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TITLE OF THE PROJECT

School Management System

Submitted By

Md. Eftekhari Hossain

ID: 183-16-363

Supervised By

Md. Mehedi Hassan

Lecturer, Dept. of Computing Information System, FSIT

Daffodil International University

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APPROVAL

This Project titled "School Management System", Submitted by Md. Eftekhar Hossain, ID No: ...183-16-363..... to the Department of Computing & Information System, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computing & Information System and approved as to its style and contents. The presentation has been held on 29-09-2024.

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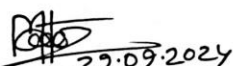
Md Sarwar Hossain Mollah
Associate Professor and Head
Department of Computing & Information System
Faculty of Science & Information Technology
Daffodil International University

Chairman



Md. Nasimul Kader
Assistant Professor
Department of Computing & Information System
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner



Md. Mehedi Hassan
Lecturer
Department of Computing & Information System
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner



Md. Miftah Uddin
Head of SBU, Brain Station 23

External Examiner

Declaration

I Md. Eftekhar Hossain hereby declare that; this project has been done by me under supervision of Md. Mehedi Hassan, Lecturer, department of Computing and Information System (CIS) of Daffodil International University. I am also declaring that this project or any part of there has never been submitted anywhere else for the award of any educational degree like, B.Sc., M.Sc., Diploma or other qualifications.

Supervised By


29.09.2024

Md. Mehedi Hassan
Lecturer
Department of CIS
Daffodil International University

Submitted By


29.09.24

Name: Md. Eftekhar Hossain
ID: 183-16-363
Department of CIS
Daffodil International University

Abstract

Appropriate guidelines and instructions must be followed to promote a standard solution. SCRUM is a popular development platform for this project. This report is also based on the same. This course provides a clear overview of the project proposal as well as an exhaustive review of the literature. Comparison with the main control program and detailed project planning. The report includes a series of highly accurate and less unique architectures and graphical representations. From a development point of view, it is very clear how the project is developing. Additional support is available for project evaluation. The last part of the project implementation, the necessary assessment and the last part of the project can be found in the extensive menu.

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1. Introduction

Summary of the Project:

This section provides a summary of the School Management System project. It covers various topics such as the background, aims, and objectives of the project.

Schools and educational institutions often require an organized system to manage the vast amount of data and activities related to students, teachers, and administration. School management systems streamline tasks such as admissions, attendance tracking, class scheduling, and fee management. These systems are also valuable for managing extracurricular activities, exams, results, and communication between parents, students, and staff.

The **School Administrator** plays a crucial role in planning, organizing, and overseeing the school's daily operations. They manage multiple tasks, from monitoring student progress to coordinating with teachers and parents, ensuring the smooth running of the institution. The system is designed to assist school administrators by automating routine processes and improving efficiency. This allows the school to focus more on enhancing educational quality and student engagement.

Government organizations, private institutions, and educational consultants use school management systems to improve productivity and reduce the manual workload. These systems are typically used in education management, administrative work, or public relations. Proper planning of the system is essential for ensuring that the different functionalities, such as student data management and teacher coordination, work seamlessly together. Modern school management requires time, precision, and effort, from managing admissions to reporting and data analysis. Several critical factors must be considered for designing and implementing such a system.

Document Context:

1. **Introduction:** This section describes the work process of the **School Management System**.
2. **Initial Study:** This section explains the project users aim, objectives, and background study. It identifies the problems faced by educational institutions and proposes solutions through the development of the school management system.
3. **Literature Review:** Here, the problem domain is analyzed, and different solutions are compared. It includes discussions on how various school management systems solve challenges in education.
4. **Methodology:** This section details the planning methodology for the project, explaining how the school management system will be developed.
5. **Planning:** The planning process for the project is described here. It also includes the required test plan, plan for risk management, and plan for quality management to ensure the project users success.
6. **Feasibility Study:** The feasibility covers the **economic, operational, technical**, and **social** feasibility of the school management system, ensuring that the project is practical and implementable.
7. **Foundation:** The business processes within the school environment are explored, identifying the problem areas that the school management system seeks to address.
8. **Exploration:** This section includes the necessary diagrams, such as use case and class diagrams, which are vital for understanding the system user's functionality.
9. **Engineering:** The new system diagrams and architectural blueprints for the school management system are presented here.
10. **Deployment / Development:** This section discusses the development and deployment processes for the school management system, including the tools and platforms used.

11. **Testing:** The software testing phase is described, ensuring that the system works as expected and meets the school user's requirements.
12. **Implementation:** The project implementation phase is discussed in detail, covering how the school management system will be integrated into the institution.
13. **Critical Appraisal and Evaluation:** This section evaluates the project goals and measures how well they have been achieved, highlighting the strengths and areas for improvement.
14. **Lessons Learned:** This section reflects on the lessons learned during the project development, focusing on challenges and successful strategies used in the process.
15. **Conclusion:** The conclusion summarizes the project user's overall outcome, reiterating its contributions to improving the management of school activities and processes.

2. Initial Study

Introduction:

In today's educational environment, every school requires a school management system to efficiently handle various aspects such as student enrollment, attendance, grading, and communication. The school management system integrates all necessary functions, enabling teachers, students, parents, and administrators to streamline school operations. This system aims to reduce paperwork, simplify administrative tasks, and enhance communication. With the rise of online applications, managing these processes through a software-based system has become increasingly beneficial. This project outlines the need for an efficient school management system that caters to the goals of modern educational institutions.

2.1 Project Proposal:

2.1.1 Background of the Project:

In today's world, the use of a school management system is becoming more popular and essential for educational institutions. The system helps schools manage students, teachers, parents, staff, and resources in a centralized and efficient manner. It includes features like online registration, class scheduling, attendance tracking, grading, communication, and reporting.

The software will have three types of users: **student**, **admin**, and **teacher**. Students can view their course schedules, check grades, and communicate with teachers through the system. Teachers will have access to student records, assignments, and grading, as well as the ability to communicate with students and parents. The admin manages the overall system, including user accounts, financial reports, schedules, and other administrative tasks.

2.1.2 Aims:

The main goal of this project is to create a comprehensive, user-friendly school management system that supports essential features for managing day-to-day school operations. Key aims include:

- Reducing manual paperwork.
- Maintaining and accessing student academic and financial records easily.
- Facilitating smooth communication between students, teachers, and parents.

- Enhancing the administration's ability to manage school operations effectively.
- Offering online payment systems for school fees.
- Providing efficient class scheduling and reporting systems.

2.1.3 Objectives:

The rapid changes in educational needs require more dynamic solutions for managing schools.

The system user's objectives include:

- Creating a fully web-based school management system.
- Providing a platform where students, teachers, and admin can communicate effectively.
- Offering parents, the ability to track their child user's academic performance and attendance.
- Enabling teachers to manage their classrooms, assignments, and assessments.
- Reducing administrative burden through automation of routine tasks.
- Ensuring the system has a user-friendly interface with secure authentication and data protection features.

2.1.4 Scope of the Project:

This project focuses on creating a system that will be highly beneficial to admins, teachers, and students. The system users scope includes:

- Allowing students to check their course schedules, assignments, and grades.
- Facilitating admin-student and teacher-student communication.
- Enabling admins to manage class schedules, assignments, and financial records.
- Teachers managing their classrooms and student progress.
- Allowing parents to monitor their children user's performance.
- Streamlining online fee payment processes.
- Providing an effective report generation system for the admin.

2.1.5 Target Audience of the System:

The system will cater to students, teachers, school admins, and parents. It can be used for any type of school, whether it is elementary, high school, or college. Students will have access to their academic information and assignments, teachers will have access to student records and performance, and the admin will manage the school user's operations, including communication with parents.

2.1.6 Hardware:

- Device model: Dell Vostro 1450
- Processor model: Intel(R) Core (TM) i3-4000U
- RAM size: 4GB
- Hard disk size: 512gb
- Screen size: 14 inches

2.1.7 Software:

- Dependency: Composer (PHP)
- Tool for Development: PHP Storm
- Programming Language: PHP (Laravel)
- Database Name: XAMPP
- , MySQL
- Tools for Designing: Vue JS, Inertia JS, HTML, CSS
- Operating System: Windows 10 Pro
- Browser: Google Chrome, Mozilla Firefox

2.1.8 Human Resource:

- Developer: 1 person
 - Working days: 90 days (approximate)
-

2.2 Problem Area:

Many schools still rely on manual processes for managing student data, attendance, grading, and communication. These processes are time-consuming and prone to human error, leading to delays and inefficiencies. Additionally, managing different systems (attendance, grading, and communication) separately can result in inconsistent or incomplete data. A comprehensive school management system can reduce these problems by automating tasks and integrating all processes into one platform.

2.3 Possible Solution:

To address the problems associated with manual and disjointed processes in schools, we propose an online school management system. The system will be web-based and offer features

that allow students, teachers, and admins to manage school-related tasks online. These include grade tracking, attendance, assignment submissions, and communication between users. The goal is to create a system that ensures data consistency, saves time, and enhances communication within the school community.

2.4 Summary:

In terms of the project user's scope, the system will solve the problems currently faced by schools that rely on manual or disjointed systems. The system will streamline administrative tasks, enhance communication between all users, and provide easy access to important data for students, teachers, and parents.

3. Literature Review

Introduction:

A literature review examines prior research and solutions related to school management systems, gathered from books, journals, and online sources. This helps identify existing issues and gaps in current systems and provides insights into designing a more effective solution for school management.

3.1 Discussion on Problem Domain Based on Published Articles:

Many schools still face inefficiencies due to the use of paper-based systems or isolated software that manages only specific functions like grading or attendance. The lack of integration between these systems often leads to data inconsistency and delays. A school management system must encompass various functions, including administrative tasks, student records, communication, and financial management, while ensuring ease of use for all users.

Studies have emphasized the importance of creating systems that integrate multiple school functions into one platform, thereby reducing administrative workload and increasing operational efficiency (Source: Mary Jo Ross, 2006).

3.2 Problem Solutions Based on Published Articles (Discussion):

Several systems have been developed to address the inefficiencies in school management. For example, web-based systems have become increasingly popular, offering schools the ability to integrate grading, attendance, communication, and financial management into one platform. Automated systems help schools reduce manual effort, streamline operations, and maintain data accuracy.

3.3 Comparison of Three/Four Leading Solutions:

In my research, I identified several school management systems and conducted an in-depth comparison based on their features. Three notable solutions are:

- **System A:** Known for its user-friendly interface but lacks real-time communication features.
- **System B:** Offers robust reporting but is costly for smaller institutions.
- **System C:** A comprehensive solution with moderate pricing but requires better customization options.

By analyzing these systems, we can design a more balanced solution that is affordable, customizable, and integrates essential school management features.

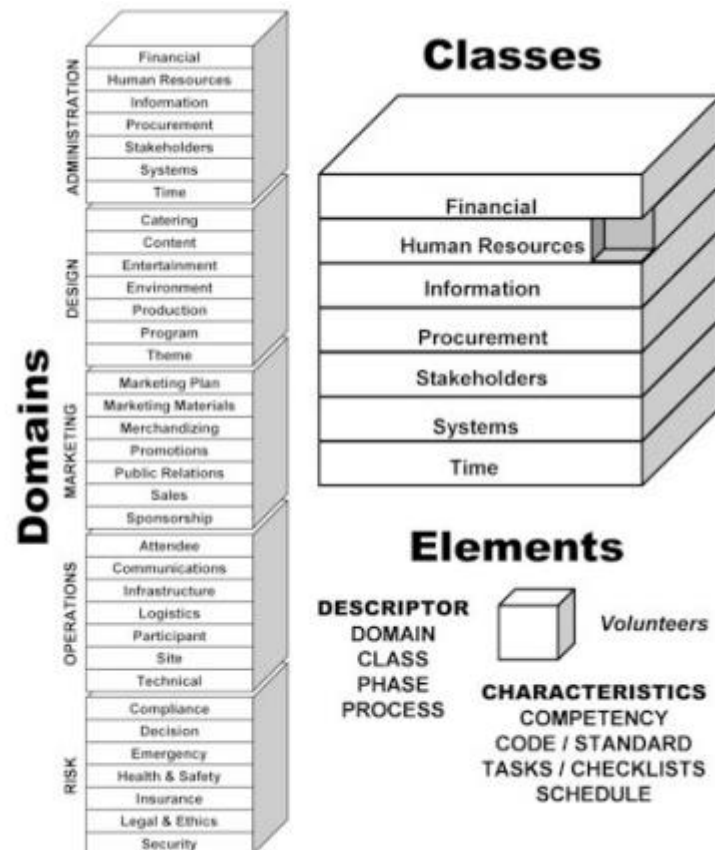


Figure 1 IEMBOK model domain types details.

(GLENN BOWDIN, 2023)

3.2 Discussion on Problem Solutions Based on Published Articles:

School administrators often need to continuously update and refine their management strategies because educational institutions face evolving challenges. One of the most significant aspects of school management is often referred to as "project management" within the educational context. Addressing complex issues effectively can enhance the success of managing academic programs. However, Breton (1998) notes that there is limited research supporting decision-making, especially when it comes to using statistical data in schools. Cottell and Mills (1992) studied integrated learning systems that emphasize collaboration and problem-solving techniques in an educational setting (Sonia Goltz, 2008).

A widely-used method in school administration is case analysis. The integration of case studies in the curriculum is debated in its effectiveness. According to Breton (1998), Prgent finds that there are no significant differences in problem-solving approaches used at institutions like Harvard, where students often have limited exposure to real-world problems (Jafar Pourfeiz, 2012). In the traditional method at Harvard, the knowledge and experience gained through real-world case applications were essential. Although classroom-based problem-solving is effective, practical exposure remains essential for school management teams.

Bandy (1994) argued that reinforcement strategies are crucial, as they demonstrate the capacity of students and administrators alike to solve problems in an applied context. He emphasized the importance of relying on resources beyond textbooks for experiential learning, which applies directly to solving school management challenges.

Like the development process in educational management, the problem-solving learning approach allows educators and administrators to document knowledge independently and set targeted goals and objectives. Fonstad (2001) explored the use of technology in educational institutions and highlighted that "innovation through technology is crucial but requires prior knowledge to be effectively implemented."

The use of instructional technology for developing leadership skills is a powerful tool for solving school-related problems. It facilitates the collection, recording, and organization of data, helping administrators manage issues more effectively over time. According to Wake (1993) in Fonstadt (2001), personal and professional growth in education is both necessary and complex. Additionally, advances in technology offer solutions to internal school management problems, such as attendance tracking, scheduling, and communication.

Problem-solving in school management presents opportunities to conduct research and demonstrate the school user's capacity to manage academic programs. For instance, issues like student health emergencies or communication breakdowns affect information flow. Therefore, confidence in problem-solving skills becomes crucial. Educators and administrators who are adept at problem-solving increase their chances of implementing successful strategies. According to Smith and Kulikovich (2004), using general problem-solving theories and identifying problems early is critical for addressing complex issues in a school setting (Front. Psychol, 2017).

One of the main goals in school management is identifying the learning needs of students and staff to enable them to perform tasks efficiently. Tailoring these resources to meet the specific needs of the education sector ensures that schools can maintain high standards of administration and instruction.

In summary, problem-solving skills in school management demonstrate the ability to choose the correct solution confidently and implement it successfully. Online discussion forums or technology-based platforms for collaboration can offer effective solutions to complex problems. These forums provide high-quality insights into problem-solving techniques. Furthermore, administrator's user ability to navigate problem-solving processes improves their understanding of school management challenges and solutions.

Moreover, problem-solving checklists are often used in schools to analyze administrative behavior and understand public perceptions of school performance. The PSI guidelines (Anderson, 1980) provide a structured approach for preventing internal or external issues that

may arise, ensuring that schools operate smoothly. Sternberg and Salter (1984) emphasized that these guidelines are particularly valuable for avoiding inclusion issues and other challenges (Robert J. Sternberg, 2023).

4.4 Recommended approach:

When defining marketing strategies and reviews for each project and service, it can determine what works in a given environment and how customers can do it. The right thing to do, it ends there. The following parameters are defined as follows:

- ☐ Students **and parents can view academic records and fee details.**
- ☐ Administrators **can communicate with teachers, students, and parents.**
- ☐ Teachers **can select and manage student attendance records.**
- ☐ Administrators **can book classrooms or other facilities for events or exams.**
- ☐ checking **monthly academic performance and fee reports.**
- ☐ Parents **and students can make online fee payments.**
- ☐ Administrators **can assign students to different classes or sessions.**
- ☐ Users **can access and view notices, academic schedules, and exam plans.**
- ☐ Teachers **and administrators can present their reports and agendas during meetings.**
- ☐ Parents **and students can provide feedback and reviews of the school or services.**
- ☐ Administrators **can set up class schedules, exam seating plans, and upload necessary documents.**

4. Methodology

Introduction:

This methodology provides a convenient guide to designing a system that matches the structure and characteristics of the program. In addition, in this way the user can understand their needs and desires. As the operating system adapts and plans and schedules, the need to use this approach increases. Choosing a system that meets the needs of the project is must for the success of software development. The methods used in the system are used to guide, time save, increased efficiency and the quality of results improves. Anyway, a small discussion led to the choice of the "School Management" method this section is recommended.

4.1 What to use:

Below are the four main myths used in the software industry along with their strengths and weaknesses.

4.1.1 Water fall:

This is a traditional way of developing software. It looks like a series of five steps in sequential phases. Each level must be 100% final to reach the next stage. And there is no way to take the first step.

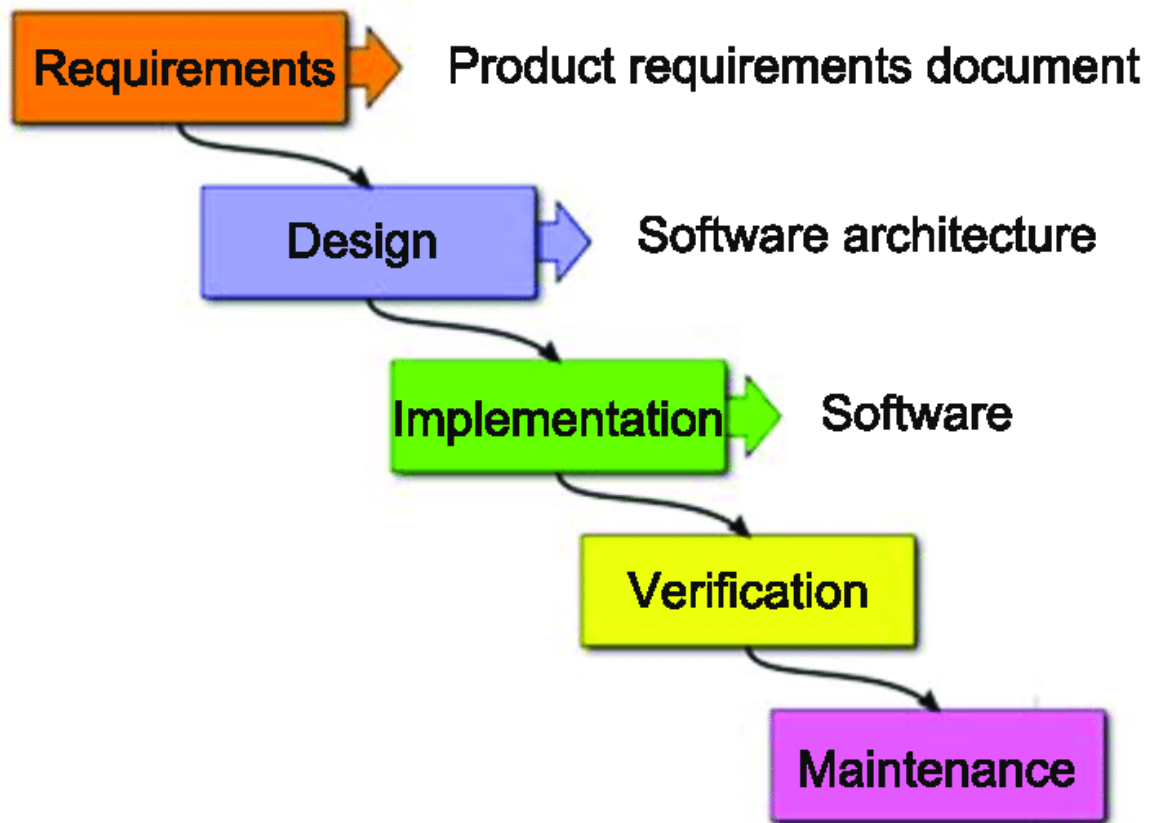


Figure 2 Waterfall methodology life cycle (www.researchgate.net, 2023)

Pros:

- The waterfall model works functionally.
- The model can save a lot of time.
- It can easily be testing the software.
- Easily analyses the system.

Cons:

- Editing and maintenance are not permitted.
- Maintenance projects cannot be considered in this post.
- In no case should the results of this project be accepted
- Not suitable for long term projects.

4.1.2 Agile methodology:

Agile works with implementing technical projects. Reducing the risk of change failure is the main goal of change. It also has business owners who understand the needs of the business and need some time to shut down the system. The agile method can be used many times in a short period of time and the output will appear after a certain time. DSDM Atern, Scrum, lean, crystal, xp are agile framework. Those frameworks are works for agile methodology.

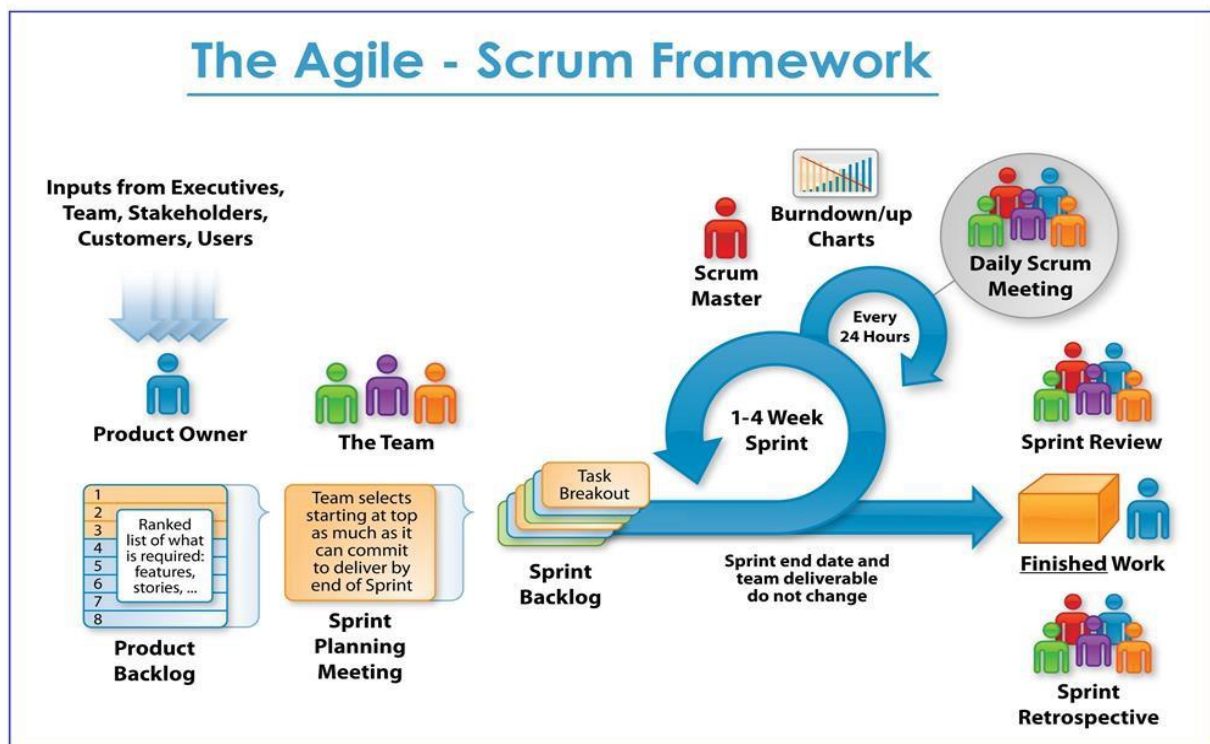


Figure 3 Agile working life cycle (Gopal Karmakar, 2023)

Pros:

- Agile reduces the risk of bugs, lowers costs, and adapts to changing requirements efficiently.
- Agile operates in iterations, allowing for minor changes to be made when necessary during product development.
- This approach ensures the development of the right product by refining requirements as the project progresses.
- Bugs are identified through testing phases conducted midway through the project.

