

Bangladesh University of Business and Technology
(BUBT)



System Analysis and Design
On
School Management System

Submitted By:

Md. monzurul Alam Sajal (19202103007)
Sourov Karmokar (19202103020)
Sihab Mahmud (19202103032)
Sourav Hazra (19202103036)

Submitted To :

Most.Jannatut Ferdous
Lecturer, BUBT

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1 Introduction

1.1 Project Overview

We are working on 'P.S.N High School Management'

School management system is an information system to manage school related data and transactions. School system may consist of several branches within territory or round the globe. It contains various actors for example students, staff, teachers, student's parents, managerial staff etc.



Figure 1: School Management

1.2 Why this is chosen

Maintaining school operations is a crucial task for any educational institute. Manual work at school is a daunting task, and sometimes it contains errors. Technology has assisted us to overcome these issues. In this digital era, the availability of online software helps to automate most school operations efficiently. A web-based school management system benefits the school in many

ways. From handling the administrating task to communicate with parents, all the major school operations can be handled efficiently with this system. But, what is school management software?

The school management system is software to accomplish daily school operations. The software enables schools to manage major school administrative and everyday duties such as admissions, registration, attendance, scheduling, etc. It centralized the school processes and increases the visibility of all functions among the school staff. Also, the school management software is designed to enhance efficiencies and effectiveness of school functions. There are many compelling aspects of the system that helps to reduce unnecessary and repetitious work.

The P.S.N school management system software automates the school operations and reduces the burden on management. Efficient school management is the ultimate goal of any educational institute which can be fulfilled by the school management system software. In this article, you will get the key reasons to choose a web-based school management system software.



Figure 2: Why choose School Management System

1.3 Lacking of existing system

- Paper-based processes
- Online Registration
- Course Management
- Teacher Evaluation
- Student Monitoring
- Revenue Management

1. Paper-based processes

Educational institutions are burdened by cumbersome paperwork and manual processes, and they find it difficult to maintain records on attendance, fees, admissions, transport, etc., and track the information they need. Using School Management System, automate academic processes to save time and reduce staff workload.

2. Online Registration

Students no more have to stand for hours in the queue to pay fees. Simplify registration and fee collections with online forms, with the ability to send automatic notifications, alerts and reminders via email, SMS alerts and push notifications from mobile devices.

3. Course Management

Designing a course curriculum that can adapt to the changing needs of the institution is crucial. With a Course Management System institutions can accomplish a lot with limited resources. Create and track course-work, assignments, and exam papers in a conducive classroom environment to support the goal of graduating students.

4. Teacher Evaluation

Tracking the progress of teachers and evaluating the effectiveness of teachers' work is significant. Teacher evaluation system improves communication and collaboration between evaluators and teachers. Student's feedback will measure teacher's performance in the classroom and the automated evaluation process improves student learning skills, achievement and success.

5. Student Monitoring

Teachers are struggling to monitor student's activities including attendance, leave, discipline, assignments, etc. School administrators are lacking in result-based monitoring tools to track student progress. Automate and streamline student attendance and absenteeism using student information system which delivers real-time status updates of student activities to support learning needs.

6. Revenue Management

It is difficult for institutions to cope with their finances and track their fee collections and contributions. Seamlessly connect and engage with students, parents and alumni to strengthen relationship and drive greater success.

1.4 Objective

The school management is a management software system that ensures the smooth functioning of daily operations at a reasonable worth. Here are some points that will help you know the aspects of school management:

1. Student information:

It stores the entire data of each and every single student in a single database for the benefit of corroboratory, modifying, or change. Admissions, academics, attendance, examination.

2. Attendance Management

The school group action management module keeps track of the attendance of students. The biometric helps in prompt time and tracking of students that reduces group action calculation errors.

3. Fee Management

This easy school Management package, fee management now's created hassle-free and easy. Parents can pay from anywhere and at any time using online mode of payment. 4. Timetable Management It also maintains and updates the timetable for students and lecturers. It also sets up daily schoolroom schedules, future events, and vacation notifications.

5. Reports Management

Reports and grades module creates a test analysis report of students that works between students, teachers, and parents. The grading system also helps the parents and as well as teachers to judge students' progress then proceed with necessary mentoring and guidance.

2 Analysis Of the System

2.1 Context Level Diagram

Context Diagram is a basic overview of the whole system or process being analyzed or modeled. It's designed to be an at-a-glance view, showing the system as a single high-level process, with its relationship to external entities.

