CS223: Software Engineering

Classroom Booking System

Software Requirements Specifications

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Submitted To:-

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Revision History

Date	Version	Description	People
16 Jan 2017	1.0	First draft	Akash Gupta
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01 Feb 2017	2.0	Second draft (UML diagrams added)	Akash Gupta
			Amitansh Gangwar
01 Mar 2017	3.0	Third draft (Modifications in classes)	Akash Gupta
			Amitansh Gangwar

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Software Requirements Specification

1. Introduction

1.1 Purpose

The purpose of this SRS document is to explain various functionalities of the Classroom Booking System . It provides a detailed overview of the system and explain the purpose and features of the system, what the system will do, the constraints under which it must operate and explains its uses from the perspective of various types of users involved. It is written for the use of clients, developers and all other parties involved in the development process. The aim of the software system is to automate the Classroom Booking System.

1.2 Scope

This software system will be a Classroom Booking system designed for use in schools and colleges. This system will help in minimizing the lengthy procedure involved in booking a classroom and to reduce the time involved in classroom booking procedure. It reduces the usage of paper and is hence eco-friendly . The Room Booking System will be web based and can be accessed from any modern internet connected device. Staff and students will be able to make bookings even from home.
Users can only book when the room is free of classes. We support LDAP so users will be able to login to the Room Booking System with their Active Directory login credentials. Users can record useful information with each booking as a booking note for example booking purpose etc . We will set when the bookings for a certain day are closed for e.g. booking requests can only be made 24 hours before the day to be booked and can only be booked for a limited period of time.

Users can book the rooms according to their need like-

1- If the projector is available in the room or not.

2- Student intake capacity of rooms.

Users can also cancel their booking 24 hours before the date booked.

For total control over bookings, the system will require confirmation from an administrator or privileged user for request of booking of rooms made by students.

1.3 Constraints

Only faculty will be able to book the rooms directly using the Classroom booking system. This facility will not be provided to the students. Students can book the rooms only after permission from admin or any authorized personnel. Users must have their LDAP login credentials. The number of users that can be handled is limited by the capacity of the server on which the software system is hosted. Server should support one of sqlite or mysql databases. This system will also require constant internet access.

1.4 Assumptions and Dependencies

This Classroom booking system assumes that the users and admin are already registered by some other system which is not the part of this system and they are given their LDAP login credentials .Each lecture is of one hour only . No room can be booked during the break time . Every room has a mic in working condition. Days are already divided into lecture timings for example first lecture is from 8-9a.m. ,second is from 9-10a.m. and so on.
Students can only book the rooms on holidays.
We are assuming that holidays are only on Saturday and Sunday.
Admin has to ensure that students can only book the rooms on holidays. We are not checking that booking date is a holiday in case of booking made by a student.

1.5 Definitions, Acronyms and Abbreviations

Term	Definition
SRS	Software Requirement Specifications
User	Faculty member, Staff or any student who will use the system for classroom booking.
Admin	The person who is authorized to make final decisions.
Credentials	Details used by a user to gain access to the system.
Faculty	Faculty includes all teachers and staff members.

1.6 References

[1] IEEE. *IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications.* IEEE Computer Society, 1998.

1.7 Organization of the Document

This document is divided into two main sections – first is Overall Description and second is Specific Requirements.
Section 2 describes functional and non-functional requirements and various usecases .
The third section, Specific Requirements section, of this document is written primarily for the developers and describes in technical terms the details of the functionality of the product.

2. Overall Description

2.1 Product Functions

2.1.1 Functional Requirements

- Administrator

.The System allows the administrator to have special login credentials and power in classroom managing.
.The System allows the user to approve or deny the request made by a student for booking a room.

- Users-

  - Faculty members-

1- The System allows Faculty members and TA's to enter the specifications of requirements (like student intake capacity , projector requirement etc.).

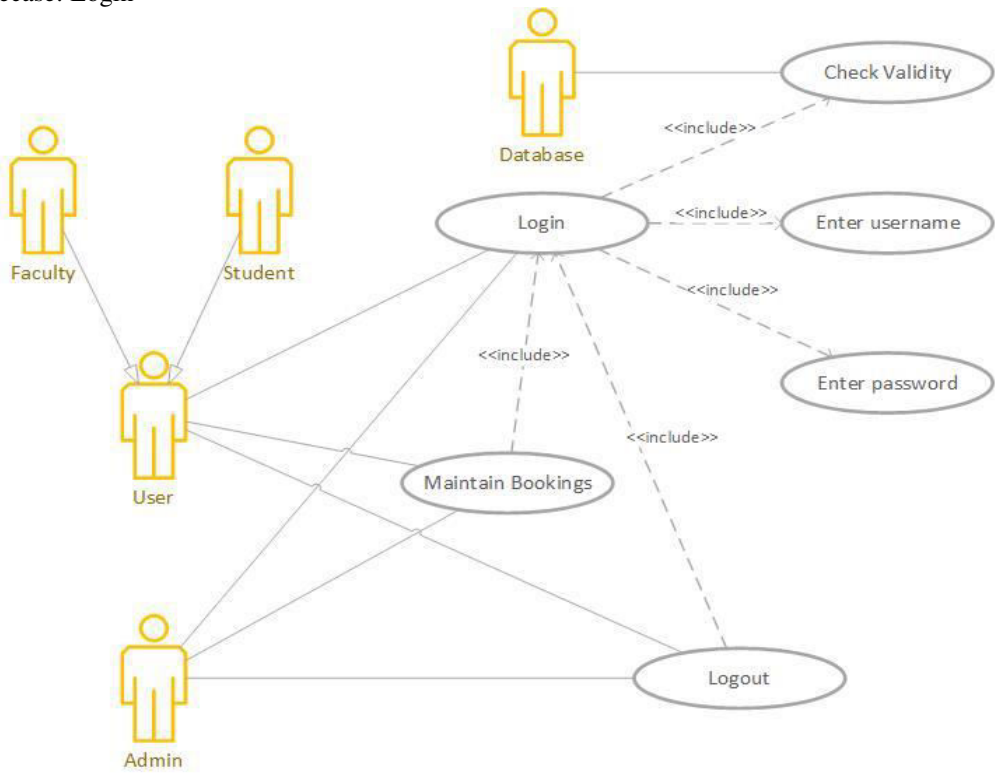
2- The System allows them to login with their own special credentials.
.Id
.Password
3- The System allows them to book rooms if available.
4- The System allows to cancel the booking of rooms if done in past.
5- The System allows them to navigate across the available rooms.
6- The System allows them to have a glimpse of features of particular room.
7- The System allows them to enter the number of students for allotment of rooms of proper capacity.
8- The System allows them to book room for a limited period of time.

