



Salesmen (Group2 SE)

Software Design Document

author(s): Bart Maes



Abstract: This document lays down the architecture and detailed design of the Salesmen project. This project is created by group 2 of the course Software Engineering in the 2009-2010 study year at the Vrije Universiteit Brussel.

21-12-2009

History of versions

| Version | Date | Author(s) | Changes |
|---------|------------|----------------|---|
| v0.0.1 | 27-11-2009 | B. Maes | Draft initialization |
| v0.0.2 | 29-11-2009 | B. Maes | Added Appendix A, added Technical Design |
| v0.0.3 | 29-11-2009 | B. Maes | Added Appendix B, initial QA check |
| v0.1.0 | 14-12-2009 | B. Maes | Updated (integration JBoss Seam) |
| v0.2.0 | 21-12-2009 | P. Provinciael | Made the document consistent with the other documents |

Contents

| | | |
|----------|---|----------|
| 1 | Introduction | 4 |
| 1.1 | Purpose | 4 |
| 1.2 | Scope | 4 |
| 1.3 | Reference materials | 4 |
| 1.4 | Definitions and acronyms | 4 |
| 2 | System Architecture | 5 |
| 2.1 | Overview | 5 |
| 2.2 | Three-Tier Architecture | 5 |
| 2.3 | Discussion of Alternative Designs | 6 |
| 2.4 | Survey of Technologies Used | 6 |
| 2.4.1 | Introduction | 6 |
| 2.4.2 | JBoss Seam | 6 |
| 2.5 | Physical Configuration | 7 |
| 2.6 | System Interface Description | 7 |
| 3 | Technical Design | 8 |
| 3.1 | Presentation layer | 8 |
| 3.2 | Business layer | 8 |
| 3.3 | Data layer | 8 |
| 4 | Software Features | 9 |
| 4.1 | Functional Requirements | 9 |
| 4.1.1 | Guest | 9 |
| 4.1.2 | Unconfirmed user | 11 |
| 4.1.3 | Guest and User | 12 |
| 4.1.4 | User | 15 |
| 4.1.5 | Moderators | 31 |
| 4.1.6 | Administrators | 32 |
| 4.1.7 | Security | 32 |
| 4.1.8 | Other | 33 |
| 4.2 | Non-functional Requirements | 33 |
| 4.2.1 | Browser compatibility | 33 |
| 4.2.2 | Secure connection | 33 |
| 4.2.3 | Advertisements through Google AdWords | 34 |
| 4.2.4 | Clean URLs | 34 |
| 4.2.5 | Search engine optimization | 34 |

| | | |
|----------|--|-----------|
| 5 | User Interface Design | 35 |
| 5.1 | Web pages tree | 35 |
| 5.1.1 | Overview | 35 |
| 5.1.2 | Page Description | 35 |
| 5.2 | User Interface | 35 |
| 6 | Additional Material | 36 |
| 7 | Requirements Traceability Matrix | 37 |
| | References | 37 |
| B | Diagrams | 39 |
| B.1 | Architecture | 40 |
| B.2 | Infrastructure | 41 |
| B.3 | Class Diagram | 42 |
| B.4 | Database diagram | 43 |
| C | Website Prototypes | 44 |
| C.1 | Auction list | 45 |
| C.2 | Auction detail | 46 |
| C.3 | Profile - Auctions | 47 |
| C.4 | Profile - Buyers assistant | 48 |
| C.5 | Profile - Personal information | 49 |
| C.6 | Profile - Account information | 50 |

Chapter 1

Introduction

1.1 Purpose

This document specifies the entire software architecture and design for the Salesmen software. These design decisions directly relate to the functionalities, performances, constraints, attributes and interfaces of the system.

1.2 Scope

This document describes the software architecture and design for the initial release of the Salesmen software. The intended audience of this document exclusively includes the designers, the developers and the testers of the software.

This SDD document mainly follows the standards of the IEEE 1016-1998 standard.

1.3 Reference materials

See Appendix A.

