



# INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

## SCHOOL AUTOMATION SYSTEM FOR HIGHER EDUCATION

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**Abstract-** *The aim of this paper is to demonstrate a framework for school automation system using a piece of software which is user interface for organizing all of the school's functions and provide wide variety of interface to deal with future pandemics. Everyday, new technologies are emerging which raised the need to deal with innovation in information technology and old education system. This software helps us in the management and functioning of student, faculty, staff structures. As population of student increases, there are large amount of information to be stored, which raised a need for a small controlled framework that can be enabled with a single click on window to avoid paper work. It can be used by educational institutions to conveniently store student and faculty information where it offers reliable and up-to-date information about a student's educational profession, while faculty control structures cope with a wide form of school records, consisting of instructional information, pupil records, college records, and different aid-related details. Its also helps to deal with pandemic like covid-19 which disturbed the whole education system by allowing school management to conduct remote online classes, online exam, detail updation by staff from home.*

**KEYWORDS:** *school automation system, administration, faculty, database, school, accountant*

### 1. INTRODUCTION

The aim of creating and enforcing a school automation system is to reduce the amount of paperwork required by the school department. This technology contains modules that displays student's academic details, teachers lecture feedback, extra co-curricular activities going on in the school by accessing gallery online through school's website which was designed by using language like PHP, HTML, CSS, JAVASCRIPT, MYSQL. The automation system contains codes related to a particular task of specific user in which only specific user can access the allotted modules to them like student can access student related modules means highly authenticated. The database of school automation system checked on the regular basis by the administrator. Aside from an administrator user interface, the framework should provide a student user interface that allows students to access

details and submit questions online whereas parent can view student details by logging in system to check progress of their son/daughter. As a result, response time is reduced. This information is securely stored on SQL servers managed by teachers and administrators, providing the highest degree of security possible. This initiative would result in a completely functioning website for a School Automation System for Higher Education, with separate responsibilities for educators, principals/administrators, accountants, parents and teachers.

The best part of the project is that it digitized everything on single click of a mouse, you can change everything from attendance to result. Hence, this project helps in modernization of old working system and provide a database to store large amount of information for future use.

## 2. RELEVANT ACTIVITIES

This project is intended to assist any institution, whether a school or a college, in operating its administration more effectively. The project's aim is to be functional in any case, such as Covid-19 or any other man-made or natural disaster. This study focuses on faculty course planning and individual student data collection. While this is a demonstration project, it has the potential to develop into a full course training platform for major schools or colleges in the future. It is helpful for parents, teacher, student and administration perspective. The important modules of the school system are as follows.

**Registration:** This page provide interface for registration of new students, staff and administration where they have to fill online form to be a part of particular school or college. After which they will get login details to check their personal or academic detail as a member of school.

**Login:** This module provides security check of particular individuals where entering of username and password for registered guest is checked. It allows the students to login to the application and check their marks, student can upload or download assignment and co-curriculum activity taking place. It provides staff and administration to view their details about lectures or work allocated for particular individuals.

**Admin/Principal:** Any information about colleges, teachers, and faculties can be stored by the administrator.

The admin module is important as it allows to add and remove data about student staff and teacher. The admin checks the proper functioning of staffs, students and faculty.

**Students:** Students at the school may access information posted by the principal. Each student can only register him or herself.

**Teacher:** They can only view time-table provided by admin to teach allotted class or section and view their attendance and salary for particular lecture.

**Accountant:** They are the individuals in school whose work is to keep track of records of student and faculty.

## 3. OBJECTIVES

- Providing an online interface interaction to students, staff, and administration.
- Enhancing the consistency of school record management system and increasing machine security.

- Enhancing the consistency of school record management system.
- Enhancing the capability to deal with situation like covid -19 by providing online interface to conduct classes and online exam without effecting studies.
- Provide functionality to monitor on single click of student, faculty and staff.

## 4. LITERATURE REVIEW

Manju Gehlawat et al. (June, 2014) “*School Management Information System: An Effective Tool for Augmenting the School Practices*”. As specified by the author, rapid development of information technologies raised need to change old education system. It was effective and efficient tool for management of educational institution and helps in decision-making by the school. It provides an interactive user interface for classroom teaching, distance learning, recording and reporting of assessment data [1].

Dipin Budhrani, Vivek Mulchandani, and Yugchhaya Galphat et al. (2018) “*Student Information Management System*”. As specified by the author, Student Information Management System is a software created to provide interactive environment for student, teacher, admin and staff. Its helps administrator to collect, analyze and reporting of data and student to view marks, upload and download assignment and view their progress where as to faculty by providing function of uploading marks, assignment and scheduling lecture [2].

Venkateshwar Amingad, Sushma Poornima, and Harish Arpitha et al. (2017) “*Web Based School Administration System*”. As specified by the author, the system provides interactive user interface to deal with paper work and functioning of school. It is a software which deals with all school activities from managing records of student to administrator work. This software helped in maintaining accurate and up to date information about students. It deals with security of system from virus to faulty system where as reduces time of management [3].

Khaled J. Awadallah, and Dr. Abed El-Hamid Zougbor et al. (2016) “*My School - School Management System Based on Web “SMS”*”. As specified by the author, it is a web-based application made in PHP and My SQL database. It reduces the need for expensive hardware and software by enabling uses of Internet connection and desktop let any registered user to access his or her details by logging. It helps student to view marks, upload and download assignment and faculty to track student attendance, upload class notes and schedule lectures [4].

## 5. METHODOLOGY

The design and implementation of this project was done by collecting and analysing data and applying available tools and techniques for making website by using scripting and mark-up language PHP, HTML, CSS, JAVASCRIPT and MYSQL. The purpose is to plan and build a school automation system for higher education that keeps school records up to date and improves school data management accuracy.

Technologies used in SMS are:

- **HTML:** HTML, or Hypertext Markup Language, is the industry standard markup language for documents that can be indexed by search engines. HTML elements serve as the basis for all websites. HTML allows for the enclosing of images and objects, and it can be used to create graphical forms. It allows the creation of geometric modeling by indicating structural semantics for text elements such as headings, columns, lists, connections, quotations, and other objects.
- **CSS:** A cascading style sheet is a web page styling language like colors, text, size, spacing, layouts and representation on various devices. Due to unique formatting style, leads to styling of same page differently. It allows to change information available on one web page to another having simple syntax. It also defines how HTML components can be interpreted on film, text, or other media by styling those structure presentations.
- **JAVASCRIPT:** It's a programming language that follows the ECMAScript standard. JavaScript is a high-level programming language that is multi-paradigm mostly and optimized just-in-time. Although it is best remembered as a text editor besides Websites, it has been used in numerous – anti areas like Reactjs, Debian Microsoft sql server, but rather Outlook Express.
- **PHP:** It is an open platform browser language being used build interactive web sites. It is suitable for use in HTML. PHP is usually used in combination with MySQL on windows and Linux. It is used for managing database, content of web pages making it dynamic and interactive. It is known for its simplicity, flexibility and highly protective.
- **MySQL Database:** MySQL is a standardized database language used for data storing and modification. It runs on different platforms like desktop, Unix and Linux where it contains statement which allows to create table, views and stored procedures. Despite prominent websites such as Facebook, Twitter, YouTube, and Yahoo! banking on its proven accuracy, reliability, and allows for easy, MySQL has long become the go-to database for web-based applications.

