Software Requirements Specification

for

Online Extra Class Scheduling

Version 2

Prepared by Group 9

Rishit Kumar Chordia	**B200841CS**	**rishit_b200841cs@nitc.ac.in**
Vaisakh Ramachandran	**B200059CS**	**vaisakh_b200059cs@nitc.ac.in**
Amritha H Prabhu	**B200693CS**	**amritha_b200693cs@nitc.ac.in**
Rithika Kathirvel	**B200055CS**	**rithika_b200055cs@nitc.ac.in**
Aswin Sreekumar	**B200737CS**	**aswin_b200737cs@nitc.ac.in**
Sandhra Gireeshkumar	**B200701CS**	**sandhra_b200701cs@nitc.ac.in**
Rishika V Menon	**B200697CS**	**rishika_b200697cs@nitc.ac.in**
Tejaswini R	**B200691CS**	**tejaswini_b200691cs@nitc.ac.in**
Jackson Stephan	**B200743CS**	**jackson_b200743cs@nitc.ac.in**
Amal Manikandan	**B200761CS**	**amal_b200761cs@nitc.ac.in**
Navaneeth Shanavasan	**B200053CS**	**navaneeth_b200053cs@nitc.ac.in**

Revisions

Version	Primary Author(s)	Description of Version	Date Completed
Version 0.2	Group 9	This version has an updated design of the database.	22/11/2022

Instructor: Pranesh Das

Course: Database Management Systems

Date: November 9, 2022

Contents

Introduction

1.1 Document Purpose

The objective of this project is to build a Database Management System that allows professors of the institute to schedule extra classes for the students. Extra classes can be scheduled for a slot within the next seven days based on the availability of the batch, the professor and the classroom.

1.2 Product Scope

Students can use the product to view their time table for the next seven days. Professors on the other hand, upon logging in, have four features available to them, which allow them to schedule a class, deschedule a class, view their own timetable and view the timetable of any batch of students.

1.3 Intended Audience and Document Overview

The clients – the students and professors, are the intended audience of this database management system.

1.4 Definitions, Acronyms and Abbreviations

CSS	Cascading Style Sheets
DSS	Decision Support System
HTML	Hypertext Markup Language
IEEE	Institute of Electrical and Electronics Engineers

1.5 Document Conventions

This document follows the IEEE formatting specifications.

1.6 References and Acknowledgments

Use Case Diagram Tutorial	https://www.youtube.com/watch?v=zid-MVo7M-E
Creating Use Case Diagram	www.lucid.app

2 Overall Description

2.1 Product Overview

The proposed product is an upgrade to the existing DSS website (www.dss.nitc.ac.in). It acts as a self-contained product, contacting and updating the database of students, professors, batches and slots.

2.2 Product Functionality

List of functions provided to a user:

- Login as a student
- Login as a professor

List of functions provided to a student:

- View Timetable

List of functions provided to a professor:

- Schedule a class
- Deschedule a class
- View their own timetable
- View a batch's timetable

List of helper functions assisting the major functions:

- Check slot availability
- Check professor availability
- Check batch availability
- Check room availability
- Check password

