American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

Academy Management System

A Software Requirement Engineering Project Submitted
By

Semester: Spring_22_23	Section:	Number:
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The project will be Evaluated for the following Course Outcomes

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System Overall Description & Functional Requirements	[10 Marks]	
System Quality Attributes and Project Requirements	[10 Marks]	
UML and E-R Diagram with Data Dictionary	[10 Marks]	
UI/UX Prototyping	[10 Marks]	

Software Requirements Specification

for

Academy Management System

Version 1.0 approved

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American International University-Bangladesh

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Revision History

Name	Date	Reason for Changes	Version
Academy Management System	15/05/2023	N/A	Version 1.0

List of Abbreviation:

Abbreviated Form	Full Form
HTML	Hypertext Markup Language
XHTML	Extensible Hypertext Markup Language
JSP	Java Server Pages
JS	JavaScript
CSS	Cascaded Style Sheets
XML	Extensible Markup Language
RDMS	Relational Database Management System
SQL	Structured Query Language
PHP	Hypertext Preprocessor
SMS	Short Message Service
GSM	Global System for Mobile communication
SIM	Subscriber Identity Module

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1. Introduction

1.1 Purpose

The purpose of this document is to build an online system to manage student's private tutoring in an easy and more systematic way. This system is the first version of it (version 1.0). As mentioned earlier, the purpose of the online academy management system is to come up with features that will ease academy management and to create a convenient and easy-to-use application for both the students and the tutors who are constantly involved in this system to their day-to-day life. The system is based on a relational database with its class timings, assignment preparation, regular payment transactions, fact checks, reservation of student teacher daily activities and result preparing. We have focused on a database server that will support thousands of student information, fact check and study growth who are both directly and indirectly connected with coaching centers and a hundred of coaching center information and their activities of major cities around Bangladesh. Above all, we hope to provide a comfortable user experience along with the best pricing available.

In our daily life, we may focus on a coaching center. Sometimes some students miss a class in their schools and colleges and can not able to communicate with other students who were present in that class. At this moment they don't get aware of what lecture has been completed that day, so they retract their studies. As a result, a student has to go to a coaching center for his study support. Sometimes we have to face class timing, subject changing and class canceling problems and they are not likely notified by the authority of that coaching institute in our country. At that time, if the authority wants to inform all their teachers and students, they have to call or message all of the individuals who are connected with their institute. Moreover, continuous exams are held at the coaching centers. The publishing of the result has become delayed due to manual result report preparation. During this time, guardians and students have to regularly check the result board that is hoisted in front of the coaching center. Most of the times guardians don't really get notified about their children's result and this aggravates the guardians in keeping track of their children's result and progress in study. Sometimes coaching centers need to perform operations like insert, update, delete students' and teachers' information manually. Additionally, when students pay their payments to the coaching centers, the coaching centers need to give them a payment slip in hand and store this slip for the accounts department. Afterwards, the accounts department has to calculate all of their transactions manually. If coaching centers need to search the transactions that were previously done, they have to waste a lot of time as the task is manual again. To solve this problem, we are building a system for academic centers.

As previously explained, we are developing a academy management system. By using this system various benefits can be achieved such as authorities can easily inform all their students and subject teachers about their regular class information. This will help students not to face class schedule changing problems. After every exam, authorities can publish their students' results on this website. Consequently, guardians and students can see their exam result easily using this system from anywhere. So, this system will save their time and the guardians can easily check their children's study progression. This system will be easy to use as the authorities just need to insert their students' and teachers' information into this system and the

system will provide them with every answer to their queries. This system can calculate all the transactions automatically and error freely which ensures reliability in payment.

The main objectives of this academy management system are-

- Turning academy management online based.
- Saving students', teachers', and guardians' time.
- Up to date guardians about their children's study progress.
- Making easy maintenance of coaching institutes for their authorities.
- Providing digitalization on coaching institutes.
- Providing a cost effective and easy to use online system to the coaching institute authorities.

This software benefits the coaching institutes in terms of cost reduction, management, workload reduction, and tracking student study progression. The business coaching centers are doing need the upper entities to be implemented in terms of growing their business. Moreover, they need security in payment transactions, which can also be achieved by our academy management system. In this way, coaching institutes will get benefited from their business aspect as well.

To discuss the business requirements of our system we need to mention some clarifying entities that our system consists of. The system shall make management of the coaching institute easier by providing a automated system. This automated system feature shall notify teachers, students, guardians, and coaching authority about the workflow. The teachers and students shall get notice about class timing, results, and their payment transactions. Moreover, students and guardians shall get notice about the result publication. The tracking of students' results and payment shall become easier. These are some business requirements our system shall meet.

1.2 Document Conventions

For writing this document fonts that have higher values than other ones and have bold in style are the heading of this document. The underlined subject matters are important to know to understand this document. Apart from that, the listed descriptions are given in bold format. The bold description is also important to understand.

There are a set of priorities among different functional and non-functional entities. The functional and non-functional entities are set for a higher, medium and lower priority. The reader shall emphasize this set of orders while reading this document and the writer shall emphasize that set of orders while writing any document over this SRS.

1.3 Intended Audience and Reading Suggestions

This document is intended to be written for developers, project managers, marketing staff, users, testers and document writers. The developers shall understand the functional requirements of this system after reading this document. The project manager shall understand the business goal and whether this system is ready for market launch or not. The marketing staff shall understand the value of this project and in which aspect they shall do their marketing. Different users like teachers, management team of coaching institute and finally the authority shall understand the way of dealing with this software system. Testers shall find out the functional and non-functional requirements clearly to do testing over them. Finally, the documentation writers shall understand which specific thing needs writing visualization in terms of publishing features functionality and capability towards the audiences.

To read this document, reader shall start with the overview section first. By taking good idea from the overview section the readers shall jump into reading from overview to system requirements. Then the readers shall start reading from the beginning portion. After that, the readers shall take their looks on the graphical user interfaces and they will easily understand the functioning of our software system.

1.4 References

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2. Overall Description

2.1 Product Perspective

This section discusses the many system tools that we employed in the creation of the project's front end, back end, and additional tools. This shall become a replacement of traditional coaching institute management system and turn the traditional system into a more convenient and easier to use autonomous system. This system shall give positive impact in terms of feasibility, UI/UX, manageability and security.

There are several inter relation among front end, back end, database, and gateway system in our project.

Front end: To implement the front end, JSP, HTML, CSS, and JAVA SCRIPTS are used. JSP is used in the apps to create several pages. A form of Java server called a java server page component is intended to serve as the user interface for a Java web application. JSPs are written in text files that contain embedded JSP actions and instructions, HTML or XHTML code, and XML elements. JSP can be used to capture user input from a web page. An online text document can be formatted using HTML (Hyper Text Mark-up Language). CSS, document created in a mark-up language can have its appearance and formatting described using the style sheet language CSS.A dynamic computer programming language is Java Script. It is most frequently utilized as a component of web browsers, whose implementations enable client-side scripts to interact with users, manage browser settings, communicate asynchronously, and change the displayed document content.

Back end: We have used C# coding language and MYSQL for the back-end part of our project. The second-most used open-source relational database management system (RDMS) in the world is MySQL. Structured query is the term used in SQL. PHP is a server-side scripting language that was created for web development but can also be used for other types of programming. A web server's PHP processor module interprets the PHP code to produce the final web page: Instead of contacting an external file to handle data, PHP commands can be directly included into an HTML source document. For all these reasons we have used MYSQL in our project.

