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| Library Book Loan System | - Group 13- Ahmet Ayan (21327661) Burak Enes Atalar (21426658) Arafat Yılmaz (21328581) |
| Software Design Description | Date: 25/04/2017 |

Library Book Loan System

Software Design Description

1. Revision History

| <i>Version</i> | <i>Date</i> | <i>Author</i> | <i>Change Description</i> |
|----------------|-------------|--|--|
| 1.0 | 04.04.2017 | Burak Enes Atalar Arafat Yılmaz Ahmet Ayan | Log In requirement of the project have been prepared and used. The other versions will be updated on the project |
| 1.1 | 24.04.2017 | Burak Enes Atalar Arafat Yılmaz Ahmet Ayan | Half of the requirements of the project have been prepared and used. The other versions will be updated on the project |

2. INTRODUCTION

2.1 Purpose and Scope

The aim of this design document is to try to eliminate the mistakes in the previous versions and try to introduce a more systematic functional design. Partial changes to the interface designs have been made to go with a few additions. In other words, it is aimed to introduce a detailed design and detailed design, to design data management and storage forms of data, to introduce structural design, to introduce component design, to introduce component design and to introduce GUI by means of visuals.

2.2 Document Overview

In general this document is; An overview of the system, descriptions used in the system, design decisions, details of the design, behavior diagrams (sequence diagram), data models, user interfaces software requirements are defined and elaborated.

2.3 System Overview

We needed the database for project implementation using MsSQL. The software type programming language is C#. The database operations are done by sql server and the connection is made in C# by using libs like sql.client. Besides the interface provided by c# visual studio, the "drop check" feature facilitates the steps of the project and the language Has been chosen.

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2.4 Definitions, Acronyms, and Abbreviations

MVC -----> Model View Controller

SQL -----> Structured Query Language

MsSQL -----> Microsoft SQL Server

C # -----> C Sharp

IEEE -----> The Institute of Electrical and Electronics Engineers

Std -----> Standard

2.5 References

All versions of the project were performed in accordance with the IEEE Software Engineering Standards Committee, "IEEE Std 10161998, IEEE Recommended Practice for Software. This document also refers to the project vision document, software requirement document and design requirement document.

3. Design Constraints and Decisions

The software should be designed and extensible with additional features added to the library system in the future. Being a library application at the very bottom of the planned project will make certain requirements a priority. Adding, deleting and updating books made by the librarian, book inquiry made by the student, taking books etc. have the highest priority in the project. The project is designed in line with this point of view. In addition to these, processes such as guest user application, enrollment in the system, displaying or updating the personal information of members and employees registered in the system, and controlling the members' penalties are more important in terms of importance. The admin processes defined in the project provide the security and dynamism of the system. Although the project seems to have little effect on the overall texture, the existence of these processes is of great importance for the project.

Information on users, library staff and books is kept in the database. Security precautions will be taken to prevent any attacks on this information. At the same time, the system will be provided with a backup to restore in case of any emergency. In the event of any attack on the system, the capture of personal information will be prevented.

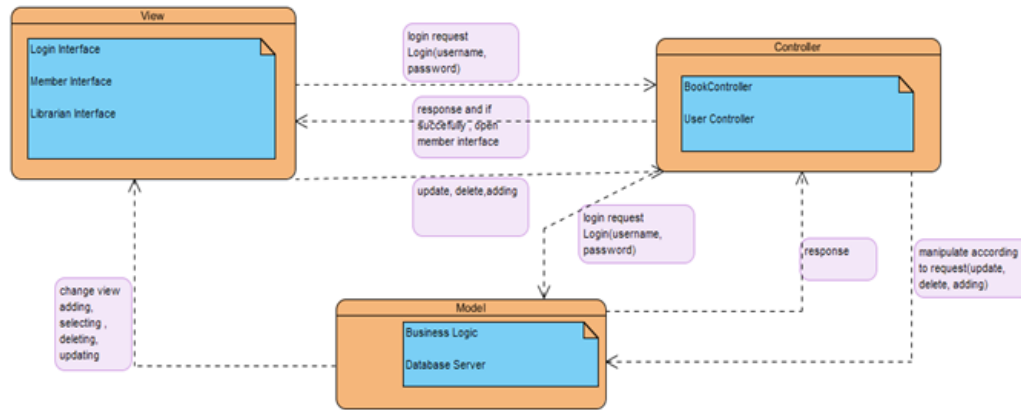
The system should be developed so that it can be easily used by all users. In this direction the language will be plain and simple. Access to the shortest path will be provided

The system should be flexible enough to accommodate future requirements and easily add additional features. When a mistake comes in the future, the error must be resolved in a short time effectively.

