Software Requirements Specification

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Resource Management System

Siddharth A.S.
Ananya Garg
Himanshu Jethani
Chirag Vartak
Rajashekhar Reddy
Saurabh Swami
Arnab Das

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1.1 Purpose

The purpose of this document is to present a detailed description of the Resource Management System. This document tries to give a broader view of the system as a whole, all the while not going into the intricacies of the system in too much detail. It is intended to be used by both the users and the developers of the system. It explains the what the system is supposed to do, its limitations, the constraints under which it must operate. It will be presented for approval to the BITS-Pilani, Goa administration.

1.2 Scope of Project

The proposed software system is a Resource Management System. It specifically targets classroom booking in BITS-Pilani Goa Campus. Classrooms are booked in BITS-Pilani during the free hours for a number of purposes, namely, extra lectures by professors, various activities of clubs, departments etc, lectures by student-initiated programs like CTE and for various other purposes. This classroom booking is currently done manually and each person who wishes to book a classroom has to visit the Computer System personally at least a couple of times to get his request approved. The proposed system enables the users (and the admins) to be able to do this online at their leisure from the comfort of their rooms.

The proposed system enables student and professors alike to log in and request a classroom with just a few clicks. They can view the availability of the classrooms, and also other things like size of the classroom, time during which the classroom is free etc. The admins can in turn log in and choose to approve or reject the classroom booking requests. They can also choose to override the default booking suggested by the system. The system also provides some other facilities and services like making it able to interact with an another system.