SMS Gateway: A computer can transmit or receive short message service (SMS) messages to or from a telecommunications network via an SMS gateway. The majority of texts finally enter mobile phone networks. A lot of SMS gateways allow for the conversion of media from email and other formats. A gadget with integrated wireless is a direct-to-mobile gateway. GSM compatibility. via obtaining a distinctive identification from the subscriber identity module, often known as the "SIM card," of the mobile phone, it enables SMStext messages to be sent or received via email, through web sites, or from other software programs. Because they are deployed on an organization's own network and link to a local mobile network, direct-to-mobile gateways differ from SMS aggregators. By purchasing a SIM card number from the mobile operator and placing it in the gateway, our system shall establish a connection to the mobile network.
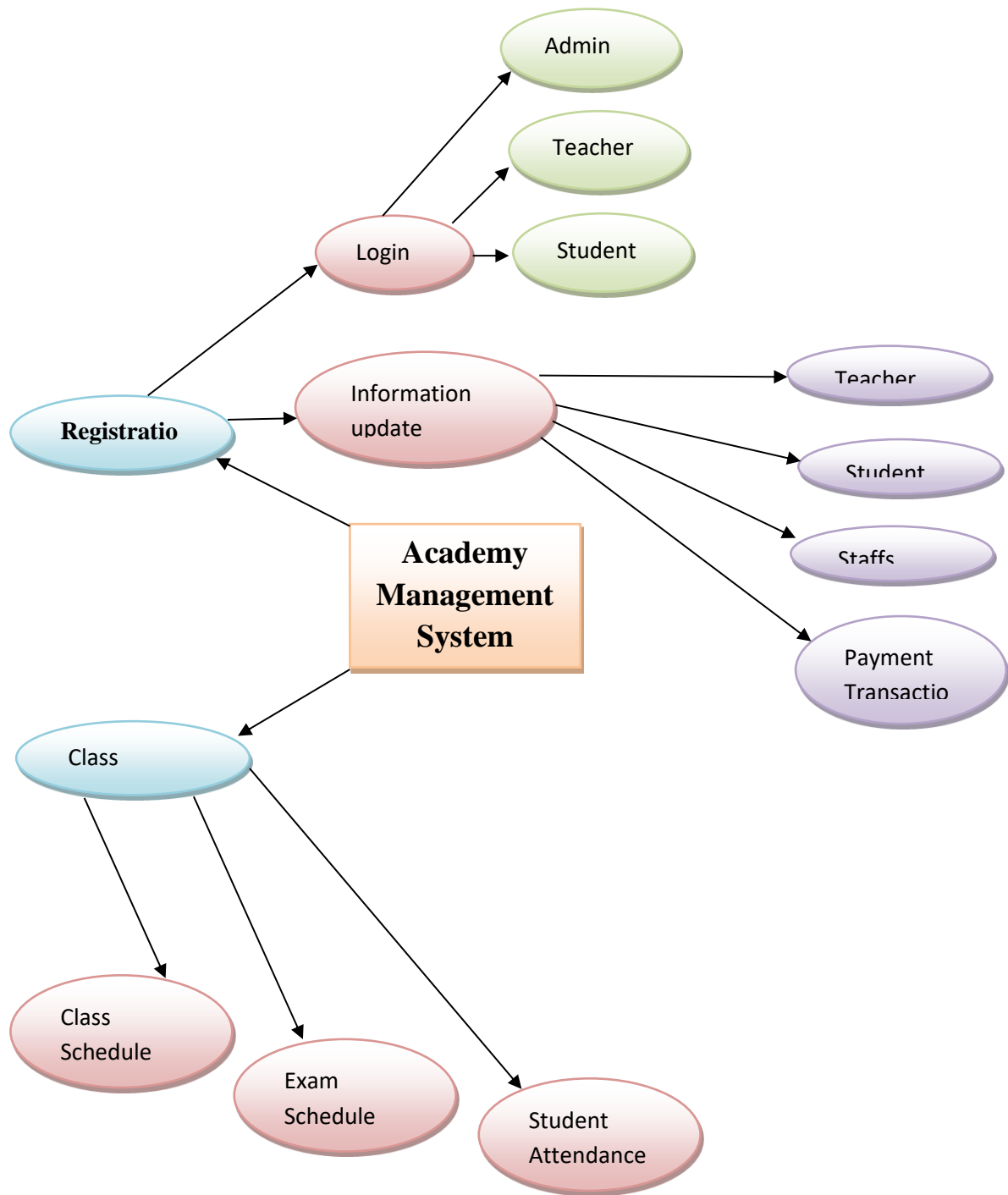
Figure 1: Interconnection between different functions of academy management system.

2.2 Product Functions

The academy management system web server's main job is to basically save all system data consecutively into database servers. The administration department shall access the entire environment of this academy management system, and they shall customize it according to their needs. Any user shall be able to log in to the system and use its features as the architecture of the entire system is really simple. Only the administrator shall access the system database and he shall be able to make changes to the system database.

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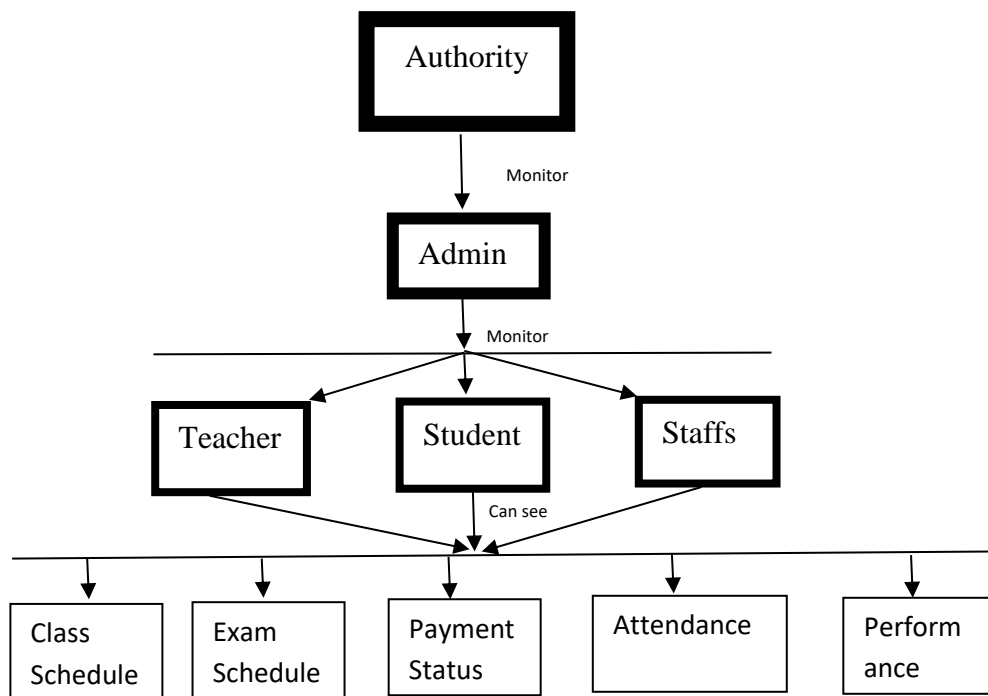
Figure 2: Functional Inter Relationship.

2.3 User Classes and Characteristics

We are giving a list of our project's different user class below:

1. Viewer
2. Student
3. Teacher
4. Guardians
5. Manager
6. Coaching institute admin
7. Authority
8. Coaching institute staffs

The user profiles that have been identified interact with the academy management system, which anyone may view the online system. Moreover, students, teachers, manager of a coaching institute, coaching institute admin panel, authority of a coaching institute and coaching institute staffs shall register for, log into, and use the necessary resources on the online system. The online registration form is simple for students to complete and submit which ensures user friendliness. In terms of teachers, they shall become aware of class timings, exam schedule and student study growth. Additionally, the administrator shall review the information to see if the student meets the admissions requirements, track student's payment transactions and track students' regular attendance. Afterwards, once a student has successfully enrolled, he or she is free to utilize the college or school system within the admin-set parameters. Managers of the coaching institutions shall be able to maintain and see their staffs' performances. The staff of the coaching institutes shall be able to see their salary and performance status. These features enable our academy management system to be more efficient than traditional way of handling a coaching institute.