Cons:

- It requires user input throughout the entire development process.
- While it is flexible, the specific time constraints may not always suit larger projects.
- Agile focuses on the development process rather than data management.

40

4.1.3 Methodology of Rapid action development:

It uses a method of software development that achieves success in a short time. It users intended for use in development programs. The purpose of this project is to facilitate the overall development of the project. Developers need your users for development.

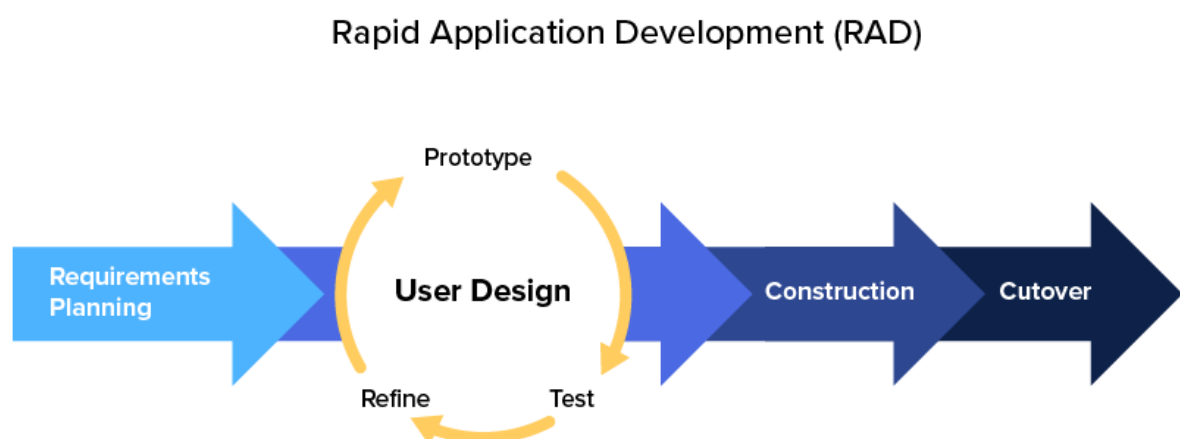


Figure 4Rapid application development process (Rapid Application Development (RAD), 2023)

Pros:

- Easily promote the development process
- Customers can quickly check this method
- Easily user can give feedback and quickly improve the systems.
- Easily can development the system process.

Cons:

- A good team can best performance because it depends on the team.
- Modularized system changes.
- Need a qualified person to solve complex problems
- Not suitable for small projects.

4.1.4 Dynamic system development model (DSDM)

RAD methodology works for DSDM. The project can attract users. The systems are compatible and repeat each other. The purpose of this approach is to provide software with a timely budget. DSDM is based on the philosophy of not providing an appropriate solution. The right decision is made in a repetitive process. DSDM works with groups that include all types of stakeholders. It also needs team members and product owners.

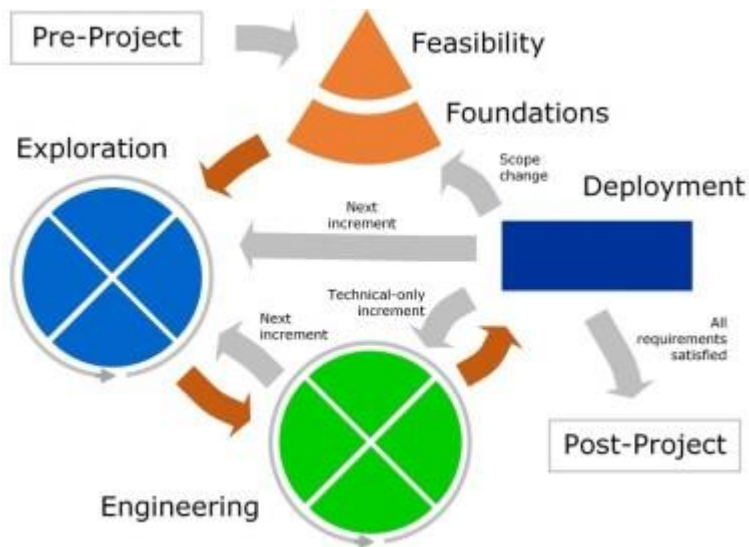


Figure 5. Dynamic system development model

Pros:

- users have an idea of what to do
- Partially expand the project so that users can see the full development at the same time.
- Through repetitive development, users can share ideas throughout the project.
- This allows users to take advantage of simple procedures and manage the system as easily as possible for the convenience of developers.

Cons:

- This method is expensive
- It belongs to large corporations.
- It can add functionality to the project.
- Prioritize performance so that less unnecessary work needs less growth.

Among other things, waterfall follows the production process of conventional software. But the product has a clear effect. There are many types of frameworks, but now the basics are needed. RAD is designed for large groups and requires special teams. DSDM is one of the most popular operating systems in software development today. Even though DSDM is working on big projects and collaborations, they really want to be a part of my research project. It works as a warehouse of the manufacturer, not in my company. As an academic, I am the only person

in the group. I will be an owner, developer and analyst. However, since DSDM is not supported, I would like to include some aspects of DSDM and other SDLC components.

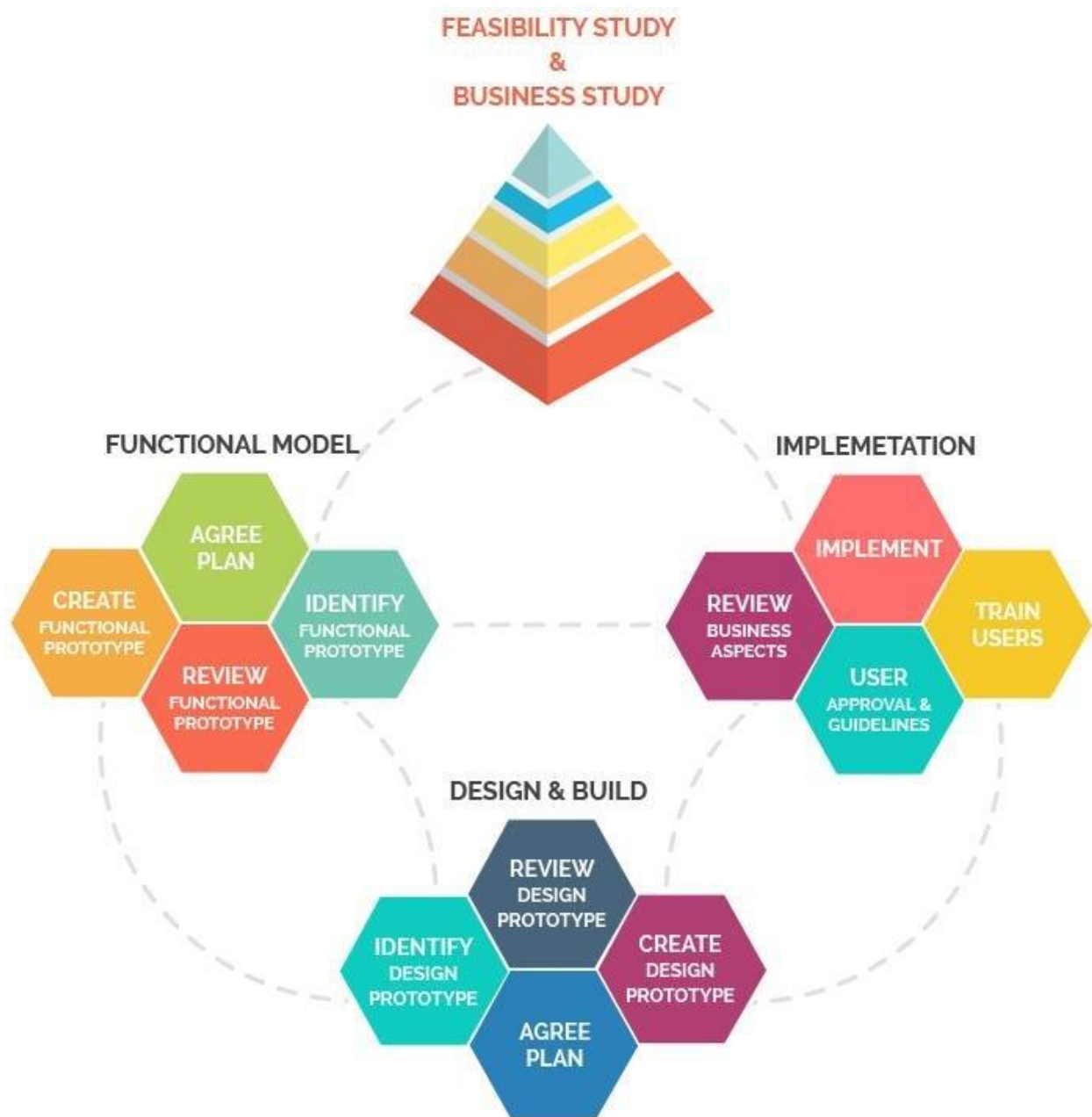


Figure 6. Dynamic system development process (AZM Ehtesham Chowdhury, 2023)

4.2 Why to use:

Two of the selected types need to be methodology. A project is not an administrative activity, nor is it a way to benefit the organization. But this is a course project and no specific work is involved. Therefore, DSDM and waterfall are selected for project development.

4.2.1 The reason behind choosing these two methodologies:

- Application evaluation is done after the line process. First, the nature and function of the project must be determined by evaluation for the waterfall support.
- Project development time is not included. Waterfalls in this area can be used for this purpose.
- Consumers from users will be accepted immediately after consideration. Being a theme, it is hard to attract users to the project. Here activities support SDLC.
- With the help of Moscow DSDM priority, the features become a priority.
- The work is broken down into smaller tasks, aligning with one of the core principles of DSDM.
- Each small task is managed within a time box, with allocated working hours for completion.
- DSDM follows an iterative development process, allowing modifications to address any shortcomings.
- Although the project is divided into smaller components, a prototype is produced at the end of each phase, ensuring the project is on the right track.
- Quality is ensured at every level of work.
- Finally, all work pieces are combined with DSDM.

4.3 Methodology Sections:

❖ Initial Investigation:

As the first step in the process. Here, the initial research focuses on problem areas and history of the systems.

❖ Requirement Elicitation:

The process is designed to meet the needs of users within the system. What are their needs and what problems do they have in managing existing system

❖ Requirement analysis and prioritization:

At this stage, a list of needs is determined by drawing up requirements for the previous period. All these requirements are priorities for Moscow. It also devotes time to some tasks using boxing assignments.

❖ Exploration:

The exploration phase is often used repeatedly to anticipate priorities and protection needs and initiate an appropriate solution. This is not a complete solution that can ultimately be productive. At this point, we are expected to know the exact cost. After receiving the product, it is shipped to the engineering level to ensure the proper technical parameters.

❖ Engineering:

The engineering process is repeated and preliminary troubleshooting is continued to achieve complete hands-on training. In this step, idle requirements for final production are considered. The actual work meeting is now being monitored to see if its users finished. Even if its users a repetitive process but at this stage, Expectations can be proven through new expansions.

❖ Deployment:

The final solution of the deployment phase is that consumers can use as a solution. Most of the products are upcoming. However, end-users will receive bugs or functional deficiencies and then the prototype will be sent towards the design or upgrade stage. Otherwise, if the product is manufactured in accordance with the standards issued for publication, it will work manually.

4.4 Implementation plans:

In order to be successful, the implementation of the group organization must be planned. Project evaluations are recorded at the conclusion of the project. Study of the main texts discussed earlier the existing system needs to be reviewed to meet this need. It needs to build the appropriate prototype to find those who are interested. Finally, ready, you need to start real development or re-study math. While the system is off, the right adjustments must be made to

eliminate incomplete beds and ensure a high level of efficiency. As a result, appropriate data is required to complete the entire development process.

Summary:

The plan is a good way to dedicate all development strategies, in order to achieve business goals. DSDM is the best and effective method offered depending on the type of project. And the DSDM approach is a good choice for design

5. Planning

Introduction:

Our school management system is designed to streamline administrative tasks and enhance the overall efficiency of your educational institution. With our user-friendly platform, you can easily manage student records, attendance, grades, and more. Our system ensures data security and reliability, while providing valuable insights to support informed decision-making. By automating routine processes, we help you save time and resources, allowing you to focus on what truly matters: providing a quality education for your students.

5.1 Project Plan:

The goal of design is to represent the life cycle the life path it needs to succeed. Of course, everything it needs is still provided. For example, planning, design, financial planning, quality, design, risk, planning, communication, charter, financing and more.

5.1.1 Work break down structure:

Work breakdown structure is a method of dividing large projects into smaller pieces to improve project efficiency. These programs are usually designed to simplify the process. There are good and strong methods in the program (Work Breakdown Structure, 2021). Also, all the work needs to be done for convenience. If the breakdown does not collapse, there will be unrest. Here the Work break down structure table are given below:

Task Name	Start Date	End date	Duration
Introduction	16/03/2023	18/03/2023	2
Initial Study	19/03/2023	22/03/2023	4
Litarature Study	23/03/2023	4/4/2023	12
Methodology	5/4/2023	12/4/2023	8
Planning	13/4/2023	18/4/2023	6
Feasability	19/4/2023	23/4/2023	5
Foundation	24/4/2023	28/4/2023	5
Exploration	29/4/2023	3/5/2023	6
Engineering	4/5/2023	10/5/2023	7
Deployment / Development	11/5/2023	16/05/2023	7
Testing	17/05/2023	23/05/2023	6
Implementation	24/05/2023	4/06/2023	10
Critical Appraisal and Evaluation	5/06/2023	9/5/2023	5
Lesson Learned	10/05/2023	14/05/2023	5
Conclusion	15/05/2023	17/05/2023	3

Figure 7. Work break down structure

5.1.2 Resource Allocation:

In general, allocating resources means storing resources for a specific task. Resources may include people, equipment, and other work-related items. But here, in software development, the word source means analysts, software developers, testers and users. Resource allocation money means spending time on specific tasks and responsibilities (Rachel Lebeaux, 2023). Even if there are no team members in the team, I have to complete each task on a specific topic in the project. Here given below the resource allocation of this project:

Task Num	Task Name	Duration	Acting as role
1	Introduction	2	Analyst
2	Initial Study	4	Analyst
3	Litarature Study	12	Analyst
4	Methodology	8	Analyst
5	Planning	6	Analyst, User
6	Feasability	5	Analyst, Developer
7	Foundation	5	Analyst, Developer
8	Exploration	6	Analyst, Developer
9	Engineering	7	Analyst, Developer
10	Deployment / Development	7	Developer, Tester
11	Testing	6	Developer, Tester, User
12	Implementation	10	Developer, Tester, User
13	Critical Appraisal and Evaluation	5	Analyst
14	Lesson Learned	5	Developer, Tester, User
15	Conclusion	3	Analyst

Figure 8.Resource Allocation table

5.1.3 Time boxing:

The time box is very important while we practice DSDM. Because there is always a note in the time box to help you get consumer feedback on the right product design. Thus, the project is also divided into small sections that can be managed within a time frame (Timebox, 2023). Progress will also be seen later. We will provide a deadline within two weeks and we will give you a deadline for the above actions. When I stopped working on the whole project, I got a date of 90 days. This means that there will be 6-time box standards for the project. Here time box is given below:

Time box	Task	Duration	Acting as Role
T-1	Literature Review	12	userAnalystuser
	Introduction	2	userAnalystuser
T-2	Initial study	4	userAnalystuser
	Feasibility study	5	userAnalystuser, Developer
	Foundation	5	userAnalystuser, Developer
T-3	Methodology	8	userAnalystuser
	Planning	6	userAnalystuser, user
T-4	Exploring	6	userAnalystuser, Developer
	Engineering	7	userAnalystuser, Developer
T-5	Deployment/Development	7	Developer, Tester
	Testing	8	Developer, Tester, user
T-6	Implementation	10	Developer, Tester, user
	Critical Appraisal and Evaluation	5	userAnalystuser

	Lesson Learned	5	Developer, Tester, user
	Conclusion	3	userAnalystuser

5.1.4 Activity Network:

The hope of these activities is that the SCRUM team will know what to expect when solving the problem. To apply the technology, the project uses the best critical path They also help to create a unique and activity diagram (Ted Hessing, 2012). So "School Management system" activity diagram the following processes:

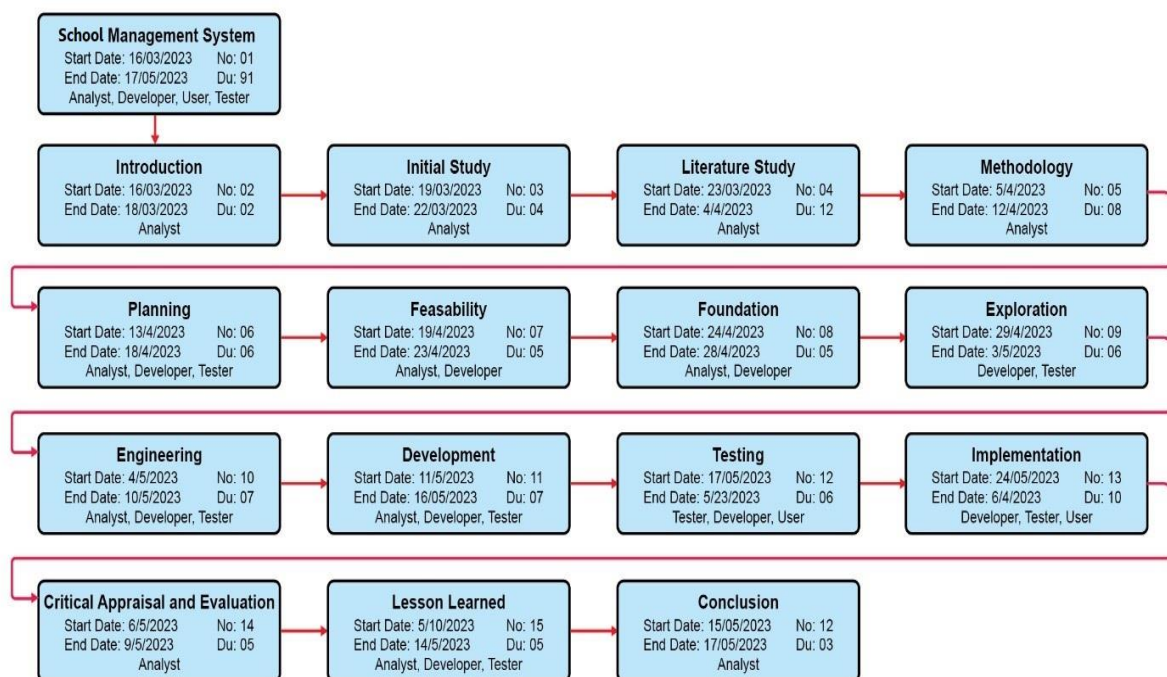


Figure 9. Activity network diagram

5.1.5. Critical Path:

Every project works with in a short time. The organization does not follow the requirements during the project. Sometimes a project has four main functions. The main font developed on the web consists of four main sections written in red. Here shown the critical path:

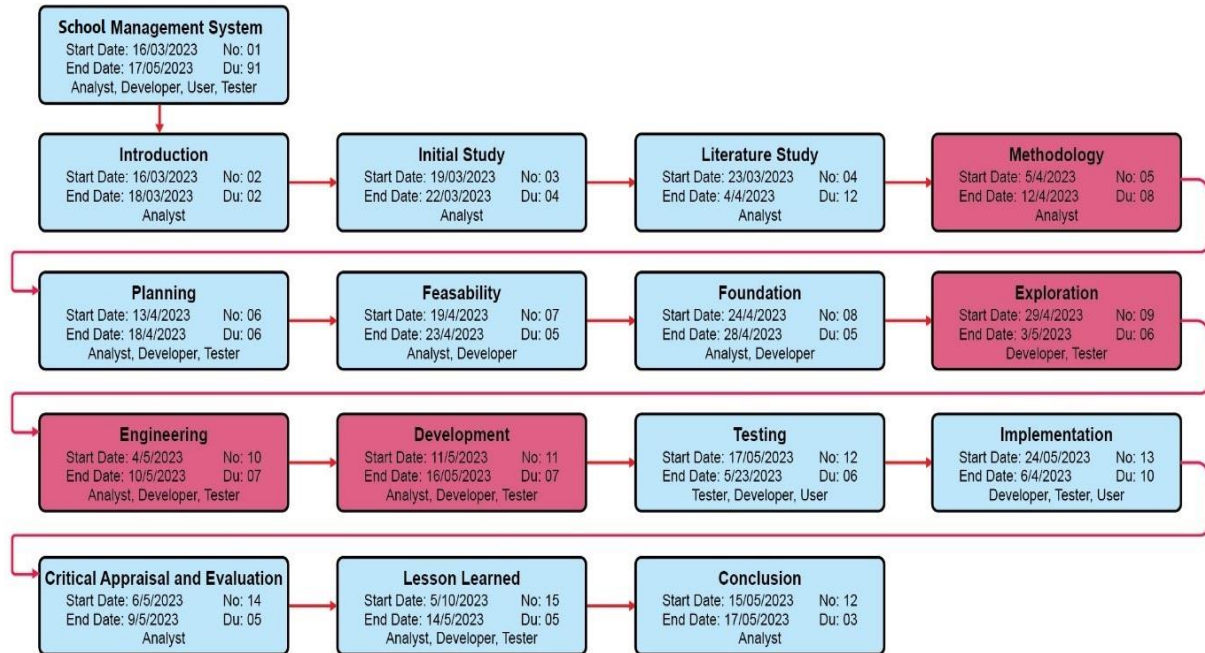


Figure 10. Critical path diagram

5.1.6 Gantt Chart:

A Gantt chart is not a management chart that shows the direction of each movement. Each action has a beginning and an end, seen from the tree attached to the vertical arrow. The project will start on January 18, 2023 and will last 90 days on November 17, 2023 (ProjectManager, 2023). According to this dictionary, the whole project has progressed. Here shown the Gantt chart of the project:

Name	Start Date	End Date	Duration	Apr, 2023							May, 2023			
				12 Mar	19 Mar	26 Mar	02 Apr	09 Apr	16 Apr	23 Apr	30 Apr	07 May	14 May	
Introduction	Mar 16, 2023	Mar 18, 2023	3 days											
Initial Study	Mar 19, 2023	Mar 22, 2023	4 days											
Litarature Study	Mar 23, 2023	Apr 04, 2023	13 days											
Methodology	Apr 05, 2023	Apr 12, 2023	8 days											
Planning	Apr 13, 2023	Apr 18, 2023	6 days											
Feasability	Apr 19, 2023	Apr 23, 2023	5 days											

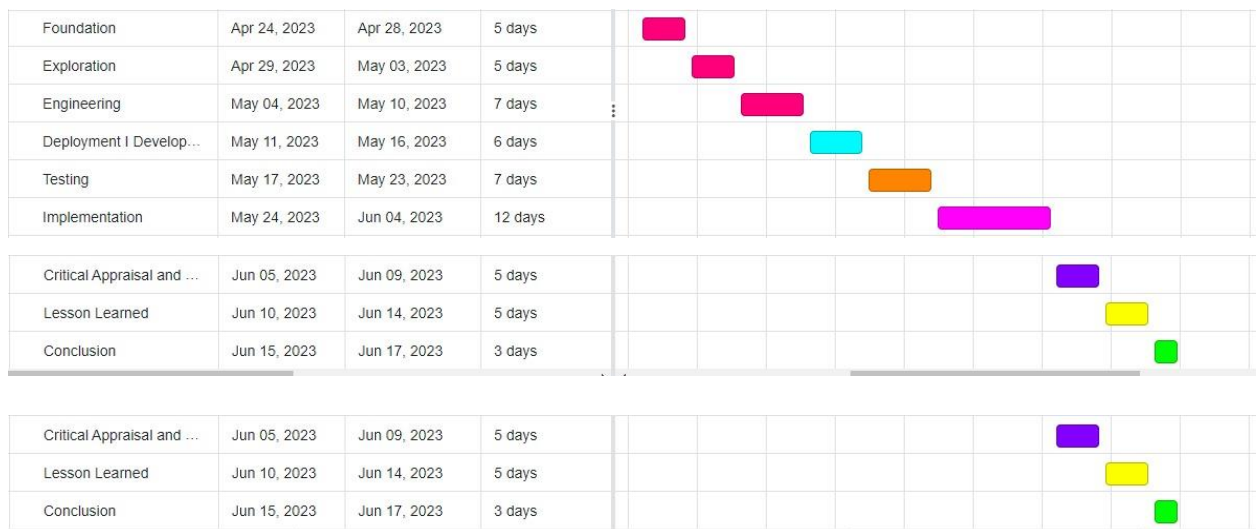


Figure 11. Gantt Chart diagram

5.2 Test Plan:

5.2.1 Testing against time boxes:

Time boxes are divided into small parts of the whole project. Each window has a timeline, and each map represents a design or prototype. Before delivering a sample to ensure that the sample requirements are met, the types of tests to be performed on each package need to be considered. The time box test log is as follows:

user Name	Example	Role	Example	
userTime box				
IDuser				
userTime boxuser				
Contents				
Test type	Test Steps	Expected Result	Actual result	Comment
Unit test				
Integration Test				

System test				
Acceptance Test				
Security test				
Usability Test				
Reliability Test				

5.2.2. Required tests:

Functional testing:

1. Unit testing:

Unit testing involves examining code as part of the code. The section can be interpreted as a small part of the project. This is a project feature or functionality. It has given a special input that responded to output. This helps to know who worked to solve the problem.

