

SCHOOL MANAGEMENT SYSTEM



TYPE : JAVA SWINGS APPLICATION

DATABASE USED : MY SQL

PROGRAMMING LANGUAGE USED : JAVA

Software Requirement Specification (SRS) For School Management System (SMS)

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1. INTRODUCTION

A Student Management System (SMS) is a System that manages the records of student regarding admission and examination part. Extensive information is available at your fingertips through this System. Viewing student data, managing admission and reshuffling, managing seats, quota, board, semester, faculty, category and for examination, block allocation, subject management, scheduling exam, result and related issues are made simple and easy. There are custom search capabilities to aid in finding student information and working on student records. This can make the system easier to navigate and to use maximizing the effectiveness of time and other resources. SMS allows the keeping of personal data in a form that can be easily accessed and analyzed in a consistent way.

1.1 Purpose :

The project is about to handle all the information of the student regarding admission and examination. Also it manages resources which were managed and handled by manpower previously. The main purpose of the project is to integrate distinct sections of the organization into consistent manner so that complex functions can be handled smoothly by any technical or non-technical persons.

The project aims at the following matters:

- Automation of admission and enrolment as per board, category & available seats.
- Assistance in decision-making.
- To manage information of student, faculty and courses.
- Consistently update information of all the students.

1.2 Project Scope :

This system is aimed at total user-friendly as well as efficient management of varied tasks. This system will greatly enhance the working efficiency of the school officials, teachers as well as the students. With the help of this system, the officials will be able to keep track of the records of the transactions made by the students. These tasks may range from registering new students, managing fees payment, examination management to all the essential features necessary for making the administrative division of school effective.

1.3 Definitions, Acronyms, Abbreviations :

Definitions :

The student management system is an automated version of manual Student Management System. It can handle all details about a student. The details include college details, subject details, student personnel details, academic details, exam details etc.

Our system has three type of accessing modes - Administrator, Instructor & User. Student management system is managed by an administrator. It is the job of the administrator to insert update and monitor the whole process. When a user log in to the system. He would only view details of the student. He can't perform any changes.

Acronyms :

SMS : School Management System

LM : Login In Module

AM : Administrator Module

IM : Instructor Module

SM : Student Module

1.4 References :

- [1] Software Engineering a Practitioner's Approach by Roger S. Pressman.
- [2] For technical perspective, JAVA Doc/PHP Doc.
- [3] For Database, www.mysql.com
- [4] <http://www.google.com/>

1.5 Overview :

Student Management System (SMS) is a desktop application that tracks current student's academic information. It maintains academic information for ready access by office staff, students, their faculty advisors, and committee members. Instead of tedious paper work, students will be able to submit required information electronically, and the departments will be able to evaluate the submissions with a much quicker turnaround.

- Every student gets the Login Id & password at the time of admission.
- Every Student can check their performance, also they can check attendance.
- Able to see Various Notice Board.
- Can get Timetable & schedule of Exam.
- Also they gets Holiday list & school bus details.

2. OVERALL DESCRIPTION

2.1 Product Perspective :

A school management system has become an essential need for every school to operate. No doubt. It holds so many crucial functions to ensure that the school management runs smoothly. The teachers, staff, and other external parties can collaborate easily through a centralized platform. It works by integrating all the school related data into a database and providing the data to the user as per the demand and the privileges given to the user who logs in.

2.2 Product Functions Summary :

The primary function of the Student Management System is essentially to save the whole system information in sequentially into database server. The administration department will have access to whole system environment and that can be modified as per their needs. The architecture of whole system is made easy that any person can login to system and use the functions. The system database is only accessible to admin and admin can only modify the changes.

The Student Management System has been modularized into following modules.

Login Module :

The purpose of this module is to provide entry to the system or application. Based on the type of login, the user is provided with various facilities and functionalities. The main function of this module is to allow the user to use SMS. This module provides three types of login - Admin login, Instructor Login & Student login.

Administrator Module :

In this module when the administrator will enter his/her user name and password, then he/she will enter in to the administrator page. If the logged-in user is admin then it has all the privileges of student & instructor along with some more additional privileges are given such as -

- i. Add New Instructor
- ii. Manage Courses & Subjects Offered
- iii. Assign Instructor to Course/Subject
- iv. Manage Schedule

Instructor Module :

If the logged-in user is a instructor then following privileges are given –

- i. Add / Remove A Student
- ii. View / Modify Students Data
- iii. Mark Attendance
- iv. Grade Students
- v. View Schedule

Student Module :

In this module when a user enters his student id and password, then he can visit all the following pages.