  - Students-

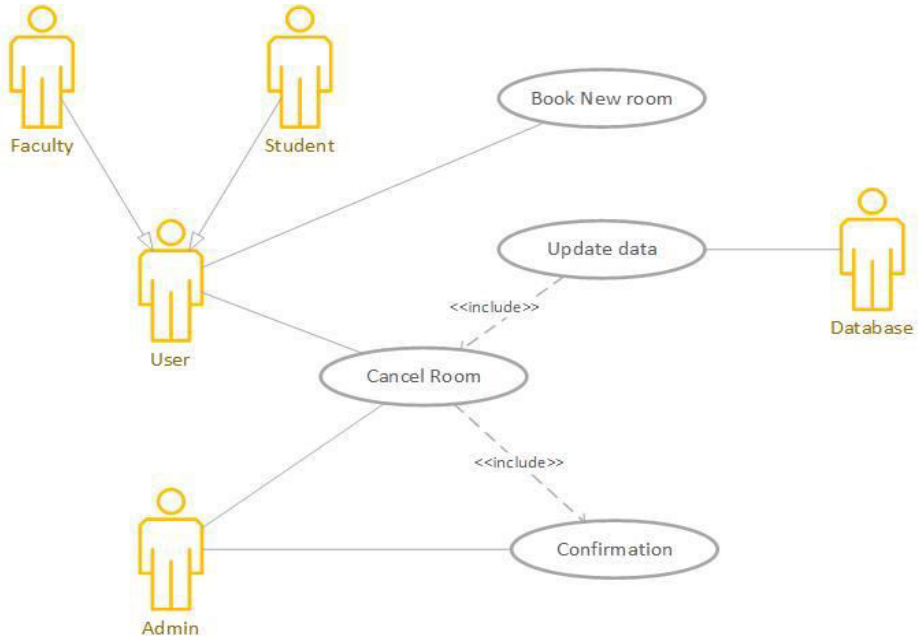
1- The System allows students to enter the specifications of requirements (like student intake capacity , projector requirement etc.).
2- The System allows them to login with their own special credentials.
.Id
.Password
3- The System allows them to send a request to book rooms if available which may or may not be approved by admin .
4- The System allows to cancel the booking of rooms if done in past.
5- The System allows them to navigate across the available rooms.
6- The System allows them to have a glimpse of features of particular room.
7- The System allows them to enter the number of students for allotment of rooms of proper capacity.
8- The System allows them to book room for a limited period of time.