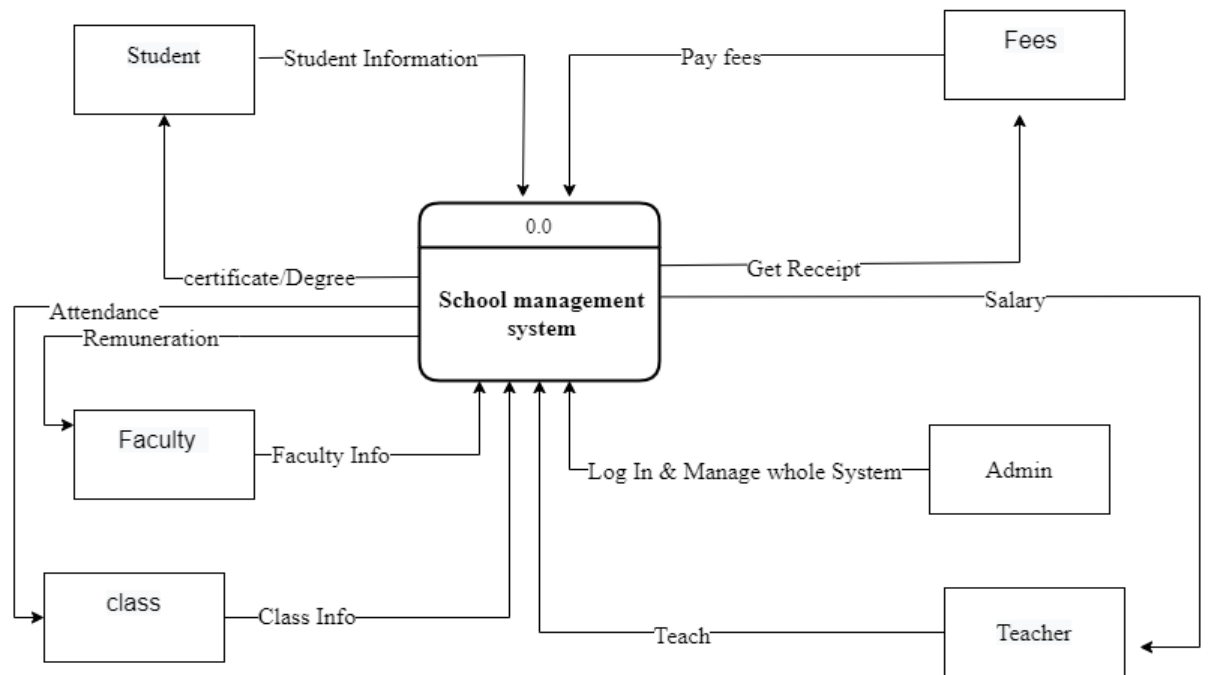


Figure 3: Context Level Diagram

2.2 0 Level DFD

In 0-level DFD, the context diagram is decomposed into multiple bubbles/processes. In this level, we highlight the main functions of the system and breakdown the high-level process of 0-level DFD into subprocesses.

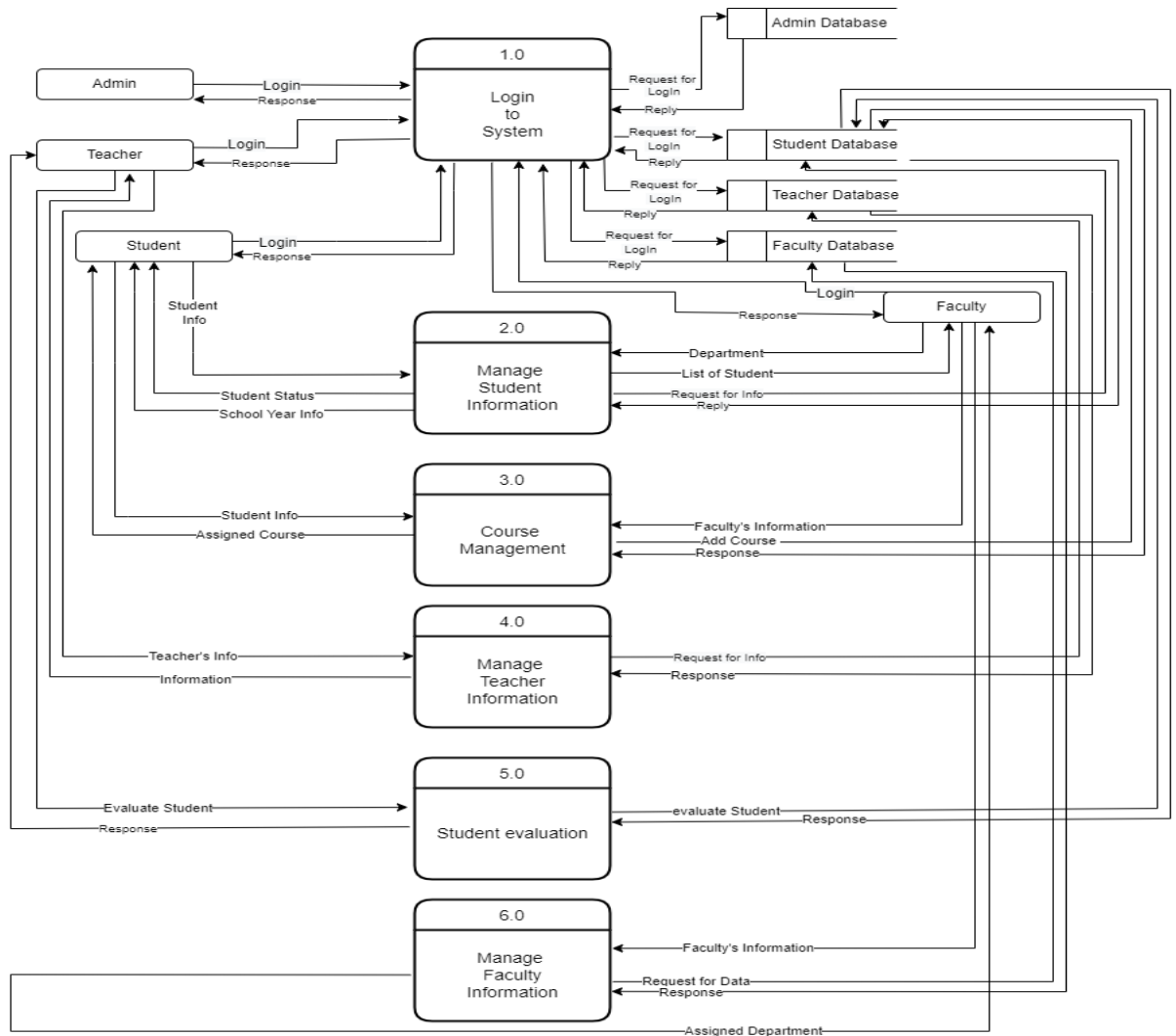


Figure 4: 0 Level DFD

2.3 ER Diagram

An entity-relationship model describes interrelated things of interest in a specific domain of knowledge. A basic ER model is composed of entity types and specifies relationships that can exist between entities.