1.4 Definitions and acronyms

| | |
|----------------|---|
| CSS | Cascading Style Sheets |
| EJB3 | Enterprise JavaBeans v3 |
| HTML | HyperText Markup Language |
| HQL | Hibernate Query Language |
| J2EE | Java 2 Platform, Enterprise Edition |
| JBoss | An application server |
| RDBMS | Relational DataBase Management System |
| Servlet | (Java) program that runs in a J2EE webcontainer |
| SCMP | Software Configuration Management Plan |
| SDD | Software Design Document |
| SMTP | Single Mail Transfer Protocol |
| SRS | Software Requirements Specification |
| SQL | Structured Query Language |

Chapter 2

System Architecture

2.1 Overview

System architecture diagram: see Appendix B, B.1

2.2 Three-Tier Architecture

Three-tier is a client-server architecture in which the user interface, functional process logic, computer data storage and data access are developed and maintained as independent modules, most often on separate platforms.

Apart from the usual advantages of modular software with well defined interfaces, the three-tier architecture is intended to allow any of the three tiers to be upgraded or replaced independently as requirements or technology change. For example, a change of operating system in the presentation tier would only affect the user interface code.

Typically, the user interface runs on a desktop PC or workstation and uses a standard graphical user interface, functional process logic may consist of one or more separate modules running on a workstation or application server, and an RDBMS on a database server or mainframe contains the computer data storage logic.

Three-tier architecture has the following three tiers:

- **Presentation tier** This is the topmost level of the application. The presentation tier displays information related to such services as browsing merchandise, purchasing, and shopping cart contents. It communicates with other tiers by outputting results to the browser/client tier and all other tiers in the network.
- **Application tier (Business Logic/Logic Tier)** The logic tier is pulled out from the presentation tier and, as its own layer, it controls an applications functionality by performing detailed processing.
- **Data tier** This tier consists of Database Servers. Here information is stored and retrieved. This tier keeps data neutral and independent from application servers or business logic. Giving data its own tier also improves scalability and performance.

Benefits of using this architectural style include increased performance, flexibility, maintainability, reusability, and scalability.

2.3 Discussion of Alternative Designs

MVC At first glance, the three tiers may seem similar to the MVC (Model View Controller) concept; however, topologically they are different. A fundamental rule in a three-tier architecture is the client tier never communicates directly with the data tier; in a three-tier model all communication must pass through the middleware tier. Conceptually the three-tier architecture is linear. However, the MVC architecture is triangular: the View sends updates to the Controller, the Controller updates the Model, and the View gets updated directly from the Model.

From a historical perspective the three-tier architecture concept emerged in the 1990s from observations of distributed systems (e.g., web applications) where the client, middleware and data tiers ran on physically separate platforms. Whereas MVC comes from the previous decade and is based on observations of applications that ran on a single graphical workstation; MVC was applied to distributed applications much later in its history.

2.4 Survey of Technologies Used

2.4.1 Introduction

This section describes briefly what software and technologies will be used to implement the Salesmen software. For more information about these technologies, the reader is kindly referred to the SCMP.

2.4.2 JBoss Seam

Seam is a powerful open source development platform for building rich Internet applications in Java. Seam integrates technologies such as Asynchronous JavaScript and XML (AJAX), JavaServer Faces (JSF), Java Persistence (JPA), Enterprise Java Beans (EJB 3.0) and Business Process Management (BPM) into a unified full-stack solution, complete with sophisticated tooling.

Seam has been designed from the ground up to eliminate complexity at both architecture and API levels. It enables developers to assemble complex web applications using simple annotated Java classes, a rich set of UI components, and very little XML. Seam's unique support for conversations and declarative state management can introduce a more sophisticated user experience while at the same time eliminating common bugs found in traditional web applications.

As a framework, it covers the 3 layers of the three tier architecture.

Presentation Layer

XHTML and CSS files will cover the view of our project. The Seam framework allows the view to communicate with the business logic through Seam components.

Business Layer

JBoss Application Server (or JBoss AS) is a free software/open-source Java EE-based application server. Because it is Java-based, the JBoss application server operates cross-platform: usable on any operating system that Java supports. As part of the JBoss software, the Apache Tomcat servlet container will allow us to serve dynamically parsed webpages. JBoss Seam allows us to implement the required Java Beans and Seam Entities in a fast and easy way, ensuring security and reliability.

Data Layer

Two database platforms were considered: MySQL and PostgreSQL. After thorough investigation, it was decided to go with PostgreSQL.

As Seam has built-in support for Hibernate, HQL statements will be used to communicate with the databases.

2.5 Physical Configuration

The software is to be installed on the Wilma server at the VUB datacenter. Wilma is accessible over the internet through web browsers and command line clients. The software relies on the availability of an SMTP server on the local LAN of the VUB, so that we do not have to include MDA (Mail Delivery Agent) functionality in the software.