2. Integration testing:

The Integration testing is a unit test. Many components are combined to measure. This will help it understand how the screen works best. Weaknesses can be seen in the integration testing.

3. System testing:

System testing is performed throughout the system. Here the whole system checks itusers working well or not. The purpose of testing the system is to evaluate the system according to its needs.

4. Acceptance testing:

After testing the system, a validation test is created. users receive this test method automatically. The main objective of the report is to determine whether the system is adequate and ready for implementation. With the help of end-users, this approved test will test the whole system.

Non Functional Testing

5. Security testing:

The security test ensures that there are no bugs or vulnerabilities in the system. System threats when connected are also considered. The purpose of security checks is to protect them from external threats.

6. Usability:

This will make users focus on the project. It is also called a user test. This test will give users a brief overview of the easiest way to access services. It is easy to remove from the system or not. Customer test results are the result of the type of problem they face.

7. Reliability:

Indicates whether the system is working properly or not. This means that it monitors the ongoing operation of the system over time. The purpose or objective of the test is to ensure that the system is reliable for non-functioning users.

5.2.3 Test Case:

Test case means Software testing. The test includes the type of test and a description of the test. In this experiment, there are several stages of testing, and the experiment gives the expected results. The actual test will be recorded according to the expected results. Finally, information on some of the experiments was recorded. All this information is recorded in a register and called a test session. Here the test case is given below:

userTest case IDuser			
Type of Test			
Description			
Test Steps	Expected Result	Actual Result	Comment

--	--	--	--

5.2.4 user acceptance test plan:

The client acceptance test is called a beta test. This test is done in the final phase of the test. In the real user system. The purpose of this test is to meet the requirements of the system, which can be modified to suit the needs of the user system. This is a black box test because the user does not know the code behind it. Try the type of installation. The user license test looks like a standard test case with a different username and function. The test then depends on the task.

userTest case IDuser			
Test type			
Brief Description			
Test Steps	Expected Result	Actual result	Comment

5.3 Risk Management:

The method of risk management is to minimize risks and prepare for them. It users mainly works with software development. Risk management identifies imminent risks and takes preventive action.



Figure 12. Five steps of risk management process (Ingrid Horvath, 2023)

5.3.1 Risk Identification:

Risk management is the first management for the project. Here easily identify the risk. Previous experiences here any risk can identify very quickly for software development. Here some risk is given below:

- Proper analysis of this method can solve this problem.

While this is a very creative approach to design, it is still possible. Otherwise, the project will fail.

- Sustainability plans can lead to project failure

In this case, a standard approach is available. It has not been tested or used before, only the methods provided by the project analysis team. So this is a big mistake.

- Time can also be a risk to a project.

The project has a summary and all the work is done on time. If the idea of a timeline is ineffective or unsuccessful, the whole process will slow down and fail.

Technological Risk

- The device can be damaged when it works with the project.
- Electric short circuits, fire etc. can be faced when they work and also the electronic device can be damaged.
- The virus can be attacked the hard disk which is a technological risk.

Internal Risk:

- The device can lose its data.
- The project can work with various types of analysis and investigation which is connected to the whole project. Here the data loss is an internal risk for the project.

External Risk

- The work environment may not be appropriate for this task.
- This project is an academic project. It is not usually done from all sources. Therefore, the work environment can be dangerous for this purpose. This is because the work environment requires special skills, such as wireless transmission, high-speed internet, and more. The lack of this service will affect the projects right or wrong.

Environmental Risk

- Environmental disasters can damage industrial equipment.
- Environmental disasters happen all the time. Doing so can damage the device and the operating system and related documents.
- Environmental disasters can turn off the Internet.
- This process will be a web process. This is why this system does not work without the internet. Because it can be found on a running web server. No internet, which is not good.

5.3.2 Risk assessment:

The risk assessment primarily focuses on judging how the system relates to other related issues. The risks associated with my project are described above. The assessment will be based on specific principles. Which are given below:

- Risk
- Likelihood
- Impact
- Frequency

Here is an attempt to control my system. The risk section will contain the name of the risk. Likelihood means that there is a possibility of risk occurrence. The likelihood is assessed on the basis of risk, other fixed values remain valid and cannot be predicted otherwise. Side effects are divided into three categories: High, Medium and Low. The risk occurrence is also estimated based on randomness.

Risk	specification	Likelihood	Impact	Frequency
------	---------------	------------	--------	-----------

(yearly)				
Methodology	Incorrect analysis	Unlikely	High	0-1
	The specified methodology failed	Rare	High	0-1
	An error for the time box assumption	Unlikely	High	0-1
Technological	Destruction of equipment by fire and explosion	Rare	Low	1-2
	Hard disk failure due to virus	Almost certain	Medium	0-1
Internal	Data loss	Unlikely	Medium	2-3
External	Electrical failure	Likely	Medium	10-20
	Set your internet speed	Likely	High	5-10
Environmental	An internet failure due to a bad environment	Likely	Low	1-2
	Destructive tools	Likely	Low	1-2

5.3.3 Risk precaution/ action plan:

Risk precautions are a great way to reduce project risk for occurrence. This approach will help us to identify the difficulties we face in this project. If there is a problem, it can begin the process. Problems can be seen with force and pressure. Here the plan against is given below:

Risk	Risk specification	Likelihood	Impact	Risk precaution/ action plan
Methodology	Incorrect analysis	Unlikely	High	Get deeper insight into the analysis and talk to a supervisor.
	The specified methodology failed	Rare	High	Correct analysis can reduce the likelihood
	An error for the time box assumption	Unlikely	High	It can work as a time frame by looking at 2/3 of the time frames
Technological	Destruction of equipment by fire and explosion	Rare	Low	Always check that the electrical outlet has no empty connection that can protect the fire extinguisher.
	Hard disk failure due to virus	Almost certain	Medium	Antivirus software can be used to protect your device from

				such problems.
Internal	Data loss	Unlikely	Medium	Data can be stored in multiple places. Reduces the chances of losing data.
External	Electrical failure	Likely	Medium	UPS can support it even if the laptop sends backups.
	Set your internet speed	Likely	High	It must have a high-speed Internet connection or two types of downloadable Internet services.
Environmental	An internet failure due to a bad environment	Likely	Low	Wireless internet can be the solution.
	Destructive tools	Likely	Low	If so, the new device is the best for the software.

5.3.4 Steps taken for possible risks:

This possible issue may have been identified above as having been affected by the accident earlier. Disasters are also planned when calculating or planning for risk. Now that here planning the activities, it's working on this project below and the results will come out.

Risk	Risk specification	Impact	Steps taken
Methodology	Incorrect analysis	High	1.users work with the analysis stage 2. A popular source for information gathering.
	The specified methodology failed	High	1.Although it was an educational project so I told myself Coordinator for this.
	An error for the time box assumption	High	I have 3 extra days left for the project
Technological	Destruction of equipment by fire and explosion	Low	1. I always keep fire extinguishers. 2. Check all electrical wiring in my room and make sure they are not too lose connection
	Hard disk failure due to virus	Medium	1.Restore documents and systems in one drive. 2.Save the copy to a flash drive.
Internal	Data loss	Medium	1. I saved all the data to a folder in Google Drive.
External	Electrical failure	Medium	1.Even if the device is a portable computer, the rechargeable battery lasts about three hours.

			2.IPS is also stored as an attachment.
	Set your internet speed	High	1.I spent 10 GBPS on this project. 2.Also, save the modem attached as an attachment.
Environmental	An internet failure due to a bad environment	Low	1.I wrote the necessary tools. 2.Referred to some offline sites
	Destructive tools	Low	1. No action has been taken to rectify this

5.4 Change management:

Change management occurs when the current culture and the requirements of the DSDM Atern are significant. If there is a slight difference in what I said before, change management should be used. DSDM should be said to help you manage change in a big way. Although small, DSDM needs to be prepared for these changes. There are also experts who are planning and requesting that Moscow be used to paying close attention to energy. The method shutdown line will be identified and implemented.

5.4.1 Factors that might cause change:

The project is a research project, and the issues of change are not exactly the same as doing the business project. Although here have identified some sectors to change the project. Which is given below:

Time boxes

The project is structured using time box. After completing one- or two-time boxes, the schedule can be adjusted based on the pace of progress.

Resources: Resources may fluctuate throughout the project. As this is a research-based project, individuals may approach tasks differently, and various tools might be preferred for system use. Outdated staff or equipment may also need to be replaced during the process.

Regulatory change:

The rules of doing business have changed. It is a different processing process from country to country. If any system policy does not work for the changed policy, it must change it.

Technology:

This system is based on a PHP format called Laravel. Despite version 5.5, Laravel has released three or more versions. Here need to upgrade your system. Otherwise, the system will be upgraded to current technology.

Bugs and defects:

Some errors and omissions defects testing were not noticed. When used by real users, they can make sense. As a result, errors and defects occur.

All the changes I mentioned will affect the business. All changes are critical to the growth of the business and the business. Invalid changes will be accepted. The first type describes and analyzes the relationship between them.

5.4.2 DSDM Atern welcomes change:

Project changes are an important part of eye movement, very different from the shape of the waterfalls that resist change. The term “scope creep” refers to the negative signal associated with the change of volume when using a waterfall. By changing the simplicity of the design, the project team will have less time to use “management” to validate and complete the change, and more time to improve. Customer value and functionality.

If in doubt about Agile, wait until your design changes. It must accept these changes, even at the end of the project. As an artist, it's paying close attention to your roles and responsibilities at the beginning of the project while you focus on the highest level and/or potential of customers. However, it needs to understand that it is also important to change and organize their work (Agile Principle, 2012).

5.4.3 Considering business value / priority:

It ends by talking about good ideas created by independent people from 40 different countries and companies.

- Business value is important.
- No one is trying
- The important thing is to give advice on our actions.

Market value is important because it contains so many things. It is important that everyone agrees on the price. It includes size and shape. Have more fun. A set of thoughts and ideas. Finally, since not all production costs are the same, different costs must be calculated based on costs. for example, Buyer compensation is very important (Erik de Bos, 2023).

5.4.4 Change workshop:

DSDM facilitates conversations with users and stakeholders, so they can talk about their needs with the project development team. But no one is involved in this project, but it is a user experience.

Therefore, when guides are updated, users should have access to a range of resources to help them understand the issues they encounter and communicate their expectations from the system. The benefits of these workshops are as follows:

- The results of the discussions will appear first.
- It can be chosen from the user's point of view.
- Meetings encourage users to communicate.

In particular, there is no specific or business plan for this project. It is important to have a positive attitude towards customers despite times of change. However, only users need to access this program.

5.4.5 Changes that are allowed:

Changes will not be accepted. If it does better, it will get changed. If it accepts the change, it users doing the same to decide on the change. The project is a project plan, scope, resources and work, cost, schedule, risk and quality causes of changes in performance and behavior. Eight changes were approved during the project. If so, change its password. It will look again at this section to understand that there are changes in the transition to the change management.

Description of change:

To enable project modification, it must determine the project account based on concerns. It must be system specific and relevant. But no one can give this written report. It needs to learn from the user and write a report.

Reason of changes:

There must be a technical or social reason for the changes. But this statement must strongly deny the reason. Otherwise, it is not working for the considered a change.

Scope of the project:

Like any project, it has the opportunity. The scope of the project varies according to the changes. The effect will expand. As a result, the analysis results in lower level results and affects the higher-level results (project-scope, 2023).

Resource and work:

It takes a long time to manage the changes. That means more design work the schedule has to change. If the changes do not prevent the continued development of the project, fine. If this interferes with your work schedule, changes will not be accepted.

Cost:

In most cases, the more work, the higher the cost. However, no significant cost was found for the academy study.

Schedule:

If it can be changed now, it means a change to the project. Otherwise, the next change is considered or no change at all.

Risk:1``

The change could pose any risk or lead to more risks.

Quality:

Product quality should be the same. If the change affects quality, the change will not be effective.

The criteria I stated above are the main criteria and are subject to change accordingly. Based on these criteria, some of the following changes have been allowed in my project

Change Type	Changes	Allowed / Denied	Comment
Time Boxes	Sprints need to be change	Allowed	Sprints time need to be reschedule after 2/3 sprint
Resources	Employees or devices need to change	Allowed	Employee can leave or device can be damaged that's. it is general and without this system cannot be carried out.
Regulatory change	Marge with new business policy	Denied	Need lots of time. and it creates risk on whole development
Technological change	Update on current frameworks	Allowed	This will keep the system up to date and secure and It's an easy work
Bugs and defects	Bugs in the system	Allowed	This change will make the system mote correct.

5.4.6 Key Decision takers of change:

Change is not a single person work problem. This is a group activity and involves all members of the DSDM team. This project is a research project; I do all the work in different professions. I play all roles. So, the decision-making process is important. The participants are as follows.

1. Business Analyst user

5.5 Quality management:

DSDM Atern quality offers products delivery that meets their goals. The solutions are compared against the quality approval criteria (ChoosingDSDM, 2023). Quality certification requirements are determined at the end of the DSDM certification phase. When the certification requirements are met, this is called quality assurance. DSDM also increased the cost and time of the project. High capacity products that do not meet the approved delivery time standards will not be shipped.

5.5.1 Rules applied to maintain quality:

Eligibility criteria must be defined to ensure project quality. The project varies by project. I think three rules can be used in this project to ensure the quality of the project. It is shown below:

Quality control (QC):

Quality control checks the project and, as a result, rejects the wrong products. Quality control is achieved through active product testing and product testing and evaluation. At the end of the project, the tester checks the product performance to ensure quality control and check product acceptance.

Quality Assurance (QA):

The products were designed to meet the acceptance criteria or not based on the definition of quality assurance (Alexander S. Gillis, 2023). To ensure the quality of this project, I selected a

number of questions and the quality of the project to answer the questions Husserl be pretty sure.

- Is there enough business involvement in the project?
- Are all the activities working on the project under the same authority?
- Are life cycles and time cells well preserved?
- Have the priorities been met?

Quality management:

It uses QA and QC feedback and uses it to improve product quality. These two will receive feedback on the project and enter it into the system.

5.5.2 DSDM Atern standard quality measures:

DSDM ensures the highest level of product quality, without compromising time and cost. There are two key methods for measuring quality: decision quality and process quality. These methods help achieve a solution that aligns with accepted standards and expectations.

Solution Quality: The quality of decisions is based on predefined acceptance criteria, determined by the system user's specific characteristics. If these criteria are not met, it becomes challenging to assess the software user's quality. It users also important to establish decision criteria for the project. The project includes quality assurance standards to ensure the solution meets the required benchmarks.

- The constraints of the period provide the necessary results in the legal period
- Moscow user's priorities have been clearly defined.
- Prototypes meet the expected results of the time cell.
- The prototype is appropriate for the user user's perspective.
- These are a good idea to do business.

Process quality:

This is a better way to develop project solutions. It meets ISO and CMMI standards and norms. In addition, the purpose of ISO and CMMI is to ensure that the model meets the customer user's satisfaction and customer satisfaction. Focuses on project design work. The shape of the structure on the tail should be easy to meet the needs of the system.

5.5.3 Quality plan:

A high-quality system is an important part of a DSDM system. DSDM projects need to be monitored regularly (Quality-plans, 2023).

The plan should consider the following:

- Quality must be maintained through the organization users process, procedure and practice. But a project is a scientific project in which no organization is involved. The project uses general processes and procedures.
- Review the draft plan and evaluate its potential. When It is scared, it decides to retreat or retreat. However, this data tracks whether the School Management schedule is functioning properly.

The common questions for measuring solution:

These important questions will help with the quality.

- How many businesses are involved in the system?
- Are all parts of the team the same focus?
- Will the samples arrive after the scheduled time?
- Is the selected method effective?

By answering the questions, it is easy to measure the quality of the system.

6. Feasibility

Introduction:

It measures the design process of the feasibility study. The system is perfect at runtime. This will help them find problems and resolve expectations. The purpose of the feasibility is to ensure that the project is effective in all aspects to achieve sustainable implementation in the market. Even if you have an academic education, an internship can cover work experience, time and financial ability. When creating a project, it is important to consider the appearance of the project. This reduces operational risks. There are many options for drafting the first project. In this case, this category will be displayed. Income analysis is not good either. This work is discussed below:

6.1 All possible type of feasibility:

The company is looking for a feasibility study to determine the success of a project. The feasibility study may be different. Usually, companies need money to renew or sell a project or have the money to do a project. It is important that all professionals have a good education before the program begins. This reduces the central cost of the project and saves money and resources. Some types of feasibility are as follows:

6.1.1 Technical feasibility:

Technical feasibility is based on the experience required to develop a production process with tools to meet customer needs. The hardware or software confirms that the application has been provided by the manufacturer. This technology is part of the process and comes at an additional cost. The system must be very sophisticated in terms of technology, software and hardware. In addition, there are fun and useful programs on the market. Microsoft Windows operating systems support a variety of tasks. PHP (LARAVEL) and MySQL support the development of this software. XAMPP is used in the MySQL database. These technical functions can be integrated into the system. This is a modern program. Therefore, small programs require well-

designed computers and software. Here are fewer computer software and hardware instructions.

Hardware:

- Asus version
- Intel(R) Core(TM) i5-10400
- Hard disk-1 TB
- DDR4 RAM 4GB
- LCD display 14-inch
- 2.30GHz, 2400 MHz CPU
- 6 Core(s) 12 Threads.

Software:

- XAMPP
- Control Panel Version: 3.3.0
- Microsoft word 2019
- PHP LARAVEL
- Operating system: Windows 10

6.1.2 Operational feasibility:

Operational feasibility determines how easily the system can meet the needs of the system. How easy it is to complete the process. In case of possible actions, steps are taken similar to the existing system. Even if it is an academic curriculum, there are no problems with administrative approval. But in the end, the user and team will control the system and what is in the system. That is why it is important to meet the operational feasibility.

6.1.3 Schedule feasibility:

Schedule feasibility evaluates the capabilities of a system development program. Make sure the system works in the time zone. Here monitors time and work.

SL no	Task name	Duration
1	The full project	90 days
2	Introduction.	3
3	Initial study.	4
4	Literature Review.	15
5	Methodology.	7
6	Testing	10

The project is academic and demanding. On the other hand, the project follows the DSDM technique. In any case, it cannot go beyond the system development program. The diagram above shows the activities most applied to the project, all of which are included in the program. This is technically possible for the proposed system.

6.3 DSDM – good or not for this project –PAQ

PAQ helps identify, monitor and evaluate Instrument Performance (ISF) respond to hazardous areas. How to do all this work is important for both parties. Not having a PAQ answer does not mean that the program cannot use the DSDM method.

7. Foundation

Introduction:

The purpose of the foundation should be to clear the beginning of the project. There are three main parts of the base list the business, solution and management. The three elements must be combined to create a clear structure for the system.

7.1 Problem Area Identification:

All problem has solutions. If some problems are not found, the correct solution may not be found. There are many ways to solve this problem. There are questions and expectations in the interview. These methods are used to determine where the problem is.

7.1.1 Observation:

If you are considering the physical challenges of managing a school, this system provides an effective solution. The system monitors the performance of various school operations and identifies potential issues.

First, users (e.g., administrators, teachers, students) can access the full system interface and easily manage or select different modules. For example, administrators can handle admissions, fee management, and academic scheduling, while teachers can manage attendance and academic records. When students or parents need to interact with the system (e.g., for fee payment or checking academic records), they must log in. All selected actions (such as enrolling in a session or paying fees) are added to their account.

The system allows for real-time communication between students, parents, and school staff, providing a direct way to resolve any issues that may arise, such as leave requests or clarifications on academic matters. The ability to select class schedules, view exam seat plans, and manage academic sessions offers great flexibility for students and teachers.

By integrating various school operations under one platform, users save time and avoid confusion. The system also offers a convenient online payment system for fee collection, ensuring that payments are processed efficiently. Teachers, students, and parents can easily communicate with administrators to resolve any concerns, making the process more streamlined.

This web-based system provides a complete solution for managing school operations, from admissions and academic management to leave requests and communication. users can also review past academic records and communicate with teachers and administrators in real-time to ensure smooth operations.

7.3 BPMN (Business Process Modeling and Notation):

BPMN is used to transmit communicate types of data in business. Shows end to end connections within a business process.

