail verification (mandatory)

- Default Language (default English)

- CAPTCHA (mandatory)

Personal information

- First Name (mandatory)

- Last Name (mandatory)

- Address (optional)

- Phone number (optional)

- Date of birth (mandatory, minimum 18 years old)

Registration form

- Account information (mandatory)

- Personal information (mandatory)

Login form

- Username

- Password

Auction search form

- Auction name

Member search form

- Member name

Place auction form

- Auction name

- Transport options

- Minimum price

- Duration

- Auction type

- Category

- Tags

- Other information

Bidding form

- Maximum offer

Personal message form

- Subject

- Message

Rate transaction form

- Overall rating

- Message

2.4 Product Functions

2.4.1 Guest

Guests can

- Browse through auctions

- Request an account

- Log in

2.4.2 User

Users can

- Browse through auctions through searching

- Browse through auctions by selecting a category

- Place auctions

- Bid on auctions

- Follow an auction

- View a transaction

- Pay for a transaction

- Rate a transaction

- View their placed, active and followed auctions

- Access and modify their account information

- Contact other users

- Add a seller to their favourite sellers

- View and top up their salespal account

2.4.3 Administrator

Administrators can

- Manage the members

- Manage the auctions

- Retract bids from users

2.5 Constraints

- The system must work on Linux, and more specifically on Wilma

- The design should be modular, so extensions and replacements of modules will be simplified

- The web interface should be simple, attractive and standard (CSS, XHTML)

- The basic programming language must be Java

- Only open source software and libraries may be used

2.6 Apportioning of Requirements

In order to have a working prototype available at the end of the first iteration, some functionalities have different priorities.

- **Must have**: These functionalities should definitely be in the system, preferably after the first iteration.

- **Want to have**: These functionalities should be in the system, but could be dropped when there isn't enough time.

- **Nice to have**: These functionalities should only be implemented if all the 'must have' and 'want to have' requirements are implemented and there is still some time left.

Chapter 3

Specific Requirements

3.1 Requirements Control Plan

This section describes how the different requirements will be described and how modifications to these requirements will be handled.
Each requirement will have a unique identifier which will be used for referencing in the source code, the design, ... Some requirements will only be described by a short description, while others will be described by a use case.
Whenever a requirement changes, the change will be noted at the description of the requirement. If a requirement is retired, this will also be noted at the requirement description, together with a reason why the requirement was retired.

3.2 Functional Requirements

3.2.1 Guest

3.2.1.1 Create a new account

Requirement ID 1

Priority Must have

Actor Guest

Preconditions User is not logged in

Description A guest can create a new account so that he or she can use the full functionality of the site

Path
1. Guest selects *register*
2. Guest fills in *registration form*
3. Guest submits form
4. System checks form and if valid saves it

5. System sends a confirmation mail

Exceptions   1. Username is already taken

2. Incorrect information in the registration form

3. Incomplete form

Result An account is created for the user

3.2.1.2   Log in

Requirement ID 2

Priority Must have

Actor Guest

Preconditions The user is registered on the site, user is not logged in

Description If a user is registered but not logged in, he or she can log in to use the full functionality of the site.

Path   1. Guest fills in login form

2. Guest submits form

3. System checks if the form is valid and if so logs the user in

4. System redirect the user to the page he or she was on before the log in

Exceptions   1. Incorrect username and or password

2. Incomplete login form

Result The user is logged in

3.2.2   Guest and User

3.2.2.1   Search for an auction

Requirement ID 3

Priority Must have

Actor User or Guest

Preconditions User is at the home page

Description Guests and members can search for auctions

Path   1. Users enters a search term in the search field

2. User submits the search

3. System redirects the user to a page with all found auctions that match this search query

Exceptions Empty search field

Result A page with the found auctions for the search term

3.2.2.2 View auctions of a certain category

Requirement ID 4

Priority Must have

Actor User or Guest

Preconditions User is at the home page

Description Guests and users can view all the auctions of a certain category

Path 1. Users select a category from the category list

2. System redirects the user to a page with all the auctions of the selected category

Exceptions None

Result A page displaying all the auctions of a certain category

3.2.2.3 View auctions with a certain tag

Requirement ID 5

Priority Want to have

Description Guests and users can view all the auctions with a certain tag

3.2.2.4 Change language

Requirement ID 6

Priority Must have

Description Guests and users can change the language of the website to one of the available languages

3.2.2.5 Change currency

Requirement ID 7

Priority Nice to have

Description Guests and users can change the currency in which auctions are displayed

3.2.3 User

3.2.3.1 Log out

Requirement ID 8

Priority Must have

Actor User

Preconditions User is logged in

Description Members who are logged in can log out

Path   1. User selects *log out*
2. System logs the user out
3. System redirects the user to the site's homepage