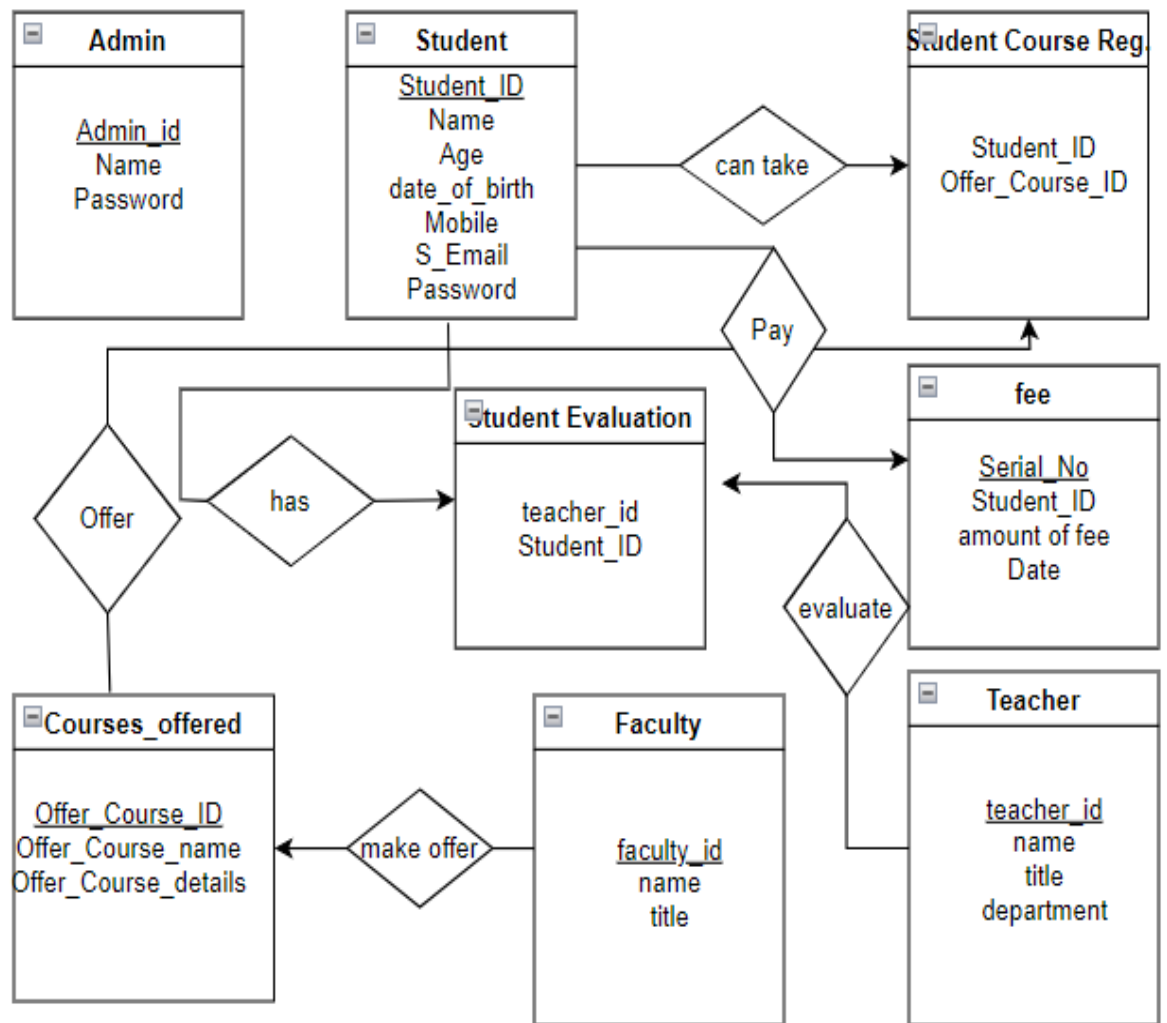


Figure 5: ER Diagram

2.4 Use Case Diagram

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well.