System infrastructure diagram: see Appendix B, B.2

2.6 System Interface Description

The web-interface is the only interface available to users of the Salesmen software. However, depending of the access-rights provided to a given user, more options may become available. Website administrators, for example, can close auctions or ban other members while 'normal' members cannot access these facilities. A more detailed description of the access-rights provided to each group of users will be provided in the SRS. Prototypes of the webinterface can be found in Appendix C.

Chapter 3

Technical Design

3.1 Presentation layer

The presentation merely consists of static XHTML files that contain calls to Java Servlets to obtain dynamically changing information. These XHTML files will use CSS to separate the static information from the actual presentation of the website. Javascript will be used to provide the user with a friendly and smooth interface. This facilitates the following goals:

- Presentation is abstracted from (dynamically changing) information, coming from the business layer
- Support for multiple languages (1 set of html templates per language), as required in the SRS
- 'Smooth' interface with a minimum of required page refreshes, as required in the SRS

Prototypes of the webinterface can be found in Appendix C.

3.2 Business layer

The business layer consists of the Java Servlets that will be able to receive and process requests, and return proper responses. From the class diagram it becomes clear that two classes will play a central role in our application: User and Auction.

Class diagram, see Appendix B, B.3

3.3 Data layer

The data layer consists of the database and the EJB3 standard for persistent objects. EJB3 allows, through the use of annotations in the class, to abstract away from SQL-statements as EJB3 will generate these.

The database design supports all current requirements and is designed with expansion in mind. Entity-Relationship diagram: see Appendix B, B.4

Chapter 4

Software Features

4.1 Functional Requirements

4.1.1 Guest

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

Main 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

Exceptional paths

4a Username is already in use

4a1 System informs the user that the username is already taken

4a2 User returns to step 2, with the correct information still entered in the form field

4b E-mail address is already in use

- 4b1 System informs the user that the e-mail address is already in use and asks if the user is sure he or she wants to use this e-mail address
- 4b2 The account is created or the user returns to step 2, with the correct information still entered in the form field
- 4c Incorrect information in the registration form
 - 4c1 System informs the user that there is some incorrect information in the form
 - 4c2 User returns to step 2, with the correct information still entered in the form field
- 4d Incomplete form
 - 4d1 System informs the user that there are some fields in the form that are not filled in
 - 4d2 User returns to step 2, with the correct information still entered in the form field

Result An account is created for the user

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.

Main 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

Exceptional paths

- 3a Incorrect username and/or password
 - 4a1 System informs the user that the he or she has entered an incorrect information
 - 4a2 User returns to step 1
- 3b Incomplete login form
 - 4a1 System informs the user that some information is missing
 - 4a2 User returns to step 1

Result The user is logged in

4.1.2 Unconfirmed user

Confirm account

Requirement ID 3

Priority Want to have

Actor Unconfirmed user

Preconditions User is at confirmation page

Description

Unconfirmed users can confirm their account so they become regular users

Main path

1. Users follows link in the confirmation mail he or she has received
2. User selects confirm account on the confirmation page
- 3.

Exceptions None

Result The user becomes a regular user and can make use of all the functionality of the site

Request new confirmation mail

Requirement ID 4

Priority Want to have

Actor Unconfirmed user

Preconditions User is at control panel

Description Unconfirmed users can request a new confirmation mail

Main path

1. Users selects "send new confirmation mail"
2. System send a new confirmation mail to the user's e-mail address
- 3.

Exceptions None

Result The user receives a new confirmation mail

4.1.3 Guest and User

Search for an auction (basic)

Requirement ID 5

Priority Must have

Actor User or Guest

Preconditions User is at the home page

Description Guests and members can search for auctions

Main path

1. Users enters a search term in the basic search field form
2. User submits the search form
3. System redirects the user to a page with all found auctions that match this search query

Exceptional paths

2a Incomplete search form

2a1 System informs the user that the search form is incomplete

2a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

3a No auctions found

3a1 System informs the user that no auctions were found for the search query

Result A page with the found auctions for the search term

Search for an auction (advanced)

Requirement ID 6

Priority Want to have

Actor User or Guest

Preconditions User is at the home page

Description Guests and members can do a more advanced search for an auction

Main path

1. Users selects *advanced search*
2. Users fills in the advanced search form
3. User submits the search form
4. System redirects the user to a page with all found auctions that match this search query