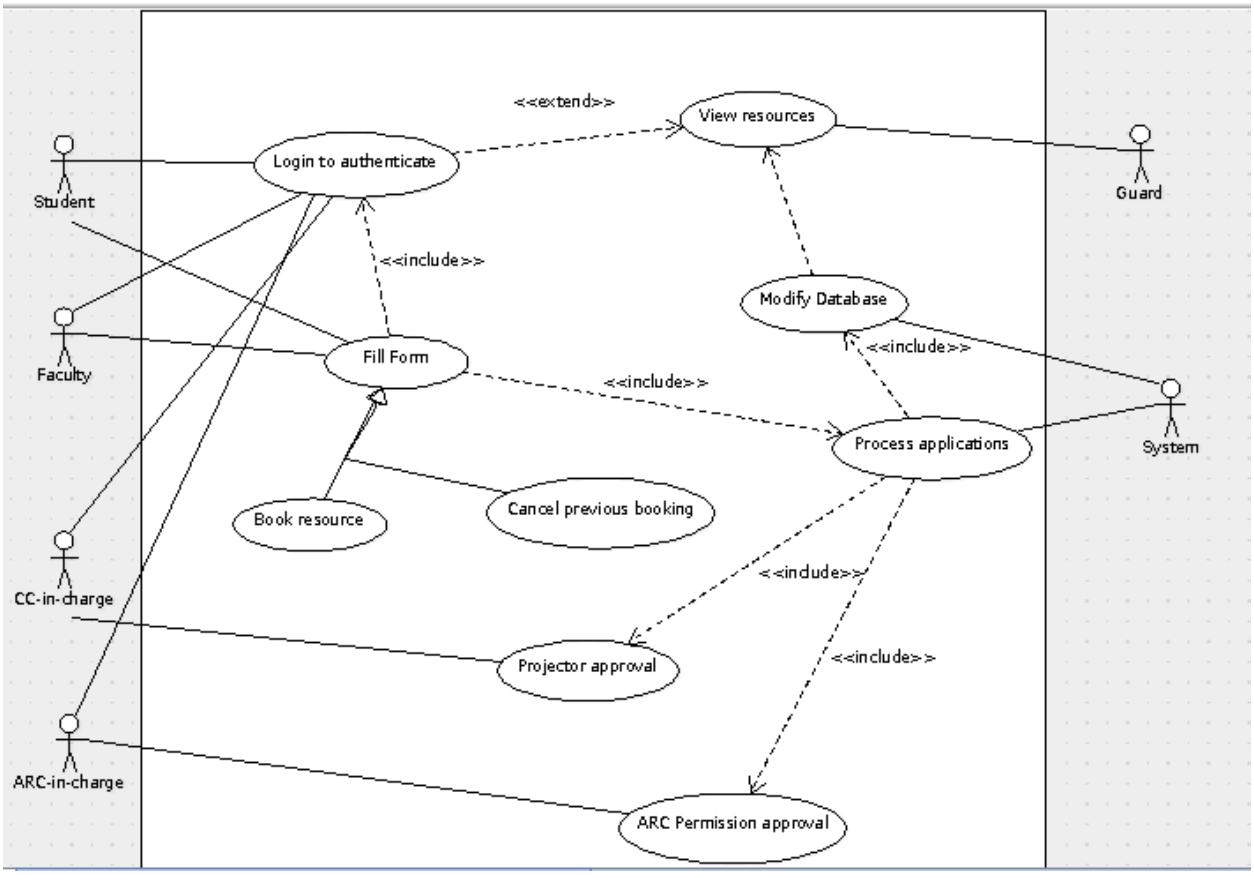
1.3 Overview of the Document

Over the next two sections, we describe the entire system, but this time we describe the intricacies in more detail. In the next sections, 'Actor Descriptions', we describe the system in an informal way, specifying the requirements of the system and how they have been addressed. This section is used to establish a context for the technical requirements specification in the next chapter. The third chapter, 'Use Case Descriptions' section is mainly written for the developers and provides a more technical description of the system.

Both the sections of the document together describe the software system and can be collated to get an overall idea regarding how we intend to build the software.

2.1 ACTOR DESCRIPTIONS

UML DIAGRAM:



Student:

Brief Description

The student logs in, into his/her account. S/He places his/her request for a room booking, and if his/her room request is approved, s/he is notified about it.

Initial Step-By-Step Description

Before this use case can be initiated, the Student already has a valid username and password, and can access this software.

1. The Student chooses which resource he has to book.
2. The System displays the available resources of the type.
3. The Student selects the room desired.
4. The Students fills a form, citing is/her reason for booking the rooms, requirement of the projector, and so on.
5. The System accepts the form, and it is sent for approval.

6. The Student checks whether his request has been approved or not. The Student may cancel his/her request.

Faculty:

Brief Description

The Faculty logs in, into his/her account. S/He places his/her request for a room booking, and if his/her room request is approved, s/he is notified about it.

Initial Step-By-Step Description

Before this use case can be initiated, the Faculty already has a valid username and password, and can access this software.

7. The Faculty chooses which resource he has to book.
8. The System displays the available resources of the type.
9. The Faculty selects the room desired.
10. The Faculty fills a form, citing is/her reason for booking the rooms, requirement of the projector, and so on.
11. The System accepts the form, and it is sent for approval.
12. The Faculty checks whether his request has been approved or not. The Student may cancel his/her request.
13. The faculty authenticates a resource booking request, if needed, as in the case of booking an LT.

ARC-in-charge

Brief Description

The ARC-in-charge logs in, into his/her account. S/He approves requests for the resources that are to be booked, based on the reason, and permission granted by the faculty and CC-in-charge.

Initial Step-By-Step Description

Before this use case can be initiated, the Faculty already has a valid username and password, and can access this software.

1. The ARC-in-charge checks which resource he has to approve.
2. The System displays the resource requests, and the permissions granted to it by the faculty/CC-in-charge.
3. The ARC-in-charge (dis)approves the resource requests.

CC-in-charge

Brief Description

The C-in-charge logs in, into his/her account. S/He approves requests for the usage of the projector in the resources that are to be booked, based on the reason.

Initial Step-By-Step Description

Before this use case can be initiated, the Faculty already has a valid username and password, and can access this software.

1. The ARC-in-charge checks which resource has a projector he has to approve.
2. The System displays the resource requests.
3. The CC-in-charge (dis)approves the resource requests

System

Brief Description

The system accepts all forms of requests and cancellations of the rooms, sends them to the ARC-in-charge and CC-in-charge, takes the approvals and reject cases, and modifies the database accordingly.

Since the system is a part of the software, there is are no particular steps it follows. As and when there is request, approval or reject, it performs its functions.

Additional Description

1. It processes all applications filed in by the students and faculty, and sends it to the ARC-in-charge/ C-in-charge, depending on whomsoever is concerned.
2. It modifies the database as per booking and cancellation of the rooms.
3. It prioritizes faculty requests over student requests.
4. It has the function of maintain a waitlist, and shifting students as and when requests are approved.
5. It maintains a minimum time gap, before which resource booking is permitted.

Guard

Brief Description

The Guard is given only view-only privileges. Can only log in as a guest, and sees which rooms are to be kept open, depending on approved requests on the resources.

2.2 USE CASE DESCRIPTIONS

2.2.1 LOGIN TO AUTHENTICATE

USE CASE NAME	Login To Authenticate
Trigger	Actor accesses the program
Pre-Condition	Program should be executing
Basic Path	Actor enters their credentials, System verifies the credentials and allows access
Post-Condition	System should identify the actor as a Student, Faculty, CC-In-

	Charge, or ARC-In-Charge
Exception Path	Actor enters incorrect credentials. The System asks for the correct password and/or terminates execution.
Other	Correct credentials should be pre-stored in a Database of some sort.