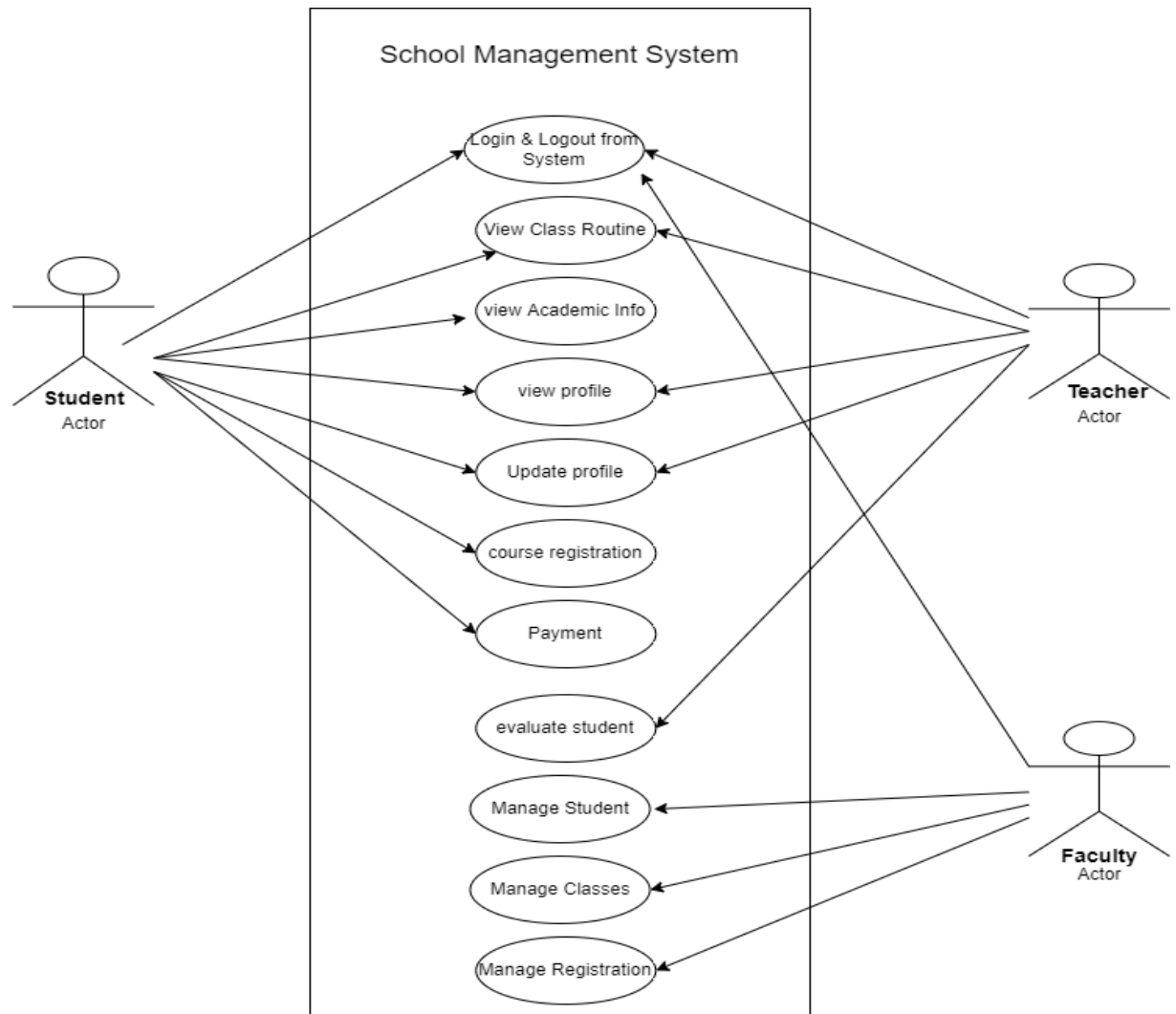


Figure 6: Use Case Diagram

3 Feasibility Analysis

Feasibility study is a step towards identification of the candidate system as a feasible product. First the studies often pre-suppose that when the feasibility document is being prepared, the analyst is in a position to evaluate solutions. Second, most studies tend to overlook the confusion inherent in system development – the constraints and the assumed attitudes.

3.1 Evaluation of solution

Here we analysis feasibilities of each solution. The feasibility study is carried out under the following three areas:

(a) Technical Feasibility,

Technical feasibility evaluates the technical complexity of the expert system and often involves determining whether the expert system can be implemented with state-of-the-art techniques and tools.

(b) Operational Feasibility,

Operational feasibility is the measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development.

(c) Economic Feasibility,

The economic feasibility step of business development is that period during which a break-even financial model of the business venture is developed based on all costs associated with taking the product from idea to market and achieving sales sufficient to satisfy debt or investment requirements.

3.1.1 Technical Feasibility

A study of resource availability that may affect the ability to achieve an acceptable system. This evaluation determines whether the technology needed for the proposed system is available or not.

- Can the work for the project be done with current equipment existing software technology and available personal?
- Can the system be upgraded if developed?
- If new technology is needed then what can be developed? This is concerned with specifying equipment and software that will successfully satisfy the user requirement.

3.1.2 Operational Feasibility

In manual system whenever any person comes in and asks for the services from the system as per the requirement, staff members has to check for the solutions of their requirements manually by searching each and every record and updates all the records when the task given to them is accomplished. Besides this, the staff members have to prepare various status reports manually which in turn require greater attention over the different records of the system. Manual system has more problems associated with it.

3.1.3 Economic feasibility

Cost:(System Development(website) + Computer + Rauter + Internet + Others)
Capital= $50,000+1,00,000+5000+10,000+20,000= 1,85,000/-$

Per Month Cost:

System Maintenance : 5,000/-

Utility Bill : 2,000/-

IT Executive : 12,000/-

Account Officer : 10,000/-

Launch Bill+ Others: 11,000/-

So, Total Cost Per Month = 40,000/-

Where Per Month come from Student= 60,000/-

Per Month Revenue= $80,000 - 60,000 = 20,000/-$

Payback Period:

Simple Cost: 1,85,000/-

Savings: 20,000/- (per month)

Cost recovered in: $(1,85,000 / 20,000) = 9$ Months

So, Total cost will be recovered in 9 months(approximately).