Exceptions None

Result The user is logged out

3.2.3.2 Search a user

Requirement ID 9

Priority Want to have

Actor User

Preconditions User is at advanced search page

Description Members can search for other members

Path   1. User enters search term in search user field
2. User submits search
3. System redirects the user to page containing all users corresponding to that search query

Exceptions Incorrect or incomplete form

Result A page displaying the found members for the search term

3.2.3.3   Place an auction

Requirement ID 10

Priority Must have

Actor User

Preconditions User is logged in. User is at home page or user home

Description Members of the site can create a new auction on which other members can bid

Path   1. User selects *place auction*

2. User fills in *new auction form*

3. User submits the form

4. System checks the form and if valid creates the auction

Exceptions Incorrect information in the form, incomplete form

Result Auction is placed

3.2.3.4   View placed auctions

Requirement ID 11

Priority Want to have

Actor User

Preconditions User is logged in. User is at control panel

Description Users can view the auctions they have placed

Path   1. User selects *placed auctions*

2. System redirects user to user's placed auctions page

Exceptions None

Result The user views the auctions he or she has placed

3.2.3.5   Bid on auction

Requirement ID 12

Priority Must have

Actor User

Preconditions   1. User is logged in

2. User is on an auction page

3. Auction is not of the user

Description Members can bid on auctions of other members

Path   1. User select *bid*
      2. User fills in bidding form
      3. User submits form
      4. System checks form and if valid places the bid

Exceptions Wrong bid value in the form, incomplete form

Result The bid is placed on the auction

3.2.3.6 View active auctions

Requirement ID 13

Priority Want to have

Actor User

Preconditions User is logged in. User is at control panel

Description Users can view the auctions they have bid on

Path   1. User selects *active auctions*
      2. System redirects user to user's active auctions page

Exceptions None

Result The user can view the auctions he or she had bid on

3.2.3.7 Modify account information

Requirement ID 14

Priority Must have

Actor User

Preconditions User is logged in. User is at control panel

Description Members can modify their account information

Path   1. User selects *modify account*
      2. User changes account information form
      3. User submits the form
      4. System checks the form and if valid, makes the changes

Exceptions Incorrect information, incomplete form

Result The account information of the user is changed

3.2.3.8 Send a personal message

Requirement ID 15

Priority Nice to have

Actor User

Preconditions User is logged in. User is at user page

Description Users can send messages to other users

Path   1. User selects *send message*
2. User fills in personal message form
3. User submits the form
4. System checks the form and if valid, sends the message

Exceptions Incorrect information, incomplete form, users send message to him or herself

Result A message is sent to another user

3.2.3.9 View personal messages

Requirement ID 16

Priority Nice to have

Actor User

Preconditions User is logged in. User is at control panel

Description Users can view the personal messages

Path   1. User selects *personal messages*
2. System redirects the user the user's personal messages page

Exceptions None

Result The user will view a page with his or her personal messages

3.2.3.10 Delete personal message

Requirement ID 17

Priority Nice to have

Actor User

Preconditions User is logged in. User is at personal messages page

Description Users can delete personal messages they have received

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Path   1. User selects a message

   2. User selects *delete message*

   3. System deletes the message

Exceptions None

Result A message is deleted from the user's inbox

3.2.3.11   Follow an auction

Requirement ID 18

Priority Want to have

Actor User

Preconditions User is logged in. User is at auction page

Description Users can follow an auction, i.e. they put it in their following list

Path   1. User selects *follow auction*

   2. System adds auction to the users followed auctions list

Exceptions None

Result An auction is added to the user's follow auctions list

3.2.3.12   View followed auctions

Requirement ID 19

Priority Want to have

Actor User

Preconditions User is logged in. User is at control panel

Description Users can view the auctions they are following

Path   1. User selects *followed auctions*

   2. System redirects user to user's followed auctions page

Exceptions None

Result The user can view the auctions he or she is following

3.2.3.13 View Transaction

Requirement ID 20

Priority Want to have

Actor User

Preconditions User is logged in. User is at auction page. User bought the item.

Description Users can view the transaction of an item they bought

Path   1. User selects *view transaction*
   2. System forwards user to transaction page of auction

Exceptions None

Result The user views the transaction of the auction

3.2.3.14 Pay transaction

Requirement ID 21

Priority Want to have

Actor User

Preconditions User is logged in. User is at transaction page

Description Users can pay auctions on the transaction page of an auction

Path   1. User selects *pay item*
   2. User selects a payment method
   3. User performs the payment
   4. System notifies the seller that the auction is paid for

Exceptions Incorrect information, incomplete form

Result The transaction is paid for

3.2.3.15 Rate transaction

Requirement ID 22

Priority Want to have

Actor User

Preconditions User is logged in. User is at transaction page, user paid transaction