In our academy management system, the hierarchical order for user class classification has a good impact. Authority has the most priority in this system. Later comes the managing team. The teacher and student category holds the same priority in using this software system. Coaching staff has the next priority in the priority list. Guardians possess priority after the staff. Viewers have no priority as they can either see our software or can not.

2.4 Operating Environment

Our software system shall operate on windows operating system. Any windows operating system from windows seven to windows eleven is eligible to install our software system. This academy management system shall be able to perform it's functionalities in desktops and laptops. Our software system shall not only be accessible through desktops and laptops but also mobile phones. Our software system shall be integrated with stand-alone desktops also.

Specifically, our system shall need these hardware and software requirements:

For hardware-
System: Minimum Dual Core.
Hard Disk: Minimum120 GB.
Monitor: Any size
Input Devices: Keyboard, Mouse
Ram: Minimum 1 GB

For software-
Operating system: windows
Framework: Microsoft .NET Frameworks 4.0 or above.

2.5 Design and Implementation Constraints

The design and implementation of the academy management system are bound by several constraints. These include compliance with corporate and regulatory policies, such as privacy and security regulations. Hardware limitations must be considered, encompassing timing requirements for efficient performance and memory constraints for optimized memory usage. The system may need to interface with other applications, requiring compatibility and interoperability considerations. Specific technologies, tools, and databases may be mandated for use in the project. Parallel operations, communication protocols, security measures, and adherence to design conventions or programming standards are additional constraints that must be taken into account. By acknowledging and working within these constraints, the development process can ensure a solution that meets the required criteria while aligning with organizational and technical considerations.

Regulatory Compliance: The project must comply with relevant regulations and policies, such as data protection laws, privacy regulations, accessibility standards, and educational industry standards.

Technology Stack: The system must be developed using specific technologies, tools, and databases as specified by the client or organizational standards. For example, the project may require the use of a particular programming language, web framework, or database management system.

Integration with Existing Systems: The academy management system may need to integrate with existing applications or systems within the organization, such as student information systems, learning management systems, or financial management systems. The developers need to consider the compatibility and connectivity requirements for seamless data exchange and integration.

Performance and Scalability: The system should be designed to handle a large volume of users, courses, and data. Considerations should be given to factors like response time, concurrency, load balancing, and scalability to ensure optimal performance.

Security Considerations: The system needs to adhere to strict security measures to protect sensitive information, such as student records, grades, and financial data. This includes implementing authentication and authorization mechanisms, encryption of data, secure communication protocols (HTTPS), and protection against common web vulnerabilities (e.g., cross-site scripting, SQL injection).

User Interface and User Experience: The system should have an intuitive and user-friendly interface to cater to users with varying levels of technical expertise. It should follow design conventions and accessibility guidelines to ensure usability for individuals with disabilities.

Data Storage and Backup: The project may have specific requirements for data storage, backup, and disaster recovery. Considerations should be made regarding data retention policies, backup frequency, and redundant storage options to safeguard against data loss or corruption.

Maintenance and Support: The project may have specific guidelines or expectations regarding software maintenance and ongoing support. The developers need to consider whether the customer's organization will be responsible for maintaining the delivered software or if ongoing support will be provided.

Timeline and Budget: The project must be completed within a specific timeline and budgetary constraints. Developers need to carefully plan and allocate resources to ensure timely delivery and cost-effectiveness.

Training and Documentation: The system should be accompanied by comprehensive documentation and training materials to assist administrators, teachers, and students in understanding and effectively using the academy management system. It's important to note that the specific constraints may vary depending on the organization's requirements, industry standards, and policies. The constraints listed above provide a general overview of the potential limitations that developers may encounter during the design and implementation of a web-based academy management system.

2.6 User Documentation

The user documentation provided alongside the academy management system serves as a valuable resource for users to effectively navigate and utilize the software. It includes comprehensive user manuals that offer step-by-step instructions and guidelines covering various aspects, such as system installation, user interface navigation, feature descriptions, and common task procedures. Additionally, an online help system is integrated within the software, providing context-sensitive assistance and relevant information based on the user's actions and

current context. To aid in the learning process, tutorials are also available, presenting users with detailed instructions, screenshots, videos, or interactive modules to facilitate understanding and proficiency. The documentation is tailored to meet the needs of different user roles within the system, ensuring that administrators, teachers, students, and parents can find relevant and specific guidance. The user documentation is delivered in digital formats like PDF and HTML, allowing access on various devices, while online access to the documentation provides search capabilities and the ability to access the latest updates. Consideration is given to language and localization requirements, enabling users from different regions or languages to benefit from the documentation. The academy management system will be accompanied by comprehensive user documentation to assist users in effectively utilizing the software. The user documentation components that will be delivered with the software include:

1) User Manuals:

- A detailed user manual will be provided, offering step-by-step instructions and guidelines on using the academy management system.

- The user manual will cover topics such as system installation, user interface navigation, feature descriptions, and procedures for common tasks.

- It will serve as a comprehensive reference guide for users to maximize their understanding and utilization of the software.

2) Online Help System:

- An online help system will be integrated into the academy management system.

- Users can access contextual assistance and relevant information within the software interface.

- The online help system will provide explanations, instructions, and guidance based on the user's current context or actions.

This system shall possess good value to our academy management system as this is for handling lots of service queries.

3) Tutorials:

- Tutorials will be available to help users quickly learn and familiarize themselves with the software.

- These tutorials will guide users through specific tasks and workflows, providing step-by-step instructions.

- Tutorials may be presented in text-based format with accompanying screenshots, video demonstrations, or interactive modules.

To ensure the user documentation meets the specific needs of the users, the following aspects have been considered:

4) User Roles:

Different user roles have been identified within the academy management system, including administrators, teachers, students, and parents. The user documentation will address the unique requirements and functionalities relevant to each user role.

5) User Expertise:

The user documentation will cater to users with varying levels of expertise, including beginners, intermediate users, and advanced users. The content will be structured to provide clear instructions and explanations for users at all skill levels.

In terms of delivery formats or standards, the user documentation will be provided in the following ways:

6) Digital Formats:

- User manuals, online help, and tutorials will be available in digital formats such as PDF, HTML, or web-based documentation.

- This allows users to access the information on different devices, including computers, tablets, and smartphones.

7) Online Access:

- The user documentation will be hosted on a dedicated website or an online knowledge base.

- Users can search for specific information, access the latest updates, and interact with community forums or support channels, if available.
-

8) Language and Localization:

To enhance usability and accessibility, translations or localization of the user documentation will be provided for users in different regions or languages.

2.7 Modeling

In our project, we chose Extreme Programming (XP) model. Because of:

- On-site Customers
  - On-site customer means to include real life customers in the development process. The customers will be always available to answer questions, provide the requirements, set the priorities. As a result, this will ensure the customers' satisfaction by including them in and will avoid frustration caused by negative feedback by misunderstanding the requirements.

- Release planning
  - is a practice where the customer presents the desired features to the programmers, and the programmers estimate their difficulty and cost.

- Pair Programming
  - Pair programming is one of the practices that distinguish the XP methodology. Each pair of programmers works together to develop certain functionality. This increases software quality. In addition to a better code quality, it helps in communicating and no developer becomes a bottleneck.

- Continuous Integration
  - XP team should maintain a fully integrated project. The integration process should be continued and carefully controlled. Developers should integrate tested code at least daily. CI often avoids diverging or fragmented development efforts, where developers are not communicating with each other about what can be reused, or what could be shared. Continuous integration ensures that everyone has the latest version of the project. It also avoids or detects compatibility problems early.