2.1.1.1 Use Case Diagram

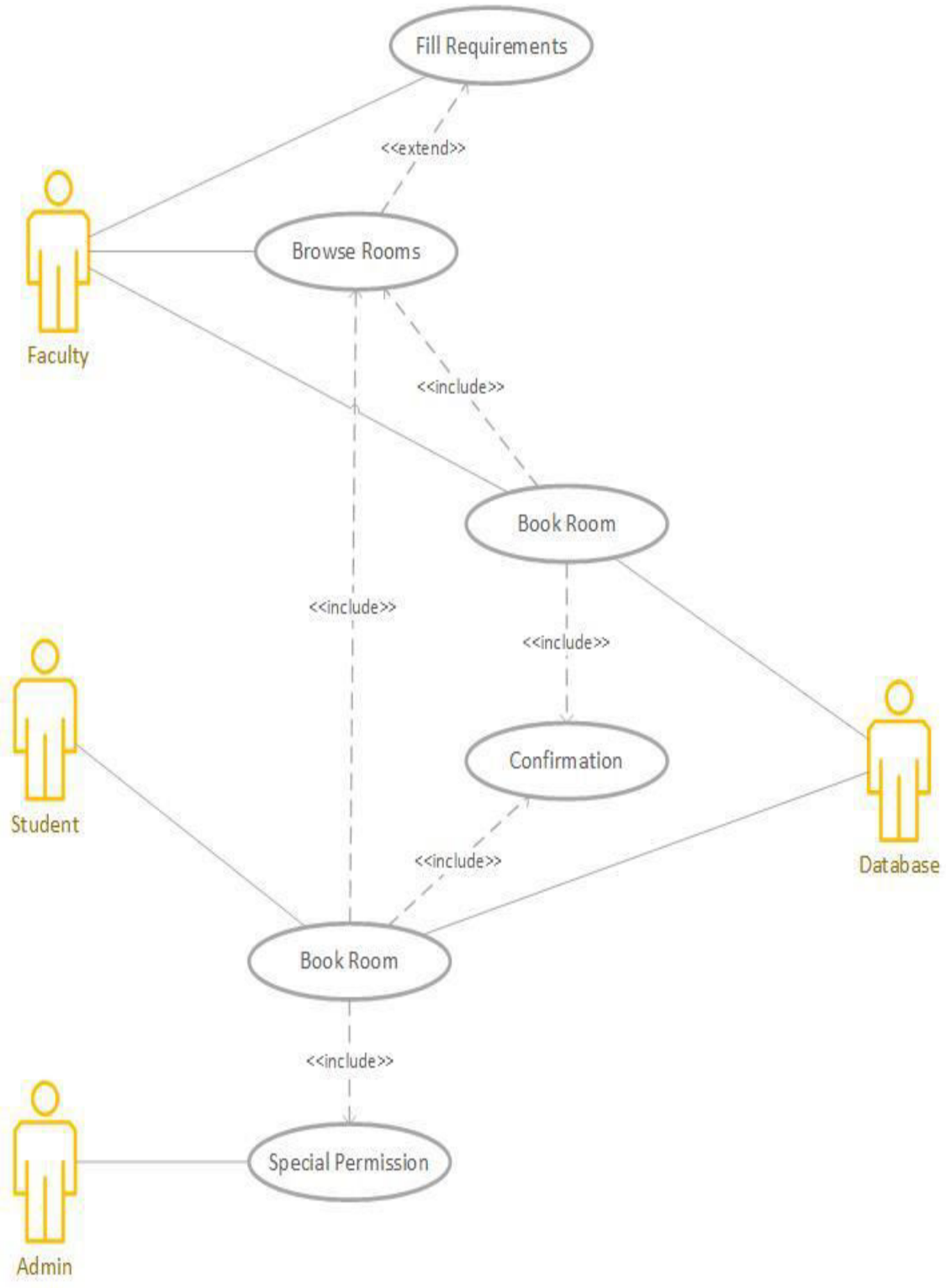
Usecase: Login



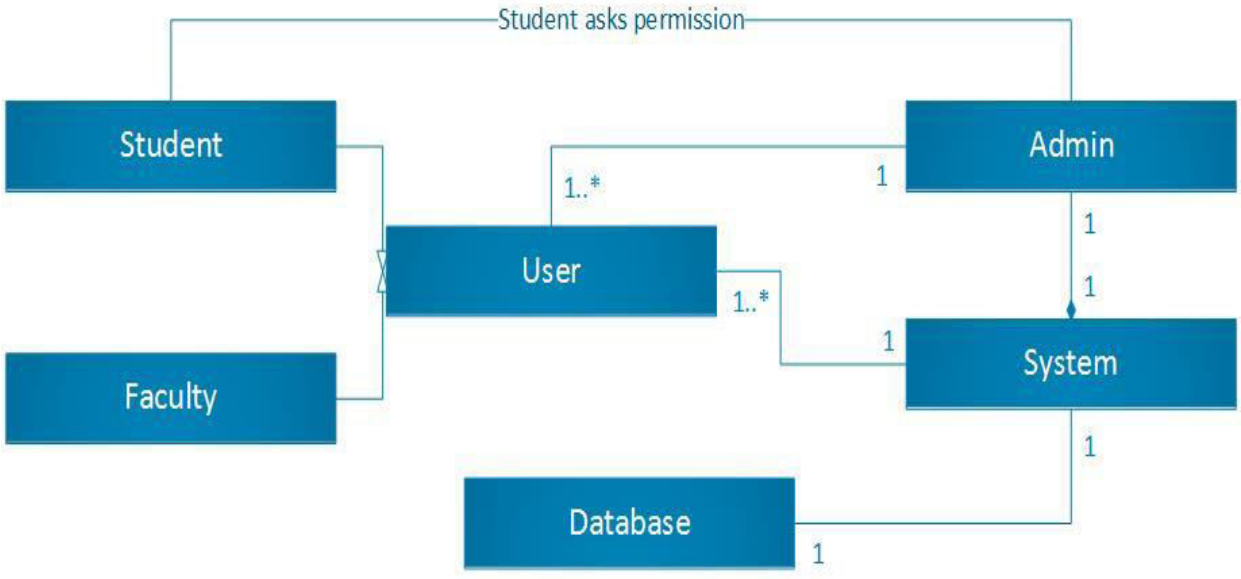
Usecase: Manage Bookings



Usecase: Book room

