# DESIGN AND DEVELOPMENT OF WEB BASED ONLINE LEARNING MANAGEMENT SYSTEM

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# APPROVAL

The project entitled **"Design and Development of Web Based Online Learning Management System"**, submitted by **Mahabubul Karim, Najmul Islam and Nusrat Zahan Nury** at the Department of Computer Science and Engineering, Daffodil International University, has been well received. To meet part of the requirements for the B.Sc degree. in Computer Science and Engineering and approved its style and content. Presentation made 30th October.

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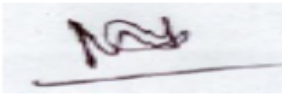

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We therefore declare that this work has been done by us under the watchful eye of **Md. Mahfujur Rahman,** a lecturer in the Department of CSE Daffodil International University. We also announce that neither this project nor any part of this project has been relocated to be awarded any degree or diploma.

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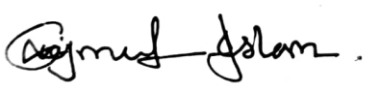

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We are very grateful and wish our deepest debt to **Md. Reduanul Haque, Sr. Lecturer,** Department of CSE Daffodil International University, Dhaka. In-depth knowledge and in-depth interest of our manager in the field of ***"Web Application"*** to undertake this project. His unwavering patience, expert guidance, constant encouragement, unwavering supervision and enthusiasm, constructive criticism, valuable advice, a lot of low draft learning and correction at all stages made it possible to complete the project.

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# ABSTRACT

When education system shifted in online their main problem how to reach student's. For this reason, we work about this thing. The main inspiration of this project's goal is to provide an educational platform for teachers and students for effective and friendly communication. The growing popularity and use of this online educational management approach for the teachers and students to improve their services and investigate their recruitment services. Nowadays, the online learning system has the most effective system for teachers and students and which is beneficial for the users. Online learning management system is a service system in which students apply for the education with easy process. This system is much easier to teach and keeping the maintained education. Learning Management Systems have seen a tremendous increase in use in higher education, coinciding with the invention and spread of the Internet. Each Learning Management Systems should be evaluated on university and college campuses to ensure that it fits the institution's standards and demands. As a result, the goal of this research is to propose a model that includes principles and findings from Learning Management Systems research in higher education. The Technology Acceptance Model was used to modify the alternative model. Additionally, five different types of Learning Management Systems feature for higher education are: transmitting course information, assessing students, evaluating courses and teachers, producing class discussions and providing computer-based training. This paper examines and discusses previous research and makes various recommendations, including a model for the creation and design of a learning management system for future use in higher education.

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# CHAPTER 1

# Introduction

## 1.1 Introduction

Over the preceding decade, information technology (IT) has been the primary driver of employment change in the education business. In particular, the World Wide Web (WWW) and related technologies established a new playground with new rules and instruments for conducting instruction and establishing unique learning approaches. In the shape of CD-ROMs, we have witnessed the use of technology in education.

As the World Wide Web grew in popularity, we saw education promoted as long-distance learning, web-based learner-centered settings, internet-based learning environments, and self-directed learning. Few people have looked at the adoption and effectiveness of the various online models.

As online learning has become more widespread, selecting an educational Learning Management System that is matched to your institution's purpose and goals has never been more vital. However, with the plethora of options accessible these days, this may prove to be a difficult undertaking. Online education looks to have reached a critical juncture. According to the most current Digital Learning Compass Distance Education Enrollment Report, 30 percent of students at degree-granting, higher-education institutions in the United States enrolled in at least one online course, and over half of that cohort enrolled fully in online courses.

Teachers can use Online Learning Management Systems to complete their grade books, manage student attendance, enter class notes, generate lesson plans and thorough reports, and interact with other staff members, students, and parents all through email.
Students may also check their attendance records, grades, report cards, and progress reports online, as well as access assignments and examinations. They can also communicate with teachers and other students via e-mail and discussion forums on the internet.

Therefore, please come up with a new website called "Design and Development of Web Based Online Learning Management System" which will have all the personal details of education and students can learn their necessities according to their need and also teacher can teach easily. Students can easily search their learning topics without any hassle and time costs.

### 1.2 Motivation

The main purpose of our project is to make it easy for the teacher to reach out to the student and the student to learn about something easily. This will increase students' interest in learning and increase their skills. Improve communication skills and managing information on students, employees, teaching processes etc.

### 1.3 Objective

With the help of this project, Student's will be able to learn new things easily without any hassle and time costs. This project has an admin, moderator and users,

- Users can log in and view all the course and find the course that's they needed.
- The users can't access all courses. To select a course students must be complete some course related short question.
- The admin can control the whole system, the administrator can agree to appoint moderator.
- Moderator can select some student's actually who need that course and modify the course module.

Major opportunities available for this project –

- Students can be able to save their time by using our project.
- Teacher can easily communicate with students.
- Admin can be able to handle all things about this site.
- If the moderator wants to modify the course, he can do it.

In this project user-generated data will be stored on the website. After choosing one selected course they can only one that's course actually they needed. On the other hand, they must be passed the first step to access the individual courses.

### 1.4 Expected Outcome

- Saving time
- Online service
- Smart searching tools
- Teaching
- Learning

### 1.5 Report Layout

- Chapter One includes the introduction to our research, motivation for this study and objectives.
- Chapter Two includes the background of the research, related works, research summary and challenges faced during this study.
- Chapter Three includes research methodology, Requirement Specification, Business Process model.
- Chapter Four here discuses about Design Specification.
- Chapter Five here include our Implementation and Testing.
- Chapter Six includes the conclusion and Future Scope of this project.
- Lastly the references section contains the resources used during the research.

# CHAPTER 2

# Background

## 2.1 Introduction

The major objective of this project is to create and execute “Online Learning Management System”. Each state's character is built on its educational system. As a result, it is critical to provide a well-constructed educational foundation for young inventiveness in order to ensure the growth of a flexible global nation that protects everyone's dream. The Learning Management System functions as a registered student, providing results, notices, official transcripts, timetables, and other information for Lecturers, Parents, Administrators, and others. Automation prefers the use of talent to switch people between engines that can perform more quickly and consistently. This study looks at the theoretical foundations of pedagogical e-Learning. It investigates the link between information systems success models and e-Learning, and proposes and tests new research models for assessing or evaluating e-Learning effectiveness based on educational engineering factors and information systems, which will be tested theoretically or practically.

## 2.2 Related Works

We recognize that this is just one of many activities related to online learning management system.[2] We know that basic needs are often needed by people. Some things are need permanently and sometimes some things are need for some hours or some days. And it occurs every time of the life. It is also the part of the life. There are many projects like ours projects. But those projects are mostly one necessary thing only student enroll in course and they complete that course that’s finished.[3] But on the other hand, anyone can’t join our courses they must be passed the first step of enrollment answering the question and teacher can directly moderate the course anytime from any place with internet connection. Teacher can directly contact with students. Some online learning management system in markets they are Udemy, Coursera, Edsby, TalentCards, Robi 10-minute School, ISOtrain etc.[5] Those websites design is really fantastic with their design. Their User Interfaces (UI) design is also good. But our projects are slightly difference from others cause in our project the people enrolled and teaching their all-

necessary things from one place. In our projects we are trying to make a wonderful User Interface (UI) design which will so much user friendly and we think anyone can understood anything very easily and quickly.