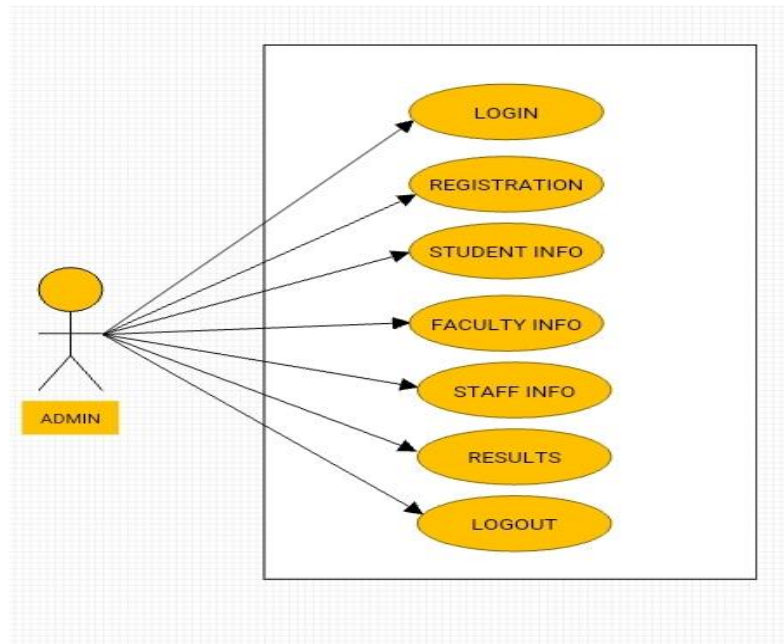
## 6. USE CASE DIAGRAM OF SCHOOL AUTOMATION SYSTEM FOR HIGHER EDUCATION

A use case diagram of school automation system is a presentation of user behavior with the system to cater the need of software requirement of undeveloped system. It defines the functionality of system with the help of actors are who using system in use case diagram.

### ADMINISTRATOR/PRINCIPAL OF SCHOOL AUTOMATION SYSTEM FOR HIGHER EDUCATION

In this use case diagram displayed below admin or principal will firstly login the system and then carry out other process like adding or deleting new user, check student result and information about student, faculty or accountant.

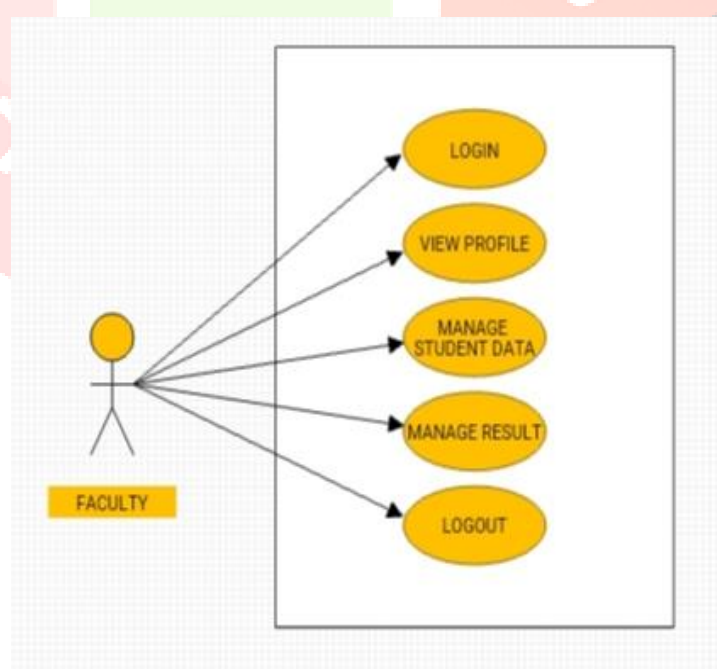
Fig 1: Administrator use case diagram School Automation System for Higher Education



### SCHOOL TEACHER/FACULTY SCHOOL AUTOMATION SYSTEM FOR HIGHER EDUCATION

In this use case diagram displayed below teacher will login the system can check his/her profile, manage the student data, check his/her lecture scheduled and upload marks of student.

Fig 2: Teacher use case diagram School Automation System for Higher Education

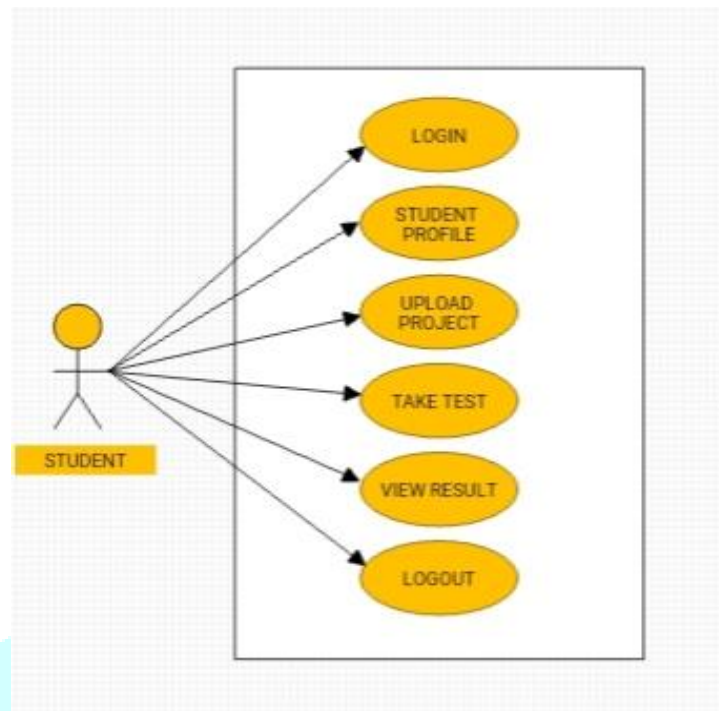


### STUDENT SCHOOL AUTOMATION SYSTEM FOR HIGHER EDUCATION

In this use case diagram displayed below student will login the system can check his/her profile, upload/download assignment, check his/her timetable and marks.