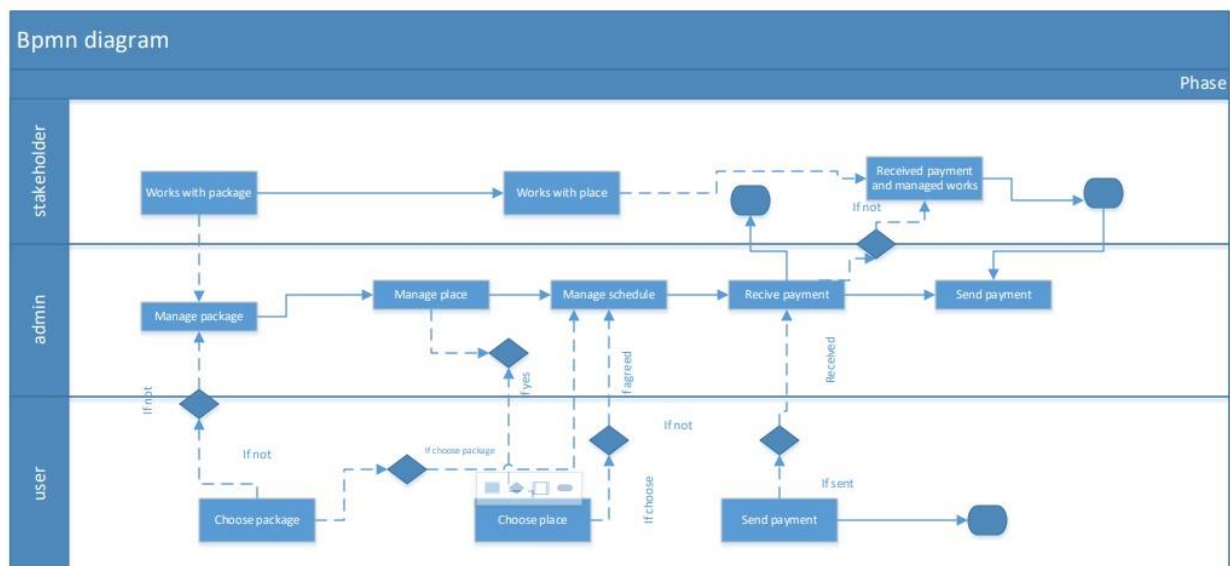


Figure 13.BPMN (Business Process Modeling and Notation)

7.4 Specific problem area identification and description:

- Here waiting for the message reply.
- But all working process is manual process that takes a lengthy time.

- users cannot know about the place is available or not.
- Here time management is a big issue.
- No backup plan.
- Assigning duties to stakeholders.
- Adjusting convention hall.
- Here have user issues with the food and allergies.

7.5 Possible Solution:

There is a solution to the problem area analysis and can be solved after reviewing the management data developed by the development manager. The system solution is given below:

- user can easily choose their packages.
- users can pay Fees online.
- users can easily communicate with the admin.
- user can review their service.
- The system must be user friendly.
- Admin can easily check their reports.
- Admin can easily manage the stakeholder users work schedule.
- Stakeholders can easily check the work schedule.
- Must be the system usability.

7.6 Overall Requirement List:

Requirement Id	Requirements
R01	Registration
R02	Login
R03	Student Management
R04	Faculty Management
R05	Attendance Tracking
R06	Grading system
R07	Classroom Management
R08	Message
R09	Fees payment
R10	Shows Class schedule
R11	Review
R12	Rating
R13	user profile edit

7.7 What Technology to be implemented (Client/Web/Standalone)

Today, two technologies are popular. It is a client-server and a web server. It is created for a variety of purposes. It all depends on the plan we make. First, consider these two technologies. It will be easy to say one of these good plans.

7.7.1 Client server application:

The client-server identifies another user to the server. Most client-server hardware is installed on the device. Maybe one person uses this tool. This system is great for any small storage company in your area. The following are the traits of a user server.

- Must be installed on the user users device.
- Other members of the general public may use this service.
- Work is the first response.
- Set up an operating system
- This is an easy step-by-step tool for users to open a web application.

7.7.2 Web server application:

The web application is hosted on a web server, allowing all users to access the system through a web browser.

It does not install it in the machines. It can be found everywhere on the internet. The system layout and configuration are shown below

- An online project is a project that works on a device that helps your search
- Many users can be connected at the same time.
- Used to copy the URL of the program.
- Issues Security issues are often criticized.

7.8 Recommendations and Justifications:

Web browsers are always compatible. No installation or special equipment is required. In addition, users can see increased day by day. The number of users is increasing every day. The web application can be run from multiple vendors at the same time. There was no quarrel between the two. However, if more than one user is connected to the system at the same time, performance will slow down. But I didn't find a better way than this. The web application is allowed to browse the server.

8. Exploration

Introduction:

The exploration phase is the legal framework used in the School Management system. For older URL formats, use case diagrams and activity diagrams as needed. This helps them identify what they are doing and make the right decisions. This section summarizes the interview requirements and priorities. Several diagrams were selected to meet the current needs of the business systems or processes actual business needs.

8.1 Old System Use Case:

The use case diagram works with workflow and system functions. The use case diagram works process is manual. This system maintains their works with paper-based. Here the old systems are represented which is given below:

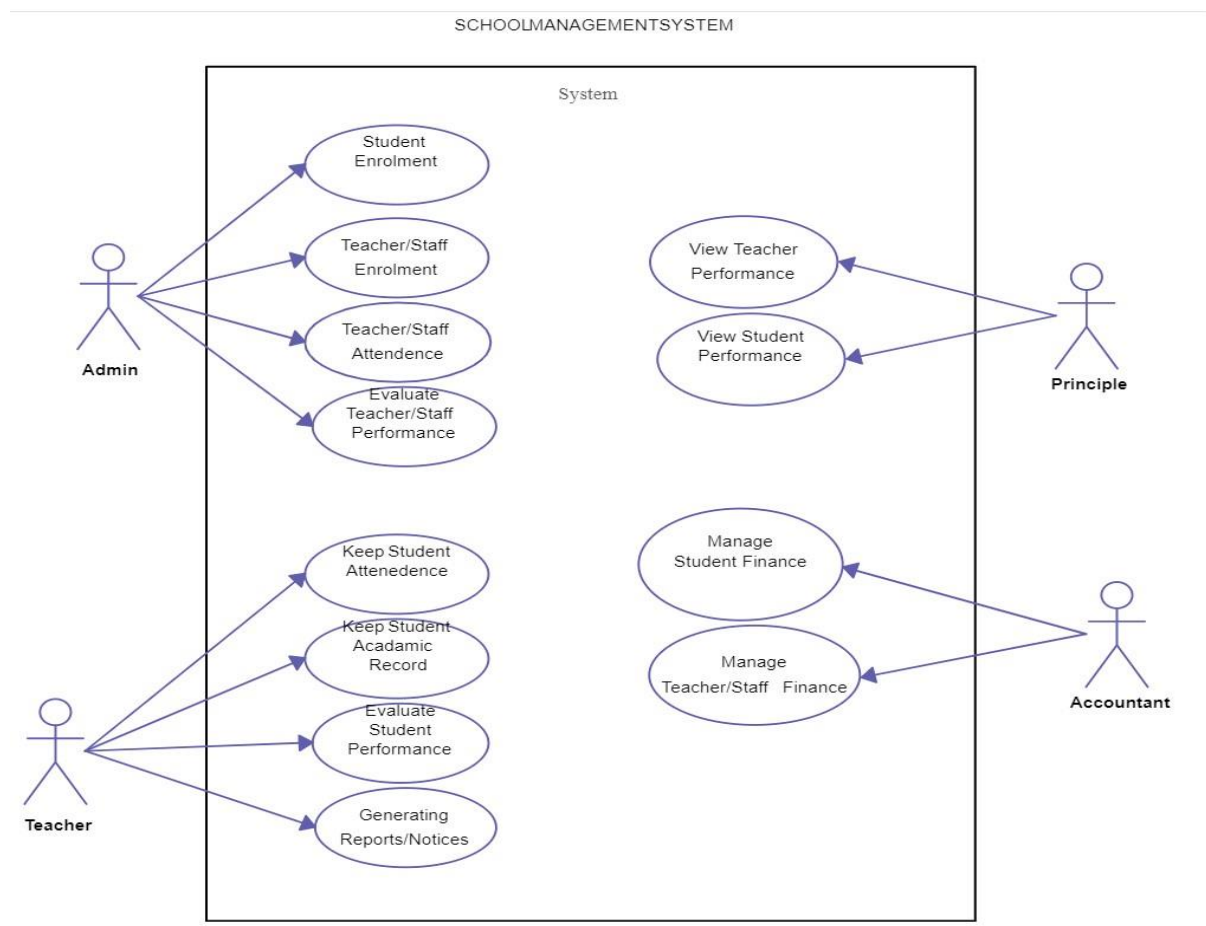


Figure 14. Old System Use Case

8.2 Activity Diagram:

Activity diagram works with behavioral diagram and data flow plan. Multiple systems or business tasks are created with the scheme to complete the software system process. Here School Management system process activity diagrams are given below:

Figure 15.Admin and user activity diagram

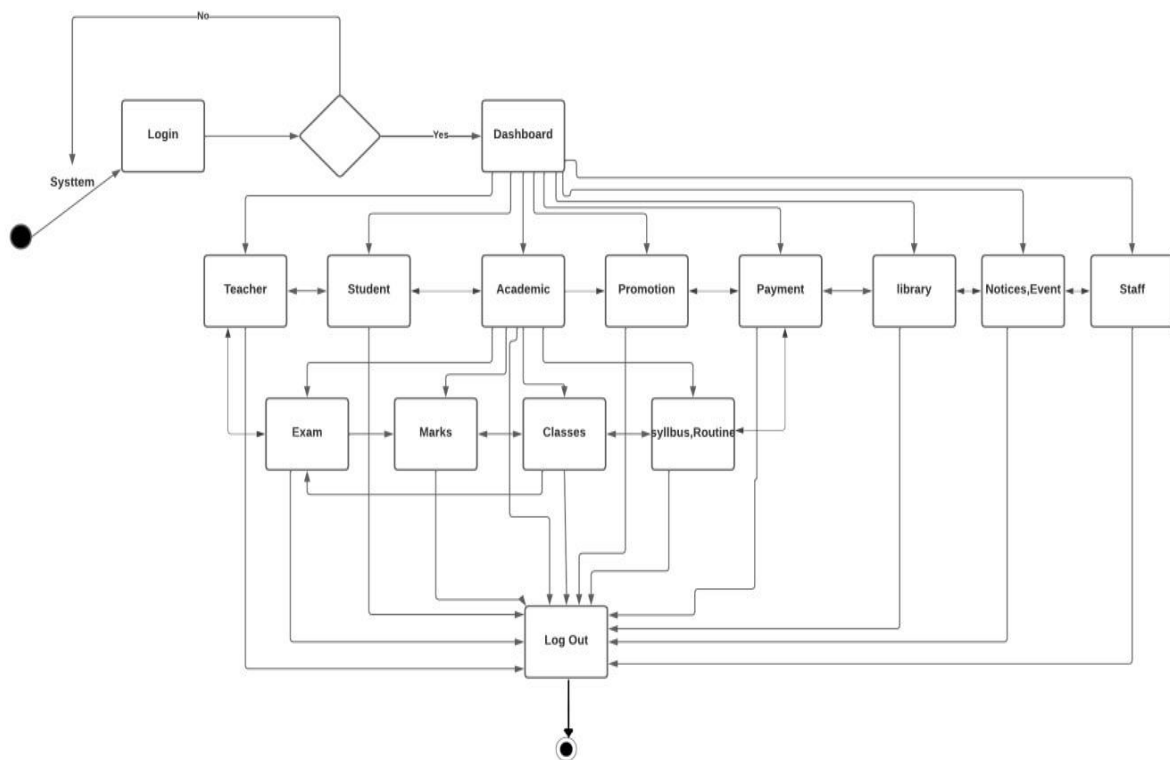


Figure 16.Activity diagram

8.3 Full System Use Case

The use case diagram illustrates specific goals for the system. It outlines how different actors interact with the system and their respective workflows. Each actor may follow a unique process, as depicted in the diagram. The complete system use case is provided below:

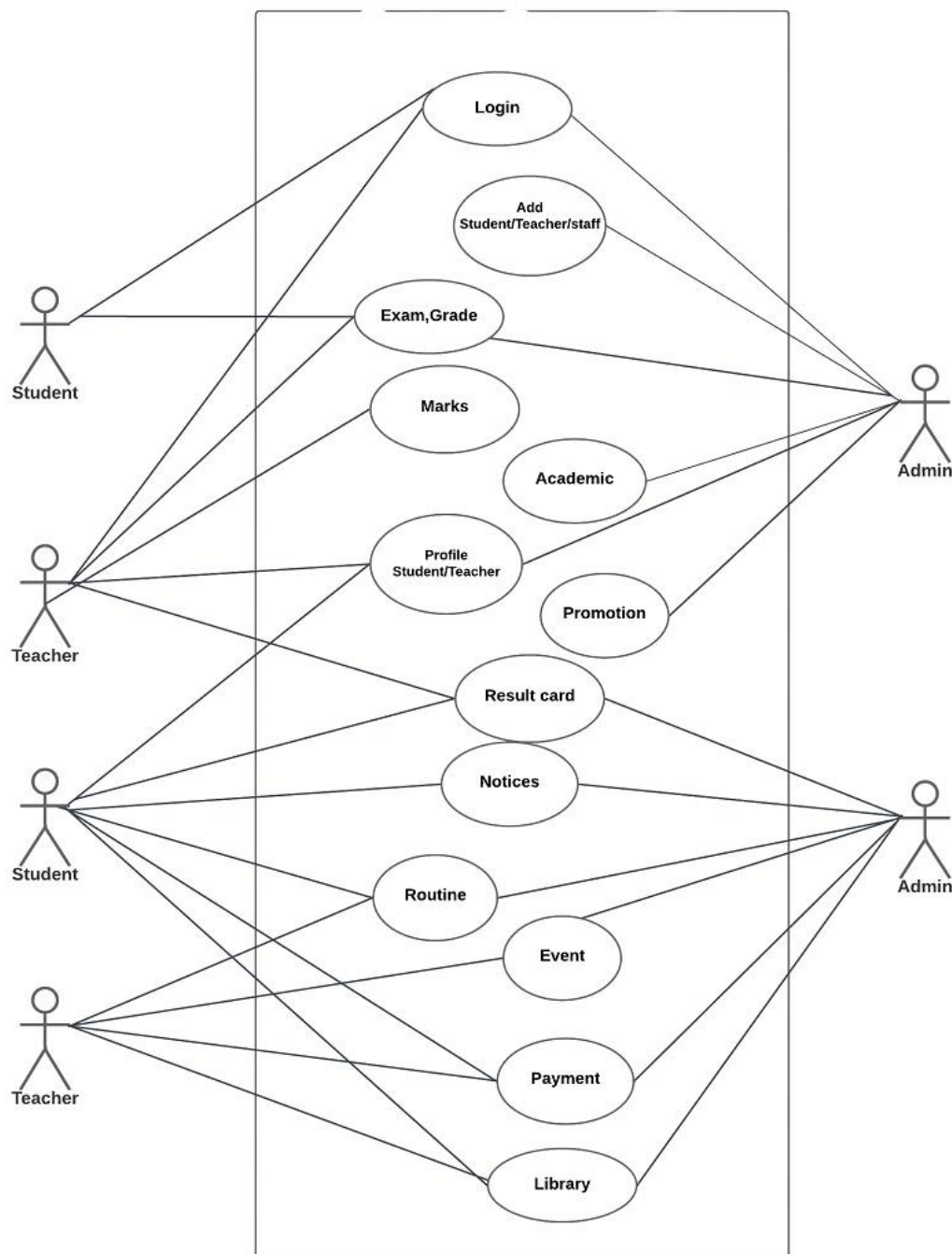


Figure 17.Full system use case diagram

8.4 Full System Activity Diagram:

Activity diagrams are graphical representations of tasks and activities that complement selection, repetition, and coordination (Activity diagram, 2023). The main activity figure shows general flow control, but there are some items that show the flow of information between activities in one or more databases.

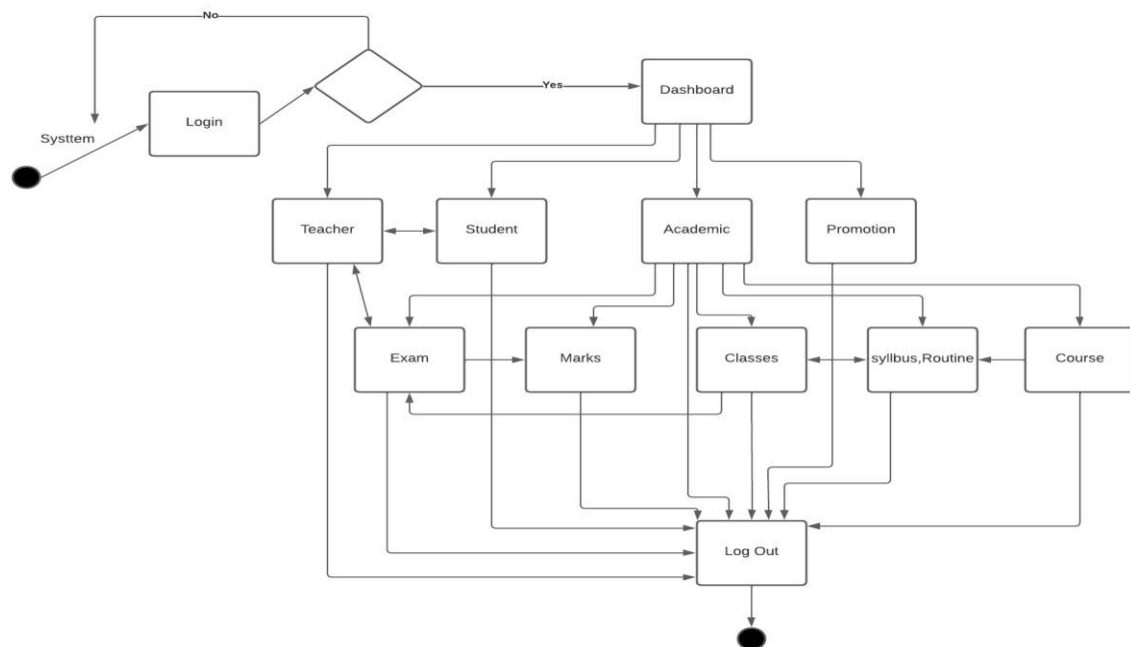


Figure 18. Full system use case diagram

8.5 Requirement Catalogue:

Here requirement catalogue is given below:

Requirement Type	Functional Requirement		
Requirement Name	Login and registration system for the admin		
Requirement Description	The person who will be the admin of this system should be registered at the time of the software installation. When the admin will be registered no one will be able to access the system except the admin with proper authentication.		
Requirement ID	Date Source	Priority	Sign off
M-01	Admin	Must	Admin
Requirement Type	Non-Functional Requirement		
Requirement Name	The attempt of login per day		
Description	Target Value	Acceptance Value	Comment
	1500	1000	Only the admin can log in.

8.6 Prioritized Requirement List (PRL)

To determine the system requirements, business processes must be monitored to ensure that all requirements are met. We know that DSDM will work if you want to set priorities. DSDM meets these requirements to ensure that all planning requirements are met (Requirements-prioritization-techniques, 2023). This is a major step forward in the chosen technology, and Moscow proposes to continue the main DSDM process. Moscow divides its needs into four parts: "should", "should", "think" and "should not". We will now look at the application. The main focus is on the various sectors. It is important for business value, energy efficiency, complexity and people, quality, usable equipment, quantity and execution. This is crucial for Moscow users values. Here are some Moscow rules:

Must have:

Must have to be negotiated. Meeting this requirement results in a successful project known as imperative.

Should have:

Should have a need to work for a system that is fully usable and meets the core requirements and affects our work and our costs.

Could have:

If the requirements indicate and it would be useful for the system but it has no effect.

Nonuser have:

The last Moscow requirement it's nonuser have. It is not an important feature for the systems.

Requirement Id	Requirements	Moscow prioritization
R01	Registration	Must have
R02	Login	Must have
R03	Choose Options	Must have
R04	Checks reports	Must have
R05	Creates schedule	Must have
R06	Shows the system	Must have
R07	Choose place	Should have
R08	Massage	Must have
R09	Online payment	Must have
R10	Shows work schedule	Should have
R11	Review	Could have
R12	Rating	Could have
R13	user profile edit	Could have

9. Engineering

Introduction:

The engineering phase works with new module systems. There is no short information about the proposed new system. This section introduces the new system usage status, ERD, sequence diagram, and component diagram.

9.1 New System Modules:

The new system's workflow is demonstrated through various types of diagrams. These include the use case diagram, class diagram, sequence diagram, component diagram, deployment diagram, and the system prototype, all of which provide a clear understanding of the system users structure and functionality.

9.2 Use case:

Use cases, but define, clarifying and solve system requirements and key requirements (Use case diagram, 2023). The new use case diagram, addressing specific system preferences and existing systems and user interactions, includes several key points:

- Identify the actors of the current system.
- Defines the relationship between users and administrators.
- Current indicates the requirements.
- Determine the current system requirements.

Below is a completely new diagram of the use cases of the existing Performance School Management system as a stakeholder in the current system. In this section of the check, the following requirements will be prioritized. The specific implementation of the system is detailed below. The following section presents the new use case system:

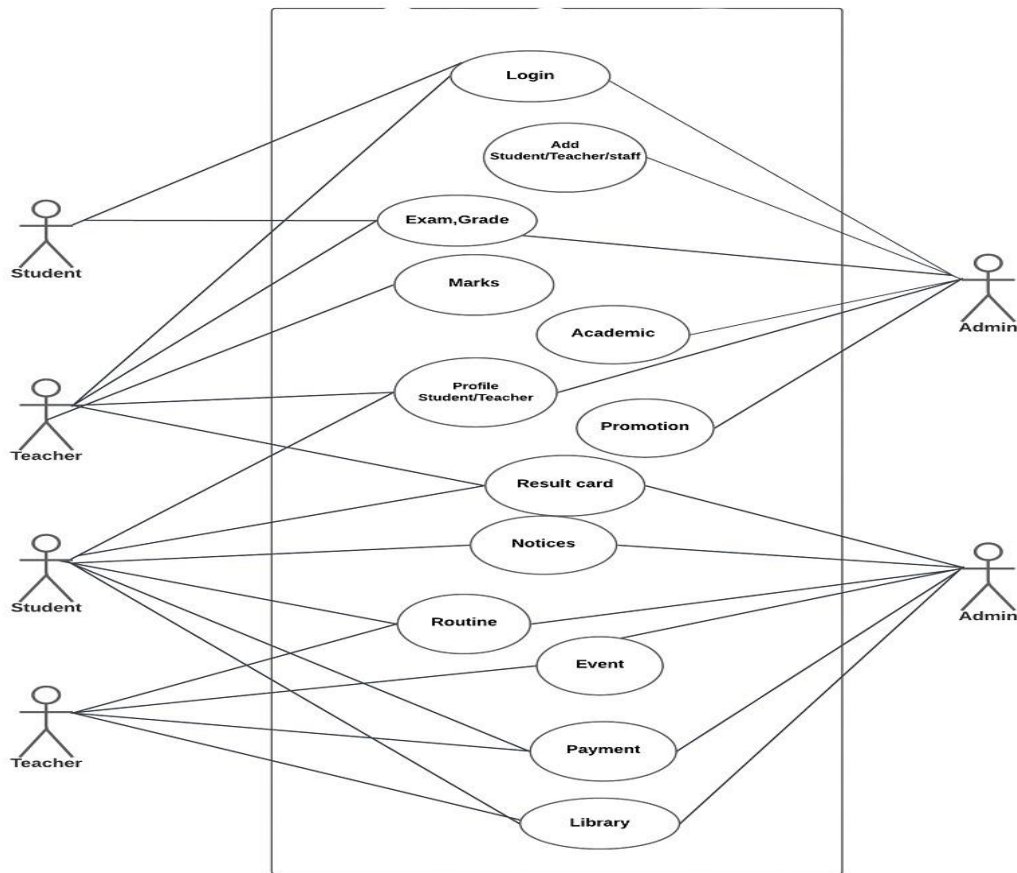


Figure 19.New system use case diagram

This Use case description is included in Appendix-A section of the report.