- i. Profile View:** When the student clicks on this link he/she will get his/her information like student id, student name, password, father name, date of birth, nationality, city, address, country, phone number, mobile number, email.
- ii. Notice View:** When the student clicks on this link, he can see latest notices released by the administrator.
- iii. Attendance View:** When the student clicks on this one, the student can get his overall attendance percentage (present and absent).
- iv. Internal Results View:** When the student clicks on this, he/she will get the internals result in all the subjects. How much grade point he/she secured he/she can know.

2.3 User Characteristics :

The user profiles identified to have interaction with Student Management System that anyone can register and login into system and access the required resources. The students can easily fill up the registration form online and submit it. After

admission the student will successfully registered and can use school system environments as per their limits decided by admin.

Students : One's who are studying in the school.

Instructor : One who handles and take care of academics.

Admin/Principal : They are the person who handle all over management of the school.

2.4 General Constraints :

1 Technology Constraints :

Proposed web application is implemented with JAVA for front end design purpose & for the database purpose, we have opted for MySQL

2 Interfacing Constraints :

Since this is an application which is run in a controlled JAVA environment, we would need a computer system to access the Database. However, in the future scope, a web-app as well as a mobile app can be implemented using the same DB.

3 Safety and Security Constraints :

Since, application is intended for the authenticated users only, so anonymous person should not be able to access and operate over the user data. The system is designed such a way that the database will keep updated by administrator and only authenticated users can access the system.

3 SPECIFIC REQUIREMENTS

3.1 Functional Requirements :

We describe the functional requirements by giving various use cases.

-> **Use cases related to system authorization :**

Case - 1 : Login In Module (LM) :

When the user runs the application a login/home page will be displayed. The page will have a block for entering the user id and password of the user and an option to select the login type i.e admin/instructor/student.

Only users registered in the system will be able to login to their section else a error will be displayed. The instructor can be registered in the system by the admin at the time of joining and a unique login id and password will be provided. Students are registered at the time of admission by the admin as well as the instructor.

-> **Use cases related to Administrator Module (AM) :**

After successful login, system will display administrative functions. Administrative functions shown shall be add, delete and update. When administrator adds, updates or delete an entry, request will be sent by the module to the database which will do the necessary changes to the DB.

Steps :

1. The user should be on the login page.
2. Enter the User Id & Password for login.
3. Login Type should be Administrator.

Case - 1 : Add Instructor :

At the time of joining the admin has the right to add instructor to the system and provide a unique login id and password to the instructor.

Case - 2 : Update/Delete Instructor :

The admin has the right to update the already registered instructor in case of any changes are required to be made. Also if the instructor leaves the institute the admin has the right to delete the user from the database.

Case - 3 : View Instructor :

The admin has the right to view the list of instructor employed in the institution.

Case - 4 : Add Student :

At the time of admission of the student the admin registers the student in the system and provide a unique login id and password to for accessing the student module.

Case - 5 : Update/Delete Student :

The admin has the right to update the already registered student in case of any changes are required to be made like updating the address or mobile number. Also if the student leaves the institute the admin has the right to delete the user from the database.

Case - 6 : View Student :

The admin has the right to view the list of students studying in the school.

Case - 7 : Manage Courses & Subjects :

The admin manages the courses and subjects offered by the institution and also maps a instructor to a particular course or subject for the smooth functioning of the institution.

Case - 8 : Manage Schedules :

The admin decides and manages the schedules of various instructor & accordingly forms the time table for the students.

Case - 9 : Notice/Announcements :

In case any circular or announcement is to be passed to the student or instructor in the school the admin has the right to notify by accessing the list of instructors or students.

-> **Use cases related to Instructor Module (IM) :**

After successful login, system will display the instructor's function. Instructor functions shown shall be update and delete.

Steps :

1. The user should be on the login page.
2. Enter the User Id & Password for login.
3. Login Type should be Instructor.

Requirements :

The instructor must belong to the institution & registered in the system.

Case - 1 : Update / Delete Student :

The instructor has the right to only update and delete the existing students and cannot register new students in the system. Only the admin has the right to add new students to the system.

Case - 2 : View Students :

The instructor can view the list of students studying in the institution.

Case - 3 : Mark Attendance :

The instructor marks the attendance of the student and put remarks accordingly.

Case - 4 : Grade Student :

The instructor can put the marks/grades of students in different subjects which can be later seen by the students.

Case - 5 : View Schedule :

The instructor can view their daily schedules for the classes and manage their time accordingly.