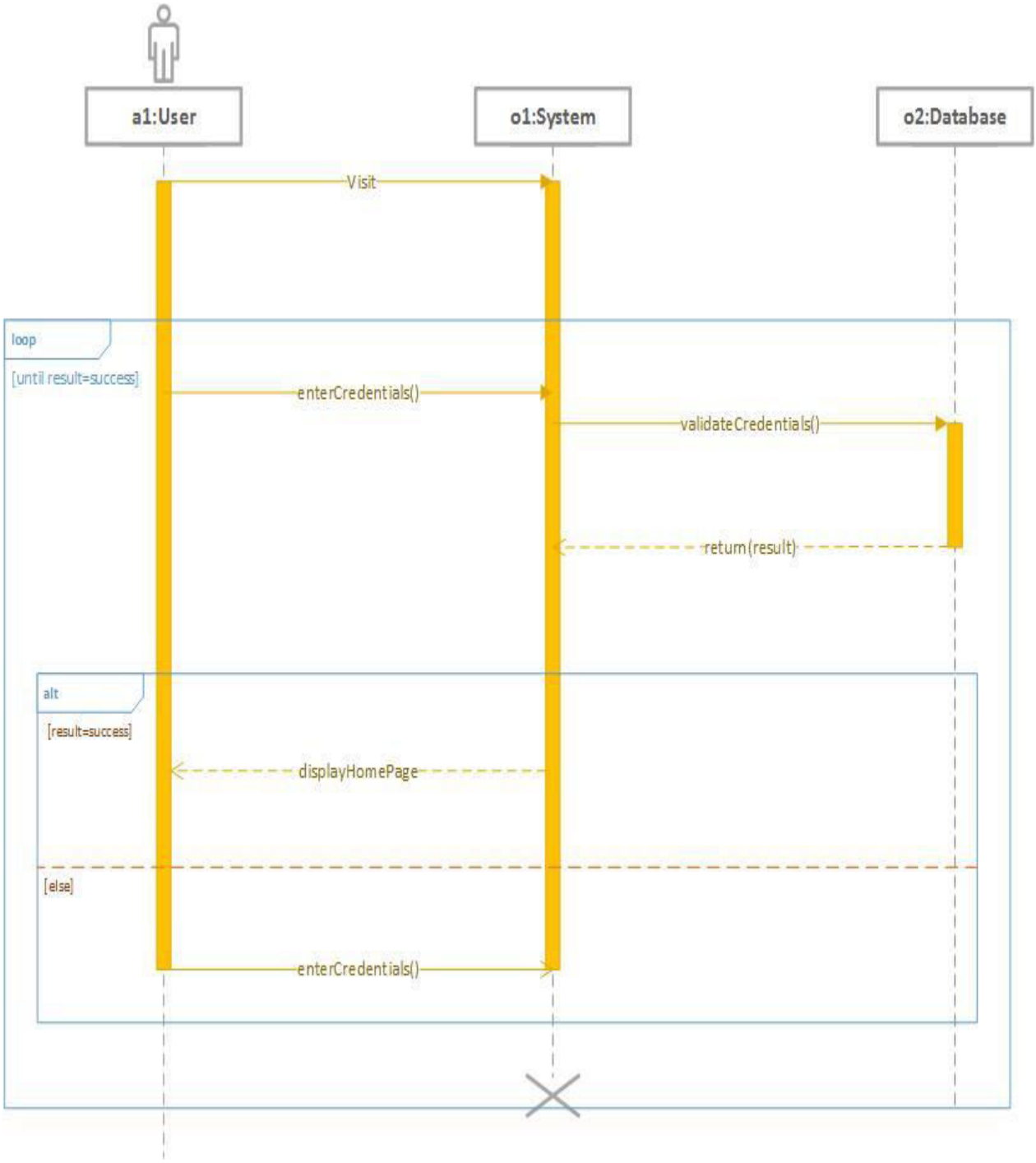


2.1.1.2 Class Diagram



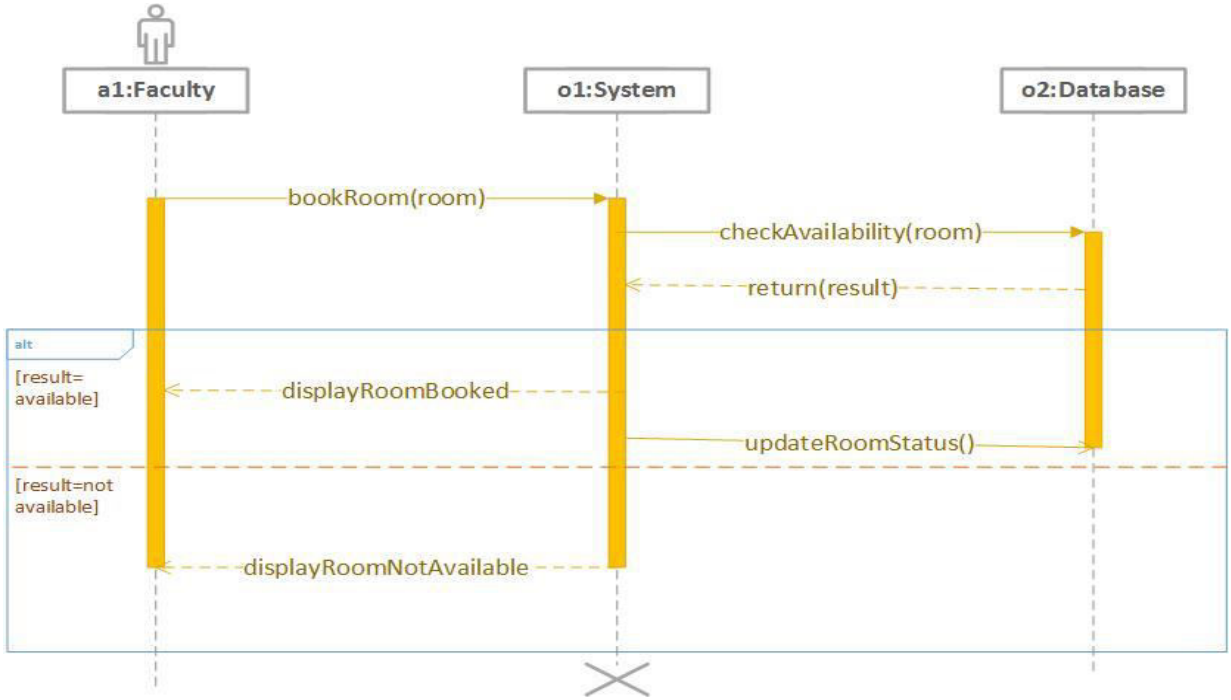
2.1.1.3 Sequence Diagram

Login:

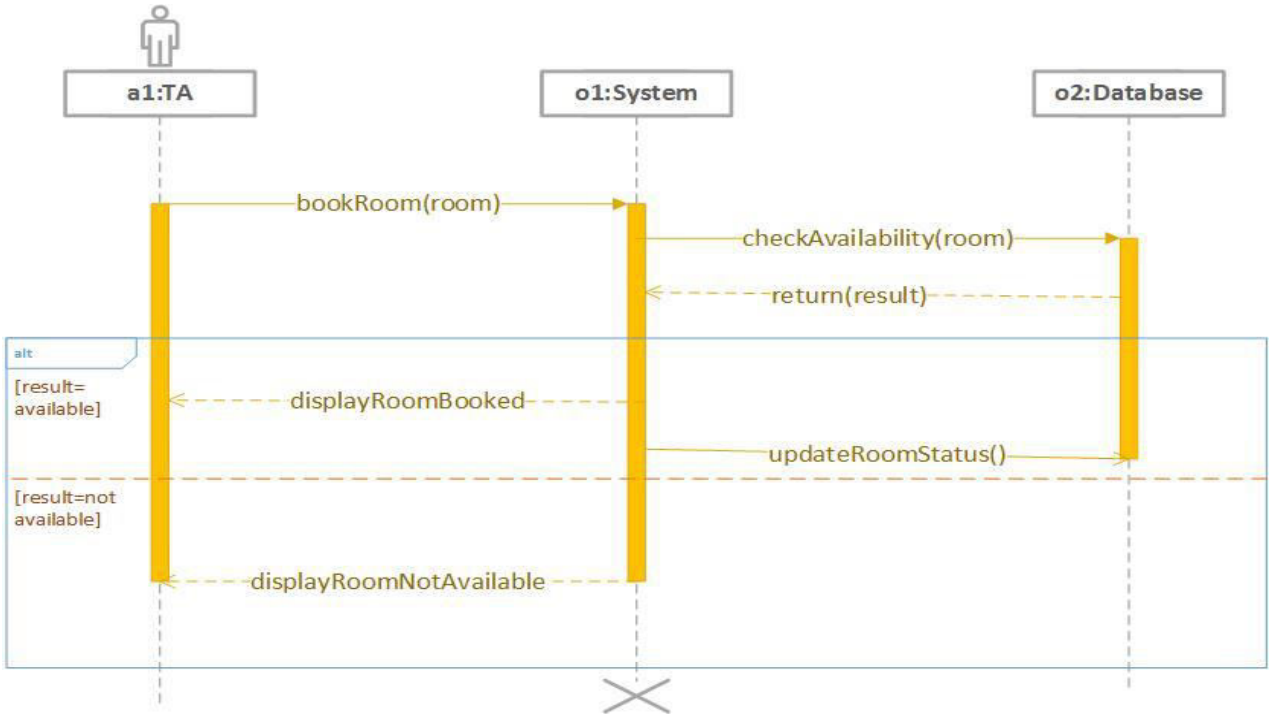


Search Rooms :