Exceptional paths**2a** Incomplete search form

2a1 System informs the user that the search form is incomplete

2a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

3a No auctions found

3a1 System informs the user that no auctions were found for the search query

Result A page with the found auctions for the search query

View auctions of a certain category**Requirement ID 7**

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

Main 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

View auctions with a certain tag**Requirement ID 8**

Priority Want to have

Actor User or Guest

Preconditions User is at the home page

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

Main path

1. Users fills in *view auctions with tag*
2. System redirects the user to a page with all the auctions with that tag

Exceptional paths

3a No auctions found

- 3a1 System informs the user that no auctions were found with that tag

Result A page displaying all the auctions with a certain tag

Change language

Requirement ID 9

Priority Must have

Actor User or Guest

Preconditions User is at any page of the site

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

Main path

1. Users opens *change language*
2. Users selects one of the available languages
3. System changes the language of the site to the chosen language

Exceptional paths

3a User selects the same language

- 3a1 System does nothing

Result The language of the site is changed

Change currency

Requirement ID 10

Priority Nice to have

Actor User or Guest

Preconditions User on an auction page

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

Main path

1. Users opens *change currency*
2. Users selects one of the available currencies
3. System changes the currency of the auction to the chosen currency

Exceptional paths

- 3a User selects the same currency
- 3a1 System does nothing

Result The currency for the auction is changed

4.1.4 User

Log out

Requirement ID 11

Priority Must have

Actor User

Preconditions User is logged in

Description Members who are logged in can log out

Main 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

Search a user

Requirement ID 12

Priority Want to have

Actor User

Preconditions User is at advanced search page

Description Users can search for other users

Main 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

Exceptional paths

2a Incomplete search form

2a1 System informs the user that the search form is incomplete

2a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

3a No users found

3a1 System informs the user that no users were found for the search query

Result A page displaying the found members for the search term

Place an auction

Requirement ID 13

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

Main 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

Exceptional paths

4a Incomplete form

4a1 System informs the user that the form is incomplete

4a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

Result Auction is placed**Place an English auction****Requirement ID** 14**Priority** Must have**Description**

When a user places a new auction, he or she has the option to create an English auction

Place a silent auction**Requirement ID** 15**Priority** Want to have**Description**

When a user places a new auction, he or she has the option to create an English auction

View placed auctions**Requirement ID** 16**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**Main path**

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

Exceptional paths

2a User has no placed auctions

2a1 System displays a page to the user that says that the user has not placed any auctions

Result The user views the auctions he or she has placed

Bid on an auction

Requirement ID 17

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

Main 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

Exceptional paths

4a Incomplete form

- 4a1 System informs the user that the form is incomplete
- 4a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

4b Incorrect form

- 4b1 System informs the user that the form is incorrect
- 4b1 System returns the user to the form with the previously filled in fields still in place and a notification next to the incorrect fields

Result The bid is placed on the auction

View active auctions

Requirement ID 18

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

Main path

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

Exceptional paths

2a User has no active auctions

- 2a1 System displays a page to the user that says that the user has no active auctions

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

View won 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 have won

Main path

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

Exceptional paths

2a User has no won auctions

- 2a1 System displays a page to the user that says that the user has no auctions that he or she has won

Result The user can view the auctions he or she has won

Modify account information

Requirement ID 20

Priority Must have

Actor User

Preconditions User is logged in. User is at control panel

Description Members can modify their account information

Main 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

Exceptional paths

4a Incomplete form

- 4a1 System informs the user that the form is incomplete
- 4a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

4b Incorrect form

- 4b1 System informs the user that the form is incorrect
- 4b1 System returns the user to the form with the previously filled in fields still in place and a notification next to the incorrect fields

Result The account information of the user is changed

Send a personal message

Requirement ID 21

Priority Nice to have

Actor User

Preconditions User is logged in. User is at user page

Description Users can send messages to other users

Main 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

Exceptional paths

4a Incomplete form

4a1 System informs the user that the form is incomplete

4a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

4b Incorrect form

4b1 System informs the user that the form is incorrect

4b1 System returns the user to the form with the previously filled in fields still in place and a notification next to the incorrect fields