### 2.3 Scope Problem

We encountered some problems while working on this project.

- Choose our category.
- Design for the proper way.

### 2.4 Challenges

- To collect data.
- To provide services properly.
- It will be user friendly.
- High traffic can slow down the server.
- Totally dependent on the internet.
- Quality of our courses.
- To reach the teachers and students with our project.

# CHAPTER 3

# Requirement Specification

## 3.1 Introduction

We gathered information about what consumers require and outlined the difficulties that the system is intended to tackle at this point. We've gathered requirements such as software, such as the programming language to be used, hardware, and the database model that must be used.

## 3.2 Overall Description

The description given below:

### 3.2.1 Product perspective

The online learning management system opens up an easy way for users to easily find the course also teachers can easily moderate and make they need. There will be a reliable website that will contain all the course details, where users can easily view all course details and information.

### 3.2.2 System Interfaces

This system will communicate with a MySQL-based website server. All users, on the other hand, will be linked to the internet.

### 3.2.3 User Interfaces

This is a desktop application for system software. The system form has been created to be simple to use. For all users, the login form is the same. For each, the login procedure is the same. As a result, when a person logs in, they will see the identical popup.

### 3.2.4 Communication Interface

Transmission Control Protocol (TCP) / Internet Protocol will be the usual protocol for data transport between instructor, students, and server (IP).

### 3.2.5 Memory Constraints

This program does not have a memory restriction. Project compilation, quality planning, testing, and the writing process are all completed during the planning stage.

### 3.2.6 Operations

The principal activity is the data passage on the structure, which are:

- Database.
- Searching.
- Updating.
- Editing
- Deleting

## 3.3 Business Process

Our objective is to manage our company so you may test it out later. A well-planned plan is similar to the job of producing good plans in an accessible financial plan utilizing a certain asset, length, and right. To upgrade the software, the well-designed program must be completed.

## 3.4 Requirement Analysis and Specification

The first and most crucial step is to determine the needs, pricing, and specificity of the software product you desire. To welcome consumers, consider what software is and what it can do, and then consider whether or not there is an issue with software engineering.

To acquire this concept, we chatted with certain people and went to the program's website to gather the relevant information. Every stage of our project has been addressed with our supervisor.

### 3.4.1 Hardware Requirement

| | |
|---|---|
| Processor | Any PC or smart phone CPU will suffice. |
| Motherboard | Any type of motherboard. |
| Ram | Minimum storage of RAM is 256 MB. |
| Internet Card | Any type of internet card. |
| Graphics Card | Any type of graphics card. |
| Hard Disk | Minimum 50 GB |

Table: 3.4.1. Hardware Requirement

### 3.4.2 Software Requirement

| Software | Usage |
|---|---|
| Any Windows operating system version | To turn on the computer and organize all of the equipment, software, and customized programming. |
| Wamp or Xampp | It's created a local server on our computer. |
| Phpstroam | This is most incredible proof reader to compose code. |
| MySQL | To make a database. |
| Laravel Composer | To run the project with the PHP Laravel. |

Tabele:3.4.2. Software requirement

### 3.5 Design

We've gone through the software development process, database architecture (which is the data design), structure, and other documents as a whole in this part. Use Case Diagram, Sequence Diagram, DFD (Data Follow Diagram), Flow Chart Drawing, and other efforts to improve this software are listed below.

These are the languages that have been used to design this software:

- HTML
- CSS
- Java script
- Bootstrap

#### 3.5.1 Hypertext Markup Language (HTML)

HTML is a computer language that mainly used to create the look and feel of all websites. Every time we go to a website, we see HTML. Tim Berners-Lee and the CERN team contributed the initial HTML details in 1991, and the wad was completed in 1993. It was a simple dialect.

#### 3.5.2 Cascading Style Sheet (CSS)

CSS stands for Cascading Style Sheet, and it’s called style sheet language that is used to show the look and feel of a markup record. As a result, Cascading Style Sheets (CSS) are commonly used with HTML to modify the appearance of pages with User Interfaces. We can give our old HTML frame a new style, and we can use CSS to update the look of our site for this space. In 1994, this language was proposed as a web styling language.

#### 3.5.3 JavaScript

JavaScript, often known as customer pre-programming language, is a programming language that is not expected from Java. Only web pages are written in this language. Brendan Eich compiled it, and it's known as the ECHA Script.

### 3.5.4 Bootstrap

Bootstrap is a CSS framework that makes creating any sort of web page a lot easier. Bootstrap was established in August 2011 on GitHub by Twitter.

### 3.6 Development Requirement

- PHP (Laravel)
- MySQL

### 3.6.1 PHP Laravel

Taylor Otwell created the Laravel framework, which is free open-source PHP framework. In June 2011, I submitted a proposal. It's for a designer who wants a simple yet powerful tool to build a full-featured web application. It is based on MVC, which stands for Model View Controller.

We agree that development should be enjoyable and that creating new work should be really rewarding. By reducing the common functions used in many web applications, Laravel aims to eliminate promotions from development.

### 3.6.2 MySQL

MySQL is an open-source data management database it runs on a variety of systems and is powered by ORACLE Corporation. As a result, it essentially allows access to numerous purposes in order to enable multiple storage. It also has a number of advantages, like being excellent, flexible, and long-lasting, as well as being long-lasting and incredibly secure.

'My' and 'SQL,' which is a reduction in the language of Organized Question, were called after Monty Wideniu's daughter's biggest backer.
So here we have the Swedish organization's My + SQL = 'MySQL' structure.

### 3.7 Use Case Diagram and Modeling

A graphical depiction of a system with probable user interactions is called a case application drawing. The Application Case diagram is a highly valuable tool in this project for identifying, clarifying, and organizing system requirements. This graphic depicts how a user utilizes the application to accomplish a certain goal.