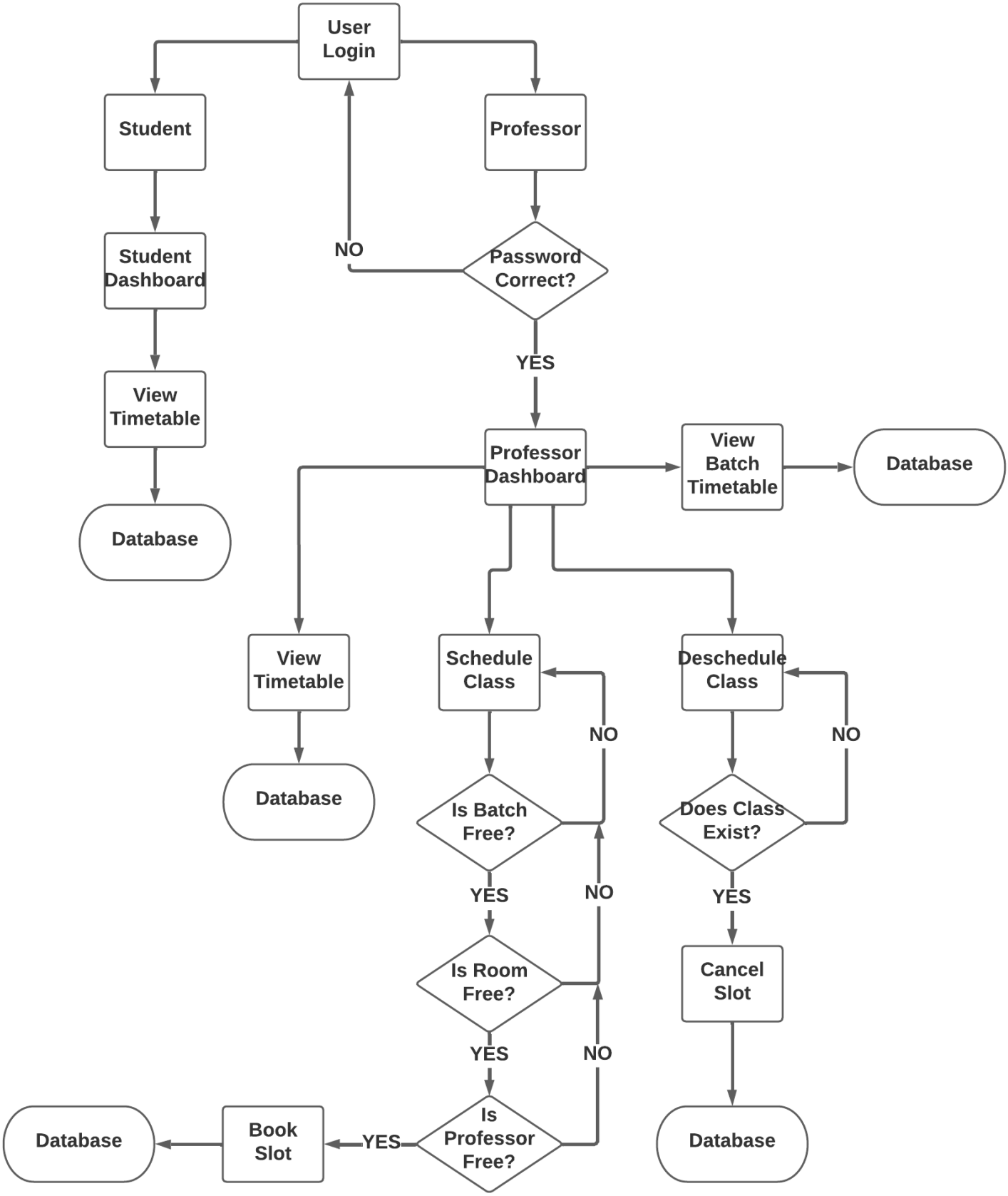
2.3 Design and Implementation Constraints

An admin version of the app needs to always be active on the college servers to update the timetables every single day.

2.4 Assumptions and Dependencies

1. All students of a particular batch are enrolled for the same courses, but can enroll for different elective courses if they wish to.
2. The weekly table initially contains the same data as permanent table and gets updated as a slot is booked.