4c User send a message to him or herself

4c1 System informs the user that receiver is the same as the sender

4c2 System asks the user if he or she wants to send this message

Result A message is sent to another user

View personal messages

Requirement ID 22

Priority Nice to have

Actor User

Preconditions User is logged in. User is at control panel

Description Users can view the personal messages

Main 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

Delete a personal message

Requirement ID 23

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

Main 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

Follow an auction

Requirement ID 24

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

Main 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

View followed auctions

Requirement ID 25

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

Main path

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

Exceptional paths

2a User has no followed auctions

- 2a1 System displays a page to the user that says that the user is not following any auctions at the moment

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

View Transaction

Requirement ID 26

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

Main 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

Pay transaction

Requirement ID 27

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

Main 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

Exceptional paths

4a Incomplete form

- 4a1 System informs the user that the form is incomplete
- 4a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

4b Incorrect form

- 4b1 System informs the user that the form is incorrect
- 4b1 System returns the user to the form with the previously filled in fields still in place and a notification next to the incorrect fields

Result The transaction is paid for

Mark as sent

Requirement ID 28

Priority Want to have

Actor User

Preconditions User is logged in. User is at transaction page

Description A seller can mark an item as sent. This is done on the transaction page of the auction.

Main path

1. User selects *mark as sent*
2. System saves the information and notifies the buyer

Exceptions None

Result The item of the transaction is marked as sent

Mark as received

Requirement ID 29

Priority Want to have

Actor User

Preconditions User is logged in. User is at transaction page

Description A buyer can mark an item as received. This is done on the transaction page of the auction.

Main path

1. User selects *mark as receives*
2. System saves the information and notifies the seller

Exceptions None

Result The item of the transaction is marked as received

Rate transaction

Requirement ID 30

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

Main 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

Exceptional paths

4a Incomplete form

4a1 System informs the user that the form is incomplete

4a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

4b Incorrect form

4b1 System informs the user that the form is incorrect

4b1 System returns the user to the form with the previously filled in fields still in place and a notification next to the incorrect fields

Result The transaction is rated

Add seller to favourites

Requirement ID 31

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

Main path

1. User selects *add seller to favourites*
2. System adds the seller to the favourite seller list of the user

Exceptional paths

- 2a Seller is already in the user's favourite sellers list
- 2a1 System does nothing

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

View favourite sellers

Requirement ID 32

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

Main path

1. User selects *favourite sellers*
2. System redirects user to user's favourite sellers page

Exceptional paths

- 2a User has no favourite sellers
- 2a1 System displays a page to the user that says that the user has no favourite sellers

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

Delete a favourite seller

Requirement ID 33

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

Main 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

View salespal

Requirement ID 34

Priority Want to have

Actor User

Preconditions User is logged in. User is at control panel

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

Main 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

Top up salespal

Requirement ID 35

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

Main 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

Exceptional paths

4a Incomplete form

- 4a1 System informs the user that the form is incomplete
- 4a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

4b Incorrect form

- 4b1 System informs the user that the form is incorrect
- 4b1 System returns the user to the form with the previously filled in fields still in place and a notification next to the incorrect fields

Result The user tops up his or her salespal account

View recommended auctions

Requirement ID 36

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

Main 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

View buyer's assistant

Requirement ID 37

Priority Want to have

Actor User

Preconditions User is logged in. User is buyer's assistant home

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

Add buyer's assistant entry

Requirement ID 38

Priority Want to have

Actor User

Preconditions User is logged in. User is buyer's assistant home

Description Add a new entry to the buyer's assistant so that the assistant can suggest auctions for the user corresponding to this entry.

Main path

1. User selects *add entry*
2. User fills in *buyer's assistant entry* form
3. User submits the form
4. System checks the form and if valid adds a new entry to the buyer's assistant

Exceptional paths

4a Incomplete form

4a1 System informs the user that the form is incomplete

4a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

Result An entry is added to the buyer's assistant

Comment on an auction**Requirement ID** 39**Priority** Want to have**Actor** User**Preconditions** User is logged in. User is at auction page

Description A user can comment on an auction. This comment can be viewed by anyone viewing the auction page

Main path

1. User selects *comment*
2. User fills in *auction comment* form
3. User submits the form
4. System checks the form and if valid adds a comment to the auction

Exceptional paths

4a Incomplete form

4a1 System informs the user that the form is incomplete

4a1 System returns the user to the form with the previously filled in fields still in place and a notification next to the field that needs to be filled in

Result A comment is added to the auction comments**View hot deals****Requirement ID** 40**Priority** Want to have**Description** Users can view a list of the top ten most popular auctions**Sign up for salesmen pro****Requirement ID** 41**Priority** Want to have

Description Users can become a premium member of the site. They will get some extra's on the site. A monthly fee is required for this.