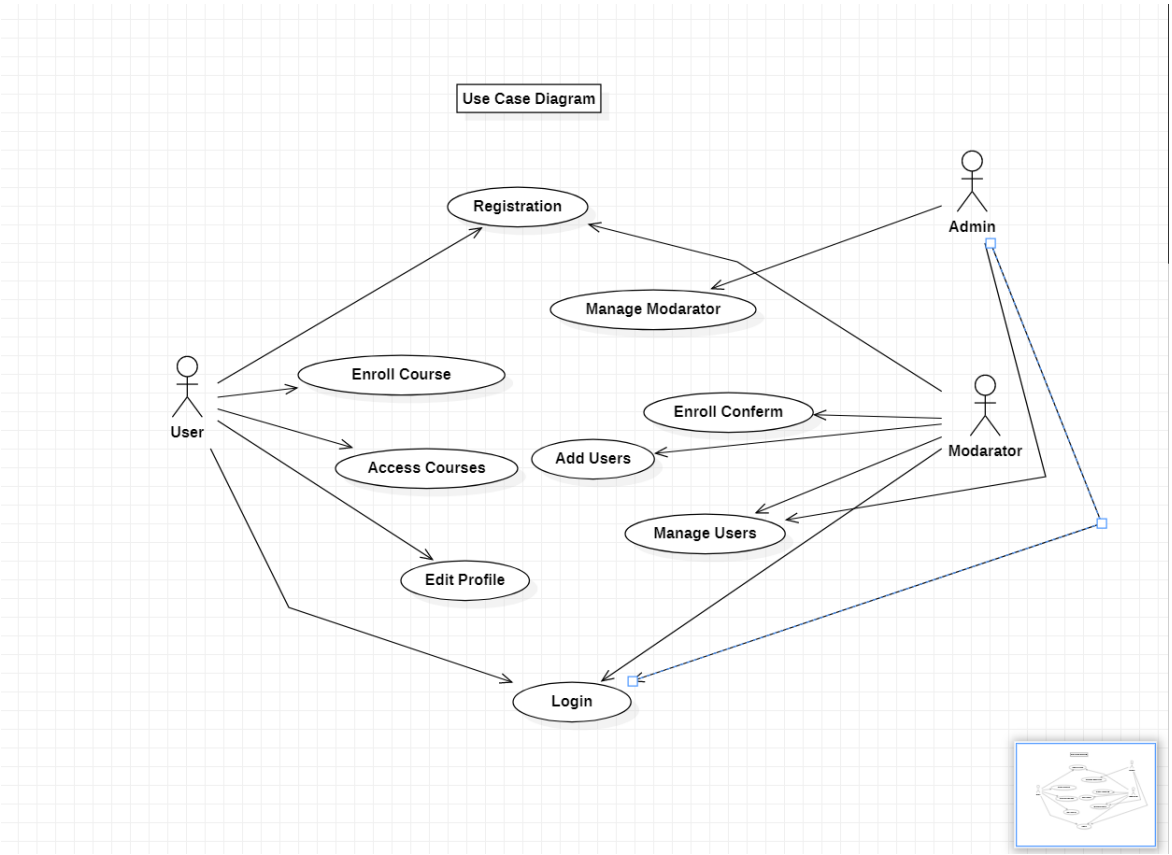



Figure – 3.7: Use Case Diagram

### 3.8 Sequence Diagram and Modeling

A sequence diagram is a communication diagram that shows how activities are completed as well as what messages are delivered and when. A sequence diagram is a conversation diagram in this work because it explains how the order of a group of things works and how they interact. The lifeline, or processes and objects living together, is the emphasis of the Sequence Diagram, with messages being passed between them to complete the task until the end of the life line.

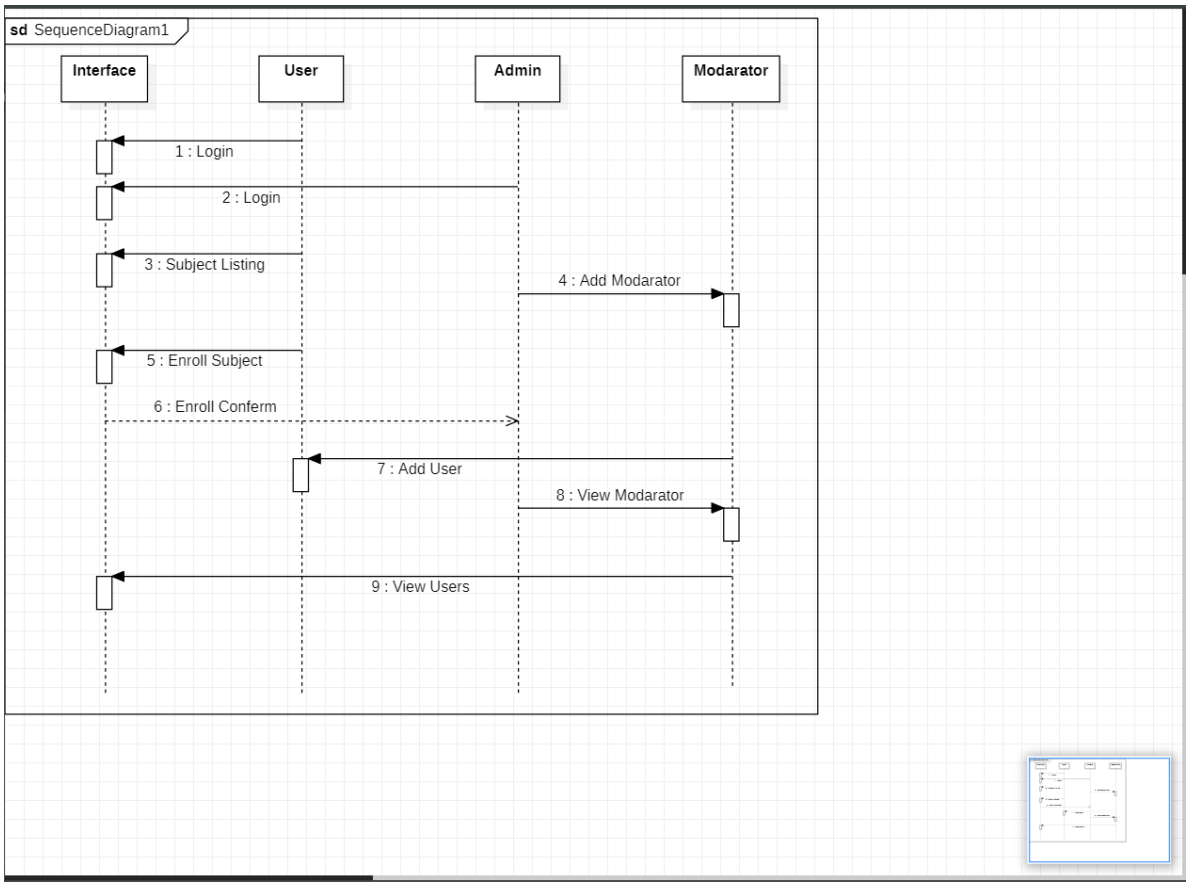



Figure – 3.8: Sequence Diagram

### 3.9 Data Flow Diagram (DFD)

DFD acronym for Data Flow Diagram. The Data Flow Diagram mainly used for transport data diagrams to the business information system. The Data Flow Diagram (DFD) in this project depicts the system's overall structure. It also demonstrates how and what sorts of services the customer choose, as well as the extent of administrator involvement.

#### 3.9.1 Second (2) Level DFD

We can see where data arrives and inputs the Rental Service Management System in Figure Two (2) Data Flow Data (DFD). We can also more precisely identify the significance of breaking operations. This level not only shows the system's comprehensive procedure, but it also gives a precise flow area.