9.3 Class diagram:

Class diagram can evaluate the structure of system developers and determine the specific features used in each class. This will help understand how and where information is disseminated through the system and take effective action (Class diagram, 2023). The class diagram of the activity management system is as follows.

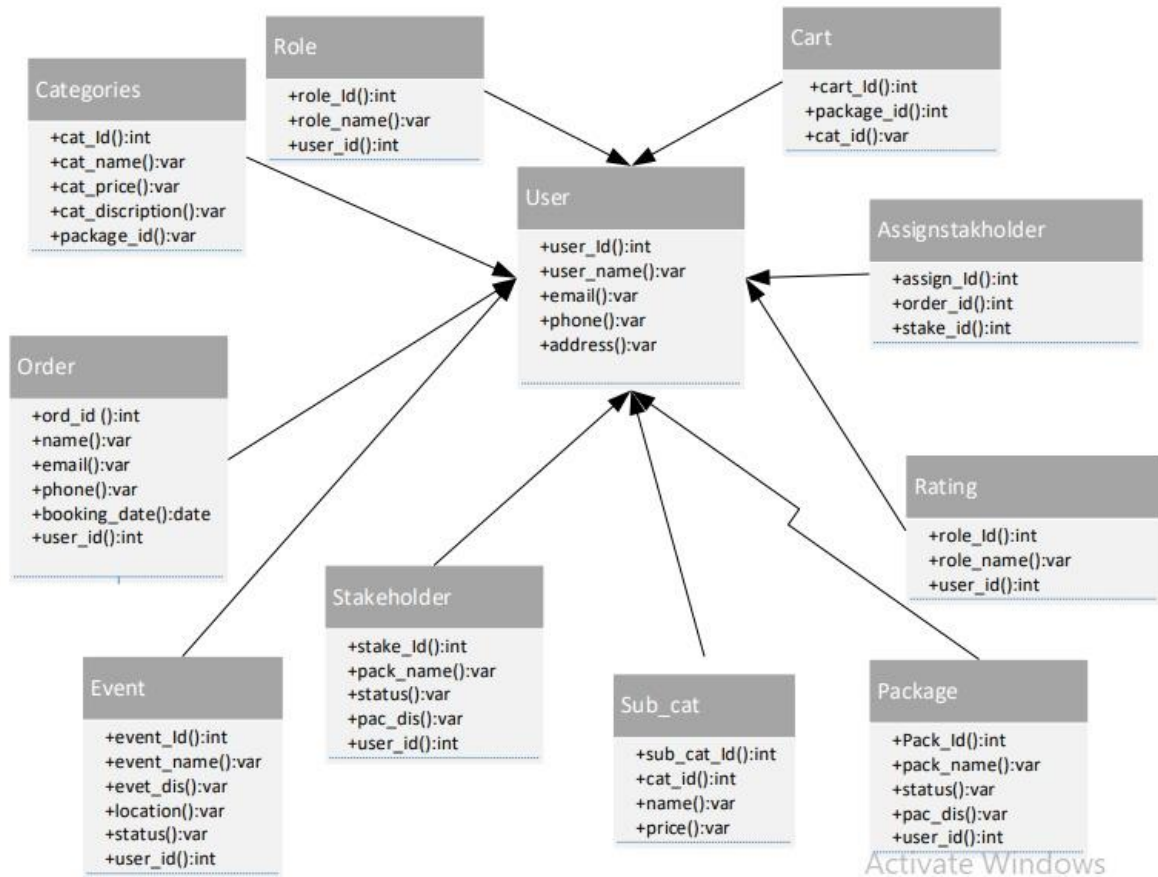


Figure 20. This is the class diagram

9.4 ERD Diagram:

An entity-relationship diagram (ERD) is also known as a relationship model between units, which describes the relationships that exist between people, objects, topics, ideas or events in an IT system (IT). Although ERD is important for processing information transmitted through communication systems, ERD does not reflect structured or poorly organized data (Entity-relationship-diagram-ERD, 2023). Merging of data with the previous computer system does not take place automatically.

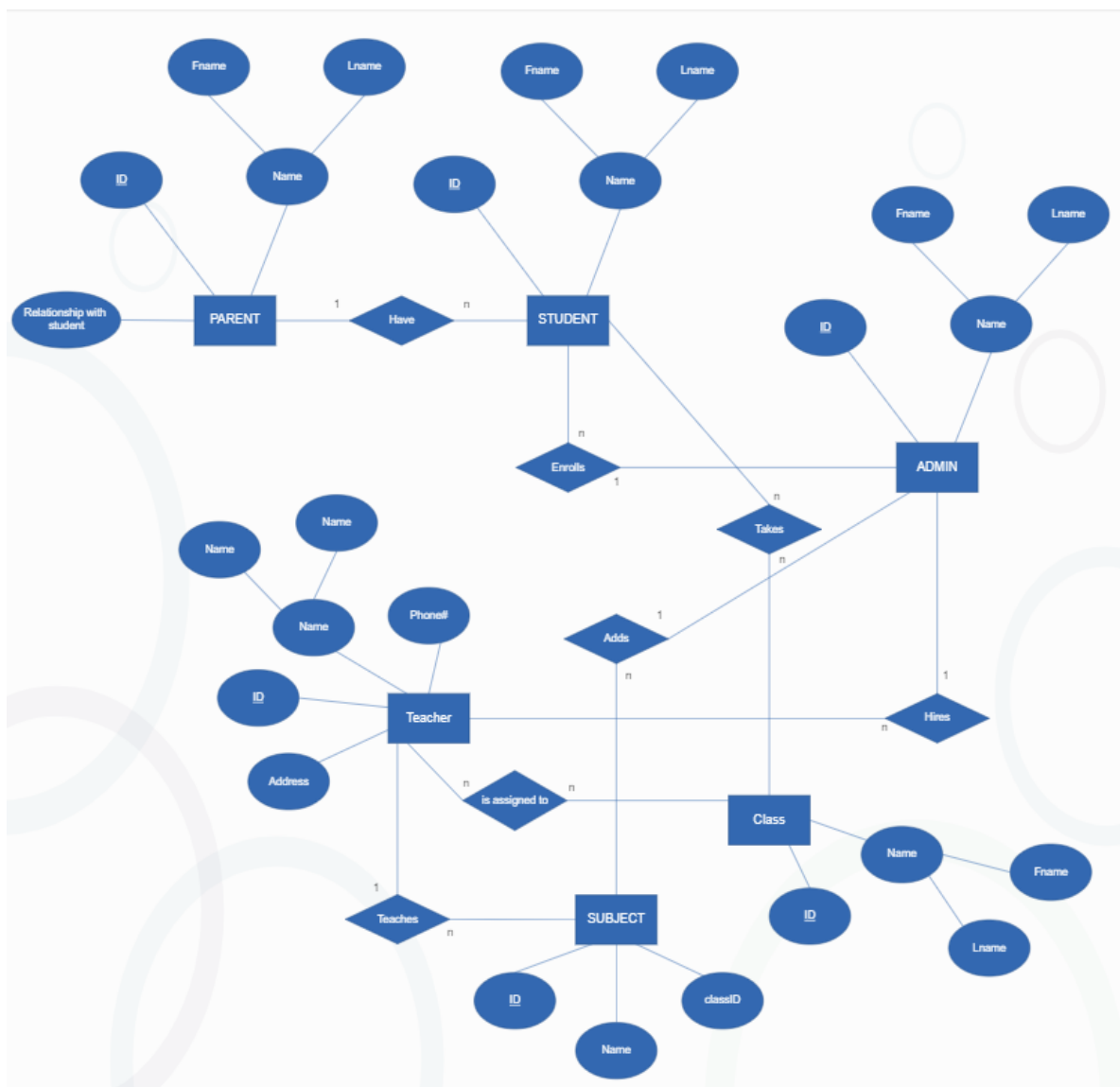


Figure 21. This is the ERD diagram

9.5 Sequence Diagram:

Sequence diagram between two or more objects is called a stage in the system. The following diagrams are interactive diagrams showing how tasks are performed. Together, they allow interaction between objects (Sequence-diagram, 2023). Describe the order and subject of the order in the plan. The sequence diagram below is shown below.

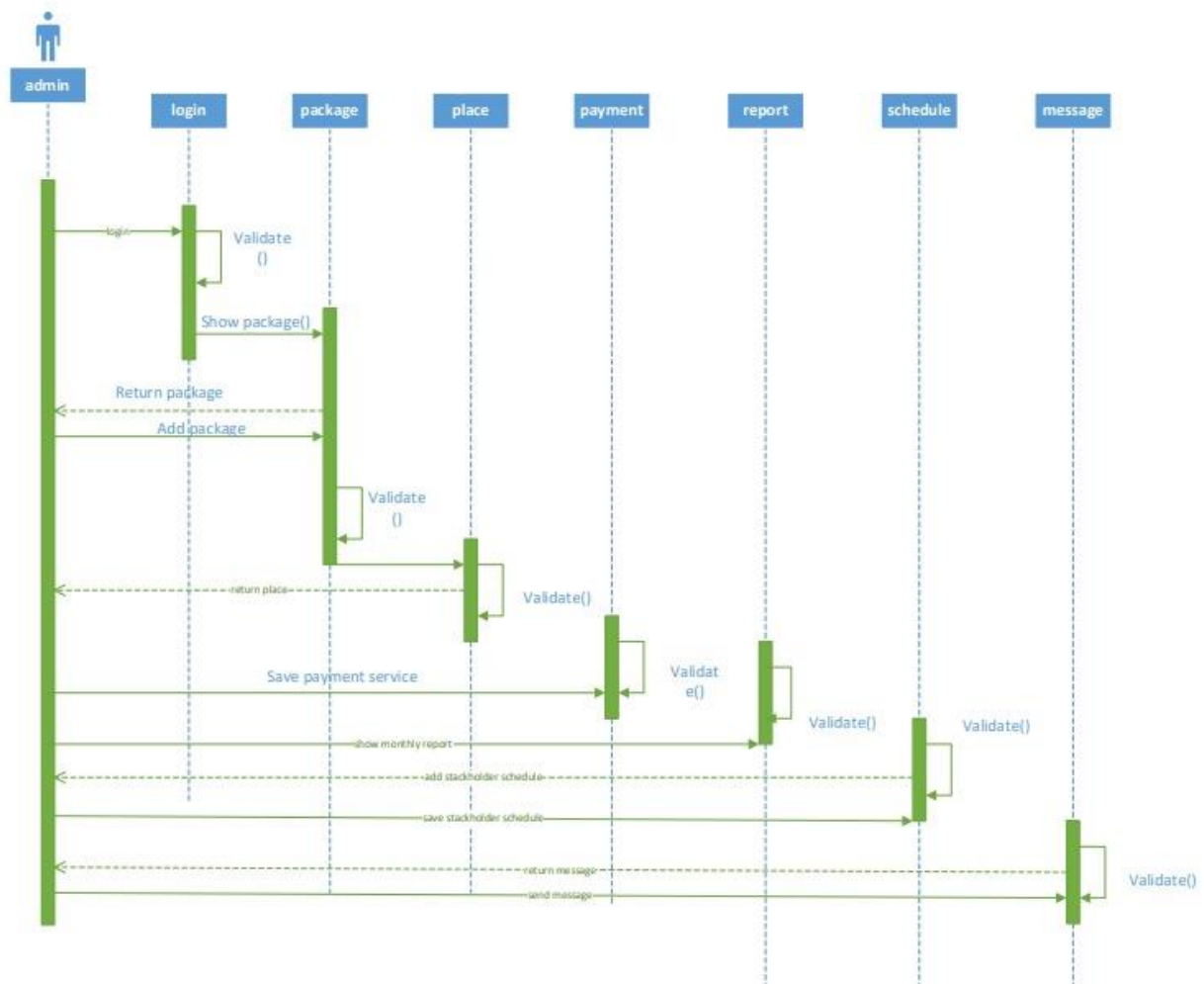


Figure 22.This is the admin sequence diagram

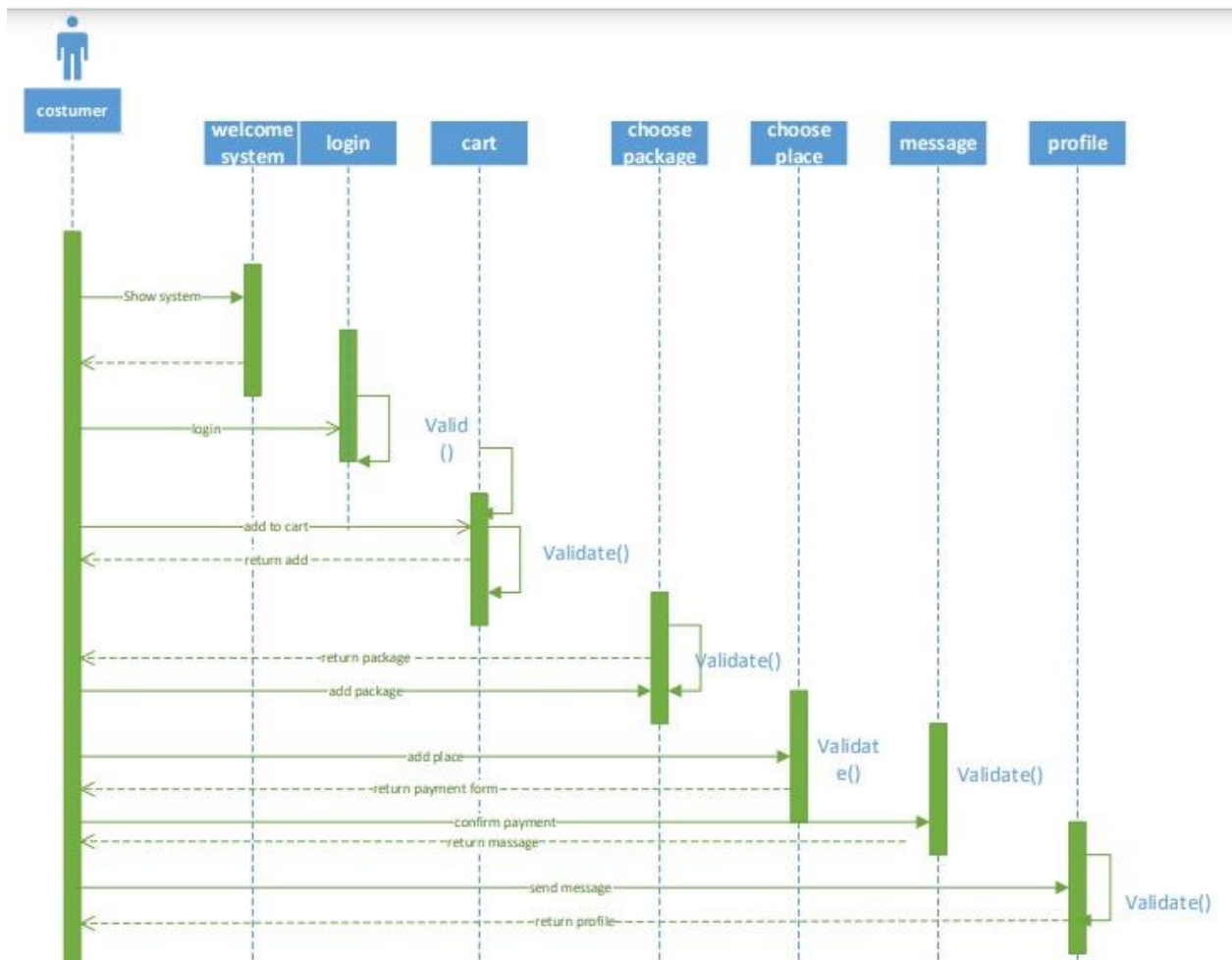


Figure 23.This is the user sequence diagram

9.6 Component Diagram:

The component diagram works with a visual representation of the system. It helps make the function of a real recognition system (Component Diagram, 2023). Below is a diagram of the proposed system components. The section component diagrams are shown below:

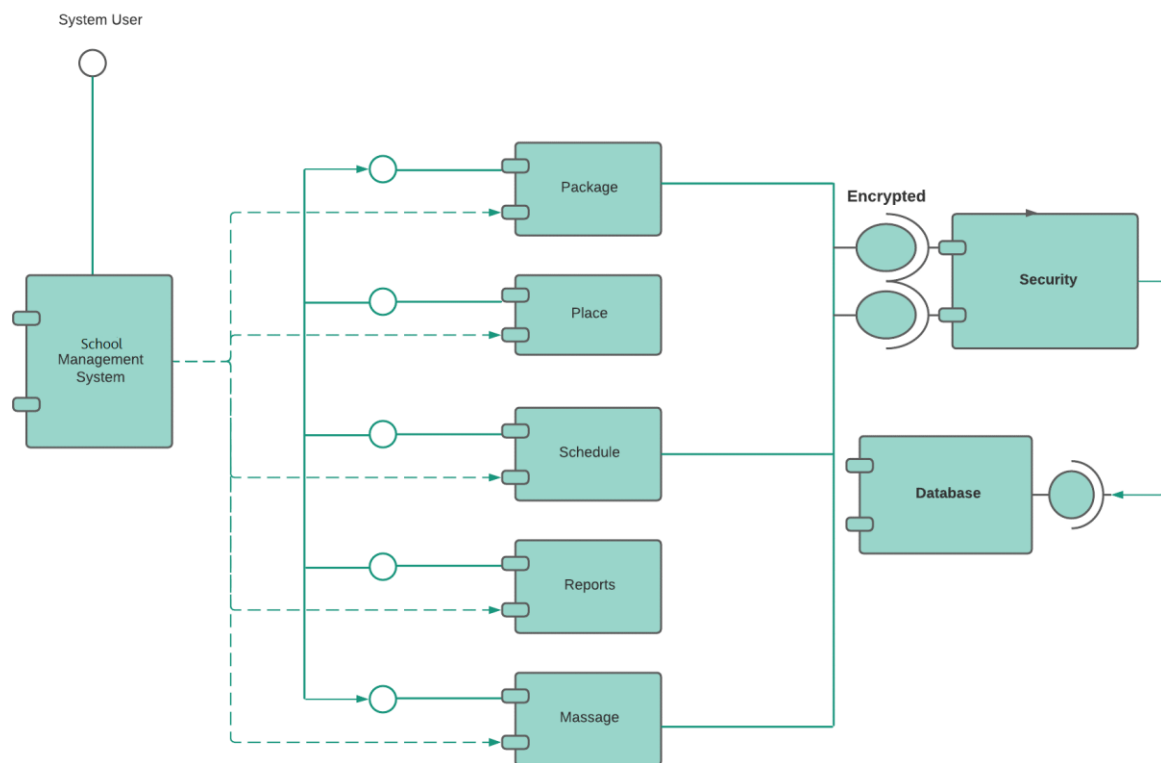


Figure 24. This is the component diagram

9.7 Deployment diagrams:

Deployment diagrams illustrate the architecture and functionality of the system. In this context, the PHP framework has been utilized and set up, employing the MVC (Model-View-Controller) method. Additionally, the system operates in accordance with the broadcasting system policy. Deployment-diagrams (Deployment diagram, 2023). The deployment diagram is given below:

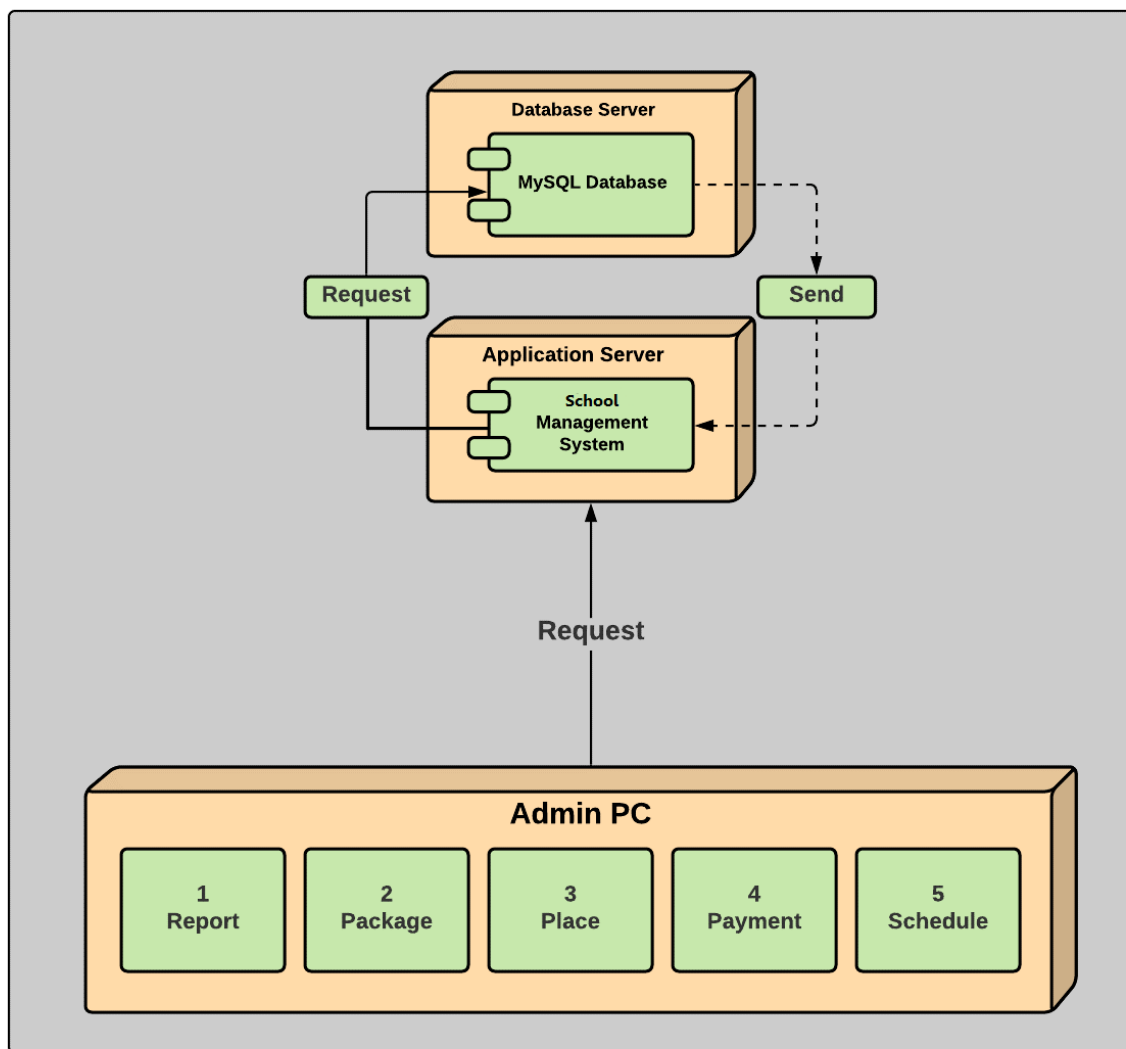


Figure 25.This is deployment diagram

9.8 System Interface:

Prototyping is an experimental process in which research teams have transformed their ideas from paper to digital. The team created prototypes of different realities to collect design ideas and test them with users. Prototyping allows brands to refine and validate designs to produce the products they want.