- Unit Testing
  - Like we discussed, unit tests are automated tests written by the developers during the coding phase to test features as they are developed. Unit tests are very important as it can save a large amount of effort.

- Acceptance Testing
  - Acceptance tests are tests done be the customers to ensure that the overall system contains all the required features. The acceptance tests should be done at each of the iterations of the process to ensure that the new release contains all the features agreed upon.

Extreme Programming (XP) is an Agile methodology consisting of effective development practices to achieve client satisfaction. For all these reasons, we have chosen extreme programming as our model of building this academy management system.
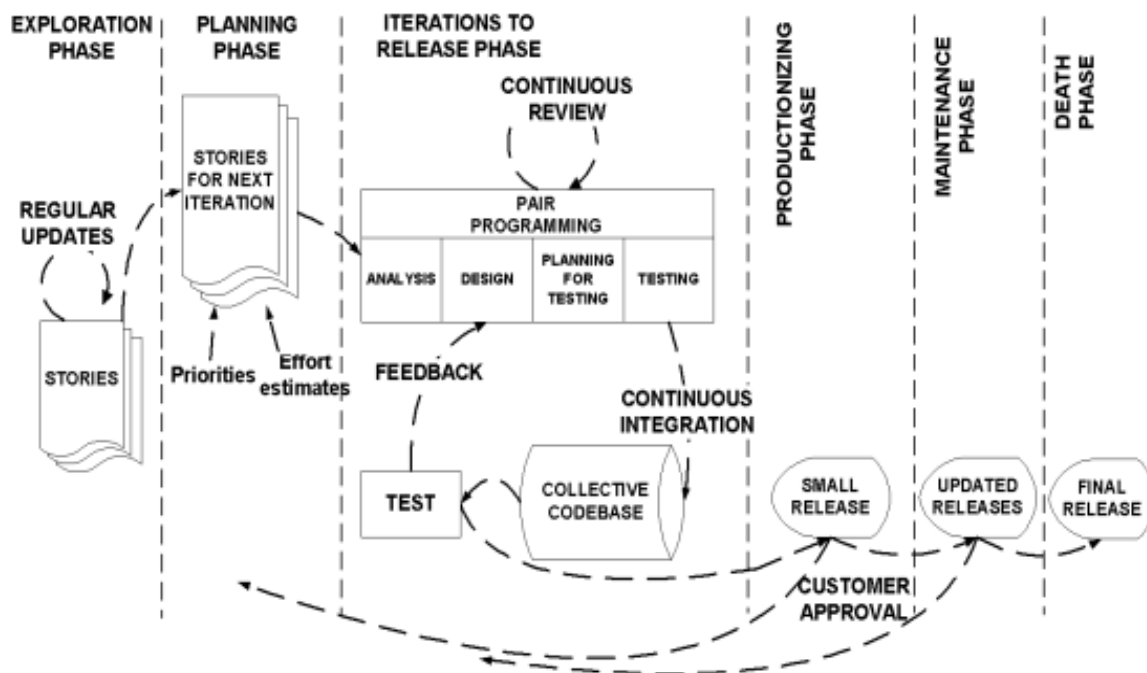
Figure 3: Extreme Programming Model.

3. System Requirements

3.1 Functional Requirements (System Features)

An Academy Management system project could have a variety of features, depending on the specific requirements and goals of the system. However, here are some common features of our Academy Management System.

1. Software Registration:

- The software shall allow new users to registration with insert a unique username, password, age, class, number, email and address.
- The Registration credentials will be verified with database records.
- If the registration successful, the login page of the user account will be displayed.

Priority Level: High
Precondition: Need to visit the website
Cross-references: 7

2. Software Login:

- The software shall allow users to login with their given username and password.
- The login credentials (username and password) will be verified with database records.
- If the login successful, the home page of the user account will be displayed.
- If the username and/or password have been inserted wrong, the random verification code will be generated and sent to the user's email address by the system to retry login.
- If the number of login attempt exceed its limit (3 times), the system shall block the user account login for one hour [optional function]

Priority Level: High
Precondition: Users have valid user id and password
Cross-references: 8

3. Student Management:

- The system shall be to store and manage student information, including personal details, contact information, and academic history.

- Students enroll different courses or programs offered by the management.
- The system shall be generating a unique identification numbers or enrollment IDs for each student.
- Student and Parents shall be track student progress and performance in courses.

Priority Level: High
Precondition: Students have valid account in this system
Cross-references: 12

4. Course Management:

- The system shall be creates and manages different courses or programs offered for students
- System shall define course details such as course name, duration, timings, prerequisites, and fees.
- The system shall assign instructors or teachers to specific courses.
- The system shall be set maximum student capacity for each course.
- The system shall create course scheduling for teachers and students.

Priority Level: Medium
Precondition: Need to enroll in courses
Cross-references: 13

5. Curriculum and Content Management:

- The system shall create and organize of course materials, such as lectures, assignments, and resources.
- Uploading and sharing of files, videos, and other multimedia content.
- Version control and access controls for course content.

Priority Level: High
Precondition: Need to upload data regarding curriculum
Cross-references: 13

6. Attendance Tracking:

- System shall be record and track student attendance for each session or class.
- System shall generate attendance reports for individual students and courses.

- Management shall notify students or parents about irregular attendance.

Priority Level: Medium
Precondition: Need to enroll in any course
Cross-references: 12

7. Grading and Assessment:

- The system shall be create and manage of assignments, quizzes, and exams.
- The system shall grading and evaluation of student submissions.
- The system shall calculate and records of grades.

Priority Level: High
Precondition: Need to give examination
Cross-references: 12

8. Communication and Notifications:

- The system shall be auto generate Messaging and notifications for students, teachers, and administrators.
- The system shall collaboration with tools for group projects and assignments.
- The system shall send automated notifications about class schedules, changes, and important announcements for student.
- Allow communication through email, SMS, or in-app notifications.

Priority Level: Medium
Precondition: Need to register to the website
Cross-references: 10

9. Financial Management:

- The system shall manage fee collection for courses or programs.
- The system shall track and record fee payments from students.
- The system shall generate fee invoices and receipts. Send payment reminders to students or parents for pending fees.
- The system shall generate financial reports related to fee collection and outstanding payments.

Priority Level: High
Precondition: Need to do money transactions
Cross-references: 10

10. **Administrative Tools:**

- The system shall have user access controls and permissions management.
- The system shall have system configuration and settings management.
- The system shall have data backup and recovery.

Priority Level: Medium
Precondition: Need administrator's login
Cross-references: 10

3.2 Non-Functional/Quality Requirements

The non-functional requirements that our project shall meet are:

- **Usability:**

The software shall have a user-friendly interface that is easy to navigate and understand. It shall have clear and concise instructions for all user actions, including scheduling, payment details and results. The software shall provide feedback to users at all stages including confirmation of successful actions and error messages for unsuccessful actions. It shall provide a mobile-friendly interface for users to access the system from their smart phones or tablets.

Priority Level: High
Precondition: Need to register to the website

- **Integrity:**

Only the specific teacher of a specific course shall be able to upload student results, and the student shall be able to preview the result but shall not be able to make any changes.

Priority Level: High
Precondition: Need login to the website by teachers and students

- **Reliability:**

  The software shall be reliable and consistent in its behavior, with minimal errors or system crashes. The software shall provide a backup and disaster recovery plan to ensure that data is not lost in the event of a system failure or disaster. The software shall have a comprehensive testing plan in place to identify and fix bugs and other issues before they impact users. Also, it should have a system monitoring plan in place to detect and resolve issues as they arise.

  Priority Level: Medium
  Precondition: Need to register to the website and check the services

- **Availability:**

  The software shall have a high level of availability, with a target uptime of 99.99%. The software shall have a system monitoring plan in place to detect and resolve issues that may impact availability. The software shall have a disaster recovery plan in place to ensure that the system can quickly recover from any unplanned downtime or data loss.