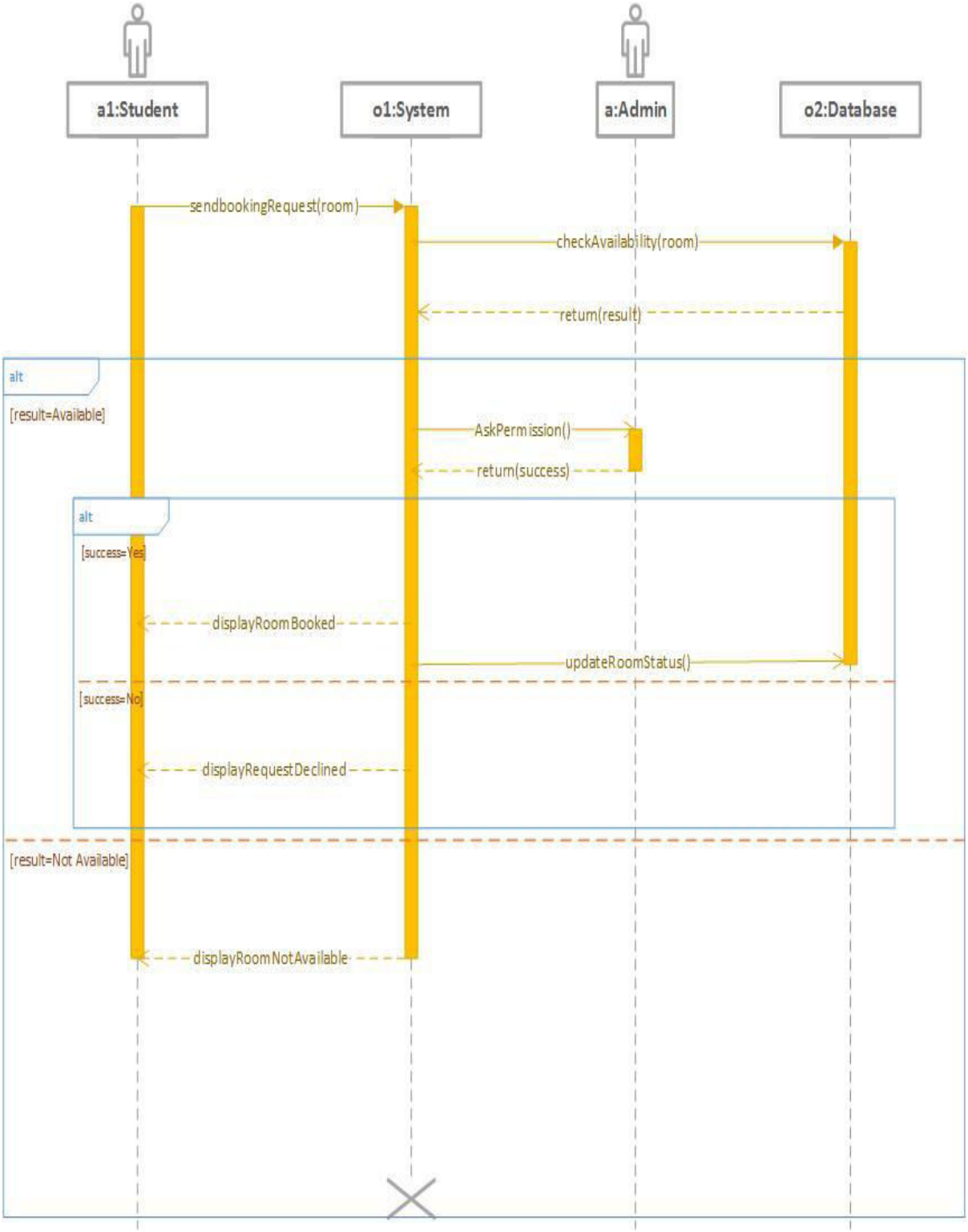
Book Room (Faculty) :



Book Room (TA):