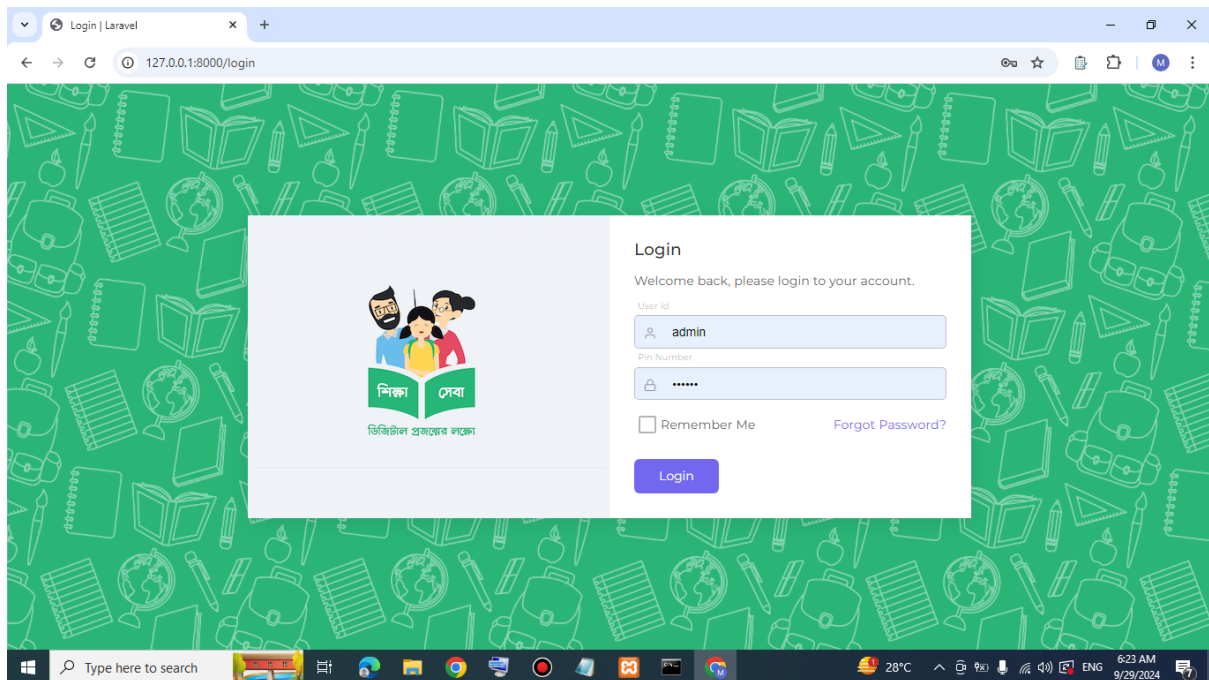


Figure 26. This is the School Management login page

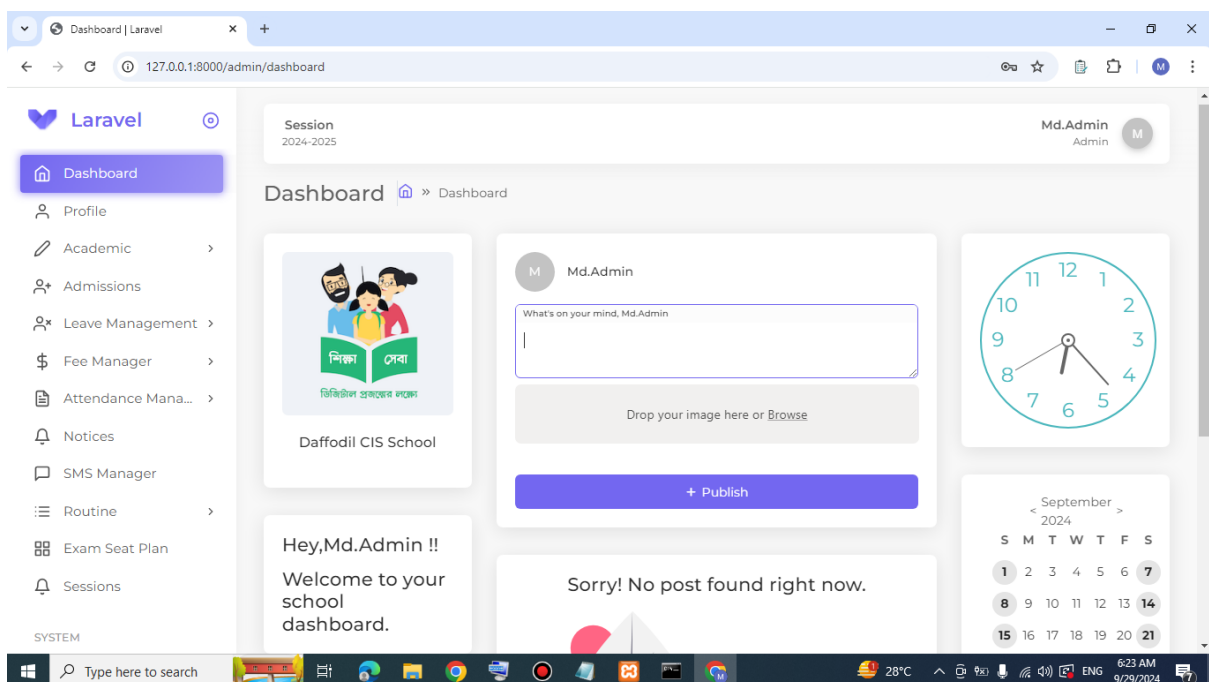


Figure 27. This is the Dashboard/Home page

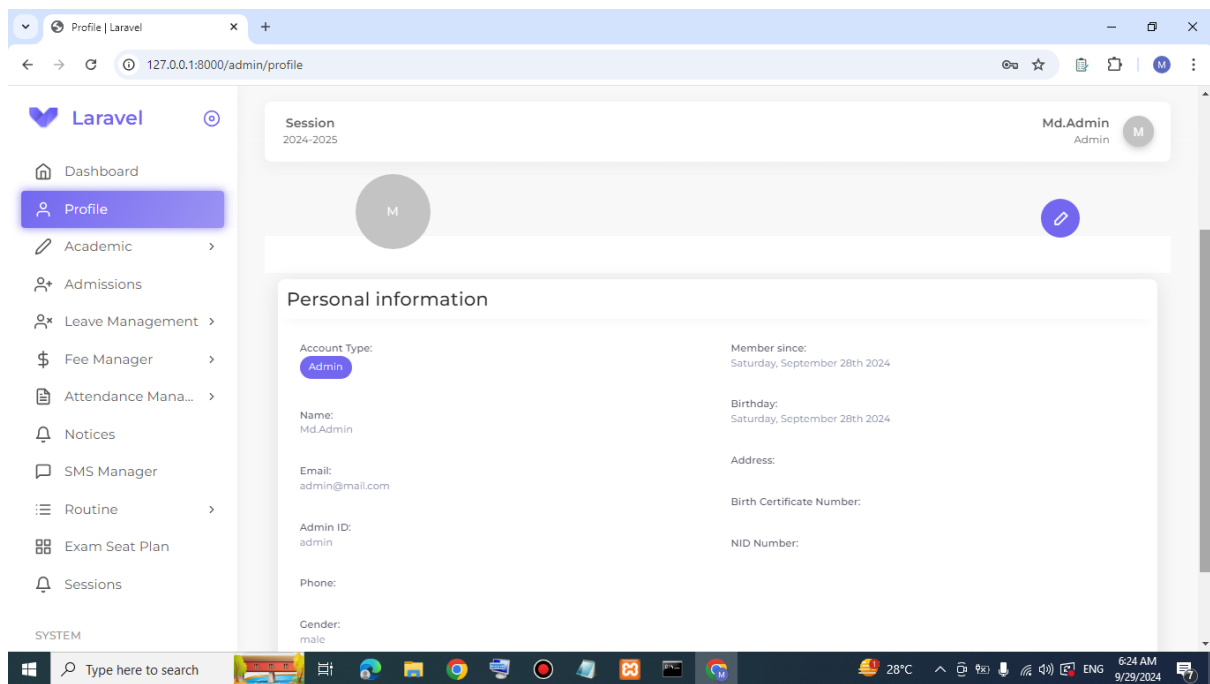


Figure 28. This is the Profile page

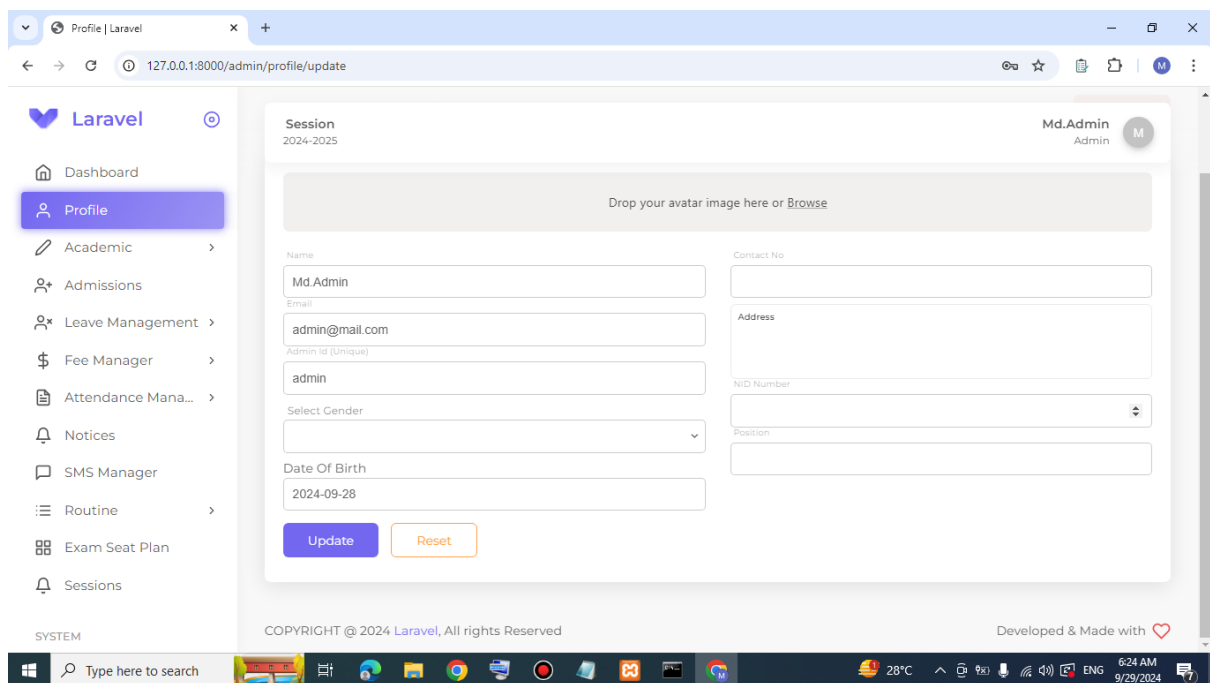


Figure 29. This is the Profile Edit form

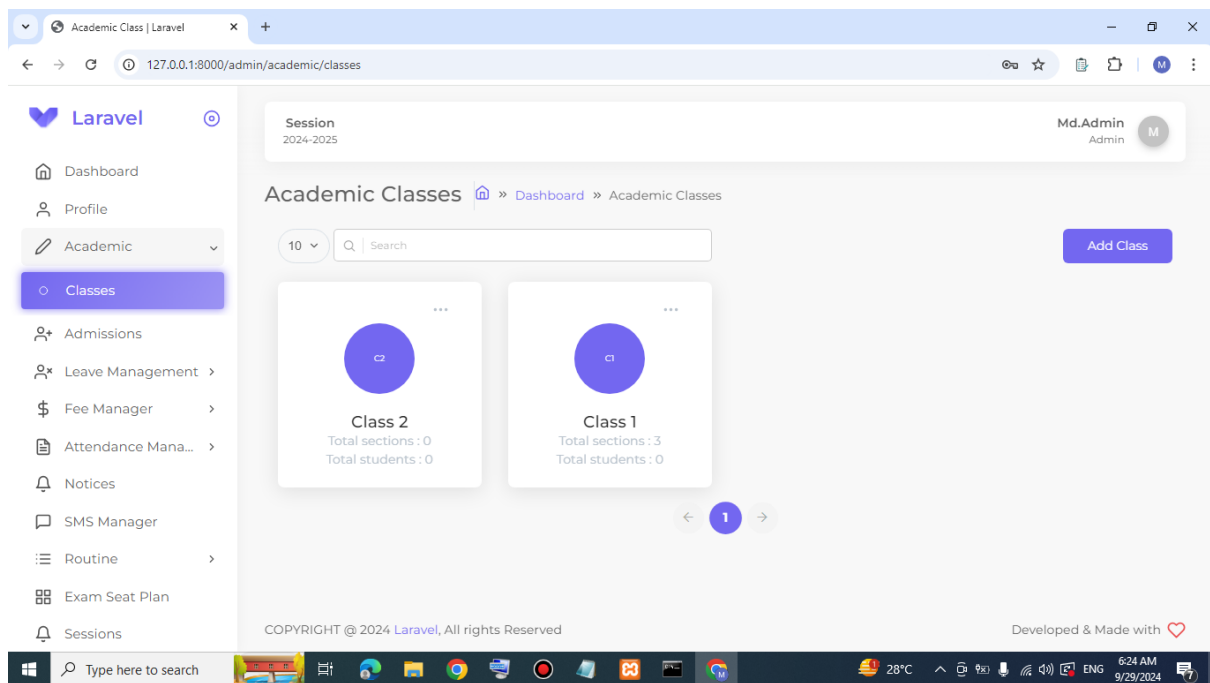


Figure 30. This is the class management page

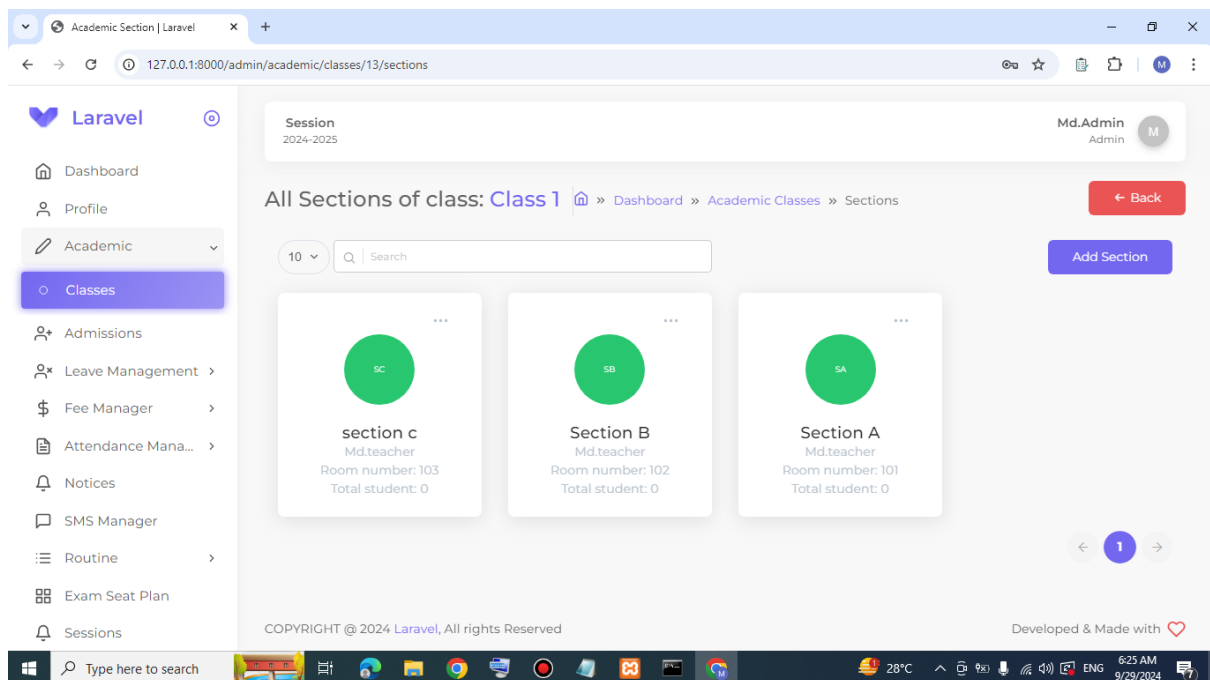


Figure 31. This is the Section management

Session 2024-2025

Md.Admin Admin

Student Admission » Dashboard » Admissions » New

← Back

Student Details

Drop your avatar image here or Browse

Class * Class 1 Section * Section A

Shift * Day Group * Science

Gender *

Email * s4L3XOn79m

admin

062731 No *

720239 ncy No *

Figure 32.This is the Admission Form

Session 2024-2025

Md.Admin Admin

Leave Types » Dashboard » Leave Types

10 Search Add New Type

SL	Name	Total Applications	Last Modified
1	Sick Leave	1	

← 1 →

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Figure 33.This is the Leave management page