  Priority Level: High
  Precondition: Any natural or unnatural disaster

- **Flexibility:**

  The software shall be flexible enough to accommodate different types of events schedule update, exam result. The software shall allow organizers to customize the look and feel of the home page to match their branding. The software shall allow organizers to choose their preferred payment gateway and currency.

  Priority Level: High
  Precondition: Need to operate the website from different workspace and devices

- **Efficiency:**

  The software shall be optimized for efficient use of system resources, including CPU, memory, and network bandwidth. The software shall use caching mechanisms to reduce the load on the system and improve response time. The software shall be designed to minimize data duplication and redundancy to reduce storage requirements.

  Priority Level: High
  Precondition: Need to roam through the website

- **Testability:**

  The software shall be designed to facilitate automated testing, including unit testing, integration testing, and acceptance testing. The software shall provide tools and utilities to help developers and testers create and manage test cases. The software shall allow for easy debugging and troubleshooting of issues that arise during testing.

  Priority Level: High
  Precondition: Need to do different testing

- **Robustness:**

  The software shall be designed to handle unexpected inputs and edge cases, without crashing or corrupting data. The software shall use defensive programming techniques to ensure that it can gracefully handle errors and exceptions. The software shall have a monitoring plan in place to detect and respond to any security breaches or other threats.

  Priority Level: Medium
  Precondition: Need to use extensively

- **Correctness:**

  The system must ensure that all user and event data is accurately captured and stored. The system must perform all operations correctly and consistently. The system must provide users with accurate and timely information about class time, payment, and results.

  Priority Level: High
  Precondition: Need to request queries from multiple module

- **Reusability:**

  The system must be designed to be reusable, with modular components that can be easily adapted or extended for other use cases. The system must be compatible with various platforms and technologies to enable future integration with other systems.

  Priority Level: Medium
  Precondition: Need to launch a new version of the software

- **Maintainability:**

  The system must be easy to maintain and update, with clear documentation and guidelines for troubleshooting and debugging. The system must be designed to minimize the

complexity and number of updates required to ensure continued reliability and functionality.

Priority Level: Medium
Precondition: Need to do routine wise fact checks

- **Scalability:**

The system must be designed to handle a high volume of traffic and be able to scale up or down as necessary to accommodate fluctuations in demand. The system must be able to accommodate future growth and be able to support additional features and functionality.

Priority Level: Medium
Precondition: Need to perform extreme coding to scale it's functionality

3.3 Project Requirements

- Time: This web-based application may take about 2.5 months (90 days) to complete.
- Budget: 4,50,000 BDT
- Size: The final size of this web-based application will not be more than 500-600 MB.
- HTML, CSS, PHP, JavaScript, jQuery and Ajax will be used to build this web-based application.
- Staff and trainee: • Project Manager – 1 • Test Manager – 1 • Developer – 2
- Tools: The system developer needs selenium tools in performing the testing activities.

4. Design and Interface Requirements

4.1 UML Diagrams
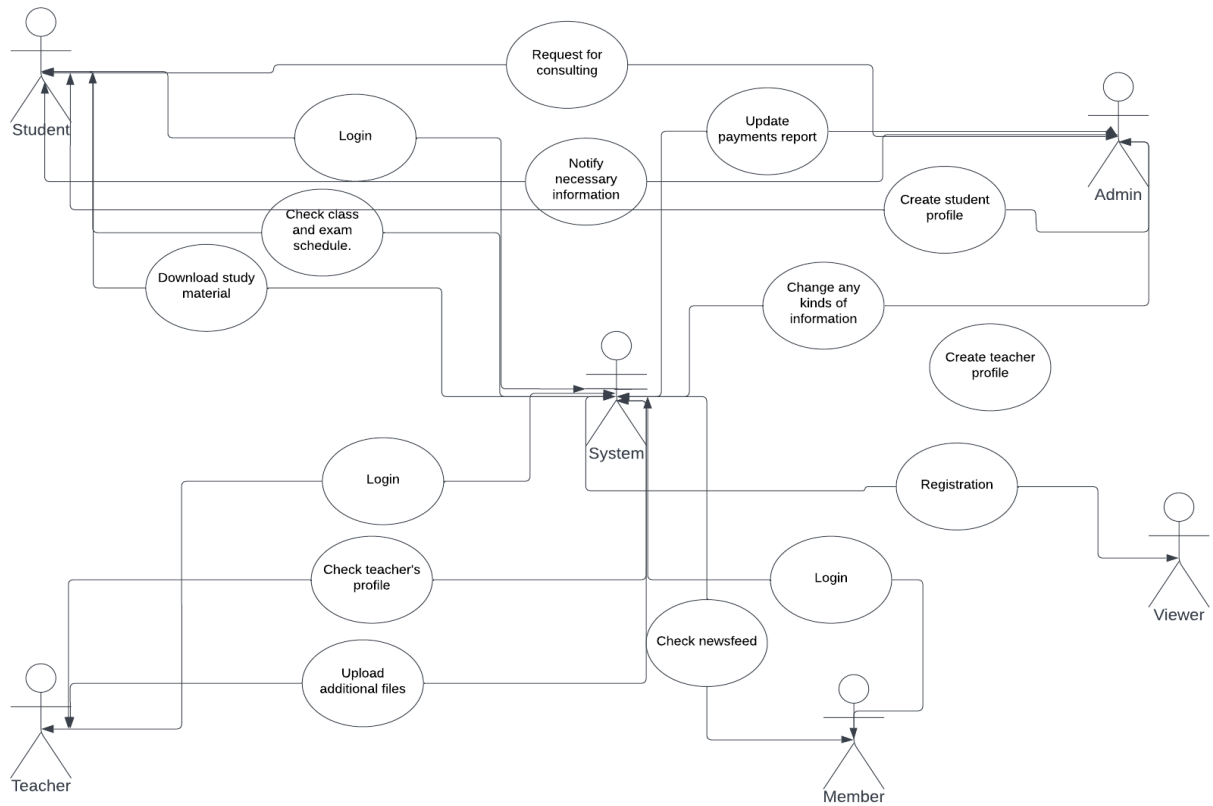
Figure 4: Use case diagram.
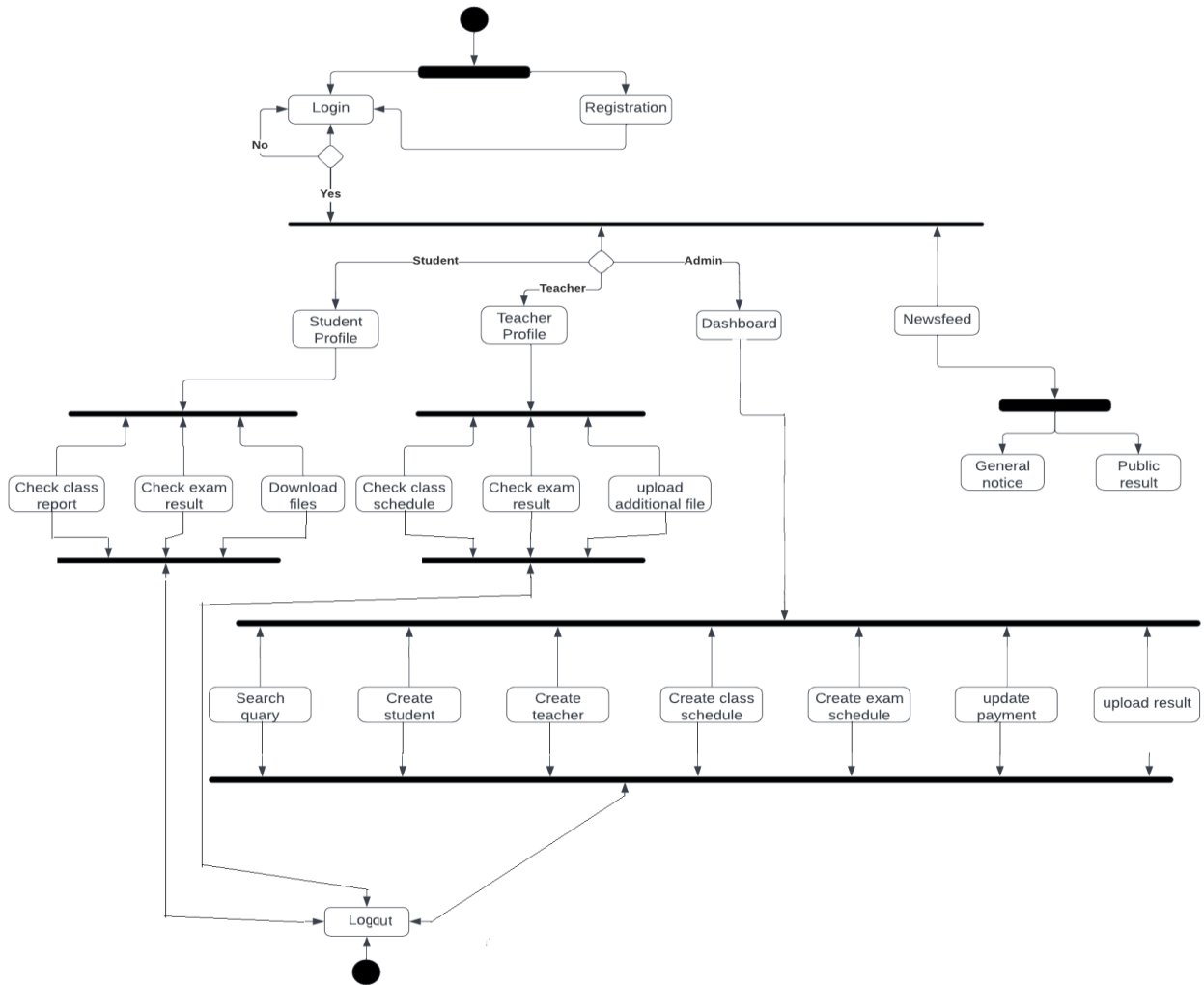
Figure 5: Activity diagram.