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4. Design Details

In this project, MVC design model is used in general. While trying to stick to 3 basic structures such as Controller, View and Model, the control mechanism has been revised in accordance with the project. In this way, changes to the software can be performed more quickly and more efficient code will be created.



View has a Login interface, a Member interface and a Librarian Interface. In the project, there are some selection interfaces while the pages are pointing at each other. For example, the librarian can do 2 operations in our project. One of them is a user other book management. There is a selection screen to choose which operation to perform. The viewing interface, and the books received from the book operation interface.

In the model part, we have our interface, that is our logic. Processes are progressing through a "Library" database.

In the Controller section, user and book operations are performed and it is connected with the interfaces. It is in communication with View.

4.1 Software Components

The components that make up the software;

Database : MsSql

Project language : C #

In order to realize the Mvc architecture among the classes used in the software, the database class exists separately. Here, insert, update, delete operations can be done by creating a single class object.

User Operations, Book Operations, Reservations, Taken Book, and source codes.

The database operations are made using MsSql server and the connection is made via C # librarians like sql.client. Besides the interface provided by c # visual studio, thanks to the "drop check" feature, the steps of the project are simplified and the choice of the most suitable language for the project has been reached.

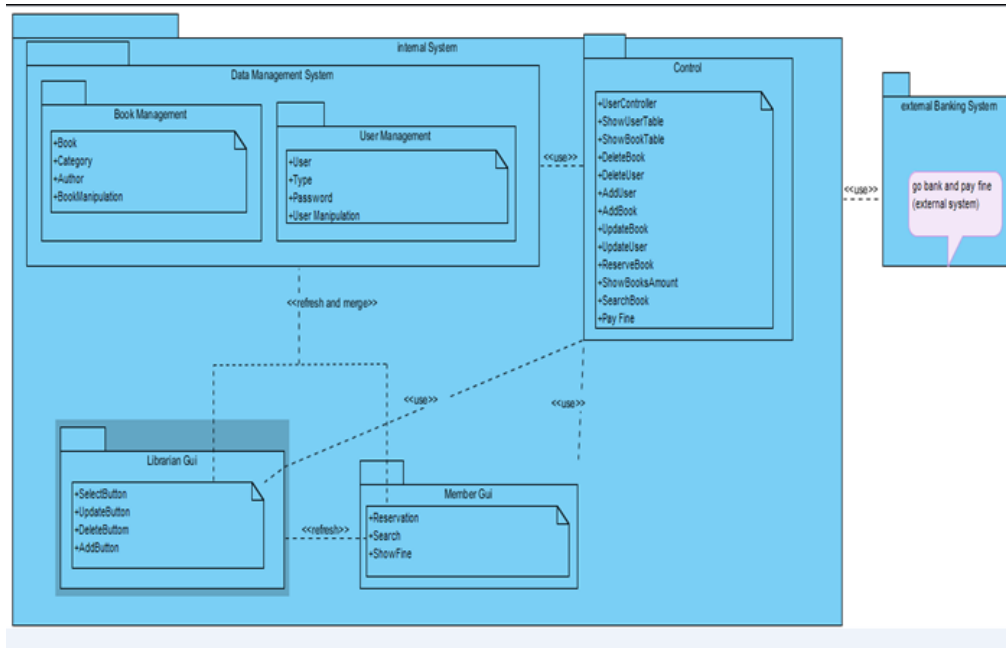
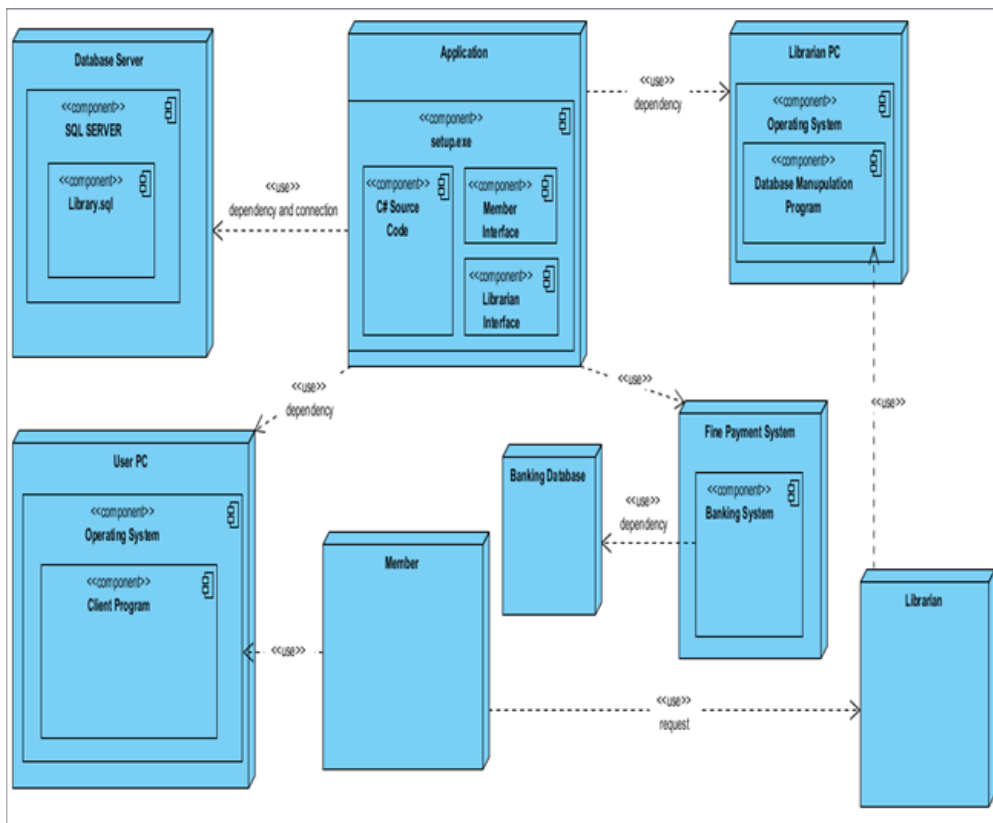
The component and deployment diagram prepared for the project is shown below.