4 Graphical User Interface

4.1 Home Page



Figure 7: Home Page

4.2 Login Page

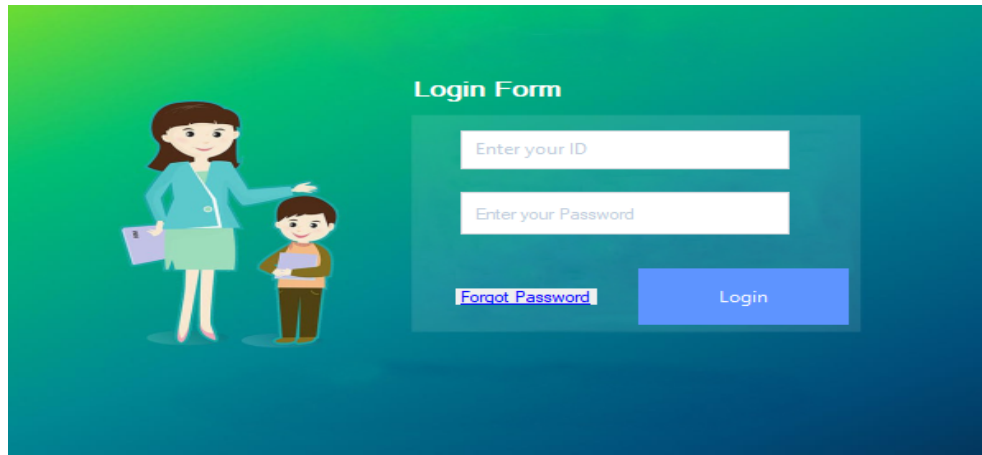


Figure 8: Login Page

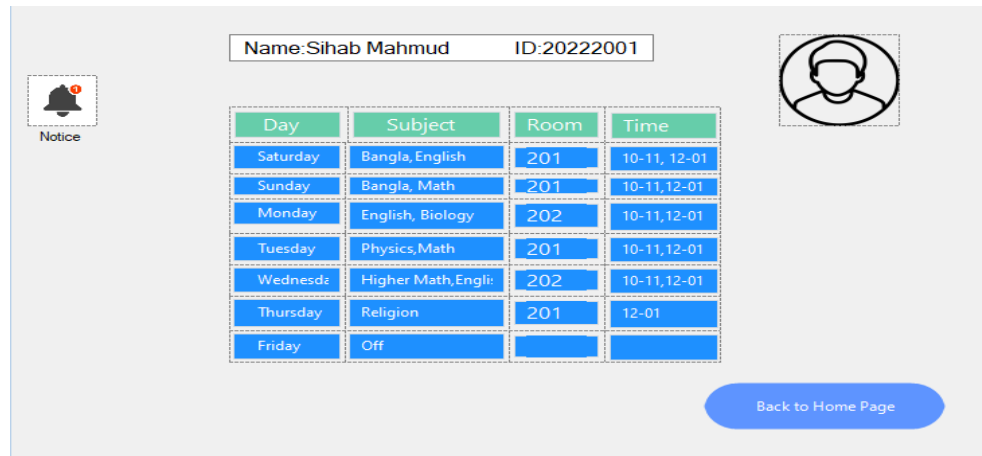
4.3 Student

4.3.1 Student Dashboard



Figure 9: Student Dashboard

4.3.2 Class Routine

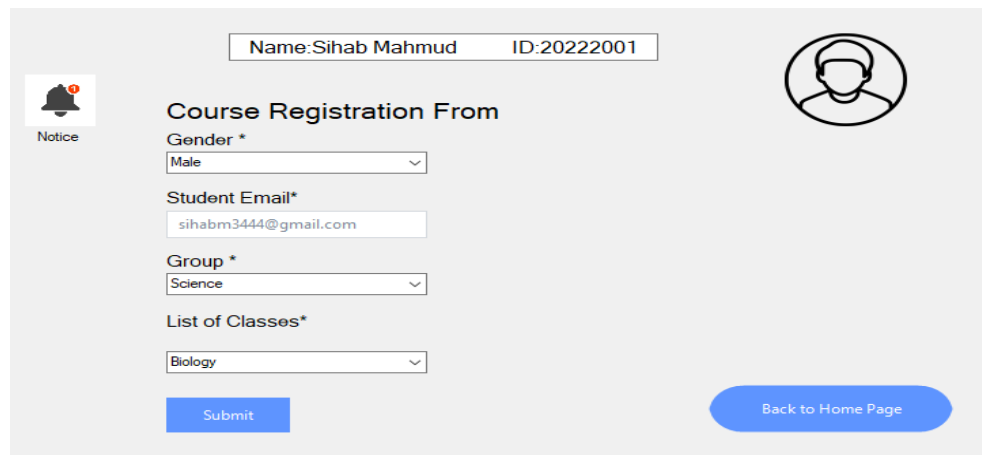


The interface displays the student's name and ID at the top. On the left is a 'Notice' icon. On the right is a profile icon. The central part features a table with the class routine. At the bottom right is a 'Back to Home Page' button.

Day	Subject	Room	Time
Saturday	Bangla, English	201	10-11, 12-01
Sunday	Bangla, Math	201	10-11, 12-01
Monday	English, Biology	202	10-11, 12-01
Tuesday	Physics, Math	201	10-11, 12-01
Wednesday	Higher Math, English	202	10-11, 12-01
Thursday	Religion	201	12-01
Friday	Off		

Figure 10: Student Class Routine

4.3.3 Course Registration



The interface displays the student's name and ID at the top. On the left is a 'Notice' icon. On the right is a profile icon. The central part contains a 'Course Registration From' form with several fields. At the bottom left is a 'Submit' button, and at the bottom right is a 'Back to Home Page' button.

Course Registration From

Gender *
Male


Student Email*
sihabm3444@gmail.com


Group *
Science

List of Classes*
Biology

Figure 11: Student Course Registration


4.3.4 Result


Notice

**P.S.N High School Result:**

Name: Sihab Mahmud

ID: 20222001





Class	Result(GPA)	Year
Seven	3.75	2019
Eight	3.50	2020
Nine	4.00	2021

Back

Figure 12: Student Result


4.3.5 Payment



Notice



Name: Sihab

ID: 202291110



 **Payment**

TestCheckoutDemoMerchant1

Invoice: 3221

₹1085


Your bKash Account number

e.g @1XXXXXXXXXX

By clicking on Confirm, you are agreeing to the [terms & conditions](#)