2.5 Flow Diagram

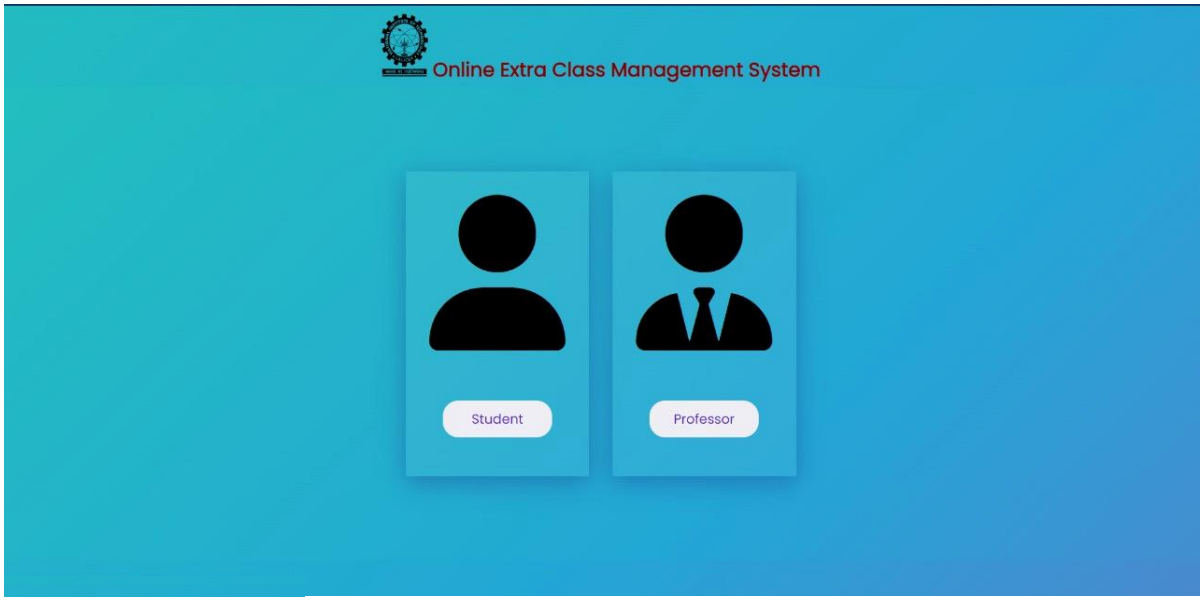


3 Specific Requirements

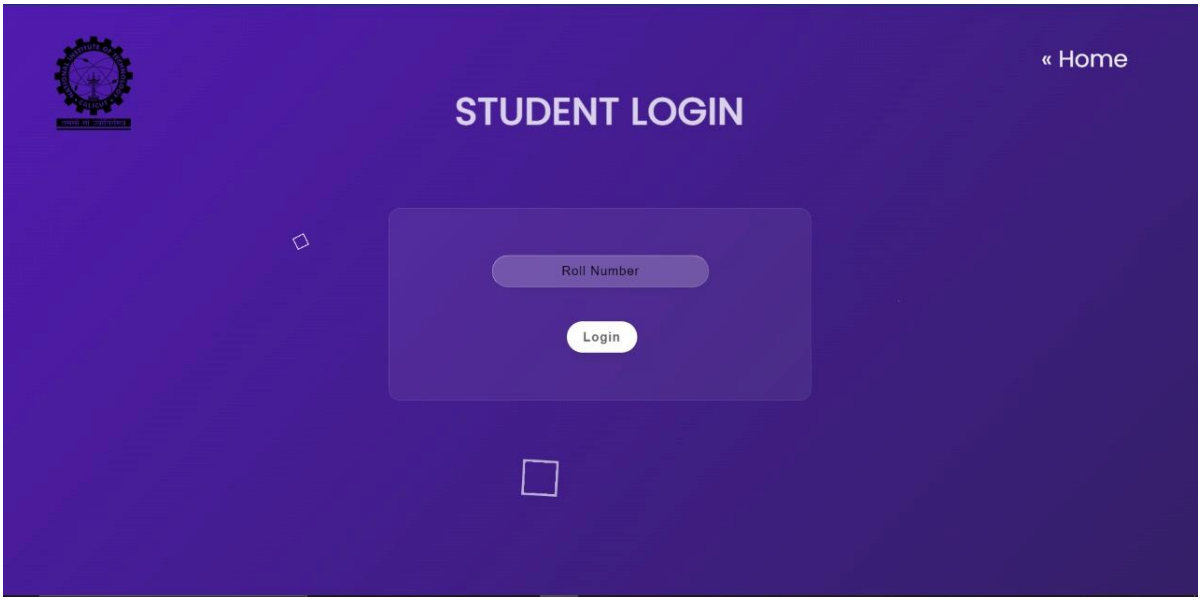
3.1 External Interface Requirements

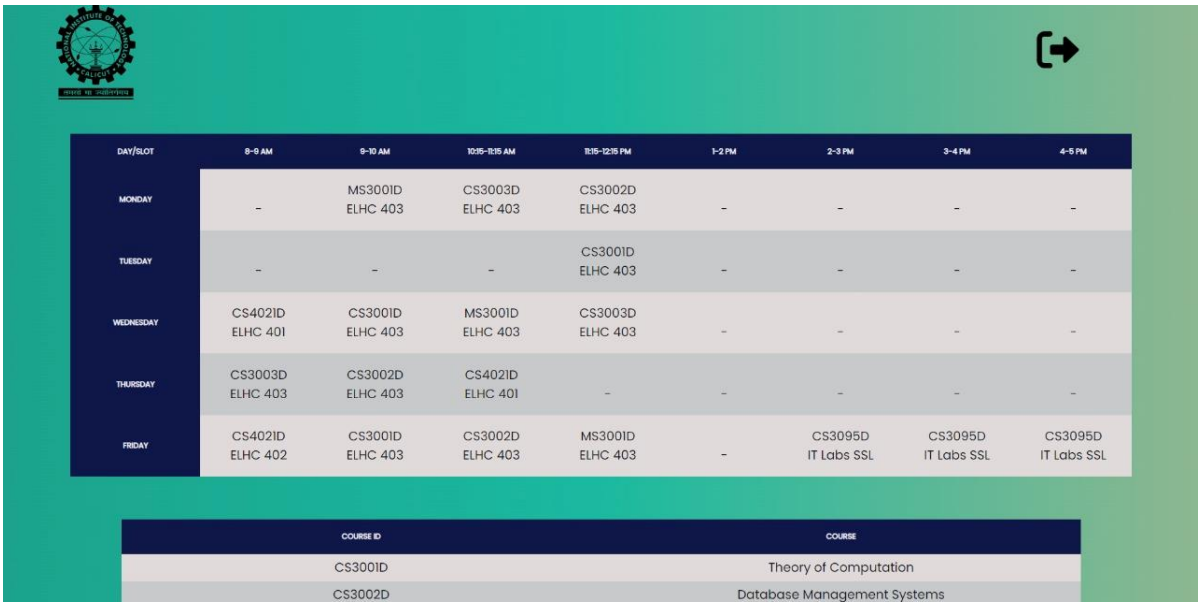
3.1.1 User Interfaces

- The layout of every page will be very clear to the user.
- When opening the application, it opens to a page where the user gets to login as a student or a professor.



- The student login button leads to a student login page wherein a student can enter their roll number and log in after which they can see their timetable.