Description Users can send rate a transaction after it is paid

Path   1. User selects *rate transaction*

       2. User fills in rate transaction form

       3. User submits the form

       4. System checks the form and if valid, rates the transaction

       5. System updates the ratings of the user

Exceptions Incorrect information, incomplete form

Result The transaction is rated

3.2.3.16   Add seller to favourites

Requirement ID 23

Priority Nice to have

Actor User

Preconditions User is logged in. User is at user page

Description Users can add a seller to their favourites so they can their auctions easily

Path   1. User selects *add seller to favourites*

       2. System adds the seller to the favourite seller list of the user

Exceptions Seller is already in the favourite seller list

Result The seller is added to the favourite seller list of the user

3.2.3.17   View favourite sellers

Requirement ID 24

Priority Nice to have

Actor User

Preconditions User is logged in. User is at control panel

Description Users can view his or her favourite sellers

Path   1. User selects *favourite sellers*

       2. System redirects user to user's favourite sellers page

Exceptions None

Result The user will view a page with his or her favourite sellers

3.2.3.18 Delete favourite seller

Requirement ID 25

Priority Nice to have

Actor User

Preconditions User is logged in. User is at control panel

Description Users can remove a seller from his or her favourite sellers list

Path   1. User selects a seller from the list
   2. User selects *delete seller*
   3. System removes the selected user from the list

Exceptions None

Result A seller is removed from user's favourite sellers list

3.2.3.19 View salespal

Requirement ID 26

Priority Want to have

Actor User

Preconditions User is logged in. User is at control panel

Description Users can view their own personal "bank acount" on the site

Path   1. User selects *view salespal*
   2. System redirects the user to the user's salespal page

Exceptions None

Result The user is on his or her salespal page

3.2.3.20 Top up salespal

Requirement ID 27

Priority Want to have

Actor User

Preconditions User is logged in. User is at salespal page

Description Users can add more money on their salespal account

Path   1. User selects *top up salespal*

2. Users fills in top up salespal form

3. System checks the form and if valid tops up the account

Exceptions Incorrect or incomplete form

Result The user tops up his or her salespal account

3.2.3.21 View recommended auctions

Requirement ID 28

Priority Nice to have

Actor User

Preconditions User is logged in. User is at control panel

Description Users can view recommended auctions for him or her. This list is generated through tags and categories the user frequently uses

Path
1. User selects *view recommendations*
2. System redirects user to user's recommended auctions page

Exceptions None

Result The user views a page with recommended auctions for the user

3.2.3.22 View buyer's assistant

Requirement ID 29

Priority Want to have

Description A user can check the auctions the buyer's assistant has found for his or her preferences

3.2.4 Administrator

3.2.4.1 Remove a user

Requirement ID 30

Priority Must have

Actor Administrator

Preconditions User is at control panel

Description User selects *manage users* and selects a user from the users list. After the user is selected, *remove user* is selected.

Exceptions None

Result A user is removed from the system

3.2.4.2 Remove an auction

Requirement ID 31

Priority Must have

Actor Administrator

Preconditions User is at control panel

Description User selects *manage auctions* and selects an auction from the auctions list. After the auction is selected, *manage auction* is selected.

Exceptions None

Result Auction is removed

3.2.4.3 Retract bid

Requirement ID 32

Priority Want to have

Description An administrator can retract a bid from a user when that user has e.g. made a high bid because of a typo

3.2.5

3.2.6 Other

3.2.6.1 Basic e-mail notification

Requirement ID 33

Priority Want to have

Description User can receive an e-mail when he or she has won an auction, when the item is shipped, when an auction is paid for

3.2.6.2 Advanced e-mail notification

Requirement ID 34

Priority Nice to have

Description User can receive an e-mail when he or she is overbid, when an auction is almost done, with recommended auctions for the user

3.3 Database Requirements

All data will be saved in the database. The database must always remain consistent. There will be many concurrent request for the database. A good database structure will be needed.

3.4 Design Constraints

1. The design must be object-oriented

2. Design diagrams must be made using UML

3.5 Software system attributes

3.5.1 Reliability

Errors in the code will be divided into 2 groups: *small errors* and *fundamental errors*.
Fundamental errors will be corrected within 48 hours after the detection of this error. Small errors (details) will be corrected within a week after the detection of these errors.

3.5.2 Security

- When a user want to recover his or her password, the site will generate a new password and send it to the user's e-mail.

- Communication of sensitive data should be encrypted (e.g. using https)

- Users should only be allowed to try to log in a limited number of times

- When a guests registers for an account, he or she has to fill in a CAPTCHA

3.6 Summary

Must have	Want to have	Nice to have
Create new account	Search a user	View recommended auctions
Log in	View active auctions	Send a personal message
Search for an auction	View placed auctions	View personal messages
View auctions of a category	Follow an auction	Delete a personal message
Log out	View salespal	Add seller to favourites
Place an auction	Top up salespal	View favourite sellers
Bid on an auction	View buyer's assistant	Delete a favourite seller
Modify account information	Comment on auction	
Retrieve password	Change currency	
Remove a user	View auctions with a tag	
Remove an auction		
Change language		

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