Case - 6 : Remind Students through Notification :

If the instructor want to send reminder to the students about something then they have the right to sent the notification by accessing the list of students.

-> Use cases related to system Student Module (SM) :

After successful login, system will display the student's function. The student user has the right to only view the information. Student user has no privileges for the data updation.

Steps :

1. The user should be on the login page.
2. Enter the User Id & Password for login.
3. Login Type should be Student.

Requirements :

The student must belong to the institution & registered in the system.

Case - 1 : View Profile :

The student user can view his/her profile. But has no privileges for the updation in the data. In case of any changes the student is required to contact the administrator or the instructor.

Case - 2 : Courses Enrolled :

The student can view the list of courses enrolled by him/her.

Case - 3 : View Attendance :

The student can view his/ her attendance marked in the attendance sheet by the instructor.

Case - 4 : View Marks :

The marks in various subjects marked by the instructor can be viewed by the student.

Case - 5 : View Transactions :

The student can view the list of transactions made by him/her to the institution including the fees payment or any other transactions made with the institution.

Case - 6 : View Notifications :

The alerts/ announcements sent by the instructor or the school administrator can be viewed by the student under this section.

3.2 External Interface Requirements :

3.2.1 User Interfaces :

The Student Management System must provide a user friendly user interface. It should be easy to navigate without any learn curve involved. A decent and pleasant appearance with ease of navigation should help to users.

This system provides a graphical user interface. The layout will be a login page with a block for entering user name and password for logging into different user type.

3.2.2 Software Interfaces :

The software interfaces that will be used are Visual Studio and SQL Data Management system. The SMS must integrate with the DB through SQL Interface.

3.3 Design Constraints :

1. **Security :** The files in which the information regarding the user's data should be secured against malicious deformations.
2. **Fault Tolerance :** Data should not become corrupted in case of system crash or power failure.

4 NON – FUNCTIONAL REQUIREMENTS

4.1 Performance Requirements :

The Student Management System shall be built upon the java and mysql database at the backend. The system and the database must be capable of handling the real-time error functionality occurs by the defined users. In addition, the system must be safety critical. All failures reported by the backend side must be handled instantaneously to allow for user and system safety.

4.2 Security Requirements :

The system should provide a secure login to the users by using advanced secure login algorithms and provide access only to the authorized users as security is the key requirement of this system.

4.3 Reliability :

The system is safety critical. If it moves out of normal operation mode, the requirement to drop or down the database and fix it as soon as possible and open it again. This emergency behaviour shall not occur without reason.

4.4 Availability:

When in normal operating conditions, request by a user for an online system shall be handled within 1 second. Immediate feedback of the systems activities shall be communicated to the user by clearing the system and giving space and speed to their hospitality.

4.5 Portability:

There is portability requirement as far as our system is concern because it is an online as well as offline (local server based) system so we can access it from anywhere through the internet connection. And we have to maintain the copy of stored data into our database.

4.6 Software Quality Attributes:

System should be -

- Consistent in performance
- Safe and Secure
- Robust
- Scalable
- Flexible
- User friendly
- Efficient
- Inter-operable
- Upgradable
- Available all the time.

5 FUTURE EXTENSIONS

The SMS is a desktop application the further extension can be the web version for the same. Further more functionalities can be added to this system like –

- 5.1 Online Registration Management :** The entire admission process virtually. The software will make the steps like form submission and admission tracking extremely easy. As a result, the administrator will be able to process more forms and the chances of human errors will be almost zero.
- 5.2 School Fee Management :** Educational institutions can simplify the fees collection process, automate transactions, and produce detailed financial reports. Staff would be able to keep track of pending fees and fees collection in real-time and there will be no chance of committing mistakes. The school fee management software would generate different fee structures, fee receipts, customized reports, and send alerts to parents whenever the fee is due.
- 5.3 Exam and Result Management :** Able to carry out online exams, track students' progress, and customize report cards. The software will ensure that there are no unnecessary expenses and wastage of paper during the exam. It will allow you to conduct both objective and descriptive type exams and generate reports promptly. There will be no need of printing the report cards, which is good news for conservation activists.
- 5.4 Library Management :** The advent of virtual libraries is one of the best things that could have happened to mankind. If your institution has a virtual library, encourage all students to spend time there. The library management system will keep track of every book students are reading. This would help you to comprehend the choices of different students and add more books to the library based on those choices. The software will also keep a record of searches for books.

5.5 Transport Management : The software will help you to track the movements of every student through a dedicated transport module. The GPS-enabled module helps the school admin to have access to the live location of students. This allows them to provide every student with added security.

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