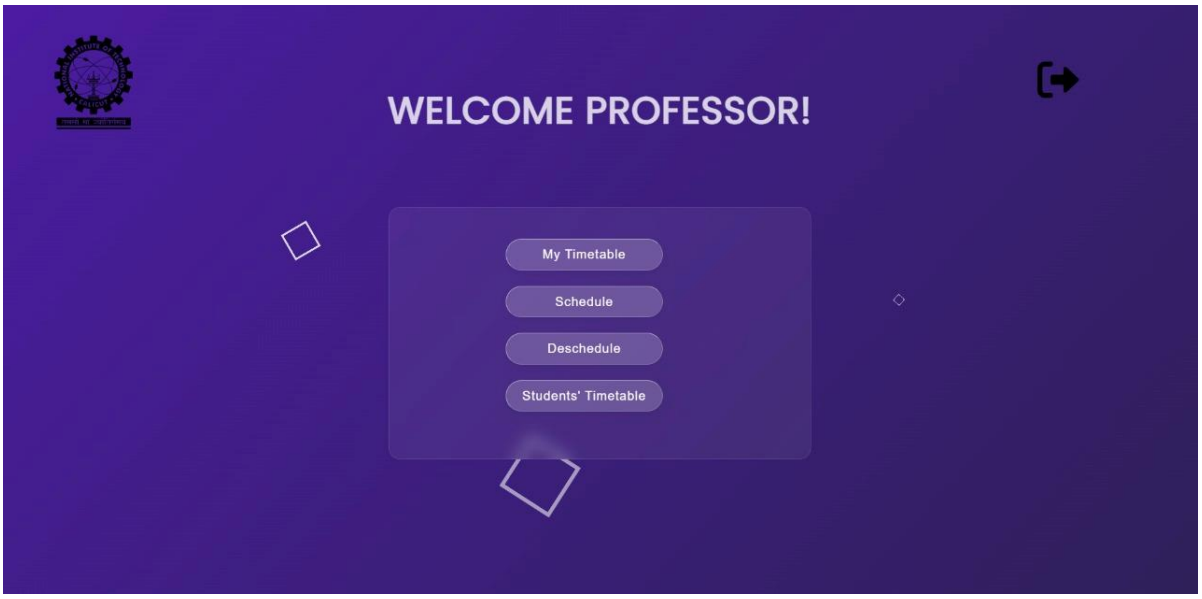




DAY/SLOT	8-9 AM	9-10 AM	10:15-11:15 AM	11:15-12:15 PM	1-2 PM	2-3 PM	3-4 PM	4-5 PM
MONDAY	-	MS3001D ELHC 403	CS3003D ELHC 403	CS3002D ELHC 403	-	-	-	-
TUESDAY	-	-	-	CS3001D ELHC 403	-	-	-	-
WEDNESDAY	CS4021D ELHC 401	CS3001D ELHC 403	MS3001D ELHC 403	CS3003D ELHC 403	-	-	-	-
THURSDAY	CS3003D ELHC 403	CS3002D ELHC 403	CS4021D ELHC 401	-	-	-	-	-
FRIDAY	CS4021D ELHC 402	CS3001D ELHC 403	CS3002D ELHC 403	MS3001D ELHC 403	-	CS3095D IT Labs SSL	CS3095D IT Labs SSL	CS3095D IT Labs SSL

COURSE ID	COURSE
CS3001D	Theory of Computation
CS3002D	Database Management Systems

- The professor login button leads to a professor login page where the professor can enter their login credentials to login, after which they can schedule classes, deschedule their classes, view their own time table, or view a batch's timetable.



3.1.2 Hardware Interfaces

- Processor: Pentium or greater
- RAM: 512MB
- Hard Disk: Disk space usage depends on data to be stored in the database – Ideally minimum 1GB
- Keyboard
- Monitor

3.1.3 Software Interfaces

Software Used	Description
Operating System	We have chosen the Windows operating system for its best support and user-friendly graphic interface
Database	SQL: If possible, you should use the newest driver available. The older JDBC drivers (for SQL Server 2000 and older) provided by My Microsoft, are known to be buggy and slow. The new SQL Server 2005 driver is preferred and can also work with SQL Server 2000
Php, HTML, CSS, Javascript	To implement the server side, we are using Php programming language, and the front end of the application is implemented using HTML, CSS and Javascript
Python	The queries to create and insert values into the database were made using python codes reading and converting our data.

3.2 Functional Requirements

- Login as a student: Allows a student to login using their roll number.
- Login as a professor: Allows a professor to login using their username and password.
- View timetable: Allows a student to view their time table.
- Schedule a class: Allows a professor to schedule a class.
- Deschedule a class: Allows a professor to deschedule one or more classes.
- View their own timetable: Allows a professor to view their own timetable.
- View a batch’s timetable: Allows a professor to view any batch’s timetable.

- Check slot availability: Checks if a slot is available while scheduling.
- Check professor availability: Checks if the professor is available while scheduling.
- Check batch availability: Checks if the batch is available while scheduling.
- Check room availability: Checks if the room is available while scheduling.
- Check password: Checks if the password entered by the professor is valid.

3.3 Use Case Model

4 Other Non-functional Requirements

4.1 Safety and Security Requirements

- The system will contact the data stored in the secure databases. The users do not have permissions to directly edit the database, changes such as adding a new course/ professor/ batch to the database can only happen via the server (super admin) and not the app. Regular backing up of the database is advised to avoid shutting down of the app in cases of errors.
- Apart from security of the data, other measures such as keeping a password for professors to login, keeping the displayed timetable and class links unavailable for editing to the students, etc. have been taken. Functionalities of scheduling and descheduling classes take into account the availability of the concerned batch and the professor ensuring no clashes and smooth management.

4.2 Software Quality Attributes

- Reliability – the system will provide instant and accurate results to the users without lag to all concerned users.
- Scalability – the system can be extended to other organizations, and the slots available per day/ number of days needed to book a class in advance can be upscaled with ease as required.
- Portability – The system can be deployed on most machines, with the quality remaining user-friendly and the app being easy to navigate through.
- Cost-effectiveness – Other than regular maintenances and disk usage on the servers, the software is relatively cost free.