CLOSE

CONFIRM

 16247

Back

Figure 13: Student Payment

4.3.6 Notice

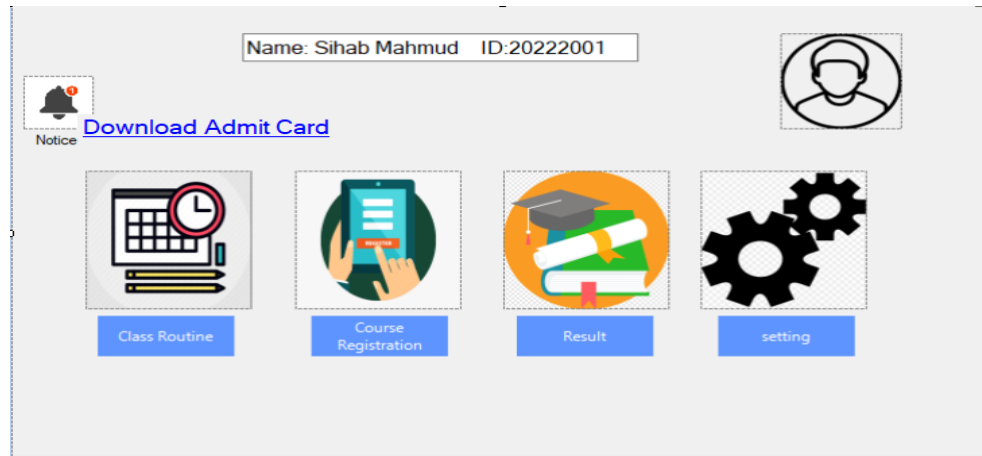


Figure 14: Student Notice

4.3.7 Setting

The screenshot shows the 'Student Setting' interface. At the top, a header bar displays 'Name: Sihab Mahmud' and 'ID: 20222001'. On the left, there is a 'Notice' icon (a bell with a red notification dot) and a blue link labeled 'Download Admit Card'. On the right, there is a profile icon (a person's head and shoulders) and a blue button labeled 'Edit Profile'. Below the header, there are four main navigation buttons: 'Class Routine' (with a calendar icon), 'Course Registration' (with a hand holding a tablet icon), 'Result' (with a graduation cap and books icon), and 'setting' (with a gear icon). The 'setting' button is highlighted in blue. Below the navigation buttons, there are four input fields: 'Name' (with sub-fields for 'First', 'Mid', and 'Last'), 'Email' (with placeholder text 'Enter Your Email'), 'Phone' (with placeholder text 'Enter Your Phone'), and 'Father's Phone' (with placeholder text 'Enter Your father's Phone'). A blue 'Update' button is located at the bottom right.

Figure 15: Student Setting

4.4 Teacher

4.4.1 Teacher Dashboard

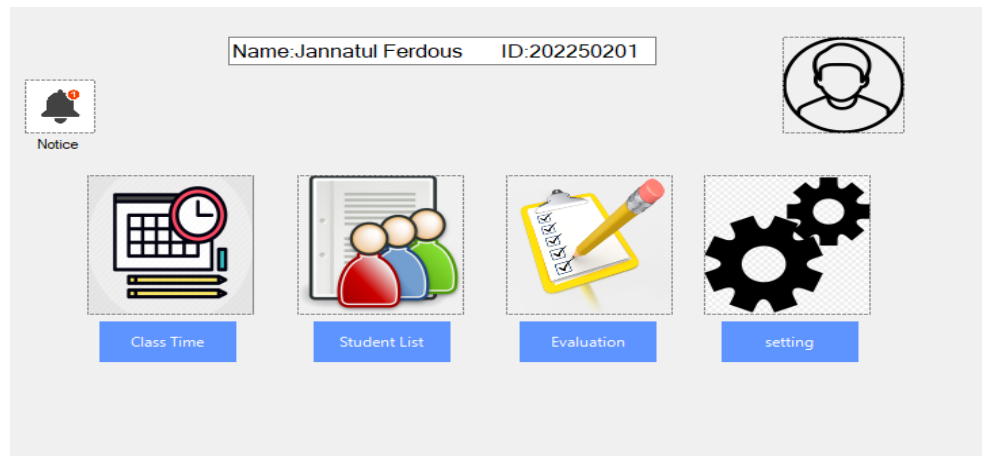


Figure 16: Teacher Dashboard

4.4.2 Routine

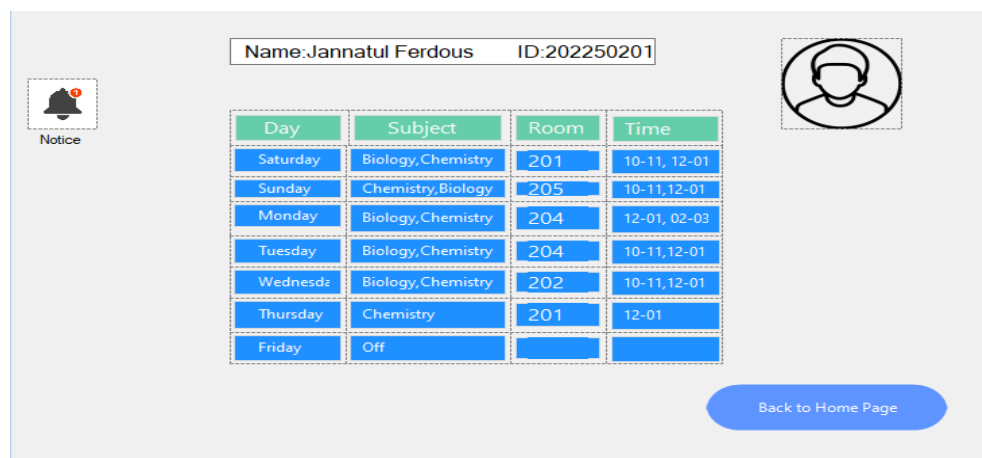





Figure 17: Teacher Routine

4.4.3 Student List


Notice

**P.S.N High School Student List:**

Name:Jannatul FerdousID:202250201





Class	Total Student	Detail
Seven	75	Click
Eight	50	Click
Nine	40	Click

Back


Figure 18: Student List

4.4.4 Student Evaluation


Notice

**P.S.N High School Student evaluation:**

Name:Jannatul FerdousID:202250201



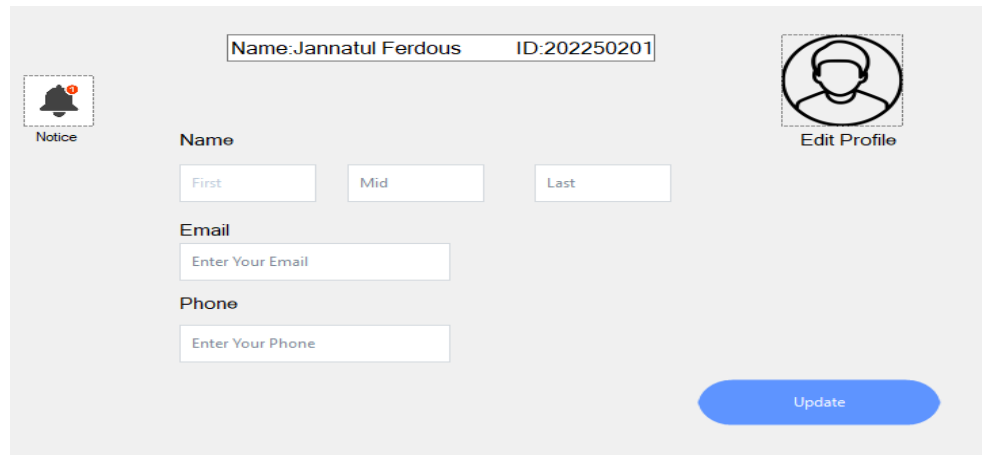
Student	Name	Subject	Marks
20222001	Sihab Mahmud	Biology	45
20222002	Rasel Raju	Biology	72
20222003	Sahinul Islam	Biology	68
20222005	Sakib Khan	Biology	55