2.2.2 VIEW RESOURCES

USE CASE NAME	View Resources
Trigger	Actor attempts to view available Resources
Pre-Condition	Program should be executing
Basic Path	An authenticated user can view available resources and get an idea of already booked resources and un-booked resources for a particular day and choose to book an un-booked resource.
Alternate Path	Guest User can have view only access to the Booked resources
Post-Condition	None
Exception Path	Incorrect day chosen.
Other	List of resources and booked resources should be accessible for viewing.

2.2.3 FILL FORM

USE CASE NAME	Fill Form
Trigger	Actor chooses the fill form option.
Pre-Condition	Actor must be logged and authenticated
Basic Path	Actor chooses the option whether he wants to create a new booking or cancel an existing booking
Post-Condition	None
Exception Path	None
Other	This is just a generalizing Use Case

2.2.4 BOOK RESOURCE

USE CASE NAME	Book Resource

Trigger	Actor chooses the Book Resource Option in the Fill Form Use Case
Pre-Condition	Actor must be logged in and Actor must want to book a Resource
Basic Path	1. Actor fills in the details regarding the Resource that he wants to book as well as the time he wants it for. 2. System having recognized whether the user is a Teacher or a Student assigns Priority to the Teacher and stores the details in a WAITLIST database accordingly. 3. After filling up, the Actor receives a message that he has successfully booked a Resource along with a BOOKING ID NO.
Post-Condition	The details must have been safely stored away in a WAITLIST database.
Exception Path	1. The Actor enters wrong details or invalid details and thus is asked to verify his details. 2. The Actor doesn't fill up the form completely. And is asked to do so.
Other	None

2.2.5 CANCEL PREVIOUS BOOKING

USE CASE NAME	Cancel Previous Booking
Trigger	Actor chooses the Cancel Previous Booking option while in the Fill Form Use Case
Pre-Condition	Actor must have originally made a booking
Basic Path	1. Actor fills in the form regarding the details of the Resource that he wants to cancel and his Booking ID no. 2. If the BOOKING ID NO, corresponds to the details of the Resource that he says that he has booked, then the cancellation goes ahead, else an exception is thrown. 3. The System removes the booking from the database.
Post-Condition	Booking with BOOKING ID NO. is removed from the database

Exception Path	If the Actor has inputted invalid details of the Resource that he wants to cancel, and exception is thrown.
Other	

2.2.6 PROJECTOR APPROVAL

USE CASE NAME	Projector Approval
Trigger	The Actor chooses to approve Projector access.
Pre-Condition	The Actor must be the CC-In-Charge
Basic Path	1. Actor must go through list of requests and approve the ones which he wants to. 2. Once approval is done, then the Approval is stored as GRANTED in the System
Post-Condition	Approval for Projector boolean should be true in the Application stored in the Database
Exception Path	None
Other	None

2.2.7 MODIFY DATABASE

USE CASE NAME	Modify Database
Trigger	The System chooses to Modify Database after each Fill Form Use Case and Permission Approval
Pre-Condition	The above Use Cases have been activated
Basic Path	1. The System updates the Database with the details passed from the Process Applications Use Case
Post-Condition	The Database has been updated
Exception Path	
Other	

2.2.8 ARC PERMISSION APPROVAL

USE CASE NAME	ARC Permission Approval
Trigger	Actor chooses to Approve Resource Usage
Pre-Condition	The Actor must be the ARC-In-Charge
Basic Path	1. Actor must go through list of requests and approve the ones which he wants to. 2. Once approval is done, then the Approval is stored as GRANTED in the System
Post-Condition	Approval for Resource Use approval BOOLEAN should be true in

	the Application stored in the Database
Exception Path	None
Other	None

2.2.9 PROCESS APPLICATIONS

USE CASE NAME	Process Applications
Trigger	System needs to choose to Process all pending applications.
Pre-Condition	There must be pending applications
Basic Path	1. System goes through pending applications for a given day. 2. It allocates Resources with Priority to Faculty. After all Resources for Faculty have been allotted, any pending applications for Students are looked at. 3. Resources to students are allocated on first come first serve basis. 4. All allocated resources are moved to the Confirmed database and deleted from the Waitlisted database. 5. List of All Confirmed resources should be printed out.
Post-Condition	All confirmed applications must have been moved to Confirmed database.
Exception Path	1. No applications to process should throw a message saying so
Other	