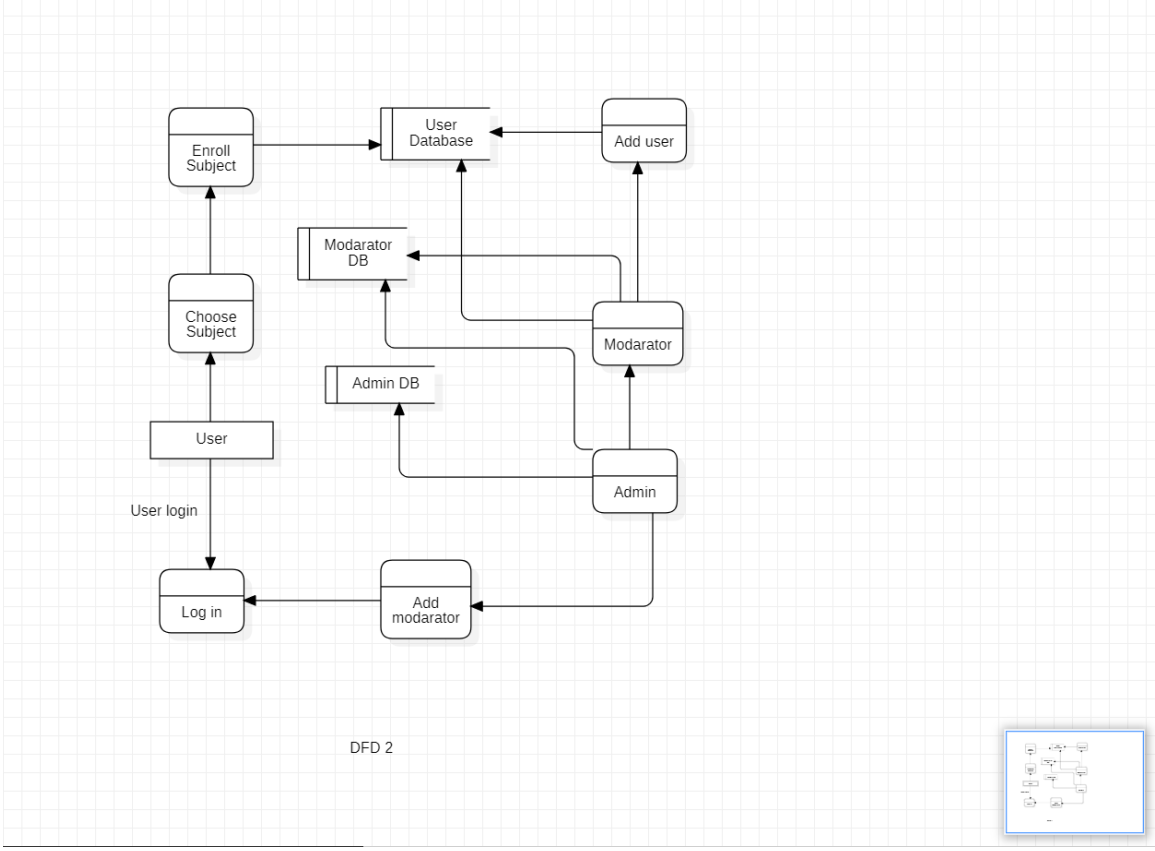



Figure – 3.9.1: Two (2) level DFD

### 3.10 Flow Chart Diagram

A flow chart diagram is a sort of diagram that depicts how an activity is completed. This drawing also necessitates the use of an algorithm. This method may be used to construct a step-by-step approach to any problem or assignment. The flow chart graphic connects the arrows to show the distinct phases of the boxes and their sequences.

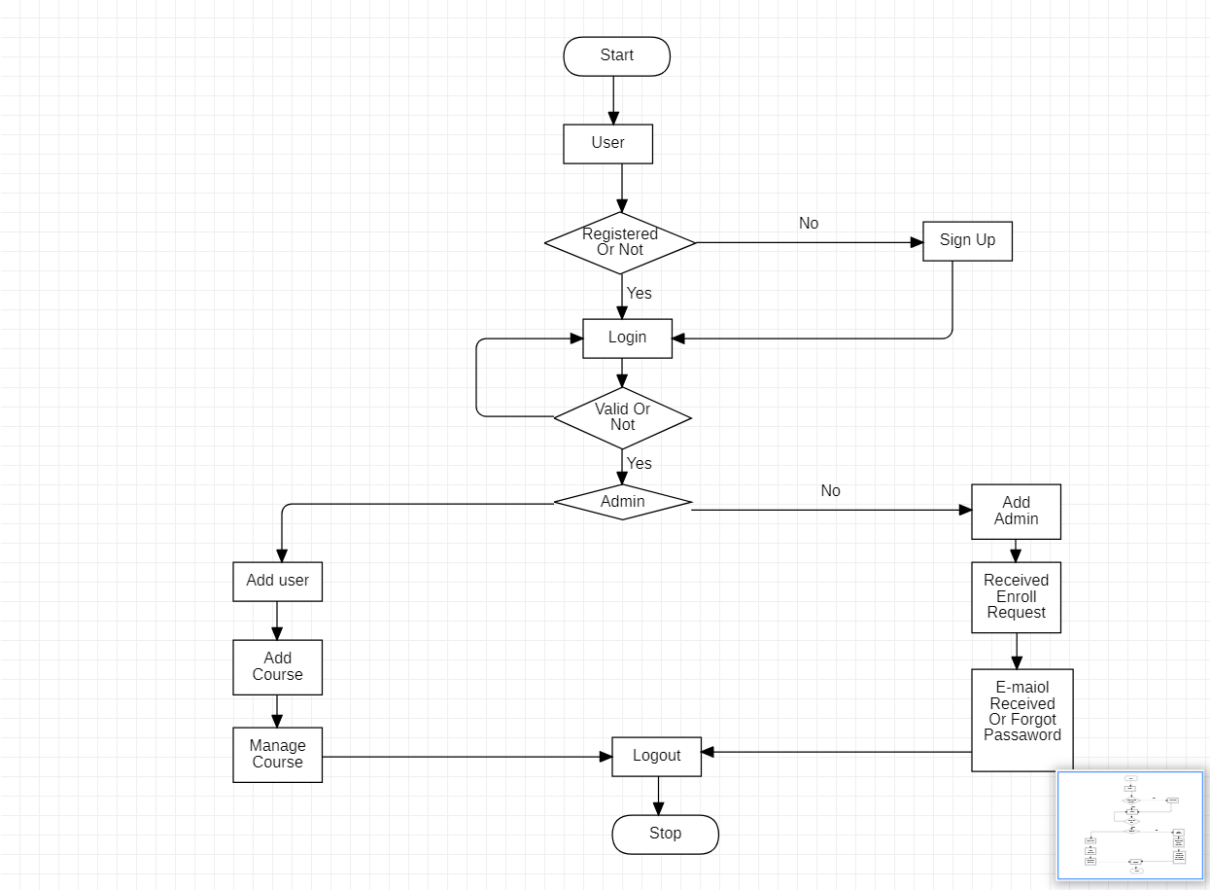



Figure – 3.10: Flow Chart Diagram

### 3.11 Component Diagram

A component diagram is a form of diagram in the UML language. As a result, component diagrams are used to visualize the physical components of a system from that point of view. These components include libraries, packages, files, and so on. A component diagram can be used to represent a static implementation perspective of a system.