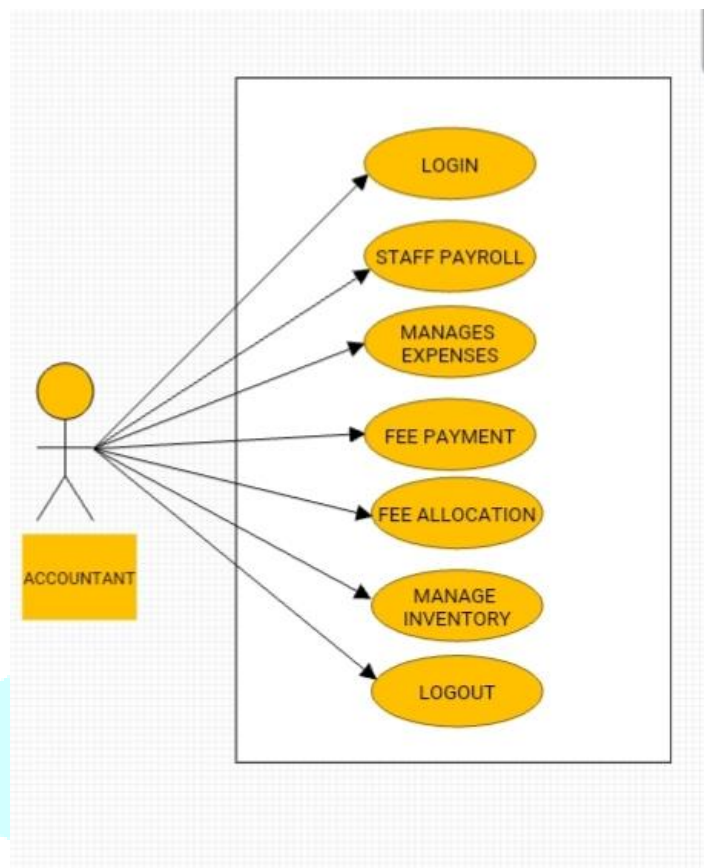
Fig 3: Student use case diagram School Automation System for Higher Education



### ACCOUNTANT SCHOOL AUTOMATION SYSTEM FOR HIGHER EDUCATION

In this use case diagram displayed below accountant will login the system can check his/her profile, allocate/update the payment received of particular student, update payment to staff account and manage inventory.

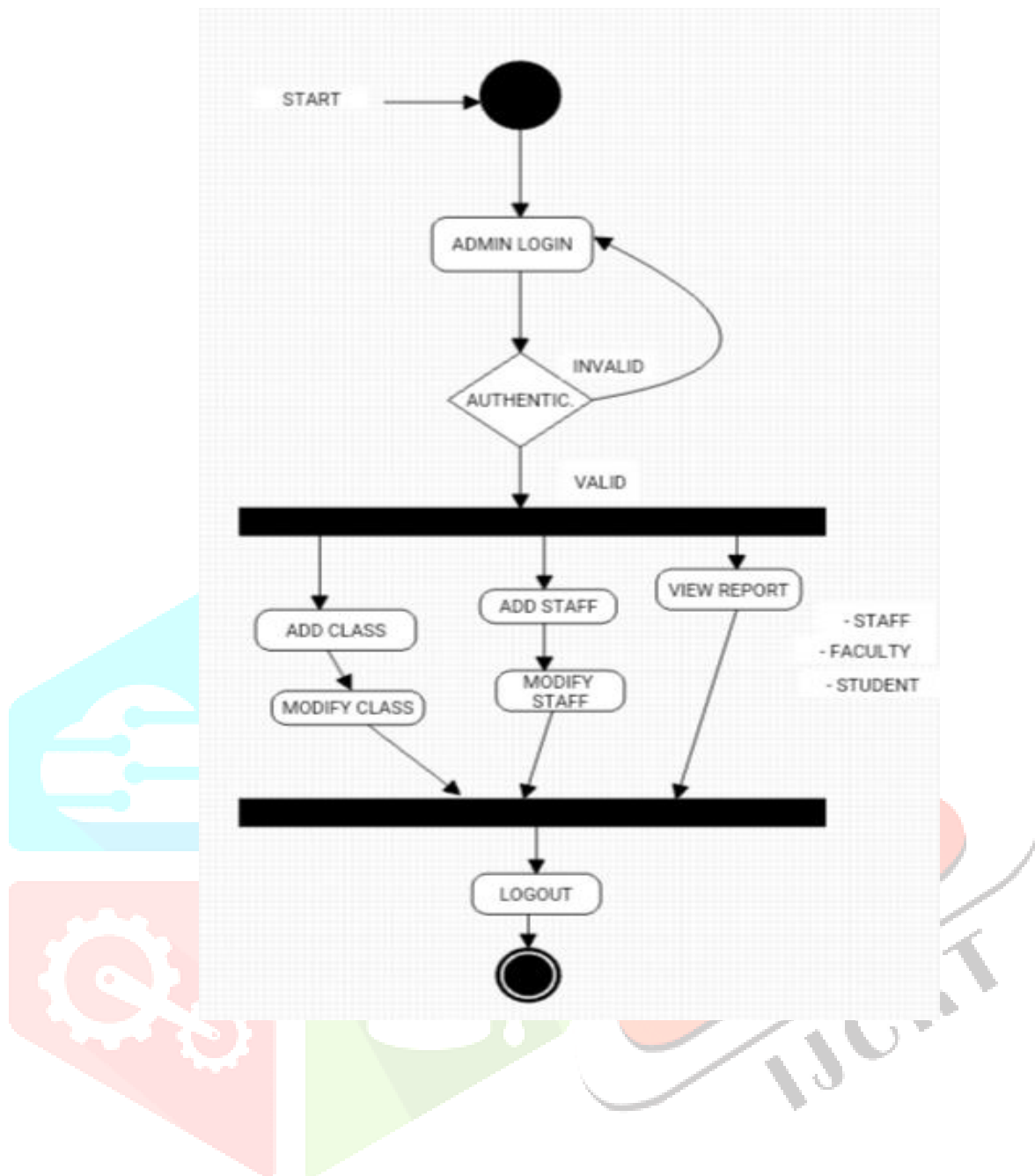
Fig 4: Accountant use case diagram School Automation System for Higher Education



## 7. ACTIVITY DIAGRAM SCHOOL AUTOMATION SYSTEM FOR HIGHER EDUCATION

It is a presentation of series of actions or flow in a system similar to a flowchart which describes the operation of system.

Fig 5: Admin login activity diagram of School Automation System for Higher Education





## 8. RESULT AND DISCUSSION

In this section, there is sample view of school automation system for higher education in form of user interface. Its display the working website. Here are some of user interface view of school automation system for higher education.