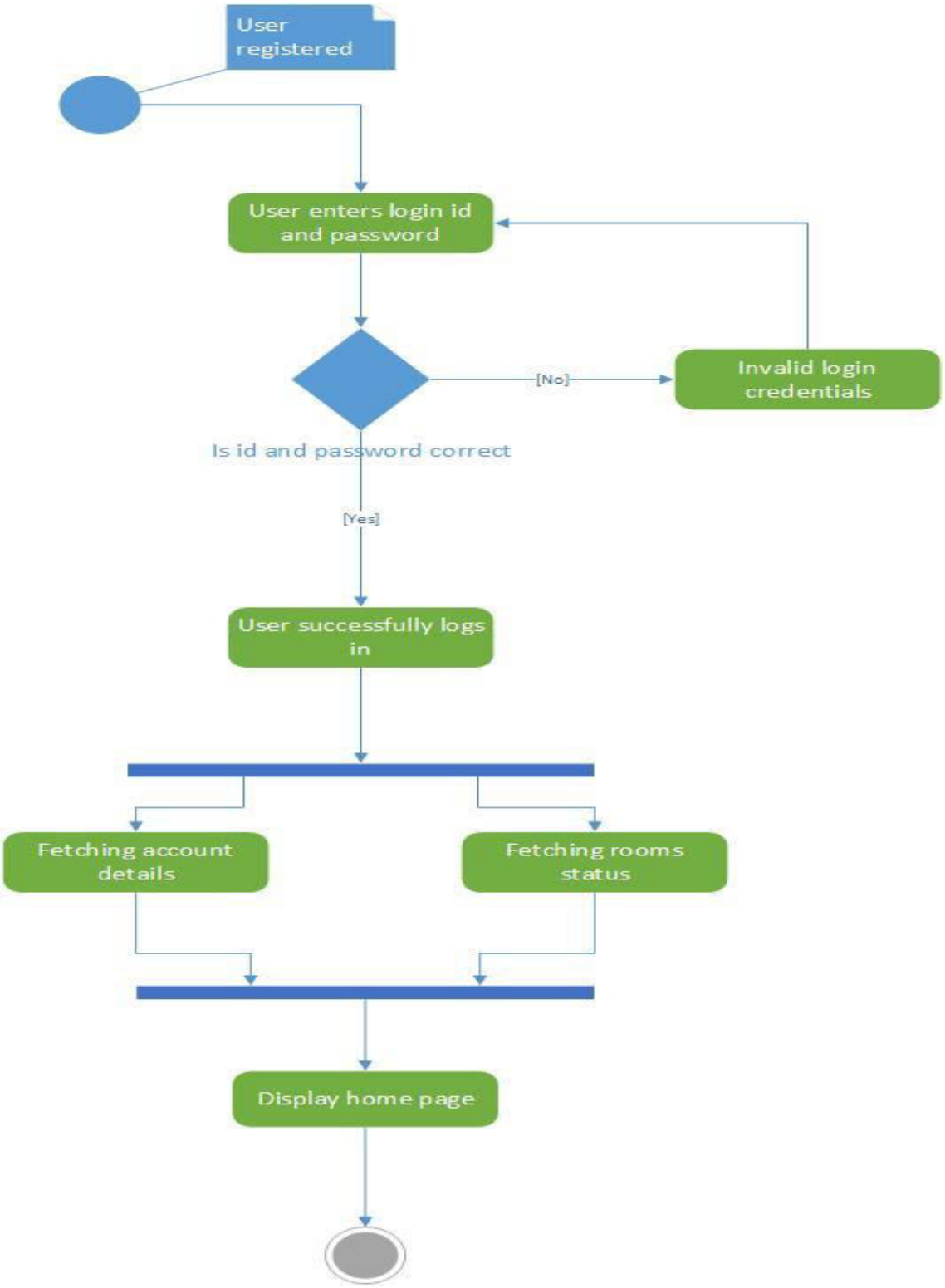


Book Room (Student):