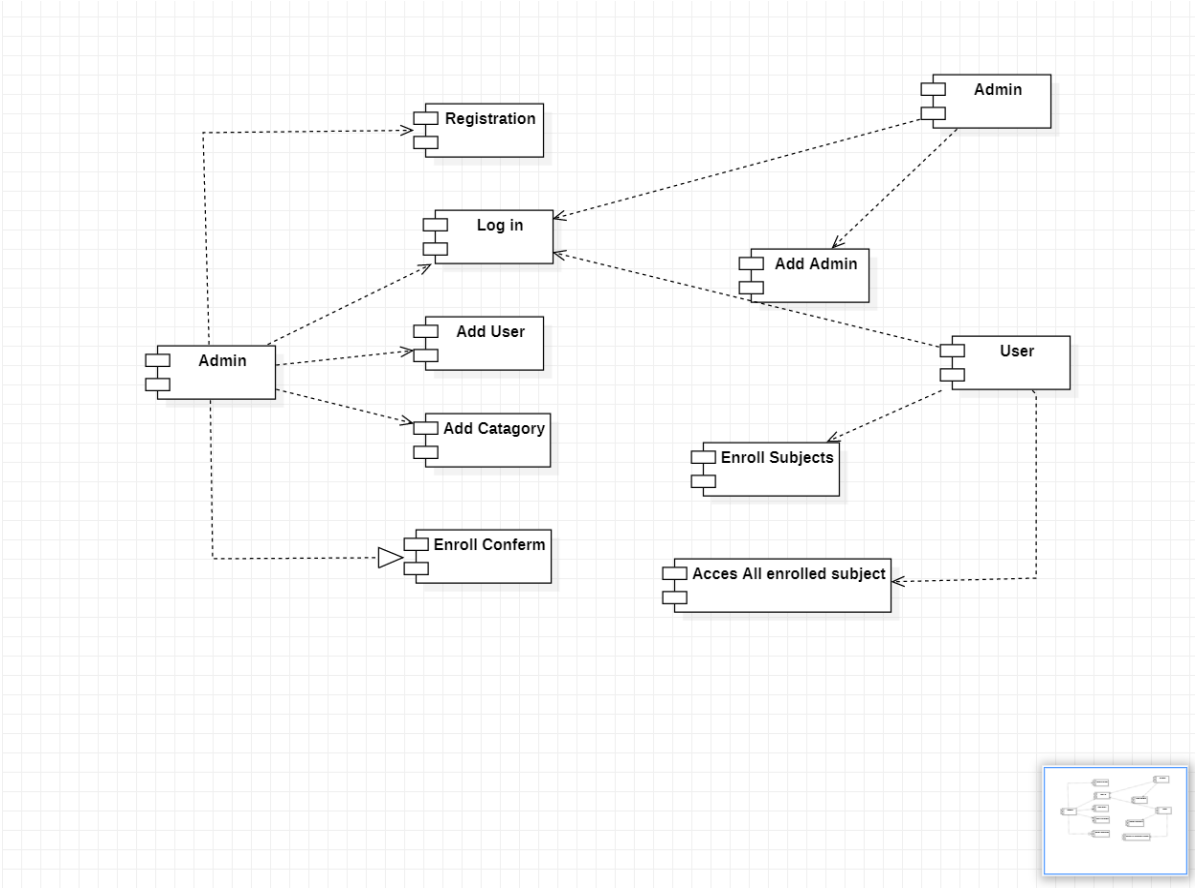



Figure – 3.11: Component Diagram

### 3.12 Deployment Diagram

A deployment diagram is a type of UML diagram that shows the execution architecture of a system, which comprises nodes such as hardware or software execution environments, as well as the middleware that links them. Deployment diagrams are used to depict the real hardware and software of a system.

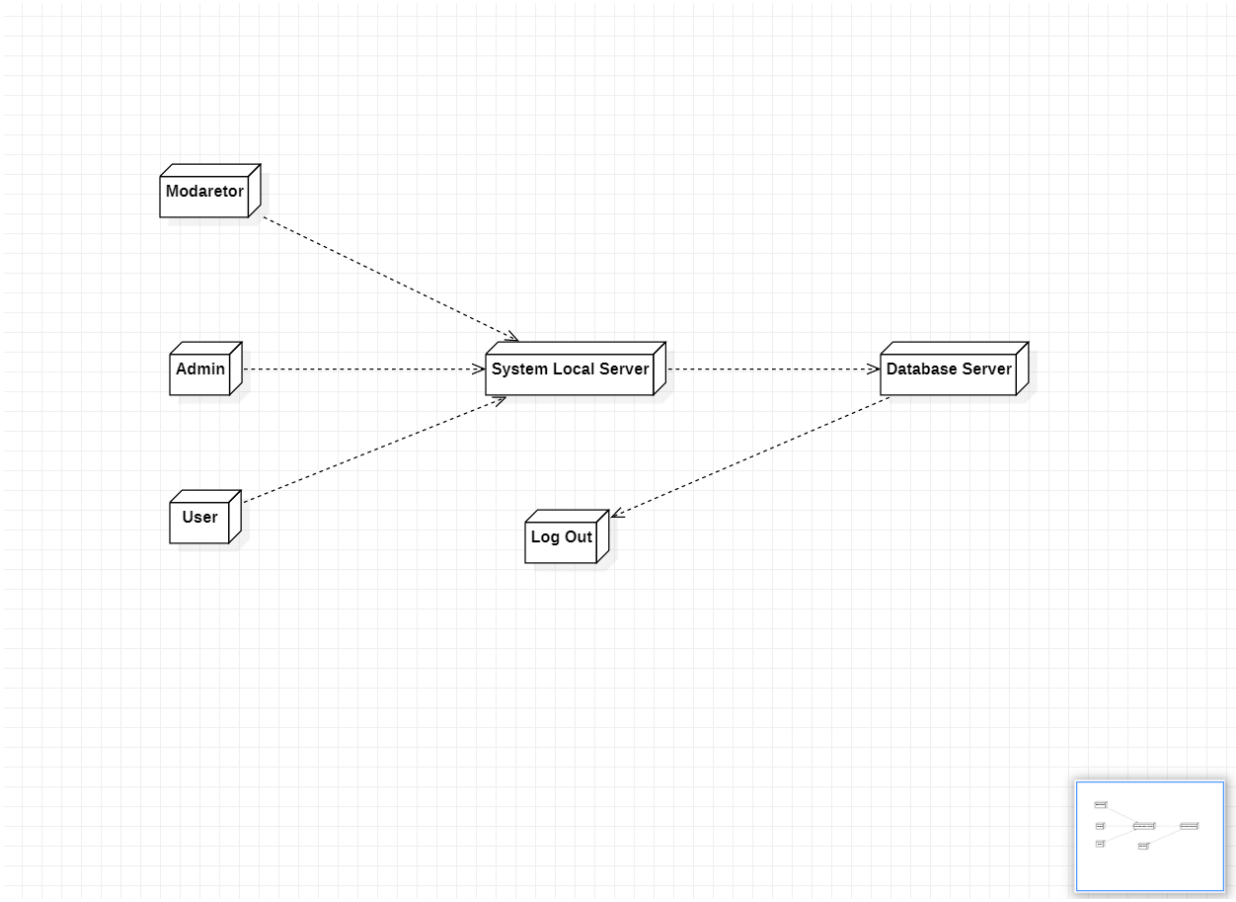



Figure – 3.12: Deployment Diagram

### 3.13 Class Diagram

In object-oriented modeling, the class diagram is the most important building piece. It's utilized for both general conceptual modeling of the application's structure and detailed modeling, which includes converting models into computer code. In addition to data modeling, class diagrams can be employed.