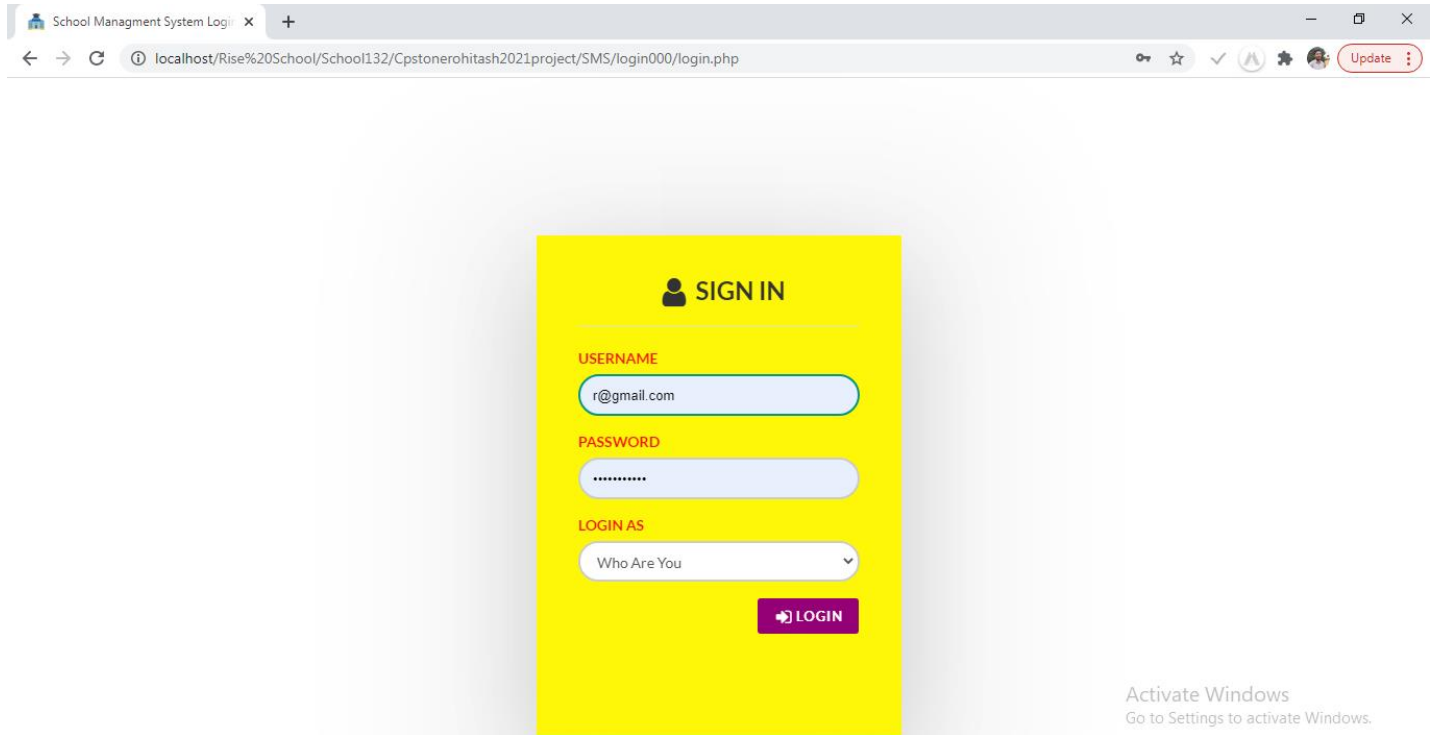


Fig 6: Login User Interface

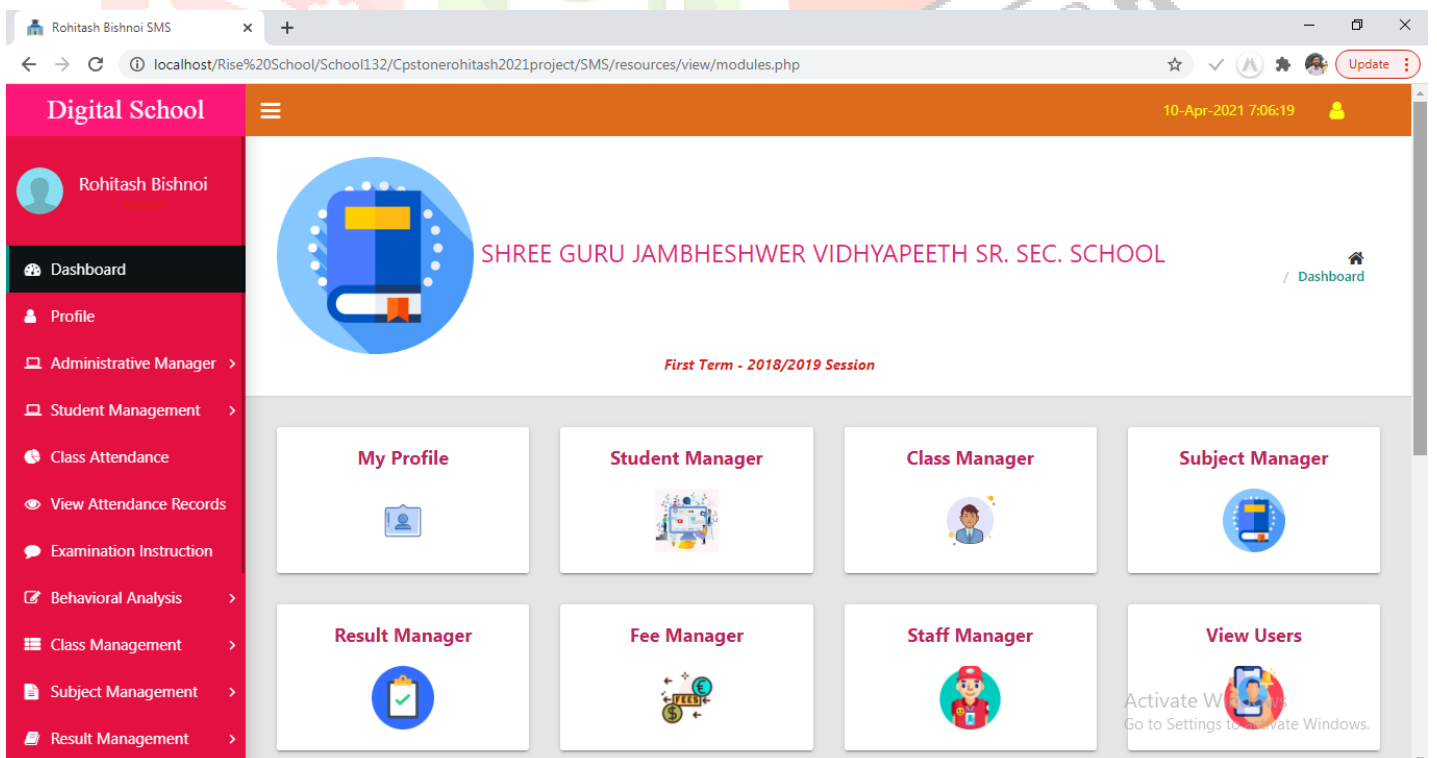


Fig 7: Admin Interface

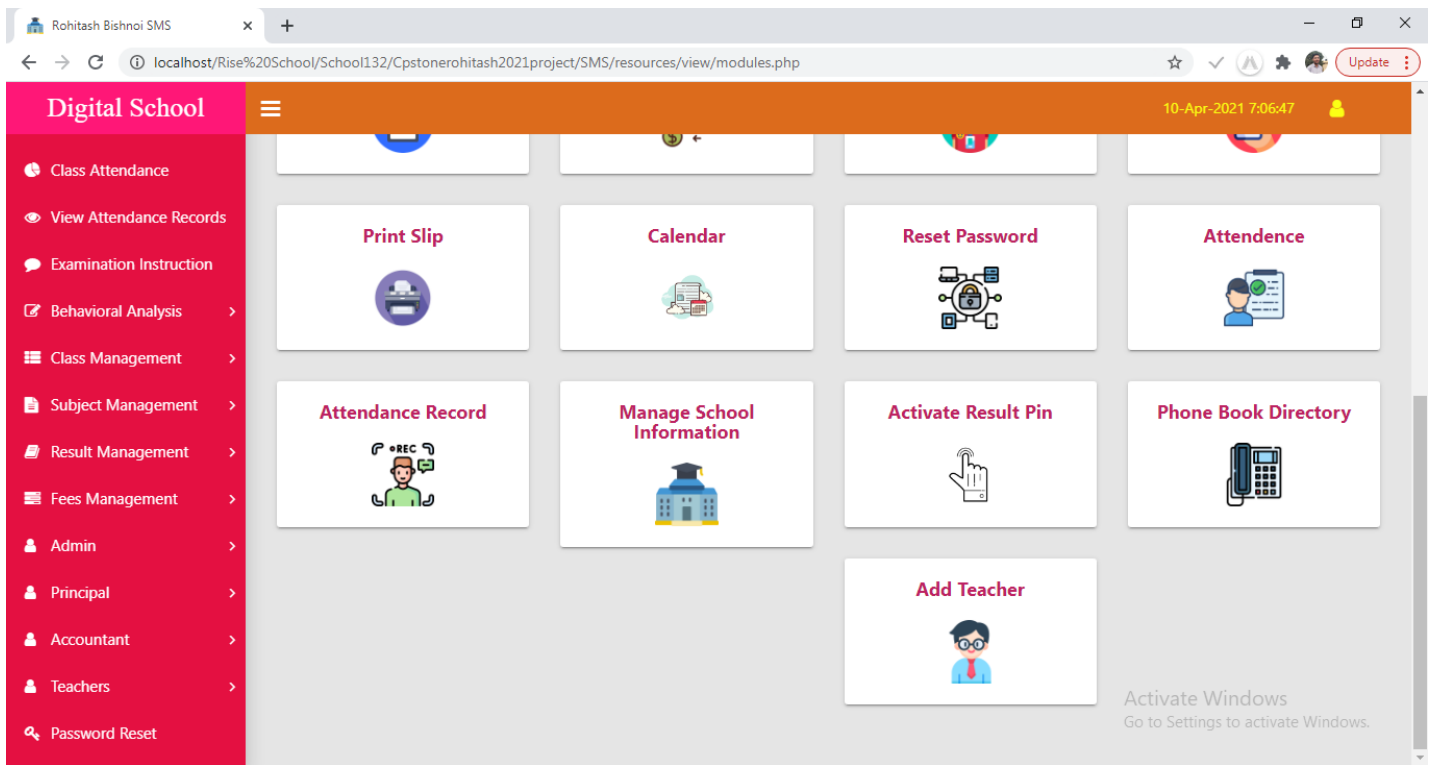


Fig 8: Admin Interface

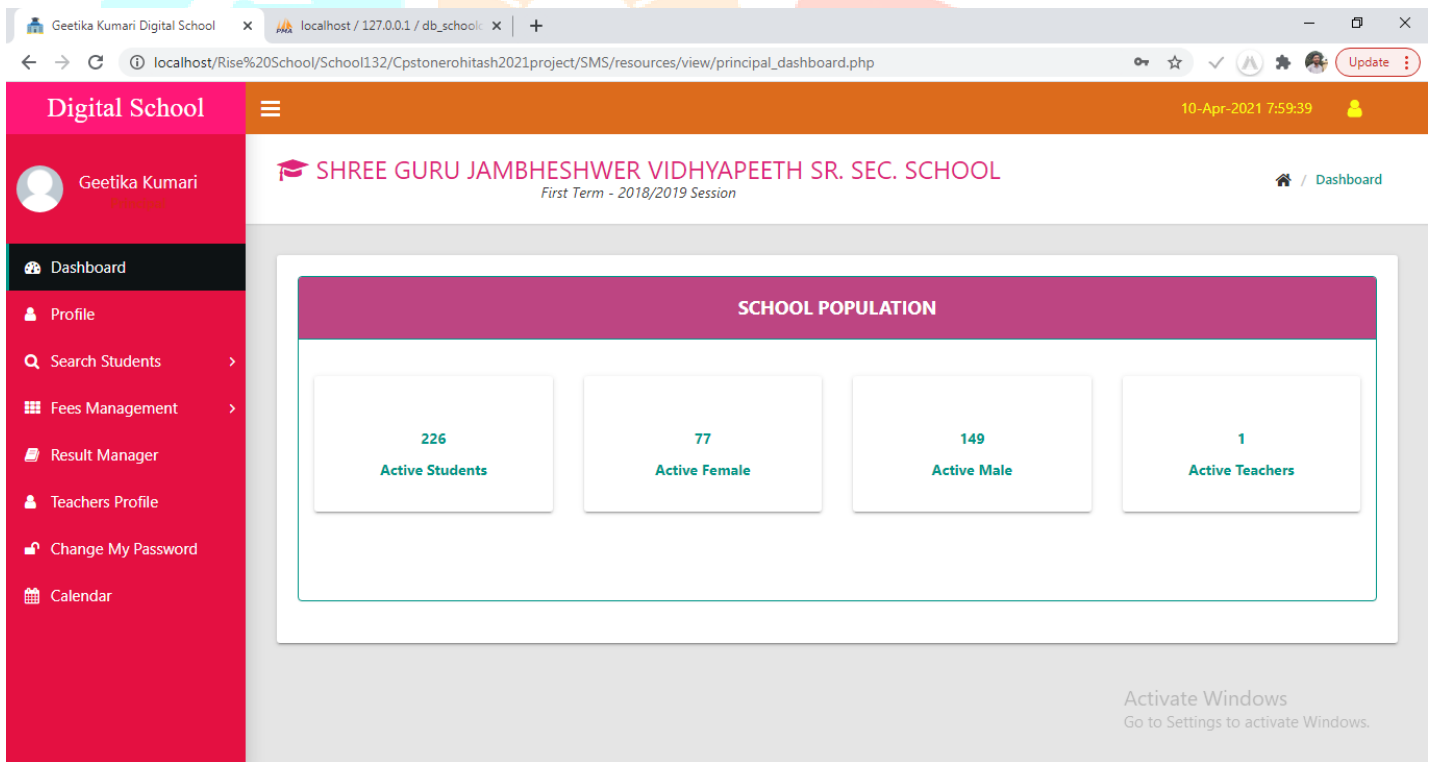


Fig 9: Principal Interface

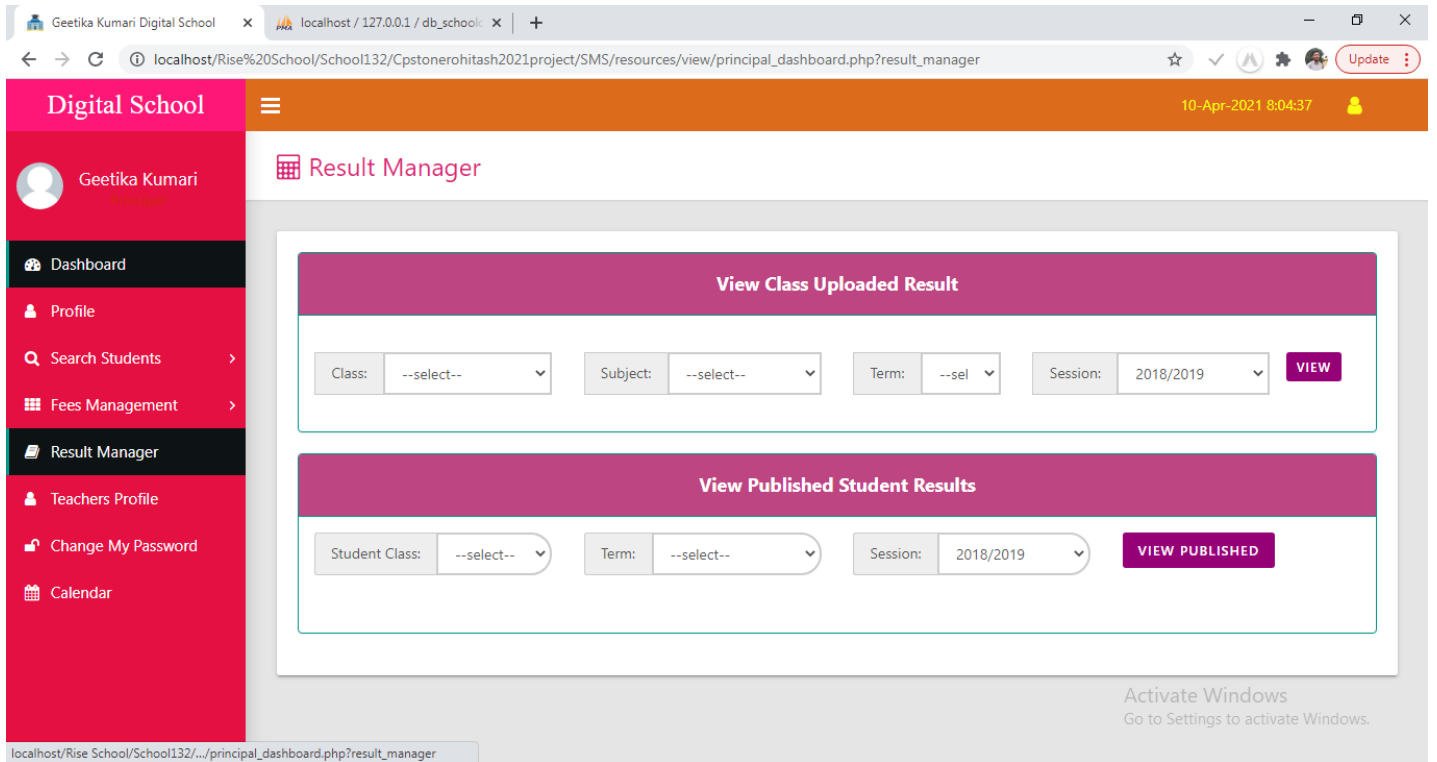


Fig 10: Principal Interface for result

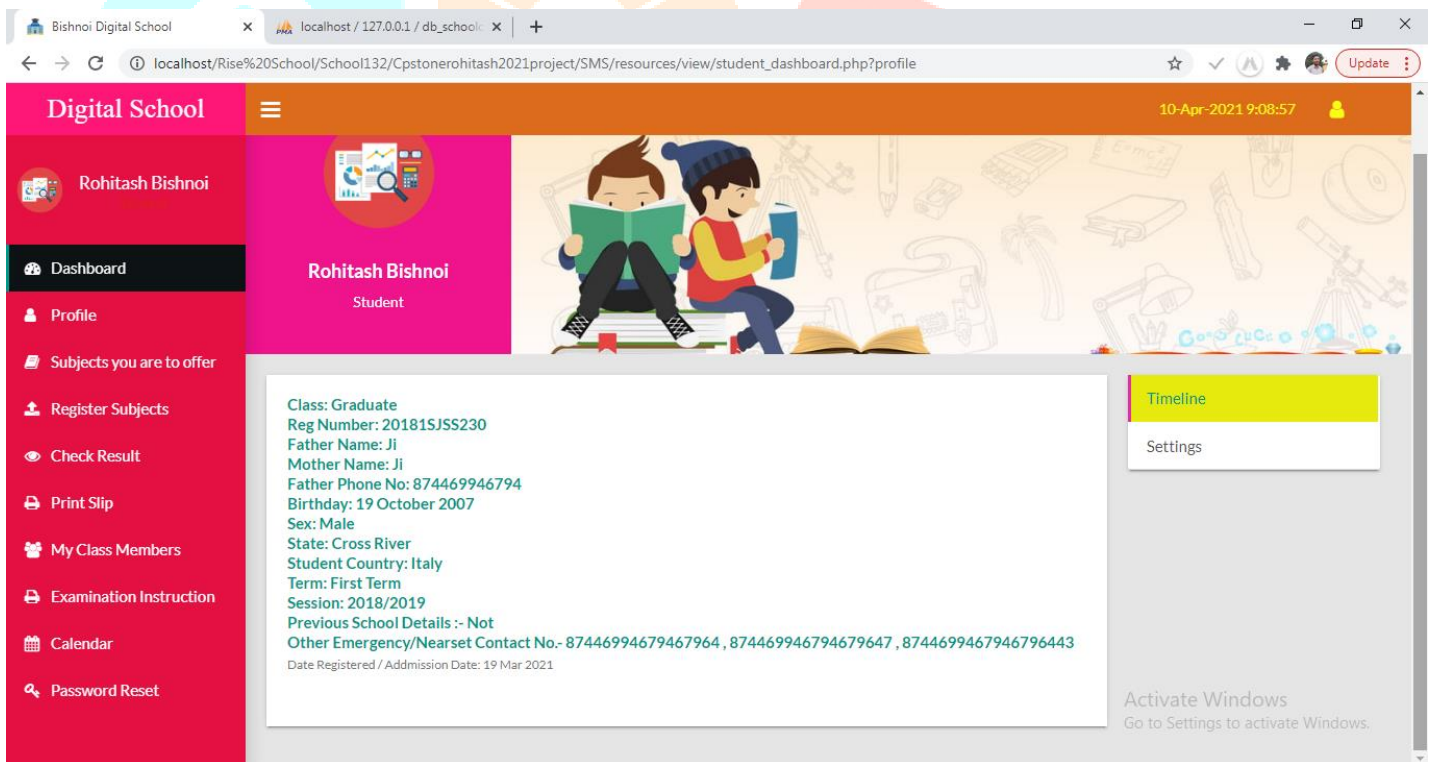


Fig 11: Student Interface