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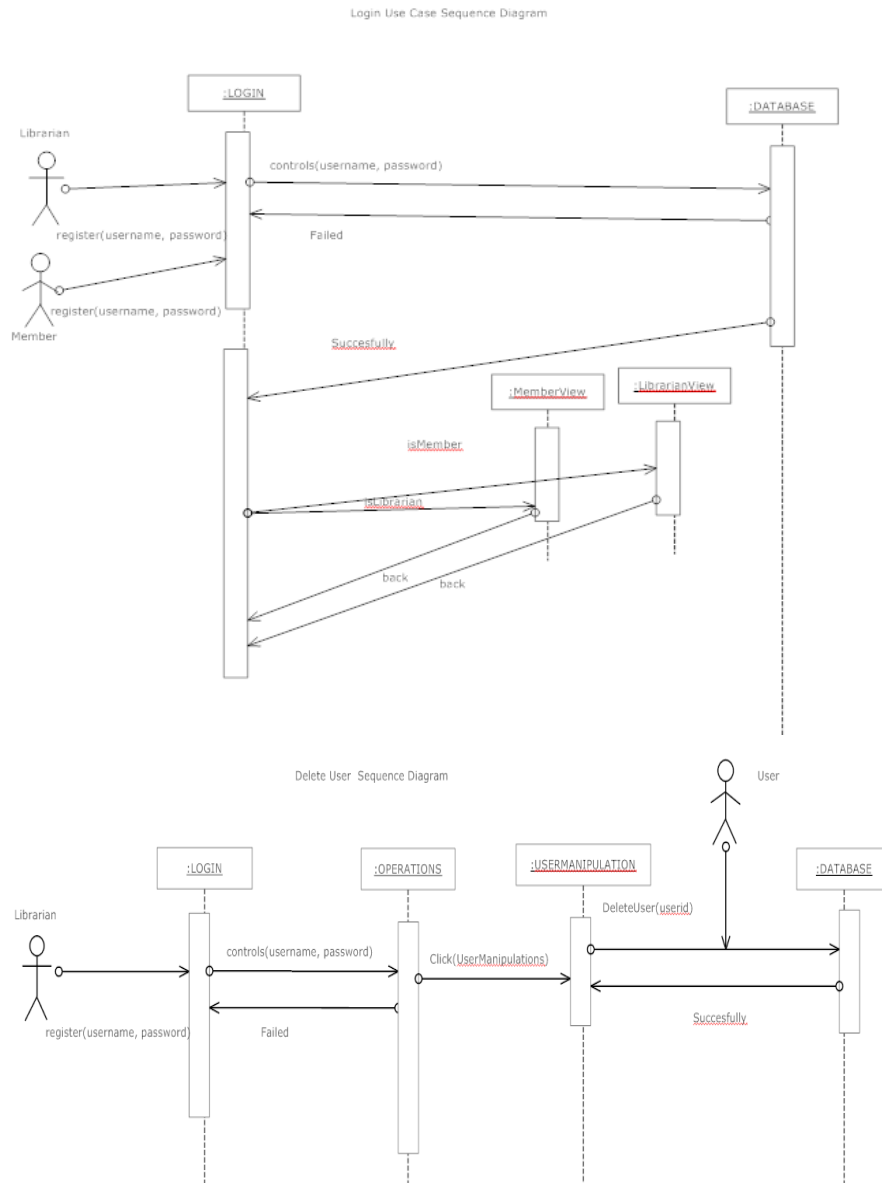
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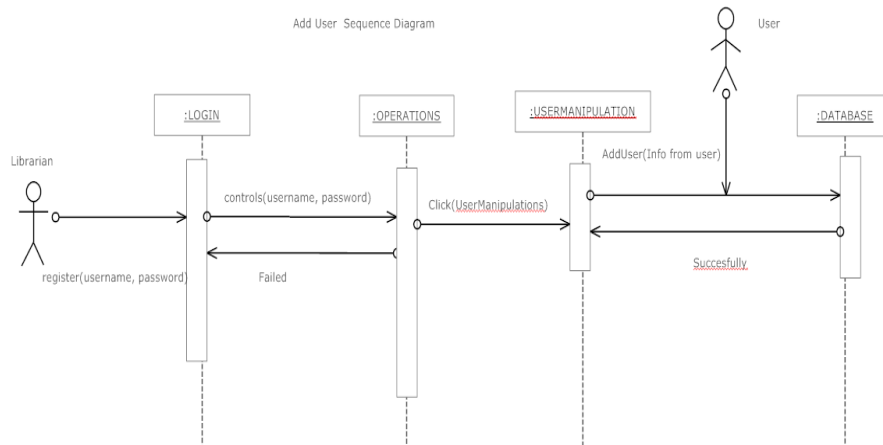