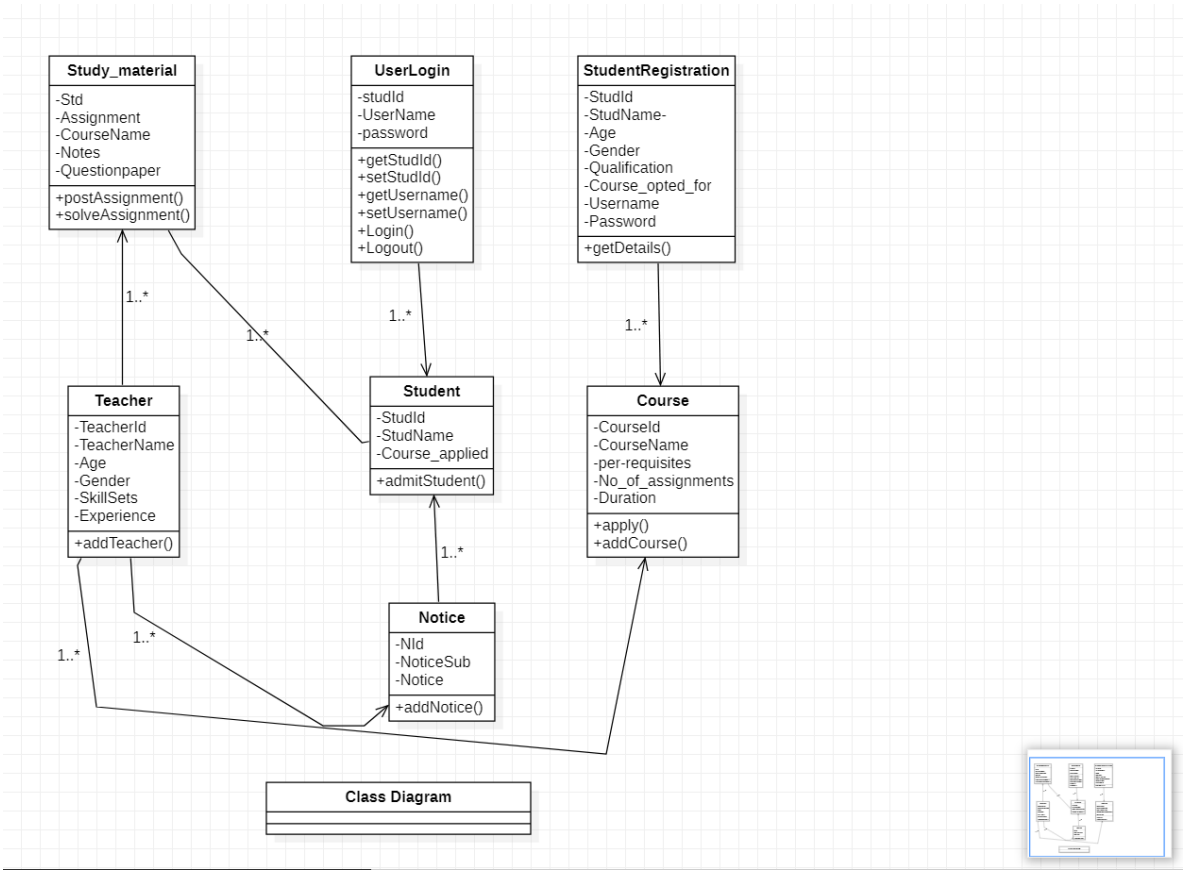



Figure – 3.13: Class Diagram

# CHAPTER 4

# Design and Specification

## 4.1 Front-end Design

It’s our project's landing page. When people come to our website for the first time, they land on this page. Users cannot view any courses on the home page without either logging in or registering. However, readers may find information about our website, read blogs, and view photos and videos on the home page. Users can access the next pages and watch our given courses when they join up or log in. Alternatively, you may register by displaying the signup form.