4.1.5 Moderators

Remove a user

Requirement ID 42

Priority Must have

Actor Moderator

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

Remove an auction

Requirement ID 43

Priority Must have

Actor Moderator

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

Retract bid

Requirement ID 44

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

4.1.6 Administrators

Modify default fees

Requirement ID 45

Priority Must have

Description

Administrators can modify the default values of fees

Modify default fees through graphical interface

Requirement ID 46

Priority Nice to have

Description

Administrators can modify the default values of fees through a graphical user interface

4.1.7 Security

Encrypted password

Requirement ID 47

Priority Must have

Description Password must be stored encrypted

CAPTCHA

Requirement ID 48

Priority Must have

Description When a user registers, he or she has to fill in a CAPTCHA

Limited login attempts

Requirement ID 49

Priority Must have

Description A guest may only try to log in with a wrong password a fixed number of times

Extra site for banned users

Requirement ID 50

Priority Nice to have

Description When a banned user visits the site, he or she will view a special site for banned users

Cookies

Requirement ID 51

Priority Want to have

Description Cookies can be created for the user to let the user log in automatically

4.1.8 Other

Basic e-mail notification

Requirement ID 52

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

Advanced e-mail notification

Requirement ID 53

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 [6].

4.2 Non-functional Requirements

4.2.1 Browser compatibility

Requirement ID 54

Priority Must have

Description The site should be fully compatible with the three most popular browsers. At the time of writing these are: Internet Explorer (version 7 or higher), Firefox (version 3 or higher) and Safari (version 4 or higher)[5].

4.2.2 Secure connection

Requirement ID 55

Priority Must have

Description Whenever sensitive transactions are made, the HTTPS protocol should be used.

4.2.3 Advertisements through Google AdWords

Requirement ID 56

Priority Must have

Description There should be space for advertisements from Google AdWord

4.2.4 Clean URLs

Requirement ID 57

Priority Want to have

Description URLs of auctions should be clean, i.e. they should be clearly readable

4.2.5 Search engine optimization

Requirement ID 58

Priority Want to have

Description The site should be optimized for search engines in order to get more and better traffic to the site.

Chapter 5

User Interface Design

5.1 Web pages tree

5.1.1 Overview

(pagetree image)

5.1.2 Page Description

5.2 User Interface

Prototypes of the webinterface can be found in Appendix C.

Chapter 6

Additional Material

Chapter 7

Requirements Traceability Matrix

Appendix A

References

- [1] IEEE Standards
IEEE *Std. 1016-1998 - Software Design Descriptions*.
- [2] Slides Software Engineering
Dirk Vermeir http://tiny2.vub.ac.be/~dvermeir/courses/software_engineering/slides.pdf 1 Nov 2009.
- [3] English auction
http://en.wikipedia.org/wiki/English_auction [October 2009]
- [4] Silent auction
http://en.wikipedia.org/wiki/Silent_auction#Secondary_types_of_auction [October 2009]
- [5] Usage share of web browsers
http://en.wikipedia.org/wiki/Usage_share_of_web_browsers [November 2009]
- [6] Search engine optimization
http://en.wikipedia.org/wiki/Search_engine_optimization [December 2009]