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4.2 Software Behavior



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4.3 Data Model (E-R Diagram)



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4.4 User Interface Design

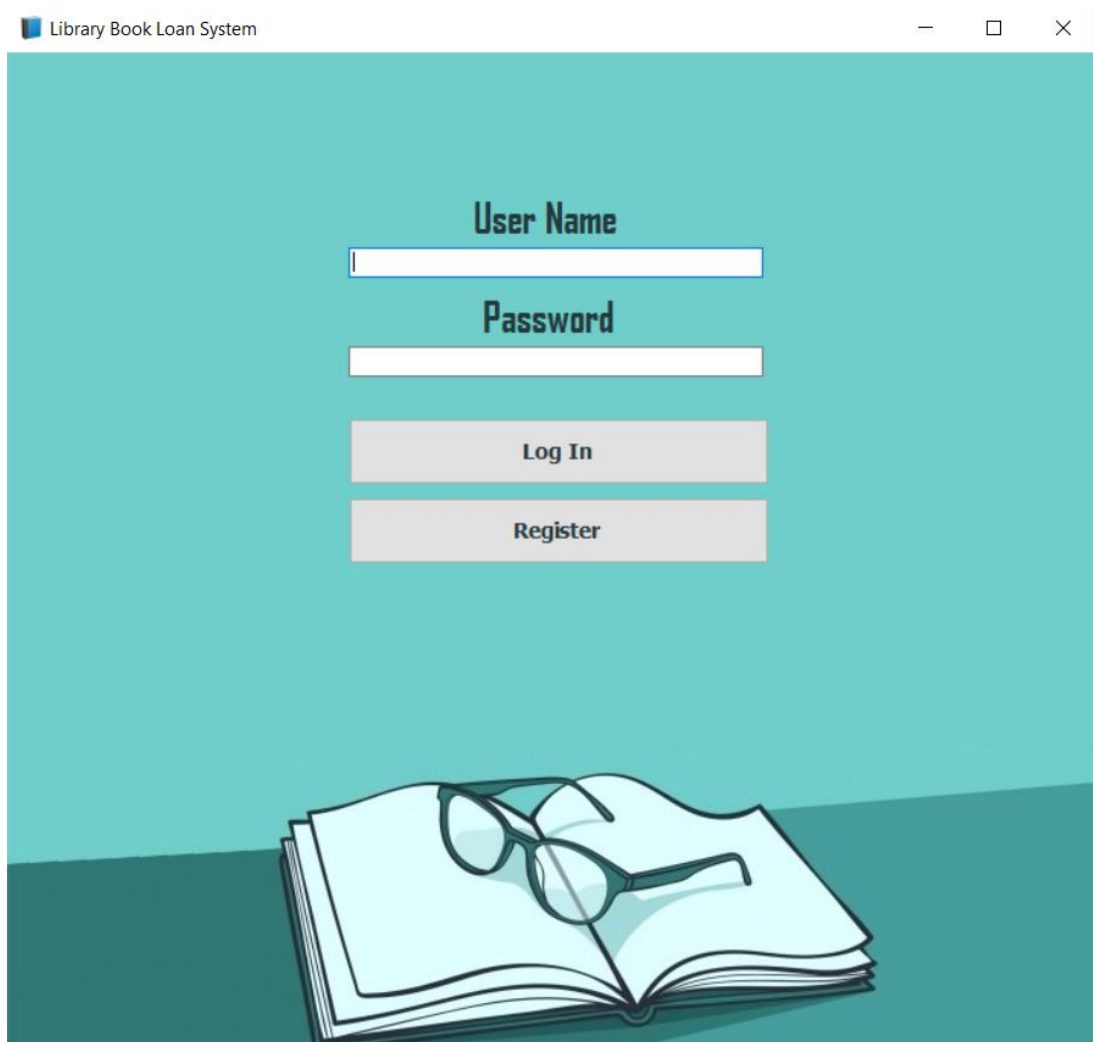


Figure 1 : Log In Screen

When you try log in, system checks your user name and password from database and returns a result.

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User name and Password doesn't match, Try Again!

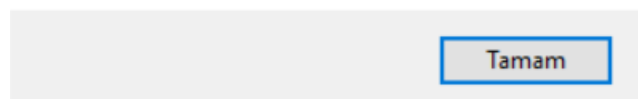


Figure 2 Unsuccessful Log In Attention

If return value is false, system gives this attention.

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The screenshot shows a web application window titled "Library Book Loan System". The main content area has a teal background. It features a login form with the following elements:

- User Name:** A text input field containing the value "asd".
- Password:** A password input field represented by three asterisks "***".
- Log In:** A rectangular button with a blue border and light gray background.
- Register:** A rectangular button with a light gray background.
- Did you forget your password?:** A rectangular button with a light gray background.

At the bottom of the screen, there is a stylized illustration of an open book with a pair of black-rimmed glasses resting on its pages.

Figure 3 : Unsuccessful Log In Screen

If your log in process fails, this will be the new log in screen. Difference from the first screen is "Did you forget your password?" button.

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Library Book Loan System

User Name

Password

Real Name

E-Mail

Phone Number

Job

Address

Register Log Out

Figure 4 : Register Screen

This screen is the "Register" screen. A user can create a new account here (for user type accounts only).