4.2 Data Dictionary

Entity	Attribute	Type size	Validation	Key
Authority	AuthorID	Number(10)	11-01	Primary
Admin	AdminID	Number(5)	66-11	Primary
Student	StudentID	Number(8)	66-99	Primary
Student	Forename	Text(10)	Required	
Student	Surname	Text(8)	Required	
Student	DOB	Date(8)	Valid Date	
Teacher	TeacherID	Number(8)	66-70	Primary
Teacher	Name	Text(10)	Required	
Teacher	Room	Number(4)		
Teacher	Subject	Text(20)	Required	
Student	Exam Schedule	Time(15)	Required	Secondary
Teacher	Exam Schedule	Time(15)	Required	Secondary
Student	Class Time	Time(15)	Required	Secondary
Teacher	Class Time	Time(15)	Required	Secondary
Staffs	StaffID	Number(5)	66-71	Primary

Figure 6: Data Dictionary of academy management system.

4.3 UI/UX Design Specification
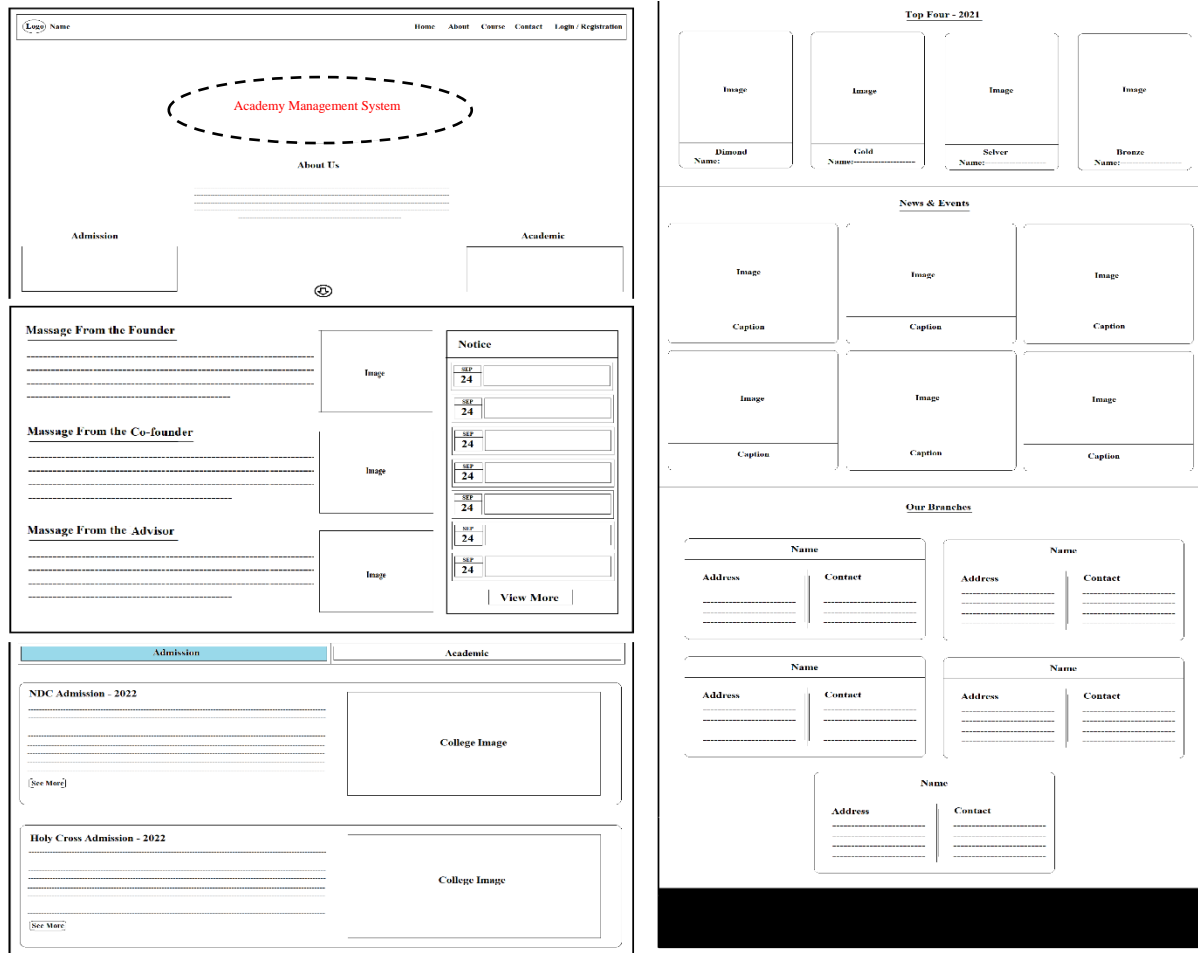
Figure 7: Mockup of academy management system.

UI of Home Page:
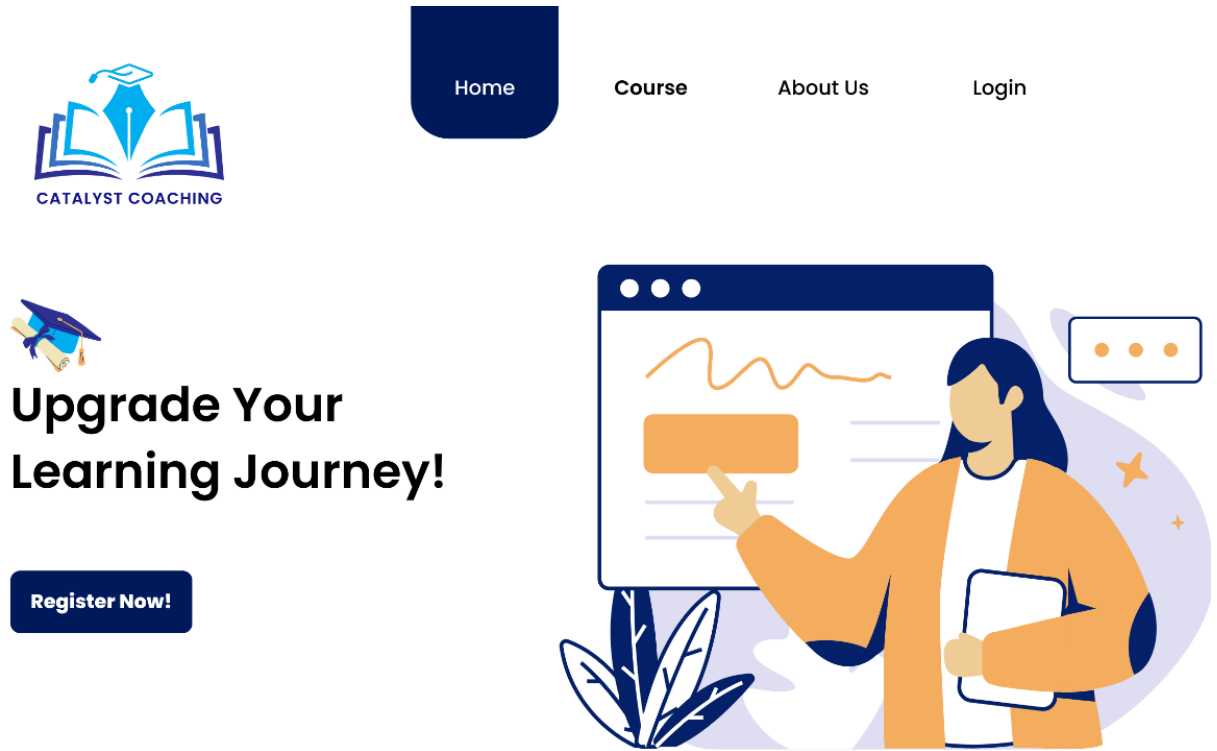
Figure 8: Homepage module.

UI of Login Page:
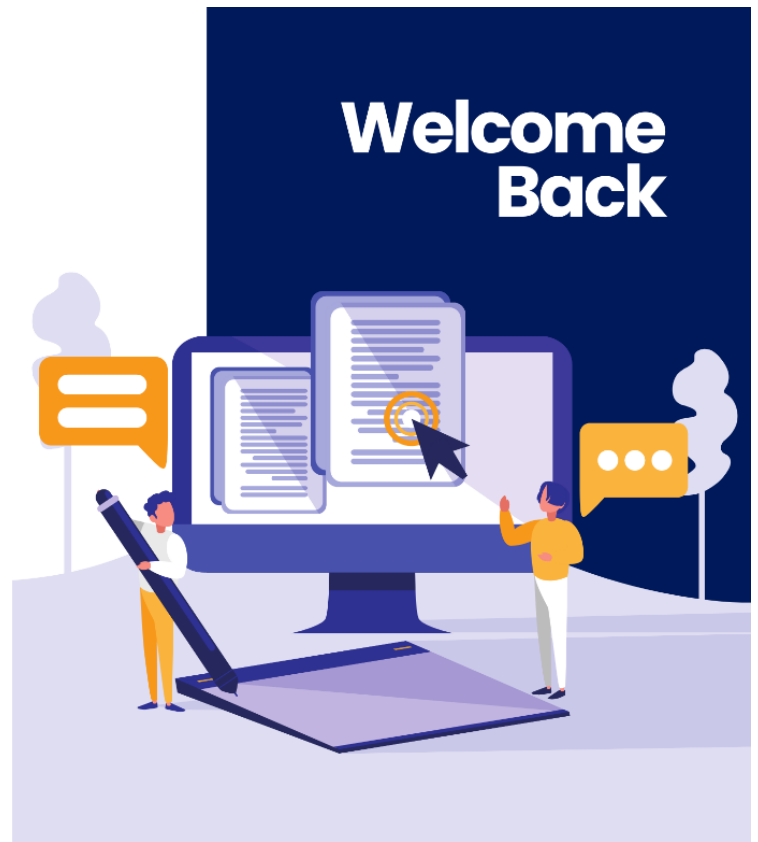
Figure 9: Login page module.