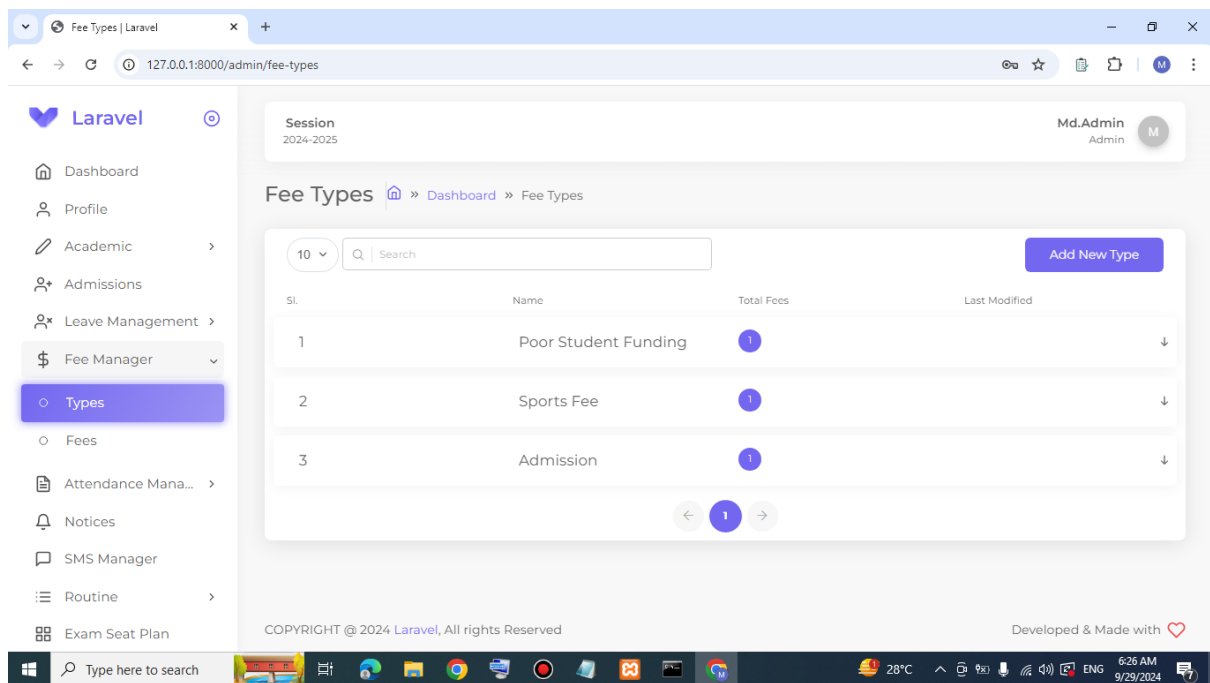


Figure 55.This is the Fees management page

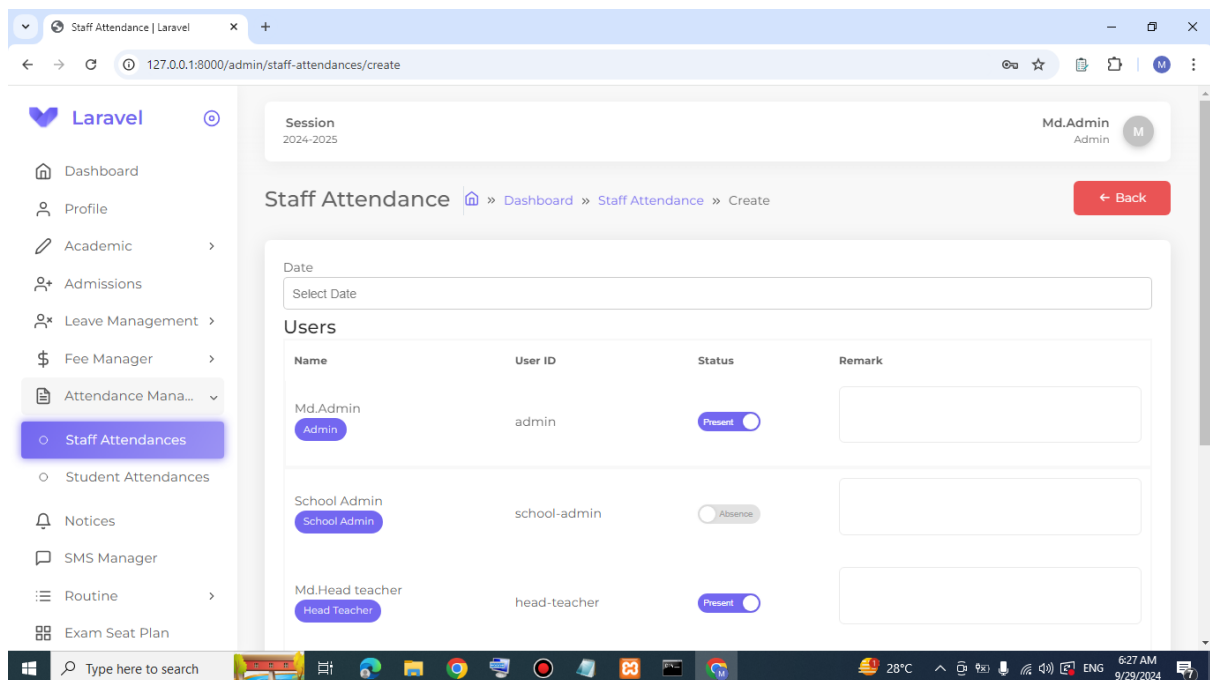


Figure 56.This is the Attendance management page

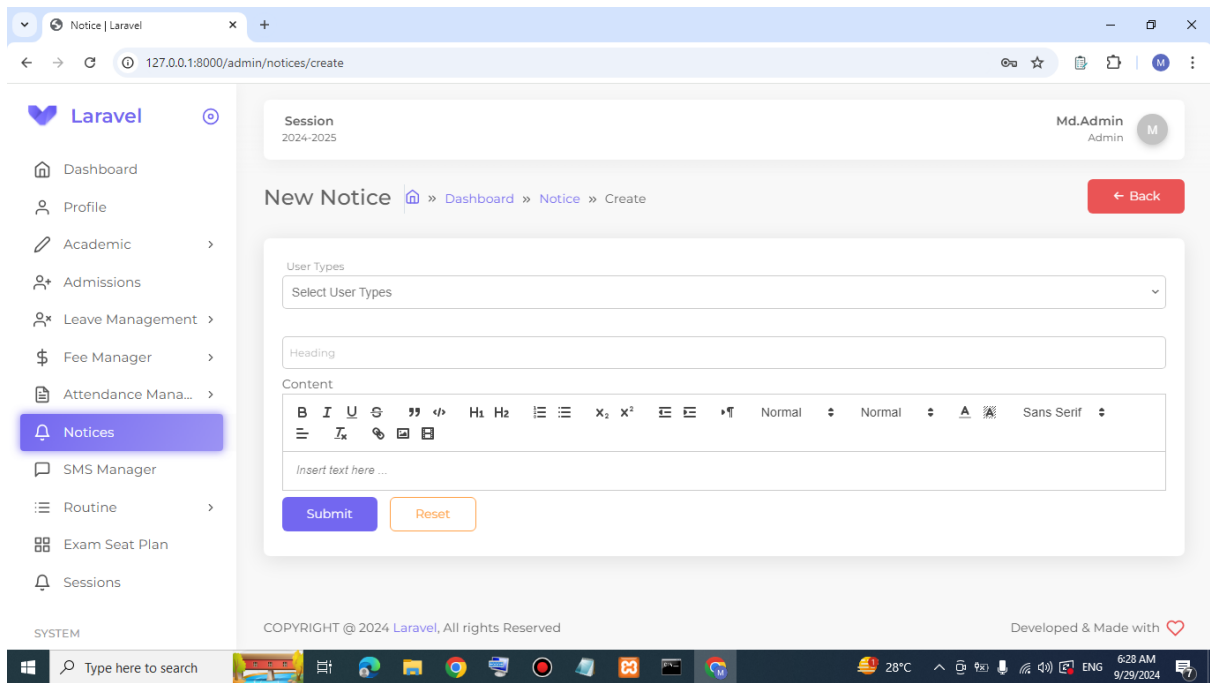


Figure 347. This is the Notice management page

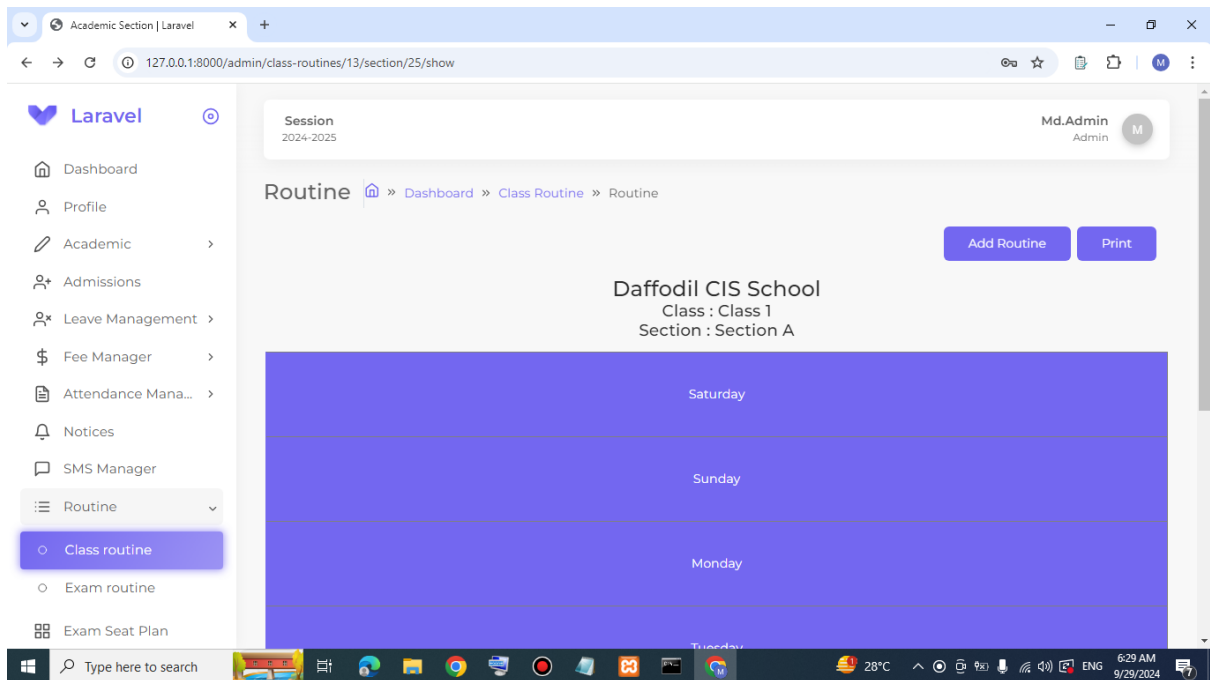


Figure 358. This is the Routine management page

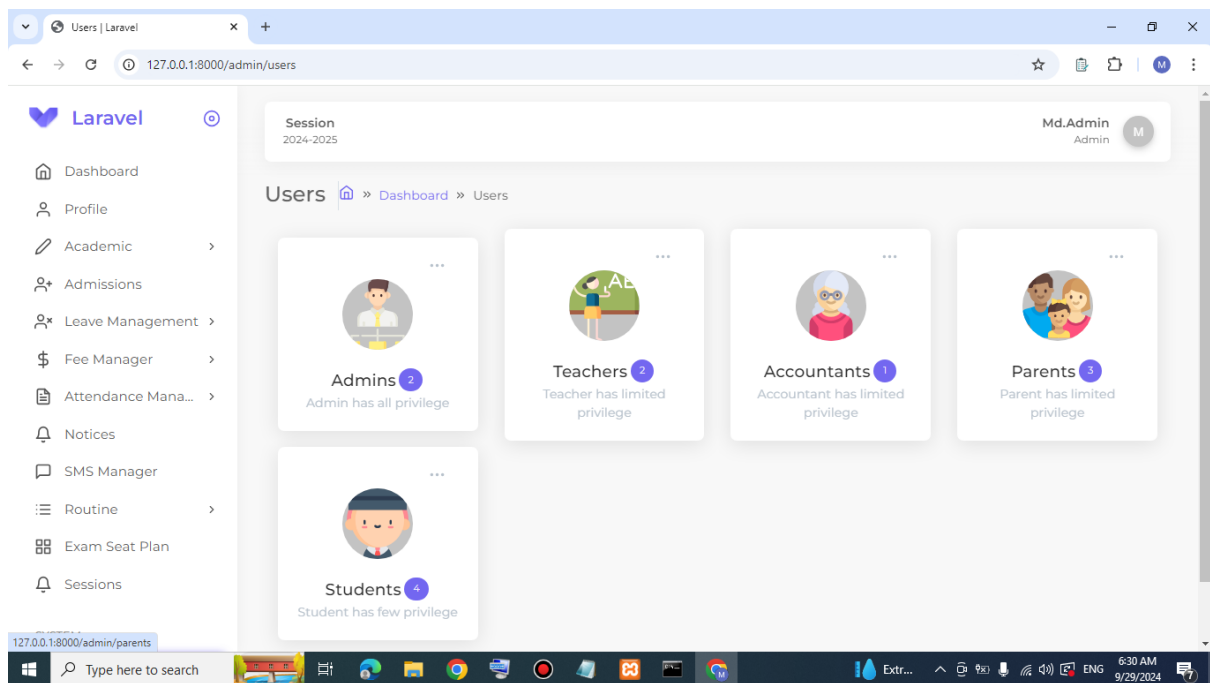


Figure 369. This is the Roles management page for Admin

10. Deployment / Development

10.1 Core Module Coding Samples:

The system works with web-based process which is totally online platform. It works with graphical interface. Here I choose PHP laravel for the developing the system. Also I used here VueJS, Inertia JS and CSS etc. Here I show the system coding:

```
7      <div class="vx-col sm:w-1/2 md:w-1/2 lg:w-3/4 xl:w-3/5 sm:m-0 m-4">
8      <vx-card>
9      <div slot="no-body" class="full-page-bg-color">
10     <div class="vx-row no-gutter justify-center items-center">
11     <div class="vx-col hidden lg:block lg:w-1/2">
12     
13     </div>
14     <div class="vx-col sm:w-full md:w-full lg:w-1/2 d-theme-dark-bg">
15     <div class="p-8">
16     <div class="vx-card_title mb-8">
17     <h4 class="mb-4">Login</h4>
18     <p>Welcome back, please login to your account.</p>
19     </div>
20     <form @submit.prevent="login">
21     <vs-input
22     icon="icon icon-user"
23     icon-pack="feather"
24     label-placeholder="User Id"
25     v-model="form.user_id"
26     :danger="!!$page.errors.user_id"
27     :danger-text="$page.errors.user_id != null ? $page.errors.user_id[0] : ''"
28     class="w-full no-icon-border"
29     />
30     <vs-input
31     type="password"
32     icon="icon icon-lock"
33     icon-pack="feather"
34     label-placeholder="Pin Number"
35     v-model="form.password"
36     @input="checknum"
37     :danger="!!$page.errors.password"
38     :danger-text="$page.errors.password != null ? $page.errors.password[0] : ''"
39     class="w-full mt-6 no-icon-border"
40     />
41
42     <div class="flex flex-wrap justify-between my-5">
43     <vs-checkbox v-model="form.remember" class="mb-3">Remember Me</vs-checkbox>
44     <inertia-link href="#">Forgot Password?</inertia-link>
45     </div>
46     <vs-button button="submit" color="primary" type="filled">Login</vs-button>
```

Figure 60.This is the login page code

```

13
14 Route::get('dashboard', 'DashboardController@index')->name('dashboard');
15
16 // Admin profile routes
17 Route::get('profile', 'ProfileController@index')->name('profile.index');
18 Route::get('profile/update', 'ProfileController@edit')->name('profile.edit');
19 Route::put('profile/update', 'ProfileController@update')->name('profile.update');
20
21 // leave management routes
22 Route::resource('leave-types', 'LeaveTypeController')->except(['create', 'show', 'edit']);
23 Route::resource('leave-applications', 'LeaveApplicationController');
24
25 // notice routes
26 Route::resource('notices', 'NoticeController');
27
28 // attendances routes
29 Route::resource('staff-attendances', 'StaffAttendanceController');
30 Route::resource('student-attendances', 'StudentAttendanceController');
31
32 // users and roles management routes
33 Route::get('users', 'UserController@index')->name('users.index');
34 Route::get('roles', 'RoleController@index')->name('roles.index');
35 Route::get('roles/{id}/edit', 'RoleController@edit')->name('roles.edit');
36 Route::put('roles/{id}/update', 'RoleController@update')->name('roles.update');
37 Route::resource('admins', 'AdminController');

```

Figure 371.This is the Dashboard code

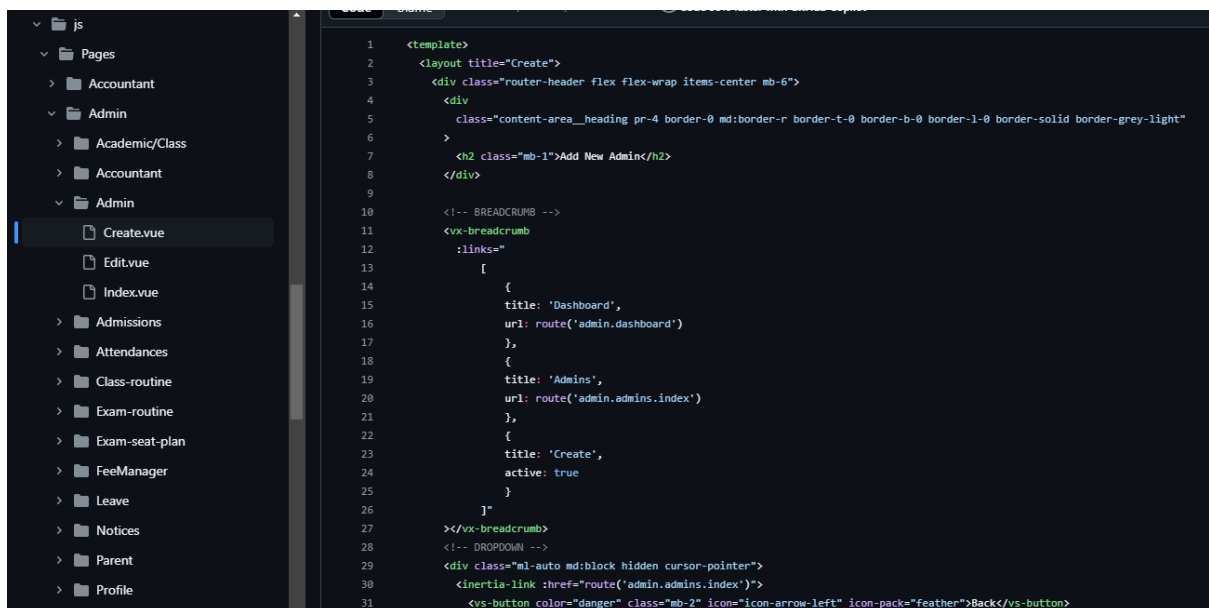


Figure 62.This is the Admin code sample

```

1  <?php
2
3  namespace App\Models;
4
5  use Illuminate\Database\Eloquent\Model;
6
7  class Admission extends Model
8  {
9
10     public function student()
11     {
12         return $this->belongsTo(Student::class);
13     }
14
15     public function studentClass()
16     {
17         return $this->belongsTo(StudentClass::class);
18     }
19
20     public function fee()
21     {
22         return $this->belongsTo(Fee::class);
23     }
24
25     /**
26      * Scope a query to only include current session data.
27      *
28      * @param \Illuminate\Database\Eloquent\Builder $query
29      * @return \Illuminate\Database\Eloquent\Builder
30      */
31     public function scopeSession($query)

```

Figure 63. This is the Admission code

```

1  <template>
2  <layout title="Notice">
3  <div class="router-header flex flex-wrap items-center mb-6">
4  <div
5  class="content-area__heading pr-4 border-0 md:border-r border-t-0 border-b-0 border-l-0 border-solid border-grey-light"
6  >
7  <h2 class="mb-1">New Notice</h2>
8  </div>
9
10 <!-- BREADCRUMB -->
11 <vx-breadcrumb
12 :links="
13 [
14 {
15 title: 'Dashboard',
16 url: route('admin.dashboard')
17 },
18 {
19 title: 'Notice',
20 url: route('admin.notices.index')
21 },
22 {
23 title: 'Create',
24 active: true
25 }
26 ]"
27 ></vx-breadcrumb>
28 <!-- DROPDOWN -->
29 <div class="ml-auto md:block hidden cursor-pointer">
30 <inertia-link :href="route('admin.notices.index')">
31 <vs-button color="danger" class="mb-2" icon="icon-arrow-left" icon-pack="feather">Back</vs-button>
32 </inertia-link>

```

Figure 64. This is the Notice module code

10.2 Possible problem break down:

The project I'm working on is a big project and we have a lot of opportunities here. Therefore, in order for the work to be efficient and complete, I had to do all the work of creating small details and completing the project. Here is the problem break down processes given below:

Database Creation:

- Creates the new database for the School Management systems.
- Creates new relationship table.
- Creates all tables.
- Creates query for insert/update/delete data on database.

Front End Design:

- Create a front-end structure using the marketing language HTML.
- Use CSS to create good designs.
- Respond to designs to fit all devices.
- All pages must be linked.

CRUD for system:

- Creates the new stakeholders form
- Insert the new stakeholder
- Update work schedule
- Delete past requirements
- Creates new reports
- Write the sql code and insert the table.

Time tracking:

- Stakeholder must be login.
- Here need to click the start button in the upper right corner to start the next day.
- The console window must always be open.
- Here want to rest, it can stop following and start when you arrive.
- At the end of the day, it can finally stop tracking and close the window.

Payroll for Employee:

- For payroll I set a form for creates works schedule
- To see monthly reports.
- Inserted data table

- Using SQL code

10.3 Prioritization while developing:

We have discussed some key mechanisms that prevent the development of this component. And most importantly, here need to set your priorities. This will help you design your first original mode. If there is no new product for you lack of ability to plan based on priorities is important. The default mode is not defined when it is displayed first. A little fashion will be wasted if you don't have time.

11. Testing

Introduction:

Here need to try to get the best system and the best results. The user Analyst said it met the working time requirements. Make sure the above information system is the perfect move. This section of this document will provide answers to design questions, interviews, and how to use them.

11.1: Test plan acceptance:

Here test plan acceptance is given below:

No	Test name	Specification	Expected outline
1	Unit testing	Here checks the users email address and password, and others.	As expected
2	Module testing	Here the testing checks the information and managed the database.	As expected
3	Integration testing	This unit testing must be filled up username, email, password and others.	As expected
4	Acceptance Testing	Here all customers' requirements are checked.	As expected

5	Security Testing	Here checked the password which is worked with encrypted. Also checked the validation and SQL injection.	As expected
6	Usability testing	Here checks the button as like button, search bar.	As expected

11.2 Test Case:

It can use these tests to verify the operation of other devices. Determining whether a problem is working, action, or fulfilling its purpose depends on the program it wants.

11.3 Unit testing:

Unit testing is an important part of the project work here. Unit testing ensures the design code for the correct operation. Here is the description table of the unit testing are given below:

Unit testing Test Case Design by: Md. Eftekhar Hossain				
Data source: user data source	Object: Test case Functionality	Tested by: Md. Eftekhar Hossain		
Test case 1	Testing description	Tasks	Expected Outcome	Actual Outcome

	Empty the form submission	Fill-up the form	Shows an error Messages.	Successful
--	---------------------------	------------------	--------------------------	------------

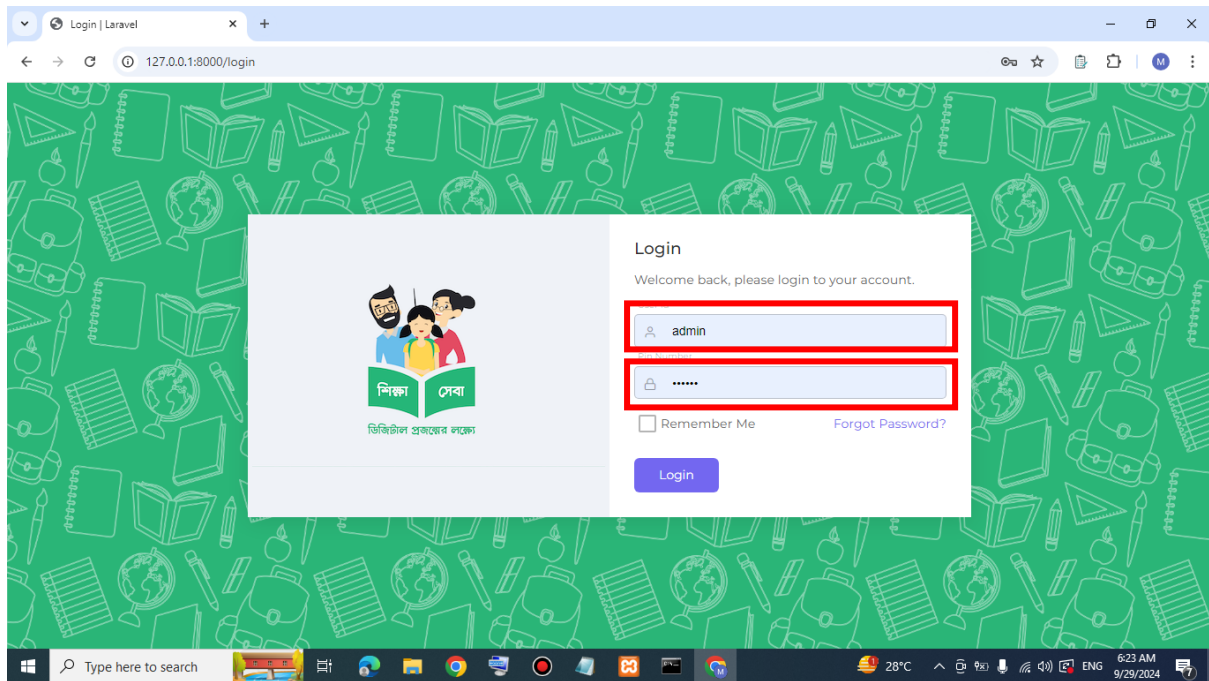


Figure 38.This is login page error message

11.4 Module testing:

The test module consists mainly of a white box. The reason for the module is that the report does not show the actual performance of the module, but indicates that there is an error in the module.