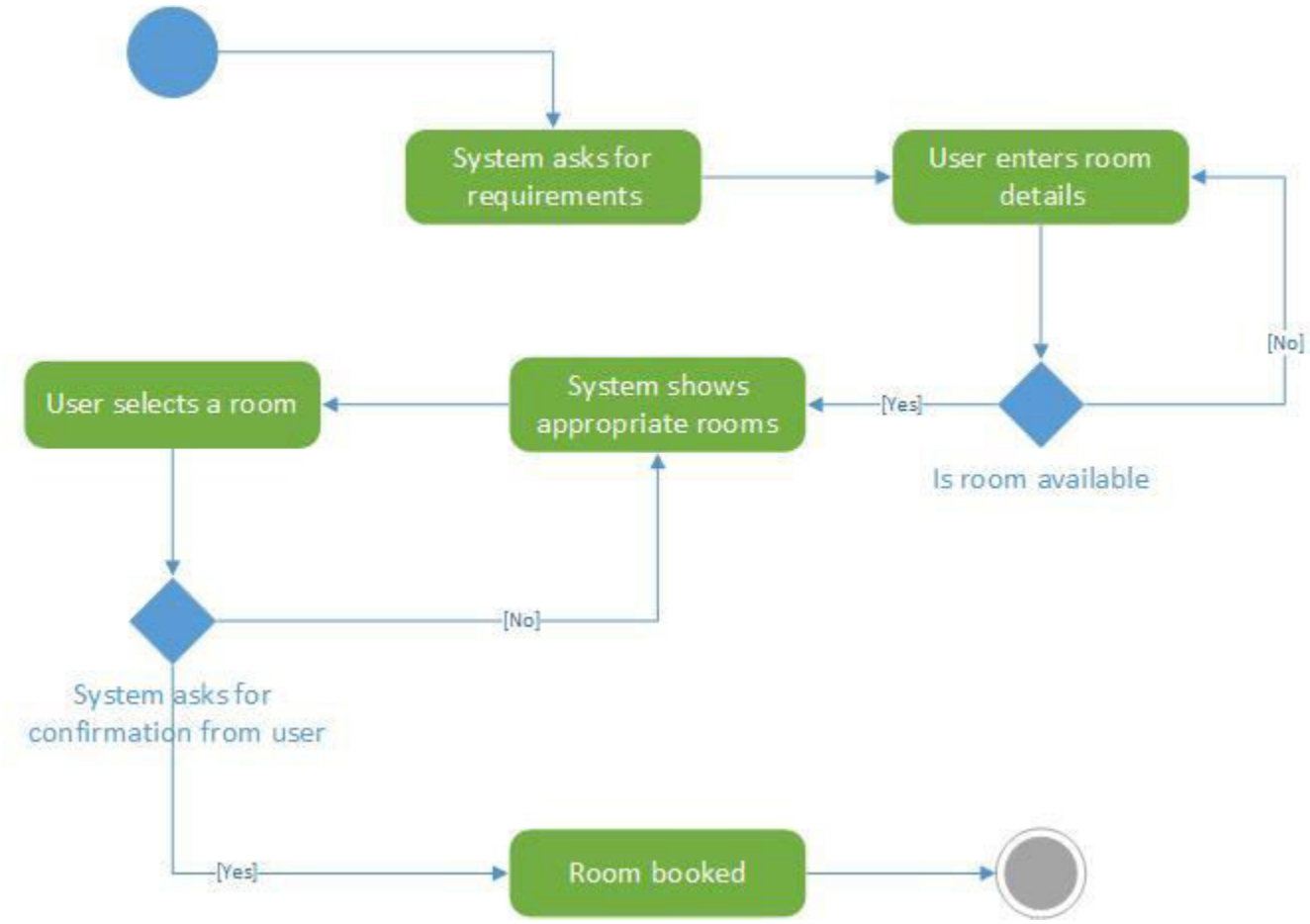


2.1.1.4 Activity Diagram

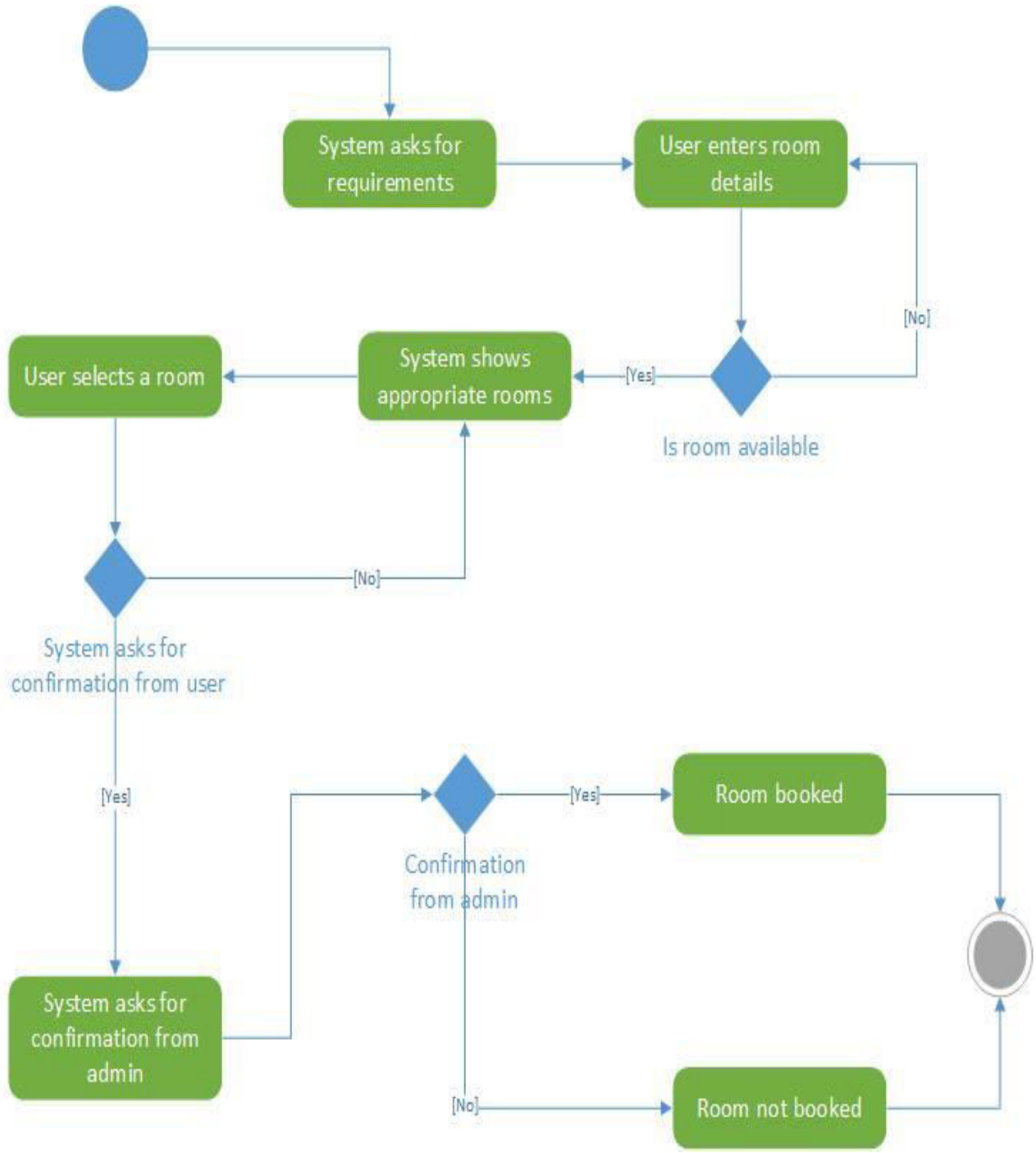
Login :



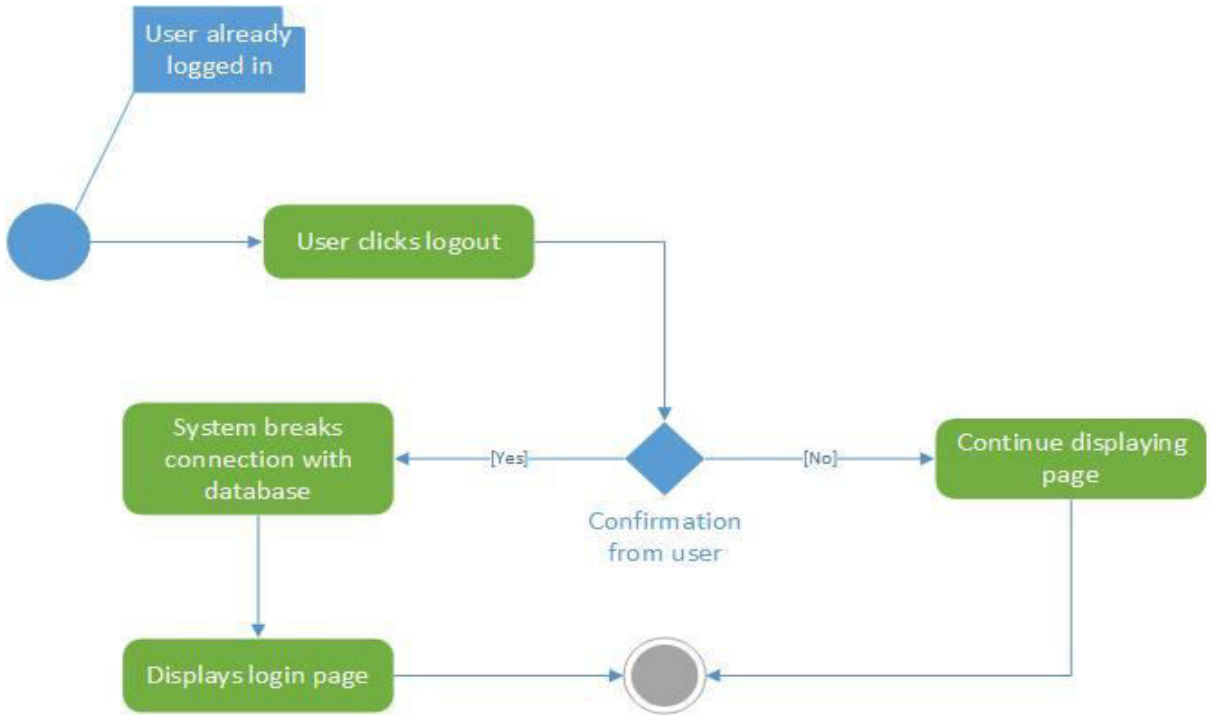
Book Room (Faculty) :