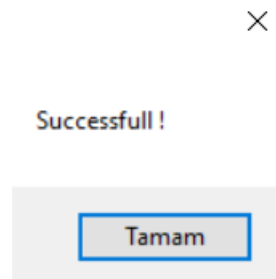


Figure 5 : Successful Register Attention

If the username has not been received before and the required fields have been filled in, a successful register operation will take place and this attention will be displayed on the screen.

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This Username Already Taken !



Figure 6 : Unsuccessful Register

If the user name has already been received, a failed register operation will occur and this warning will be displayed on the screen.

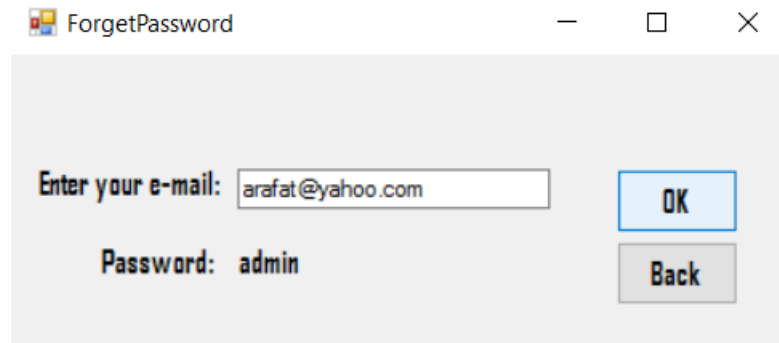


Figure 7 : Successful Forget Password Screen

If you forget your password and you enter the correct e-mail address, you will be able to learn your password (This section will be developed later, this is a temporary solution).

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No matches found for this email address

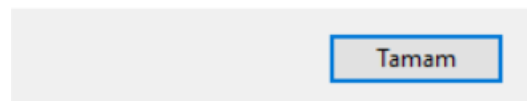


Figure 8 : Unsuccessful Register Attention

If you forget your password and enter an incorrect e-mail address, you will get this error message.

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Admin Screen

Show
Add User
Update
Delete User

User Name:
Password:
Real Name:
E-Mail:
Phone Number: () -
Job:

Address:

Role:
Log Out

| | userID | userName | userPassword | realName | eMail | phoneNumber | |
|---|--------|-----------|--------------|-------------------|--------------------|----------------|---|
| ▶ | 12 | admin | admin | Arafat | arafat@yahoo.com | (564) 987-7321 | s |
| | 13 | user | user | Burak Enes Atalar | enes@gmail.com | (542) 542-8732 | c |
| | 14 | librarian | librarian | Ahmet | ahmet@hotmail.c... | (431) 431-3411 | s |
| | 15 | deneme1 | deneme1 | ilk deneme | denem@gmail.com | (542) 234-2355 | |
| | 16 | deneme2 | deneme2 | aaa | aaa@gmail.com | () - | |
| | 17 | deneme3 | deneme3 | control | update@gmail.com | (333) 333-3333 | z |
| | 18 | ece | ece | Ece Tan | ece@gmail.com | (666) 666-6666 | |
| | 19 | register | register | First Register | asd@gmail.com | (777) 777-7777 | z |

Figure 9 : Add, Delete, Update, Show User Screen

Admin can add new profiles on this screen to any type of account in the system. Also, can view, delete and update existing profiles.

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5. Requirements Traceability

The use cases (half of the total) specified in version 1.1 of the software are coded and explained below.

| Requirement | State |
|--------------------|---|
| Log In | Added to the system, you can login with username and password as mentioned. |
| Log Out | Added to the system, as mentioned, "Log Out" button can be output. |
| Register | Added to the system, you can create new account with "Register" button on the "Log In" screen (Only user account type). |
| Forget Password | Added to the system, as stated, the user can learn the password as soon as he enters the correct e-mail address. |
| Add User | Added to the system, as mentioned, admin can add users to the system by specifying the account type, unlike register. |
| Delete User | Added to the system, as mentioned admin can delete any account. |
| Update User | Added to the system, as mentioned admin can update any account. |
| Show Users | Added to the system, admin can display accounts as mentioned. |
| Update Profile | Added to the system, as mentioned user can update own profile. |