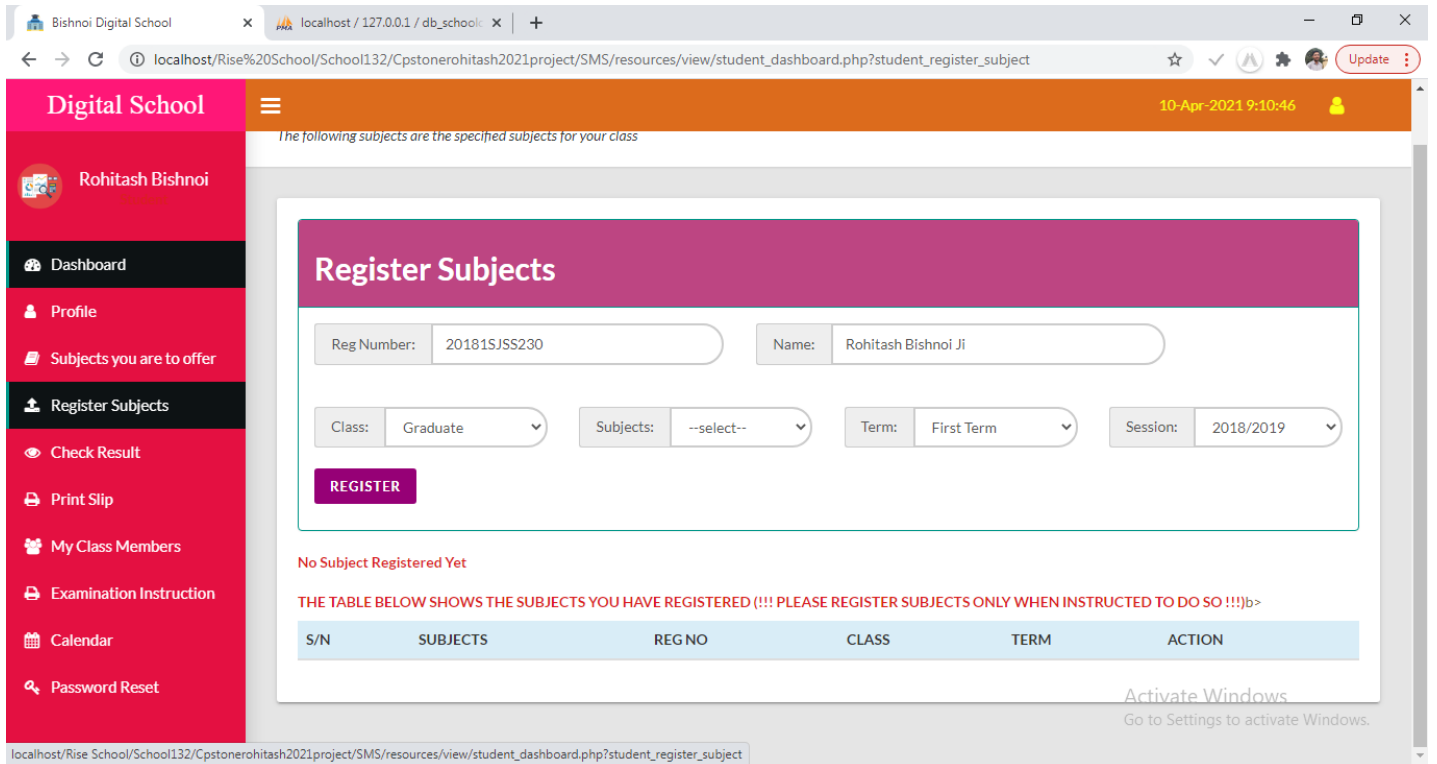


Fig 12: Student Interface for register subject

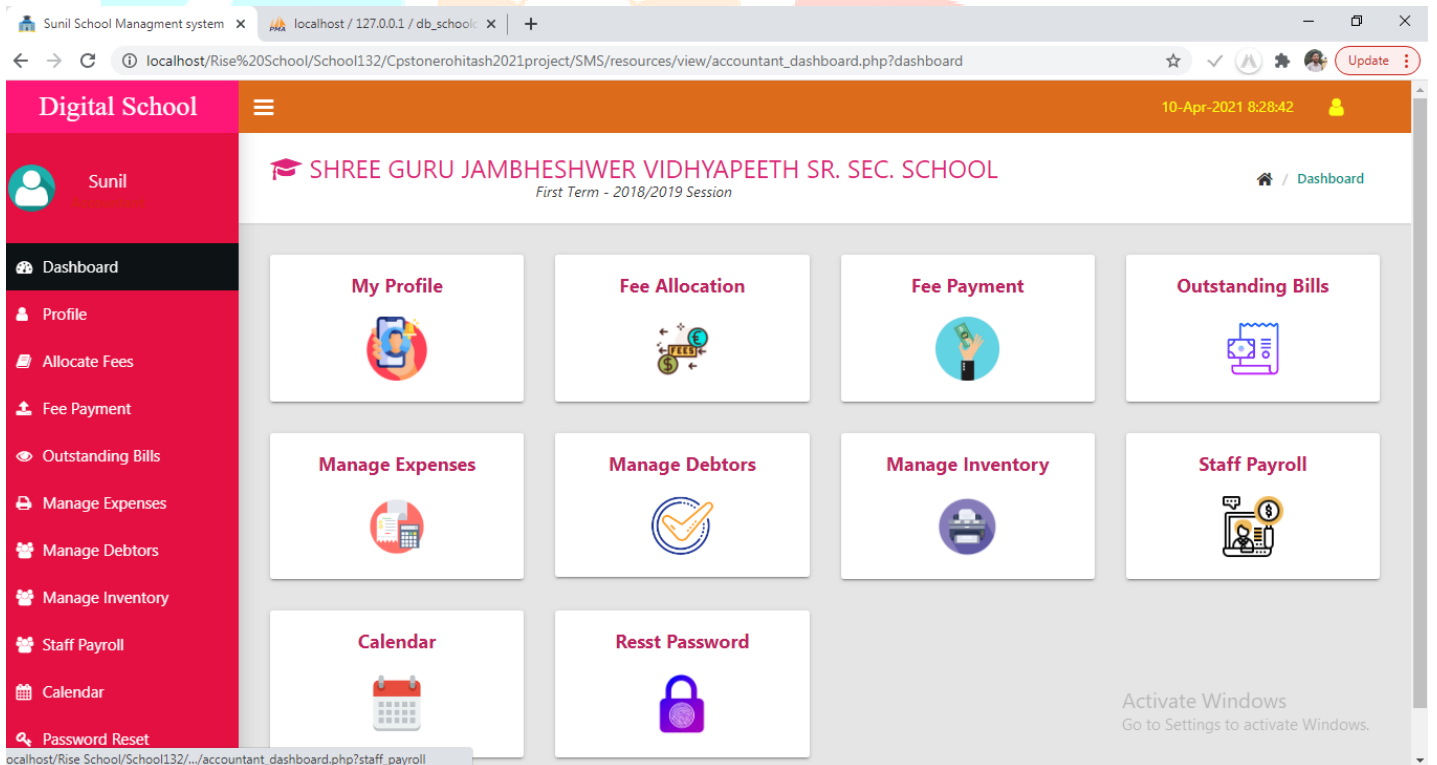


Fig 13: Accountant Interface

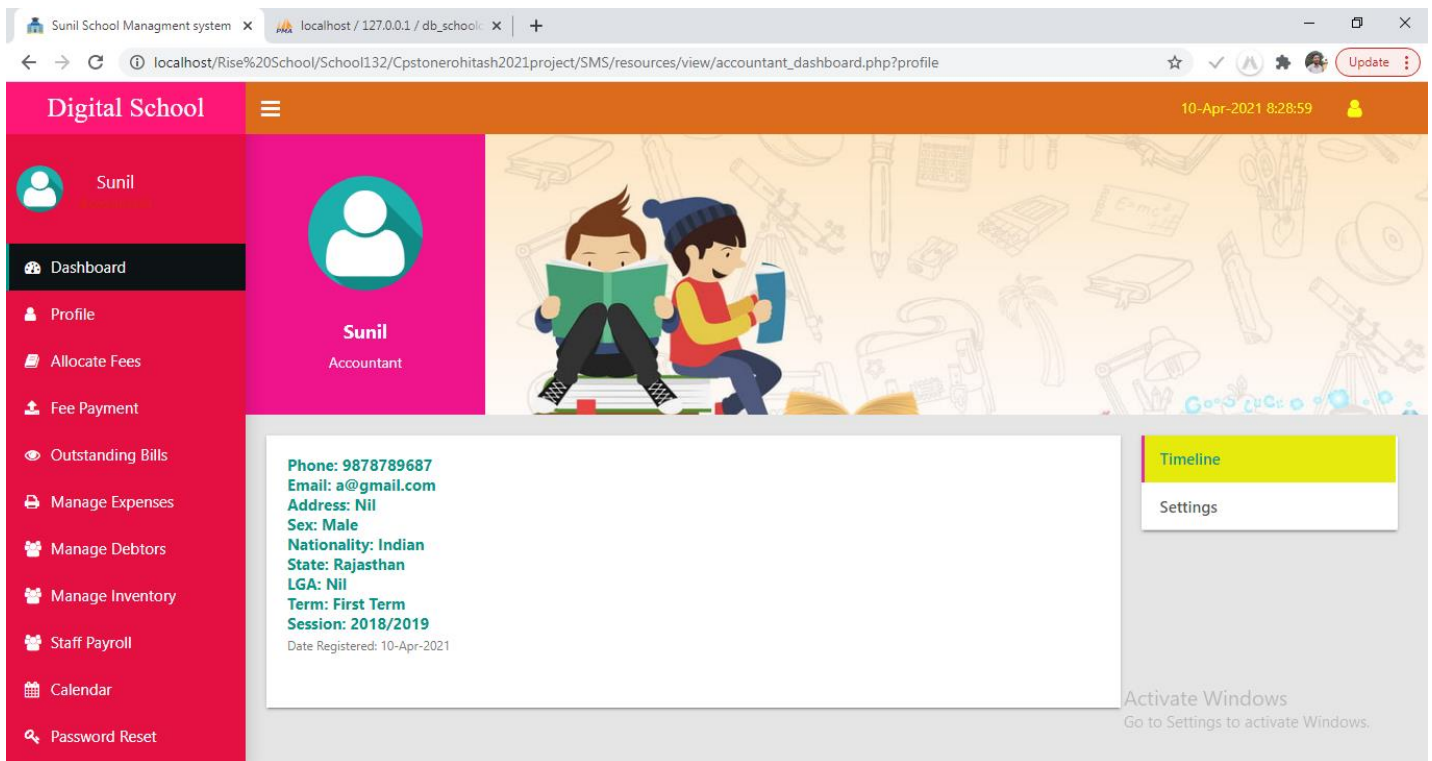


Fig 14: Profile View of Accountant

## 9. CONCLUSIONS

The school automation system for higher education is a web-based interface that integrates all school-related operations. We have complete control of the school's operations and can retain relationships with teachers, and administration. Finally, by using a web browser, we may infer that accessing and monitoring the school administration system is simple and effective. All the operation of the school is managed by this system and control of each and everything is done on single sign on window. It helps us to deal with modern education system in far better way by use of information technology. And this modern era made everything digital which led to development of digital school automation system where there's zero paper work and no time wastage for student standing in queue for admission, result and assignment submission.

## 10. FUTURE WORK

The future of this project will be to develop most advance school automation system for higher education by using future technologies like Artificial intelligence and machine learning for face detection in marking attendance of student, staff or faculty from anywhere in school premises, conducting remote exam if student facing problem, increasing security related student document like Digi Locker, use of big data for noticing the behaviour by using GPS system and CCTV footage.

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