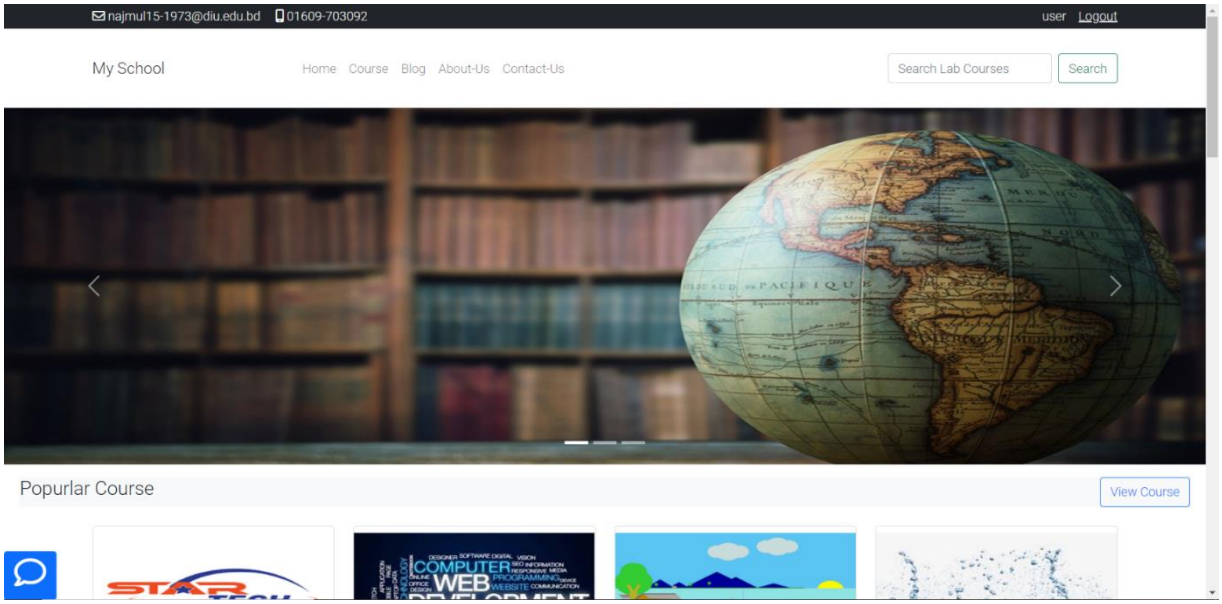



Figure – 4.1.1: Front-end Design

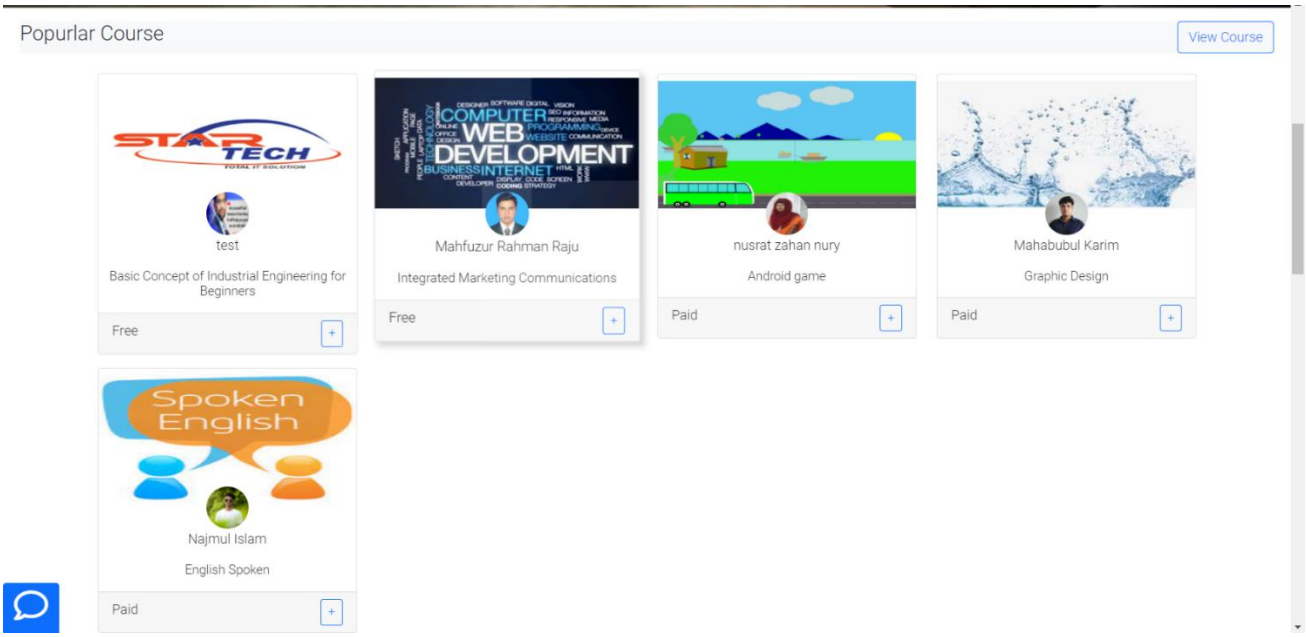



Figure – 4.1.2: Front-end Design

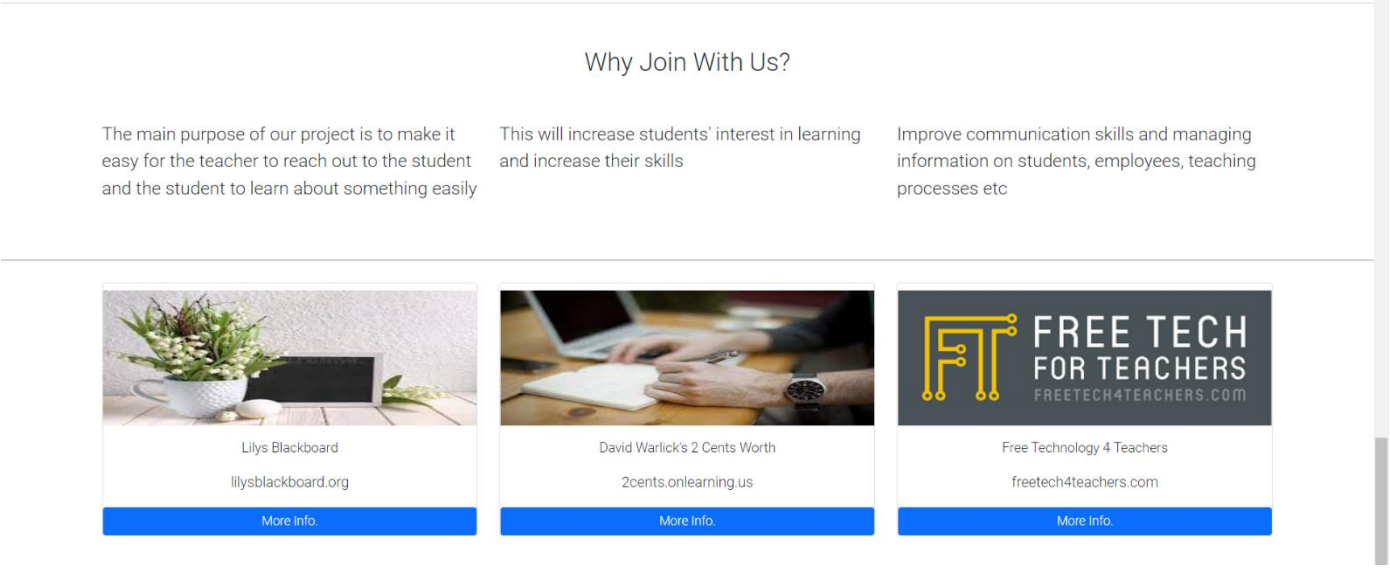



Figure – 4.1.3: Front-end Design

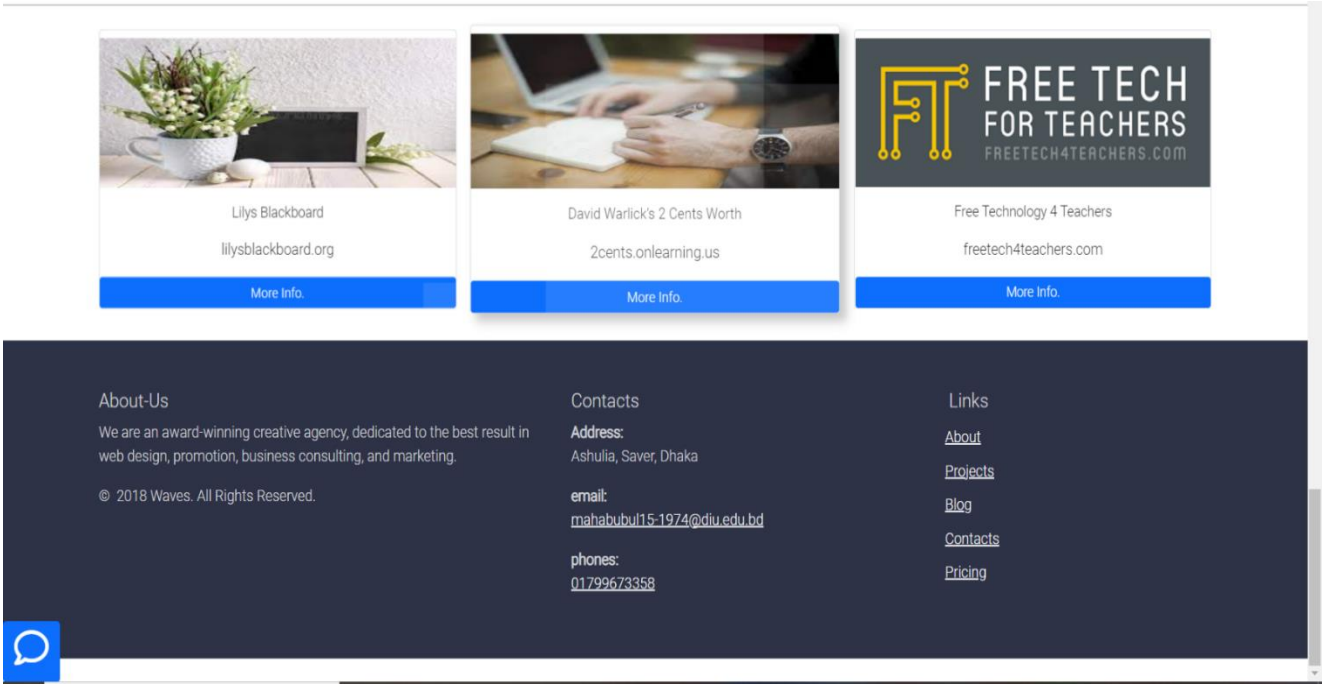



Figure – 4.1.4: Front-end Design

## 4.2 User Registration

Users may register for the system by entering their name, e-mail address, password, and confirm password, as well as view important postings, choose goods, and rent items from the system, all from this page.