Module testing	Test Case	Design by: Md. Eftekhari Hossain
Data source:	Object: Test case Functionality	Md. Eftekhari Hossain

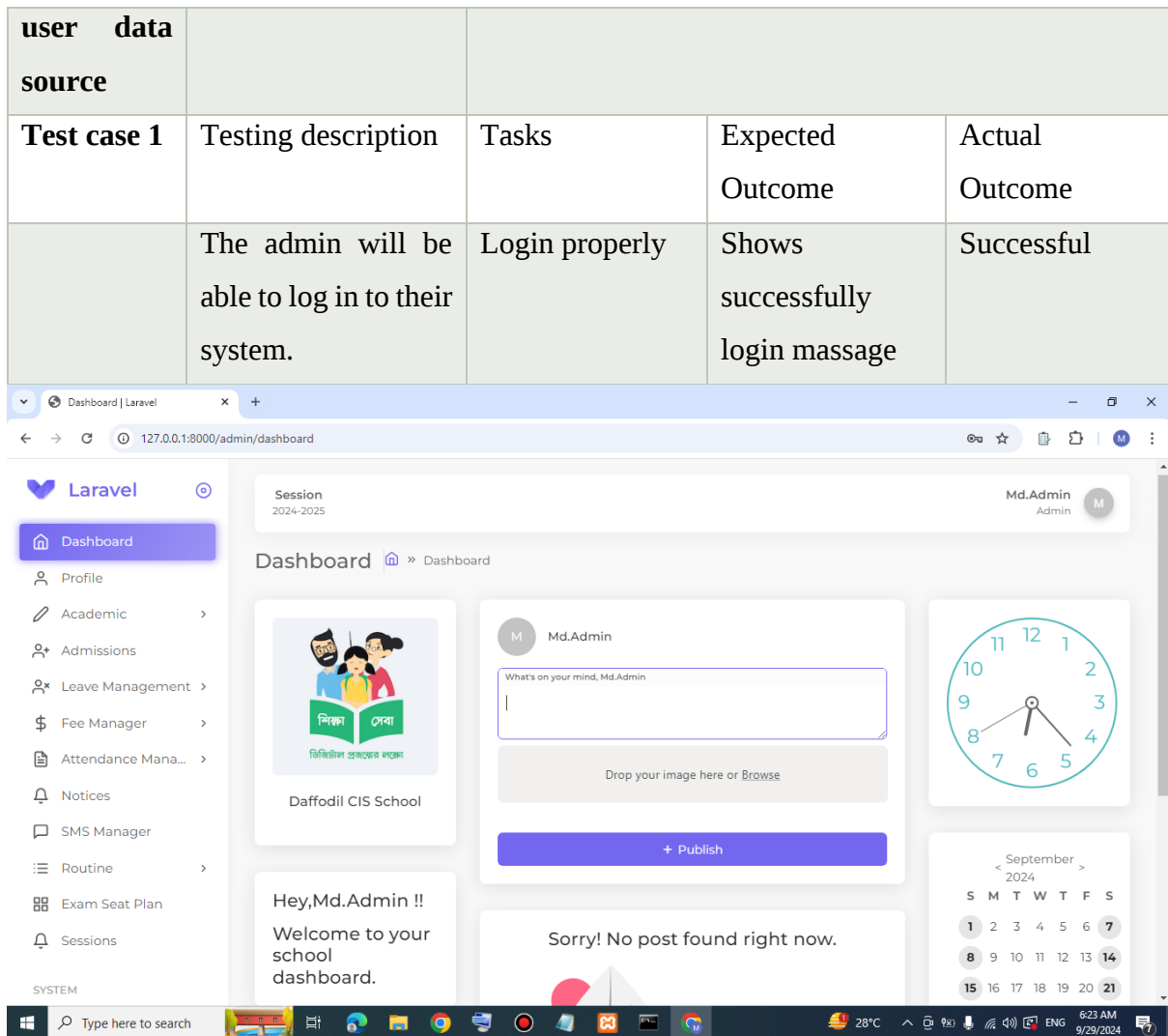


Figure 39 This is the admin panel page

11.5 Integration Testing:

Integration tests are used to validate small group projects. Combined test models are now being validated because the design test is designed to investigate problems. Test for this combination:

Integration testing	Test Case	Design by: Md. Eftekhari Hossain		
Data source: user data source	Object: Test case Functionality	Tested by: Md. Eftekhari Hossain		
Test case 1	Testing description	Tasks	Expected	Actual

			Outcome	Outcome
	Admin assigned the stakeholder.	Managed the stakeholder	Successfully assigned the stakeholder.	Successful

11.6 Acceptance Testing:

The acceptance test is a way to verify that the operating system is working as expected and that users are approved. The research was carried out after the project and the end-users were integrated into the system. The following is the table for the tests:-

Acceptance testing	Test Case	Design by: Md. Eftekhair Hossain		
Data source: user data source	Object: Test case Functionality	Tested by: Md. Eftekhair Hossain		
Test case 1	Testing description	Tasks	Expected Outcome	Actual Outcome
	The card symbol above will increase after you add it to the cart	Test for add to Cart	Successfully add to cart work	Successful

11.7 Security Testing:

Security is a big thing for any project. Password, SQL injection and encrypted passwords are part of the security testing and here identifies security the problem. The following is the table for the tests:

Security testing	Test Case	Design by: Md. Eftekhar Hossain		
Data source: user data source	Object: Test case Functionality	Tested by: Md. Eftekhar Hossain		
Test case 1	Testing description	Tasks	Expected Outcome	Actual Outcome
	Trying to log in with unauthorized information.	Shows error message	Shows error message	Successful

11.8 Usability testing:

Usability testing works in projects that use real-world experience. When researchers try to find a place of problem or confusion, users are sent to perform the task. If it has other problems, it will give advice on how to solve them. Below is a list of usability tests.

Usability Testing	Test Case	Design by: X		
Data source: user data source	Object: Test case Functionality	Tested by: Md Eftekhari Hossain		
Test case 1	Testing description	Tasks	Expected Outcome	Actual Outcome
	user can update their profile.	Managed profile	Successfully update profile	Successful

12. Implementation

Introduction:

First, the implementation must be improved all processes at all levels. Nowadays, it is possible to provide a simple implementation of the development process.

A thorough collaborative study is an effective approach to maximize the potential of your organization. Various organizations adopt distinct methods daily to depict their work environment. This section outlines how to implement a specific program as a solution. The structure at the end of this section details how the School Management Information System maintains and manages data.

12.1 System Deployment:

There are four types of system implementation strategies: parallel, phased, pilot, and big bang. If a path already exists, a new one will not be created. When a new computer is integrated into an existing system, it is referred to as an operating system. Conversely, when the new system is deployed immediately after its completion, this is known as the big bang approach.

12.2 Training:

Organizational training is very important when implementing a new system. To do this, use the School Management instructions. Now the School Management system is a digital platform. Therefore, it is important that end-users are trained in this before performing their main task. During the training, here told the user about the new system and the need for a new system.

Administrative changes have occurred following the implementation of the new system. This training assists organizations in navigating any challenges that arise. DSDM is widely supported by stakeholders during the development phase, and administrators utilize extensions after each phase is completed. Some stakeholders are already familiar with the system and can facilitate training sessions for others. The order is as follows.

Title	Description	Duration
Access the systems	If any user wants to choose any package and access the systems then must be login.	2 hours
Role	Everyone has rights roles and responsibilities. users want to know their responsibilities and roles. Here people control all levels of the event.	4 hours
Verify users	Here all the user takes training to use the new software.	2 hours

12.3 Big Bang:

The Big Bang is an important step in expanding ERP. Samples are tagged on a specific date and grouped. The exact date was set by the general manager after discussion and work. Without proper planning and preparation, it is impossible to inherit the system. Here are the steps to take before and after the Big Bang. The model must disassemble the system and present a new one (Elizabeth Howell , 2021). It probably won't come back after that. The problem is with large suppliers and service providers. There is always a big risk. Big bang work processes are fast and expensive.

Advantages:

- There is no middle ground. All of these systems require a lot of exchange when it comes to conversion pages and the cost is low.
- A new approach is needed to train staff, but not in times of change
- Installation time is limited.

12.4 Scaling:

Scaling uses methods that determine the operation of the system. To prepare for this future process, several goals can be set depending on the needs of management.

12.5 Load Balancing:

Some applications are used to open load balancing and server monitoring systems. It can run it or change it in the program. For example, the School Management system does not need anything, it only needs consumables which is must be hardware software (Load balancing, 2023).

13. Critical Appraisal and Evaluation

This section describes how to evaluate a project and find current and ongoing projects. Prior to the project, a number of procedures were presented to the project planning department. But not everything matters during installation. Exceptions to this rule may be in accordance with applicable law before this page of the document.

Before starting the project must be a defined set of objects. These are given below:

- Must be the user-based role for developing the system.
- Must be learning and assessing the developing the systems.
- The system provides the management of various sections like Roles, Admission, Fees, Routines, and Notices etc.
- Manages the Class schedule.
- Providing the monthly reports.
- Providing user-friendly software.
- Must be error-free software.

13.1 Objectives that could be met

13.1.1 Success rate:

1. The School management system is web-based application, where users can manage their school:

Success rate: I think this objective meets totally. at first admin, stakeholder and user they can easily view website and their profile, also admin can manage their profile.

This system defines multiple stakeholders who can utilize it to achieve the projectusers objectives. To successfully implement the School Management System, it is essential to involve users and administrators.

2. This system provides various types of School Management options:

It was a School Management system where user can like the Options about what they want.

Success rate: It can be said that this purpose has been completely fulfilled. Admin can create many types of roles as per users requirement, and users can easily choose the School Management roles.

3. Check the reports:

Admin need to know about the system status.

Success rate: I think this objective meets the successfully, because admin can successfully check the report monthly and calculate the information easily.

4. Bugs are corrected:

Developing the system following the agile methodology. Iteration process is following during the development time; Time box was also used to develop this application.

Success rate: Different types of tests have been done after development. It can be said that error-free software, rarely found errors.

5. user-friendly web-application:

This application design very simply and color combination is too good. Also, drop-down menu, authentication and user guide message show. So that user can easily understand this application.

Success rate: I think this objective meet successfully. Cleary define drop-down menu. If user can input the wrong, the system can show the error message.

13.2 Objectives that were partially met:

Developing auto chatting system and group for discussion with users.

Reason for met partially:

Since the project is a singular initiative, I will collaborate with all the development teams involved. Also, the project time was limited and It must be completed within a limited time, so it was difficult that for me.

Possible course of action:

To achieving the deep knowledge about the in relevant topic can be a good solution. achieving the time consuming and working with effectively that can be good solution for that reason.

13.3 Object not met:

Nearly every object is either completely or partially utilized. There is no instance where a purpose is not fully or partially achieved.

13.3.1 Features that were touched:

1. Managing the Notice:

This feature is work fully effectively and efficiently. So, it can be said that feature completely touched. Beside this feature all sub-function are working fully well.

2. Users adding their requirement:

Here users can set requirement as like they want.

3. Schedule manages:

This feature is work very effectively. Here admin can create class scheduling so teachers can see their work schedules very easily.

13.4 Features those were partially touched

1. Manage report:

Since this feature is very effective so it can be used more efficiently. but the project time was limited and lack of experience about this topic, so the feature partially touched.

Possible course of action:

If a have good knowledge, then can create skills at work. In addition, the duration of the project should be considered.

13.5 Features that were not touched:

Just about every feature is completely or partially filled. No purpose is found that it is not fully or partially fulfilled.

13.6 Strength of the system:

User friendly: The system has been designed keeping in mind that users can easily interact with the system. This allows the user to easily understand the functions of the system and interact with the system.

User role control: Role-based authentication that acts as a strength for this system. Using this feature, different users can use their features separately.

Security: The system has been developed with the highest level of security in mind. And more emphasis has been placed on user data, if anyone can access it they can harm, for this reason encryption is also used in this system.

Independent platform: At present almost, every work depends on internet and web based. Now people are very used to with web application and no problem with operating the system. With this in mind, this project is developed for web applications.

13.7 Weakness of the system:

Automatic Data Backup: The system lacks an automatic data backup feature, which presents a vulnerability for data security and integrity.

Email Verification: The absence of an email verification process is a potential weakness in this application, as it may compromise user authentication and security.

13.8 Future development:

In day by day updating the people and their work, so some features can be adding to make more efficient for this application. These features are indicating in here.

13.9 Product Evaluation

Product evaluation helps identify the strengths and weaknesses of the system. Additionally, the primary objective of this evaluation is to assess whether the product fulfills the needs of the business effectively.

14. Lessons Learned

Introduction:

It is fun to observe, study and develop this project. The project development process is completely professional. So much to learn. This chapter outlines all the learning points. There are a number of issues in evolution.

14.1 Pre project – review – closing:

To design a project, I use one of the fastest methods called SCRUM. It takes a long time to development on the project. SCRUM has helped me a lot in this regard. It taught me to do each project through a repetitive process. I learned to work well and shared it with other resources. Not only can this, with the help of a good deal, it get a great deal. I really know that the product is still there. I provide product insurance and set a price for each user event. SCRUM operations allow the system to judge features or conditions that should be a primary consideration for evaluating returning visitors. Setting a target before each run was a much better outcome for me. I know the value after a sprint. This allows me to monitor the status of the job on an ongoing basis. I have studied system analysis and I know its shortcomings. Here can easily identify the problem and solution the problem with development.

14.2 What have I learned?

Before starting a project, it is very difficult for me to set professional goals and project concepts. Therefore, I need to look through several books within the project that will help me deal with the problems and challenges of the time. So, I see the problem in how systems development helps. I will also give another answer to the literature review process. It helps me see the best features of my system.

Then I learned about project development methods, all kinds of functions. If I compare all the steps, I can determine the most appropriate method for my project, the SCRUM step. This will allow me to quickly and accurately develop the project. Because it considers the needs of the

business and the main goals of career development. Here divides my project plan into multiple sources. This is how I learned to manage team projects.

I need to think about a project idea that should define a coherent work plan, such as a management idea, timeline, Gantt chart, test idea. The reason is to write about a project that is associated with any activity called Gantt chart, where each activity needs to be described in advance. I will also learn how to make a real project. Risk management, conversion, risk and more are learned from the project.

In addition to analyzing the existing system, I also learned to identify difficult areas. To do this, I studied rich pictures and researched several questions that meet these needs. In this section I will write a new one called BPMN, but it has an image or modern diagram, but the ones that were created are new to me, but I know the use case diagram. Use UML diagram, use case, component, activity, the sequence for the project. I found them in-depth and clarity and I found a new ERD diagram that I already knew about ERD diagrams as a database, but ERD is something new to me and I love it.

Once the development is complete, I tested the whole School Management system. Under them, I learned new experiments called module testing. After the proper test, I had to implement the system back. This series is fun for me and not very familiar. Here I am first creating the new professional projects. I do not know how to use the projects. This is where I ended my work with the Big Bang project. Scaling and also load balancing is used for the projects.

In the end, it is very important that I am evaluating the project. It helps me balance my work. This way I can decide which parts of the development will move forward in the future and how I will reflect on them.

14.3 What problems I have faced:

It is universally acknowledged that managing all the processes involved in developing a new system can be challenging. In my attempt to initiate a School Management System project aimed at improving the educational system, I encountered several issues that needed to be addressed.

- **Understanding the Problem:** Before starting this process, I reviewed the necessary procedures and sought to understand the underlying issues. My first task was to identify

a specific area facing challenges and explore various solutions. Although this seemed daunting at first, I was able to navigate through it.

- **Project Approach:** Choosing the right approach for the project was another difficult decision. As a student, I had to devise a solid plan to tackle complex tasks. I received tremendous support from my teachers, who played a significant role in guiding me through the Scrum training process.
- **Analysis Phase:** Before embarking on the project, analyzing the potential results was crucial. I included a storage option tailored to my needs. However, it became apparent that many stakeholders were unsure of what they wanted, making it challenging to develop a business idea that aligns with customer expectations. With everyone busy, it was difficult to engage participants in meaningful discussions.
- **Final Phase Challenges:** The final phase of the program proved to be particularly challenging, as it involved adhering to academic curriculum requirements.
- **Learning During Development:** Throughout the software development process, I encountered two significant challenges. The first was understanding the digital processes at a higher level. I aimed to incorporate podcasts into the project to express my appreciation for the knowledge shared by numerous staff members. For instance, when a student receives test results, it's essential to prepare them to utilize the feedback from teachers effectively.
- **Overcoming Coding Issues:** During the development of the project, I faced some coding challenges. I sought assistance through online resources and textbooks, as well as support from my class teacher.

14.4 What solutions occurred

When I faced some problems then I took some steps to create the project. These steps are given below:

- First, I research the articles for choosing the right methodology. I took some time before creates the software. Then I choose the correct methodology for the projects.
- Then I talk about the School Management system with a scholar. I take knowledge about the School Management system process. I gather knowledge about these.
- I used the Moscow prioritization for the project. Moscow is important for any project and it solved all problems.
- I always follow the time box. Because time box is most important the project. Here gives proper way to create the projects.
- When I faced code problems then I take help online and from my supervisor.

15. Conclusion

15.1 Project Summary:

The **School Management System (SMS)** is a web-based application developed to enhance the efficiency of school operations. Utilizing **Laravel 6**, **PHP 7.2**, **Vue.js**, and **Inertia.js**, the system integrates various school functions into a single platform, making it easier to manage tasks related to students, teachers, and administration.

Key features of the system include:

1. **Dashboard:** Provides an overview of critical school data, such as attendance, fee status, and academic performance, enabling administrators and teachers to access essential information at a glance.
2. **Profile Management:** Allows users (students, teachers, administrators) to manage and update their personal details securely within the system.
3. **Academic Module:** Supports the creation and management of class schedules, academic records, and assessments, giving teachers and administrators the ability to track student progress efficiently.
4. **Admission Management:** Simplifies the student enrollment process by allowing administrators to process applications digitally, reducing paperwork and manual handling.
5. **Leave Management:** Allows staff and students to apply for leave online, streamlining the approval process for school administrators.
6. **Fee Manager:** Automates the tracking of student fees, generating invoices and providing real-time insights into financial data, reducing errors and delays in payments.
7. **Attendance Manager:** Digitally manages student attendance, allowing teachers to mark attendance easily and generate attendance reports for analysis.
8. **Notices & SMS Manager:** Facilitates timely communication between the school, students, and parents by sending notices and SMS notifications for important updates.
9. **Routine & Exam Seat Plan:** Enables administrators to create and manage class routines and exam seat plans, ensuring that all students are properly scheduled.

10. Sessions Management: Organizes academic terms and sessions, helping administrators manage the school year effectively.

The system incorporates **role-based access control** to ensure that each user—whether a student, teacher, or administrator—has access to relevant modules based on their role. This increases security and makes navigation more intuitive for users. Additionally, the **CRUD (Create, Read, Update and Delete)** functionality across all modules ensures that data can be easily managed, updated, or removed when necessary.

Overall, the **School Management System** is designed to reduce manual administrative work, enhance communication, and provide a more structured approach to managing school functions. By consolidating multiple operations into one platform, the system improves productivity and ensures smooth workflow across various departments. Moreover, the system scalability allows it to adapt to the growing needs of educational institutions, making it a valuable tool for schools of any size.

15.2 Goals of the project

15.2.1 Fulfilled goals of the project:

Day by day, people seek to simplify tasks and processes, and managing a school is no exception. Schools have various complex operations that need to be managed, including student records, admissions, attendance, and communication with parents. These processes are often difficult to coordinate manually. That users where the **School Management System (SMS)** comes in, offering a streamlined platform to manage all of these aspects efficiently. The main goals of the system are:

- **Manage Academic and Administrative Tasks:** The system facilitates academic management by providing tools to manage class schedules, student progress, and academic sessions.
- **Handle Fee and Attendance Management:** The system offers features to track and manage student fees and attendance digitally, ensuring accuracy and reducing manual errors.
- **Enable Communication:** The system keeps parents and students informed through notices and SMS, improving communication with the school community.

- **Create and Manage Schedules:** The system helps to plan and manage academic routines, exam schedules, and seating arrangements.
- **Simplify Admissions:** With a fully online admission system, schools can process applications more quickly and efficiently.

15.2.2 Goals that are not fulfilled:

Many goals are set to achieve the goals of the project. It all applies. These things are given below:

- Mobile event app
- Online send events

15.3 The success of the project:

I have to work hard in a short time, because this is an educational project, and more importantly, all this work has been done for me. Therefore, some requirements are not fully met. However, most features work well. Valuable documents are created during this time, this project will help any educational organization to Increase the speed to gain knowledge by students, which is the most important success of the project.

15.4 What I have done in the documentation:

From the very beginning of the project document, I tried to write down the goal of the project by entering available solutions into the history book. The comparison concerns the software available in this area and the discovery of our country. Here is the complete program of the project. So the way forward is an opportunity and a lesson. I also appreciated the need for proper handling. Now I will give it a plan to upgrade the system. Also, I suggest testing, distributing and evaluating the project. After completing the project, I will take a closer look at what I have learned from this School Management system project.

15.5 What I have done in the documentation

I learned a lot on this project, especially how to follow the process in this project. This function helps me to work faster in the system. I want to learn some new technologies to develop an interesting career in current technology. I have read many research papers that have been very helpful in gathering information. The difficulties and challenges I faced during this project disappeared and I was fortunate to change once the project was completed. It was truly an unforgettable experience for me. Alhamdulillah, this work is entirely based on my strength and strength. It helps to understand the problem, analyze it and try different approaches. So, my ability to solve problems was tested and resolved. In short, the experience I gained while working on this project will never be forgotten and will remain a precious memory to me. This was my first experience using Laravel to accomplish this great task. Even though I work hard, I love it more.

15.6 Value of the project:

School management is crucial from an operational and business perspective. Efficiently managing school activities and processes can significantly improve the overall functionality of an institution. The main goal of this project is to develop a unified software system for managing various school operations, such as admissions, attendance, fees, and academic records.

The proposed system will streamline administrative tasks by reducing the need for manual paperwork and minimizing the workload for staff. It will improve efficiency by automating routine tasks, saving time, and enhancing productivity. The system is designed to be user-friendly, allowing users such as administrators, teachers, students, and parents to interact with it easily. Additionally, the software will meet the requirements of the school, ensuring all necessary features are available for smooth day-to-day operations.

By integrating all essential functions into one platform, the School Management System simplifies school administration and makes it easier for users to manage their tasks.

15.7 My experience:

I had my own plan and I had to do all the necessary techniques. Follow everything except the right plan. This is a very important experience. Adding a program in a short amount of time is a very difficult task in my head. I want to talk to service clients to share their different needs and experiences. To improve the system, we need to start the system with data analysis. This will give you a better understanding of location information and details. That needs to be done. Being a farmer is another important thing in life. I create two different platforms, a website and a mobile app. I am now gathering all my experience. Detailed information about the building and the parts that were repaired is also collected.

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Appendix A:

Here shows the use case diagram description table which is given below:

UC1	Login
Use case description:	Login the School Management system
Primary actors:	user, admin and Teacher
Secondary actors:	N/A
Pre-condition:	Input the accurate user email and password.
Dependency:	N/A
Basic flow of event:	➤ Inputs correct user email ➤ Inputs correct user passwords
Post conditions:	Successful login.

UC2	Manage reports
Use case description:	Must login the School Management system from the admin
Primary actors:	Admin
Secondary actors:	N/A
Pre-condition:	Input the accurate user email and password then show the monthly reports
Dependency:	N/A
Basic flow of event:	➤ Inputs correct user email ➤ Inputs correct user passwords ➤ Check the monthly reports ➤ Also search the month for check reports
Post conditions:	Successful login.

UC3	Manage schedule
Use case description:	Must login the School Management system from the admin
Primary actors:	Admin
Secondary actors:	N/A
Pre-condition:	Input the accurate admin email and password then set the work schedule for stakeholder
Dependency:	N/A
Basic flow of event:	➤ Inputs correct admin email ➤ Inputs correct admin passwords ➤ Click the manage stakeholder and add their work schedule ➤ Also, admin update the stakeholder work schedule
Post conditions:	Successful login.

UC5	Manage user
Use case description:	Must login the School Management system from the admin
Primary actors:	Admin
Secondary actors:	N/A
Pre-condition:	Input the accurate admin email and password then managed the user.
Dependency:	N/A
Basic flow of event:	➤ Inputs correct admin email ➤ Inputs correct admin passwords ➤ Click the manage user ➤ Also, admin update the user.
Post conditions:	Successful login.

UC7	Show schedule
Use case description:	Must login the School Management system from the admin and stakeholder
Primary actors:	Stakeholder
Secondary actors:	Admin
Pre-condition:	Input the accurate email and password then show the work schedule
Dependency:	N/A
Basic flow of event:	➤ Inputs correct email ➤ Inputs correct passwords ➤ Admin set the schedule ➤ Stakeholder shows the work schedule.
Post conditions:	Successful login.

UC9	Message
Use case description:	Must login the School Management system.
Primary actors	Admin, user, stakeholder
Secondary actors	N/A
Pre-condition	Input the accurate email and password then user and stakeholder can communicate with the admin.
Dependency:	N/A
Basic flow of event	➤ Inputs correct email ➤ Inputs correct passwords ➤ Then they can click the chat box and send the message
Post conditions	Successful login.

UC13	Manage profile
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Use case description:	login the School Management system.
Primary actors:	user and Admin
Secondary actors:	N/A
Pre-condition:	Input the accurate email and password.
Dependency:	N/A
Basic flow of event:	➤ Inputs correct email ➤ Inputs correct passwords ➤ Then user and stakeholder update their profile.
Post conditions:	Successful login.

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