UI of Dashboard:
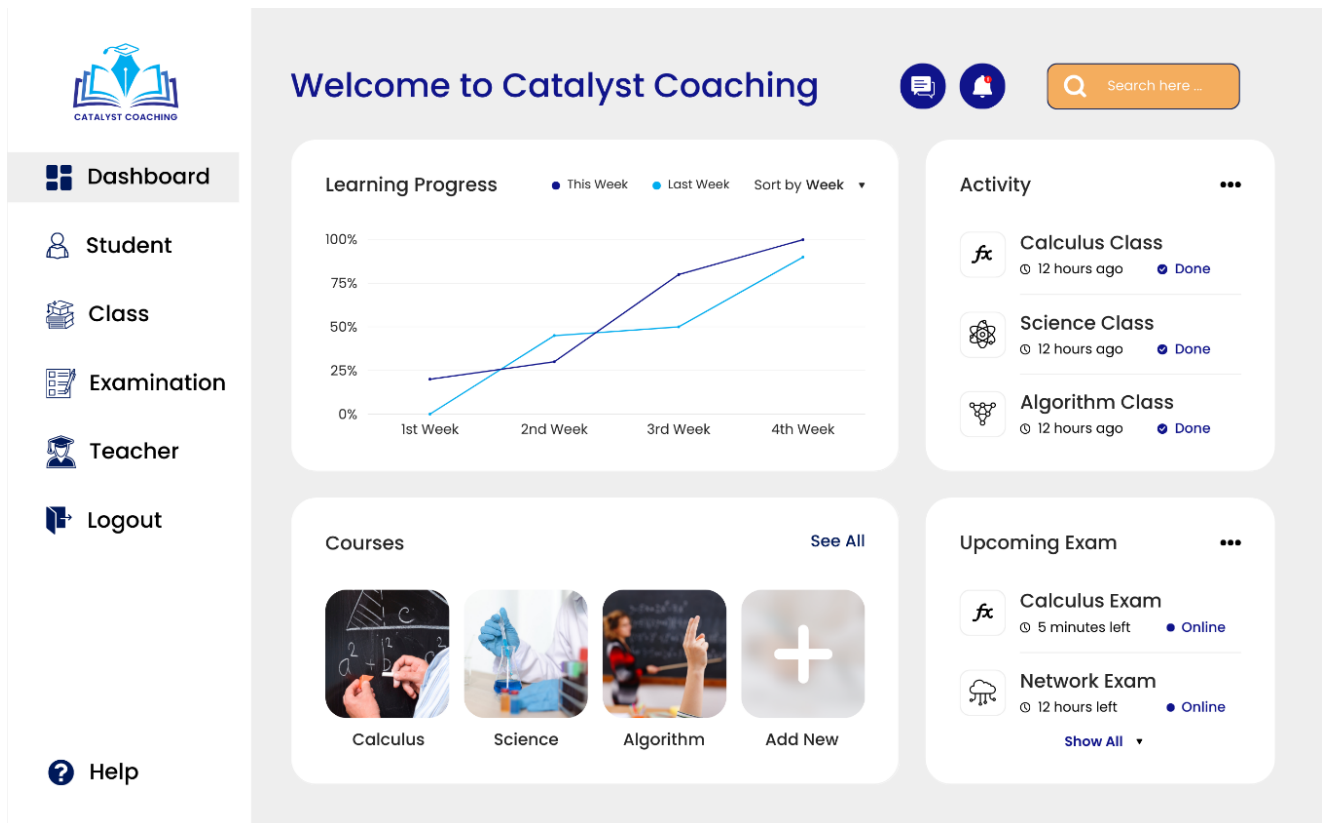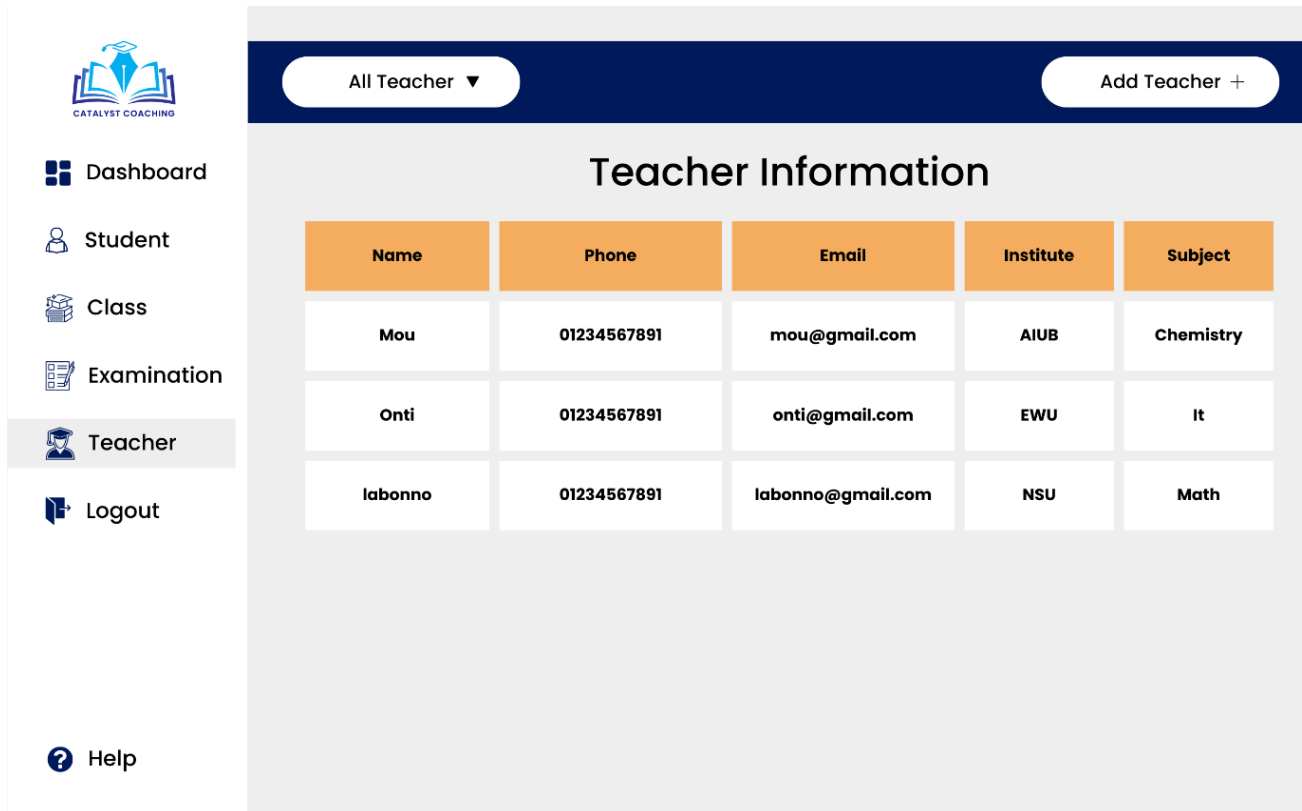
Figure 10: Dashboard module.

UI of Teacher Info:
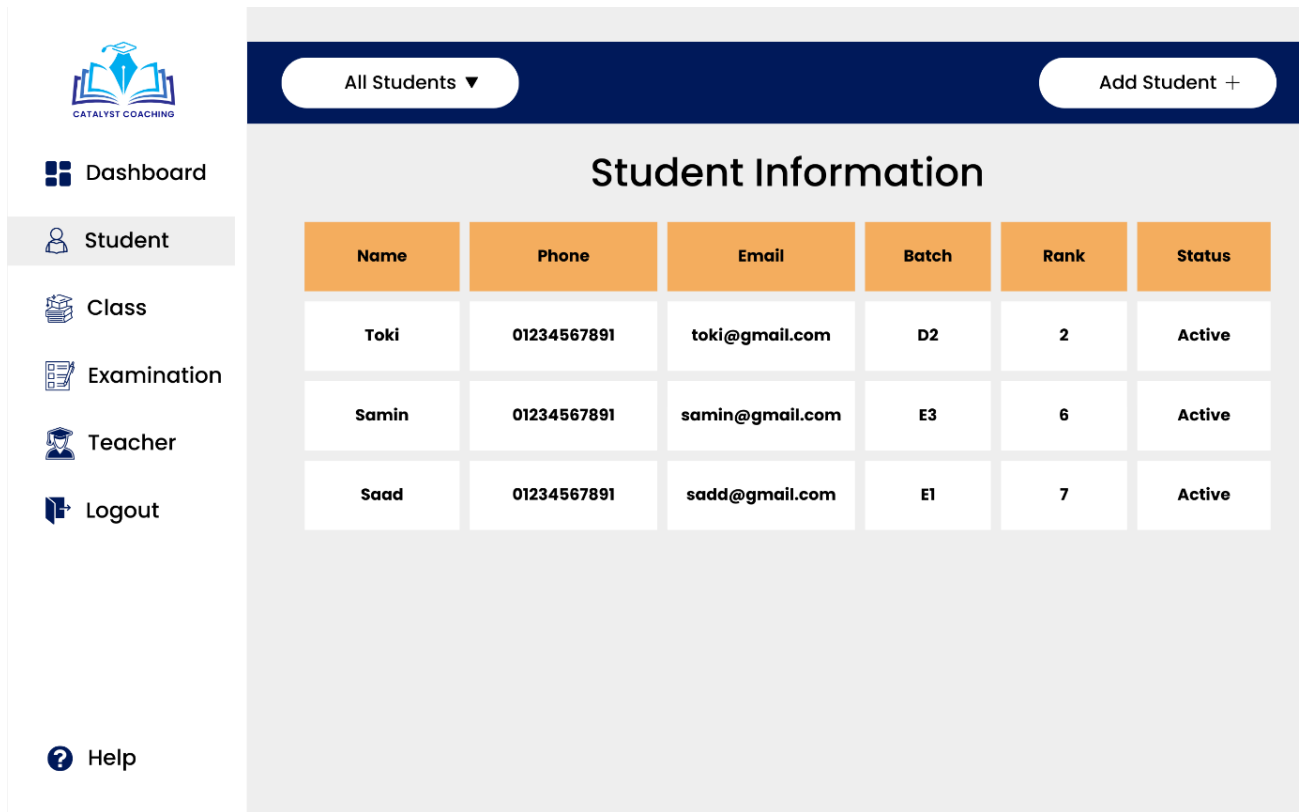
Figure 11: Teacher module.

UI of Student Info:

Figure 12: Student module.

UI of Class Info:

Figure 13: Class module.

UI of Examination Info:

Figure 14: Examination module.

Acknowledgement

We would like to acknowledge and give our warmest thanks to our course teacher Ms. Israt Jahan Mouri for her guidance throughout our course. Her guidance helped us in building our system. She also helped us to acquire knowledge about software requirement analysis which helped us understand the system requirements and turn our system into a better version of it.

We would also like to acknowledge the papers that we have referenced which helped us gather different approaches to thinking about software, choosing a best-fitted path, and requirement elicitation.