Update

Back

Figure 19: Student Evaluation

4.4.5 Setting



The Teacher Setting interface displays the user's name and ID at the top: "Name: Jannatul Ferdous" and "ID: 202250201". On the left, there is a "Notice" icon (a bell with a red notification bubble). On the right, there is a profile picture icon and a link to "Edit Profile". The main form area contains fields for "Name" (split into "First", "Mid", and "Last" text boxes), "Email" (a single text box with the placeholder "Enter Your Email"), and "Phone" (a single text box with the placeholder "Enter Your Phone"). A blue "Update" button is located at the bottom right of the form.

Figure 20: Teacher Setting

4.4.6 Notice

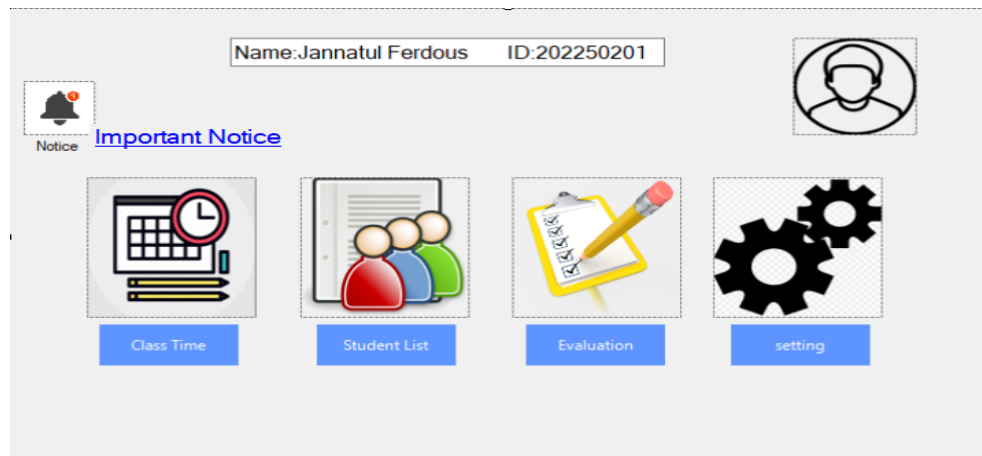


Figure 21: Teacher Notice

4.5 Faculty

4.5.1 Faculty Dashboard

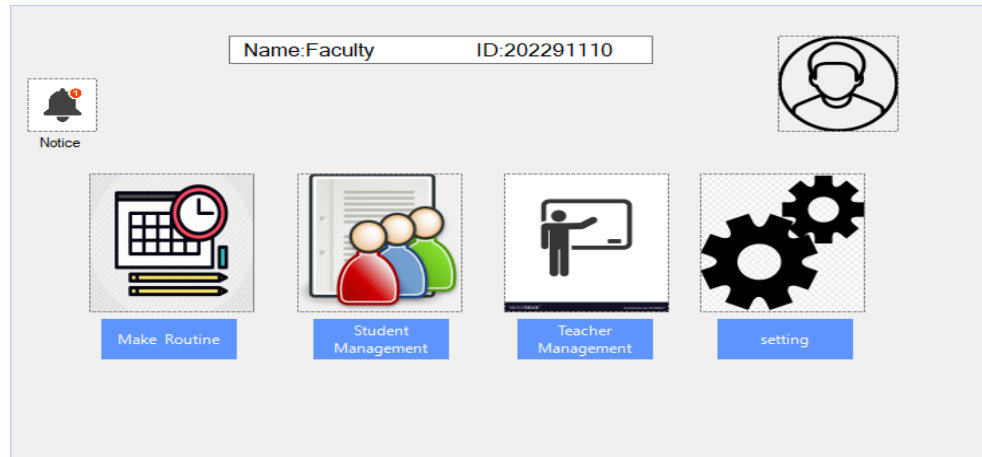


Figure 22: Faculty Dashboard

4.5.2 Routine Management

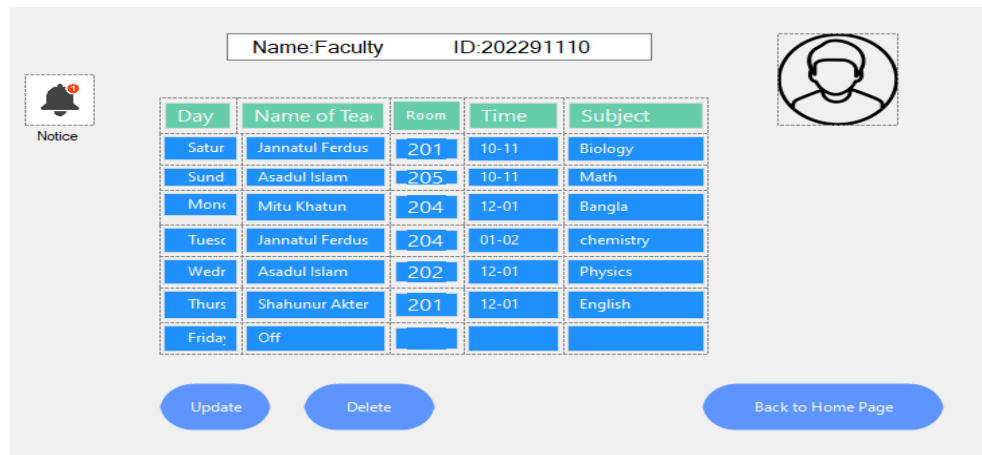





Figure 23: Faculty Management

4.5.3 Student Management

Name:FacultyID:202291110





P.S.N High School Student Management:

Student ID	Name	Course	Payment	Education Info	Contact
20222001	Sihab Mahmud	physics,chemistr	Click	Click	0174737872
20222002	Rasel Raju	general math,	Click	Click	0191929374
20222003	Sahinul Islam	Biology,English	Click	Click	0174858483

ClassTotal

756



980


Edit / UpdateBack

Figure 24: Student Management

4.5.4 Teacher Management

Name:FacultyID:202291110





P.S.N High School Teacher Management:

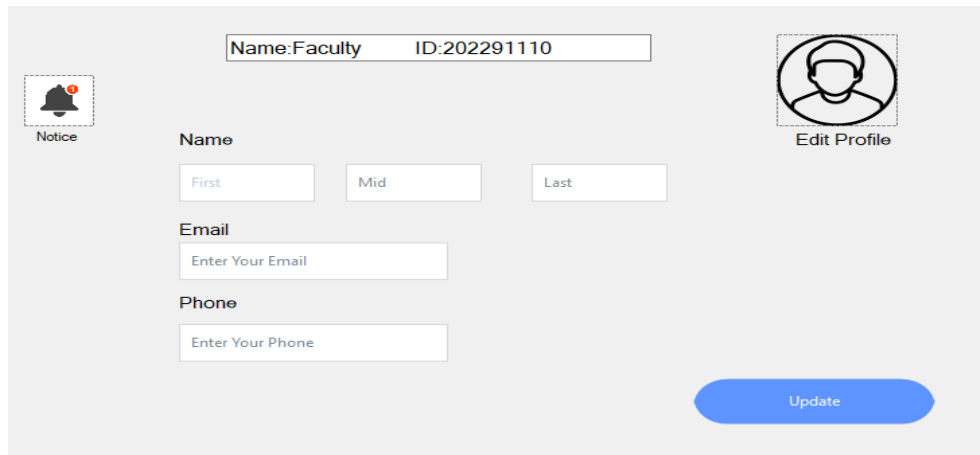
Teacher ID	Name	Subject	C Room	Class Time	Contact
202250201	Jannatul Ferdous	physics	201	10-11	0174737872
202250205	Asadul Islam	general math	203	10-11	0191929374
202250200	Mitu Khatun	English	204	01-02	0174858483

Edit / Update

Back

Figure 25: Teacher Management

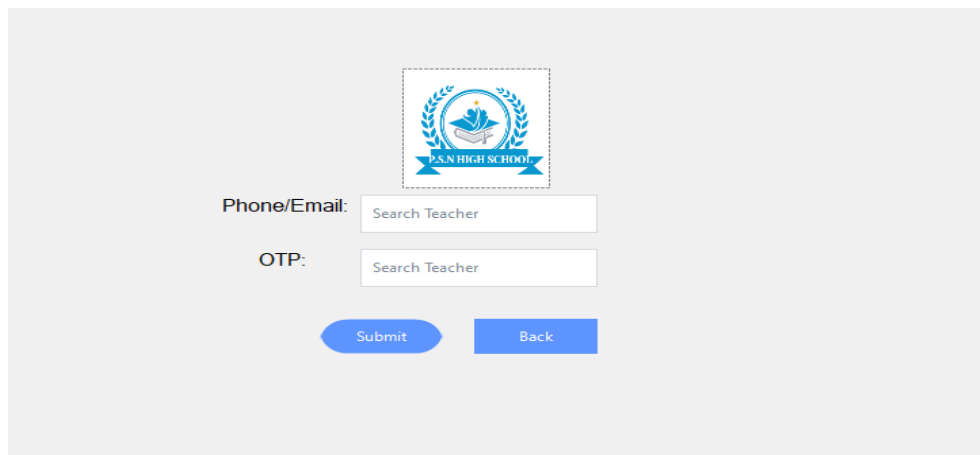
4.5.5 Setting



The Faculty Setting form is displayed on a light gray background. At the top left, there is a 'Notice' icon (a bell with a red notification dot). At the top center, a box contains the text 'Name:Faculty' and 'ID:202291110'. At the top right, there is a profile icon (a person's head and shoulders) and the text 'Edit Profile'. Below the 'Name' label, there are three input fields: 'First', 'Mid', and 'Last'. Below the 'Email' label, there is a single input field with the placeholder text 'Enter Your Email'. Below the 'Phone' label, there is a single input field with the placeholder text 'Enter Your Phone'. At the bottom right, there is a blue rounded button labeled 'Update'.

Figure 26: Faculty Setting

4.6 Forget Password



The Forget Password form is displayed on a light gray background. At the top center, there is a logo for 'P.S.N HIGH SCHOOL' featuring a book and a torch. Below the logo, there are two input fields. The first is labeled 'Phone/Email:' and contains the placeholder text 'Search Teacher'. The second is labeled 'OTP:' and also contains the placeholder text 'Search Teacher'. At the bottom, there are two blue rounded buttons: 'Submit' and 'Back'.

Figure 27: Forget Password

5 Future Work

This system provides pre-defined features for every user that includes students, teachers, parents, as well as admin staff. The features for admin will include Instant announcements, Admission management, fee management, schedule management, staff management, and more.

Features like Blood Group, Result's graph and more will help the students and parents to be informed about their school work.

School management software generally comes with essential features for the improved collaborate and communicate between the school and end users.

School management system apps have made notable difference schools. Let's look at the how these apps will change the face of education in the future.

6 Conclusion

School Management Systems are being identified as an appropriate method for managing information in schools.

SMS was build based on real life situations in P.S.N High School, taking into consideration all possible situations and functionalities of the daily work in these schools.

This system considered as a good first step in implementing performing online based information management in schools.

7 References

<https://sis.punjab.gov.pk/>
<https://www.techlearning.com/news/student-information-systems>