Book Room (Student) :



Logout :



2.1.2 Non-Functional Requirements

- Modifiability
- Portability
- Reliability
- Efficiency
- Usability
- Testability
- Internet Facility
- Database
- Secured Server

2.2 User Characteristics

- Users must be a member of the institute.
- Users must have the ability to read and understand English.
- Users must have valid LDAP credentials.
- Users must be familiar with basic internet functionalities.

3. Specific Requirements

3.1 Use case description

3.1.1 Login

Usecase Name	Login
Short Description	User logs in to gain access to the room booking system.
Precondition	Administrator and User should be registered.
Postcondition	Login successful.
Error Situations	Invalid login Id or password.
System state in the event of an error	Admin or user is not able to login successfully.
Actors	• Faculty • Student • Admin • Database
Trigger	Login button is clicked.
Standard Process	1- User enters the login Id. 2- User enters the password. 3- System confirms the login credentials.
Alternative Processes	None

3.1.2 Book new room (Faculty)

Usecase Name	Book new room
Short Description	User reserves a room for a lecture.
Precondition	User is authorized to reserve lecture rooms. User is logged in to the system.
Postcondition	Room is reserved.
Error Situations	Connection to database not successful.
System state in the event of an error	User has not reserved a room.
Actors	• Faculty • Database
Trigger	User requires a lecture room.
Standard Process	1- User selects the date. 2- User inputs the room requirements. 3- User selects the room. 4- User confirms the booking.
Alternative Processes	None

3.1.3 Book new room (Student)

Usecase Name	Book new room
Short Description	User reserves a room for an event.
Precondition	User is authorized to reserve lecture rooms. User is logged in to the system.
Postcondition	Room is reserved.
Error Situations	Connection to database not successful.
System state in the event of an error	User has not reserved a room.
Actors	• Student • Admin • Database
Trigger	User requires a room for an event.
Standard Process	1- User selects the date. 2- User inputs the room requirements. 3- User selects the room. 4- User confirms the booking. 5- Booking request is sent to the admin. 6- Admin confirms the request.
Alternative Processes	None

3.1.4 Cancel Booking

Usecase Name	Cancel Booking
Short Description	User booked a room earlier and now wants to cancel the booking.
Precondition	User should have booked a room.
Postcondition	Booking is cancelled successfully.
Error Situations	Connection to database not successful.
System state in the event of an error	Booking can't be cancelled.
Actors	• Faculty • Student • Database
Trigger	User wants to cancel a booked room.
Standard Process	1- User checks the booked rooms. 2- User confirms to cancel a particular booking. 3- Database gets updated. 4- Booking cancelled successfully.
Alternative Processes	None

3.1.5 Confirming a booking request made by student

Usecase Name	Confirming a booking request made by student.
Short Description	Admin receives the booking request and either accepts or declines the request.
Precondition	Student confirms the booking of a room.
Postcondition	Request is approved by admin and room is booked.
Error Situations	None
System state in the event of an error	Room is not booked.
Actors	• Admin • Database
Trigger	Student requests to book a room.
Standard Process	1- Admin receives a booking request. 2- Admin accepts the request. 3- Database is updated. 4- Room is successfully booked for the event.
Alternative Processes	None

3.1.6 Search rooms

Usecase Name	Search rooms
Short Description	User browses a room according to his/her requirements.
Precondition	User is authorized to reserve rooms. User is logged in to the system.
Postcondition	User finds the appropriate room.
Error Situations	No room available as per the requirements.
System state in the event of an error	System asks to fill up the requirements again.
Actors	• Faculty • Student • Admin • Database
Trigger	User searches the rooms.
Standard Process	1- User logs in to the system. 2- User fills the requirements. 3- System shows the appropriate rooms.
Alternative Processes	None

3.1.7 Logout

Usecase Name	Logout
Short Description	User logs out of the room booking system.
Precondition	User must be logged in.
Postcondition	Successfully logged out.
Error Situations	None
System state in the event of an error	None
Actors	• Database • User
Trigger	User wants to log out of the system.
Standard Process	1- User clicks the logout button. 2- Connection To database is broken. 3- Logs out successfully.
Alternative Processes	None

3.2 Reliability

3.2.1 Maintenance

Software is divided into different modules i.e. classes so they can be maintained separately.

3.2.2 Maximum bug rate

There will be a maximum of 1 bug/KLOC.

3.2.3 Security Considerations

User cannot move to any page by just entering the url. He/She has to login first.

3.3 Performance Requirements

3.3.1 Response time

3.3.2 Capacity

3.3.3 Deadline sensitivity

3.4 Supportability

3.4.1 Naming Convention

All code will be written as specified by the Hungarian Naming Convention.

3.4.2 Coding Standards

3.5 Design Constraints

3.5.1 Software Language

3.6 Online User Documentation and Help System Requirements

3.7 Interfaces

3.7.1 User Interfaces

3.7.2 Hardware Interfaces

3.7.3 Software Interfaces

3.7.4 Communications Interfaces

4. Supporting Information

4.1.1 Appendix A – Data Flow Diagrams

4.1.2 Appendix B – Data Dictionary