Appendix B

Diagrams

B.1 Architecture

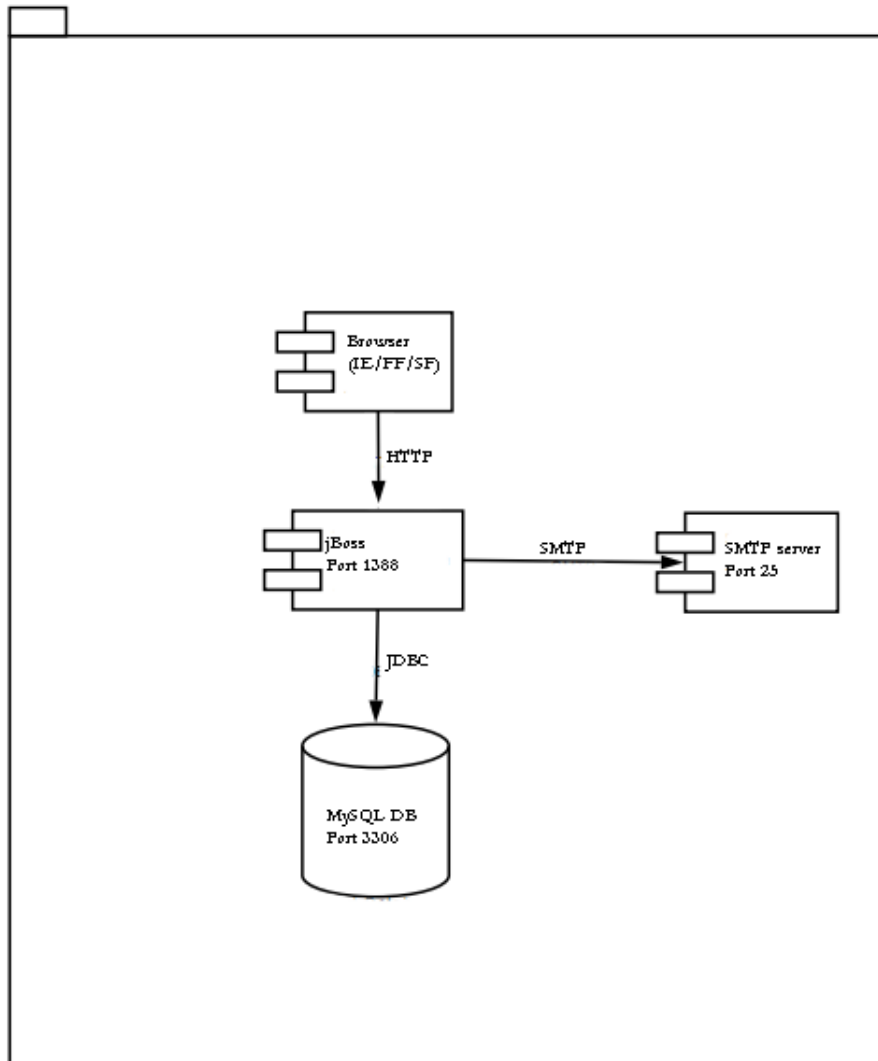


Figure B.1: Salesmen Architecture

B.2 Infrastructure

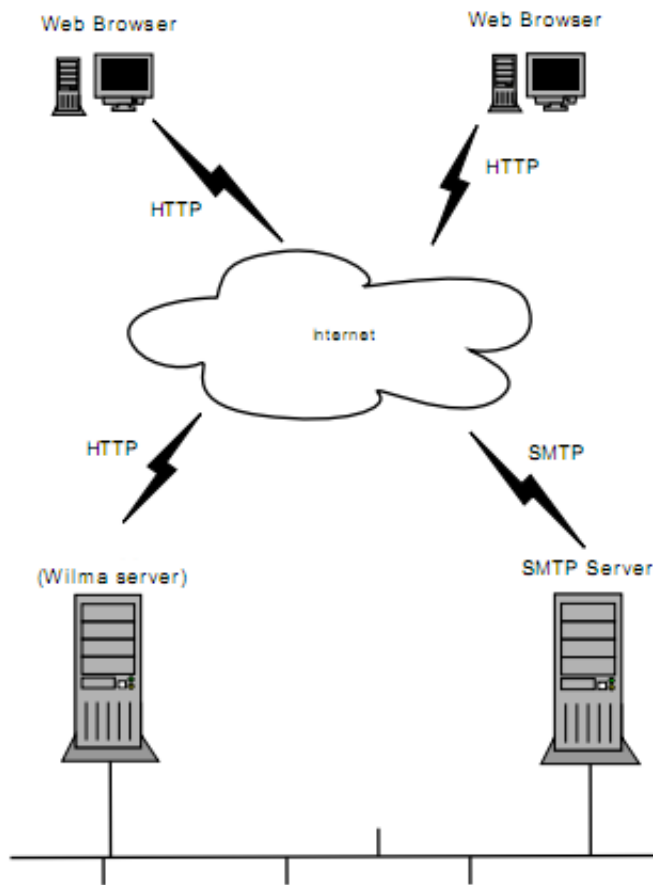


Figure B.2: Salesmen infrastructure

B.4 Database diagram

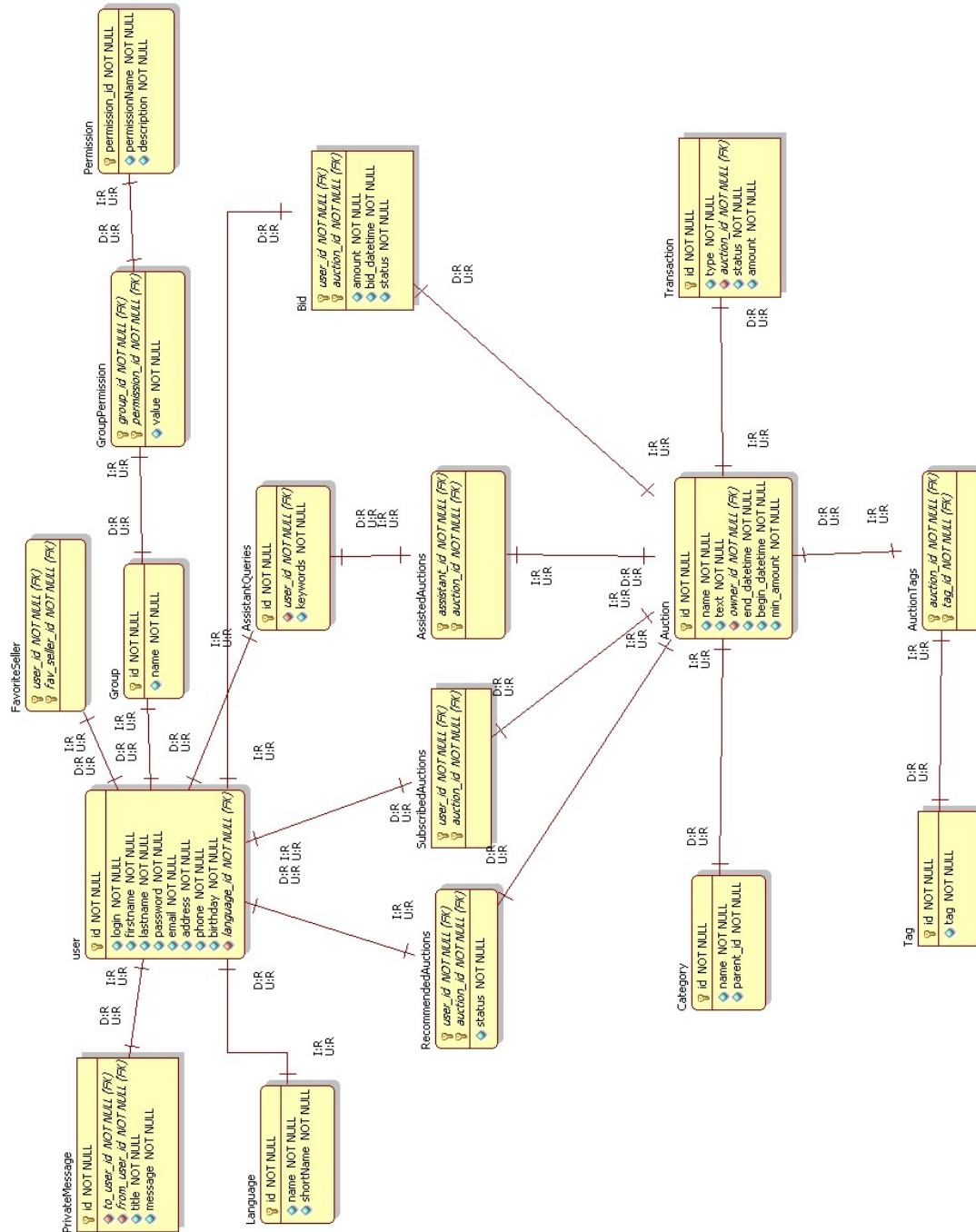


Figure B.4: Salesmen database layout

Appendix C

Website Prototypes

C.1 Auction list



Figure C.1: auctionlist.jsp

C.2 Auction detail



Figure C.2: auctiondetail.jsp

C.3 Profile - Auctions



Figure C.3: profile.jsp - auctions

C.4 Profile - Buyers assistant



Figure C.4: profile.jsp - buyers assistant

C.5 Profile - Personal information



Figure C.5: `profile.jsp` - personal information

C.6 Profile - Account information



Figure C.6: profile.jsp - website information