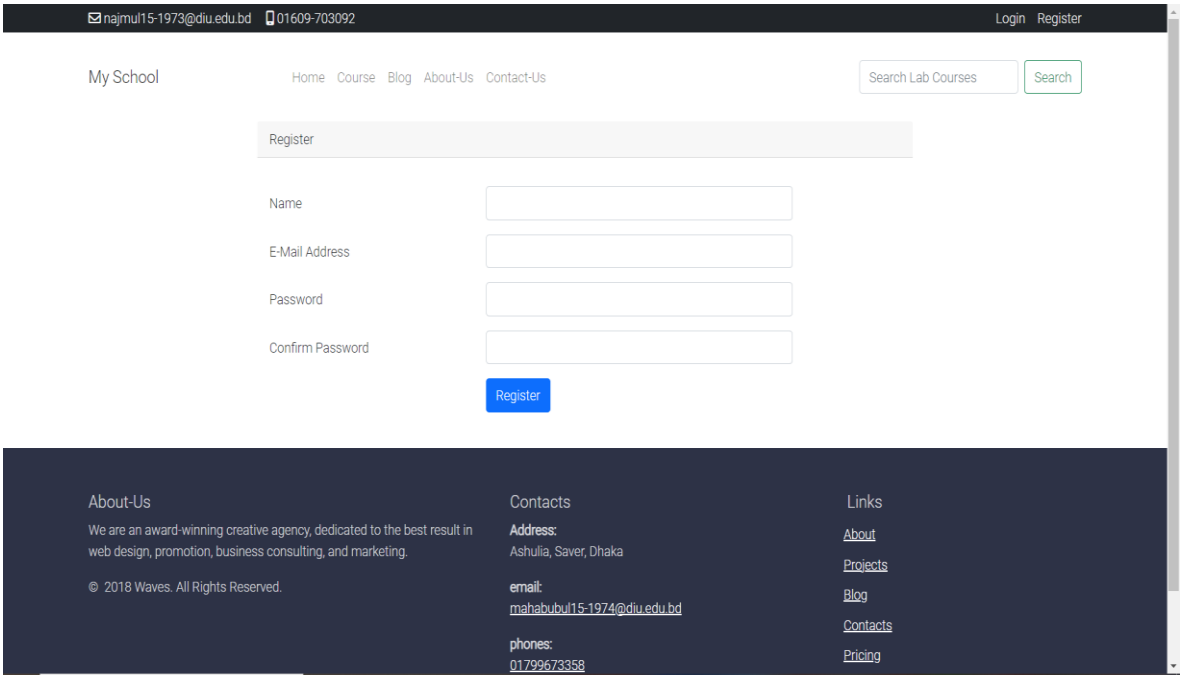



Figure – 4.2: User Registration

### 4.3 User Login

The user logs on to the system using their email and password, then selects a course and enrolls in it.

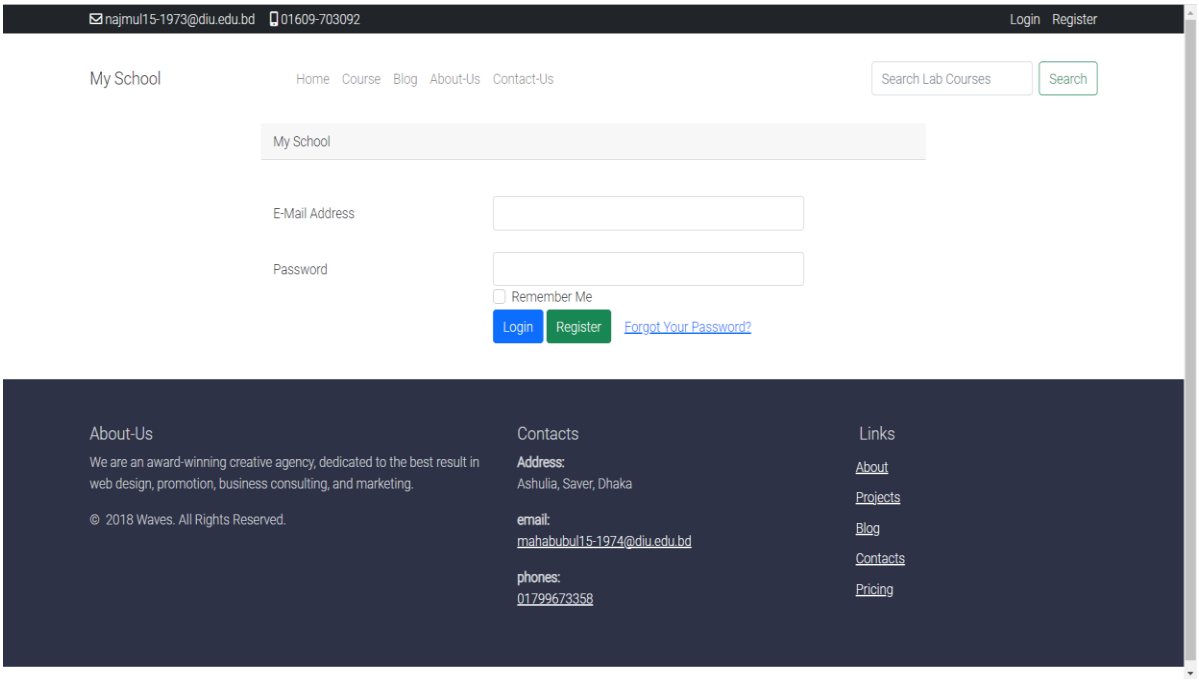
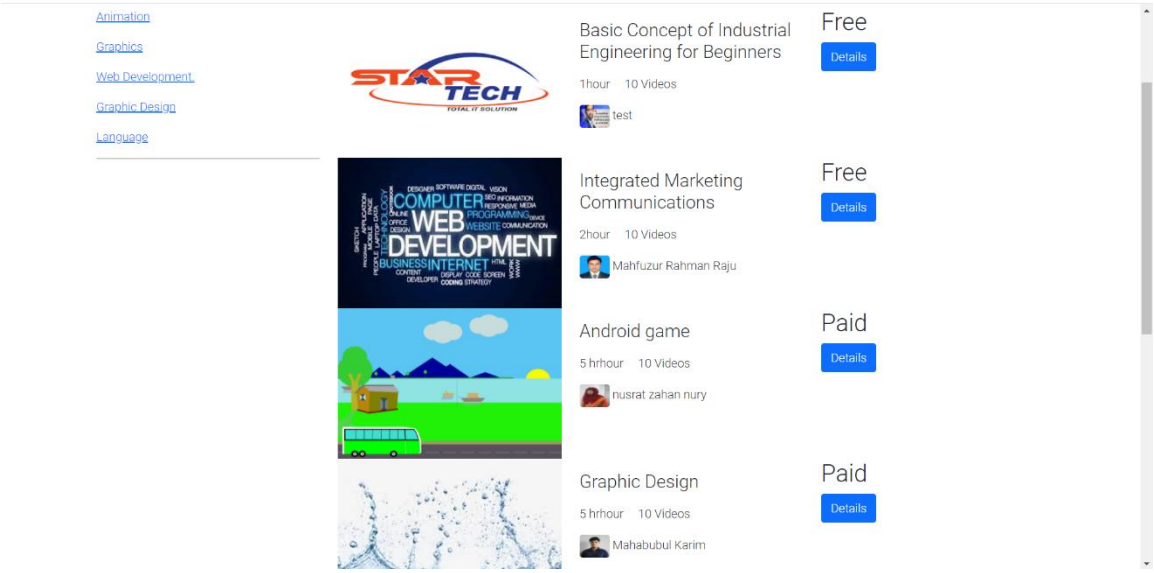



Figure – 4.3: User Login

### 4.4 Course for Enrollment

The user can see a list of courses and their information in this area.



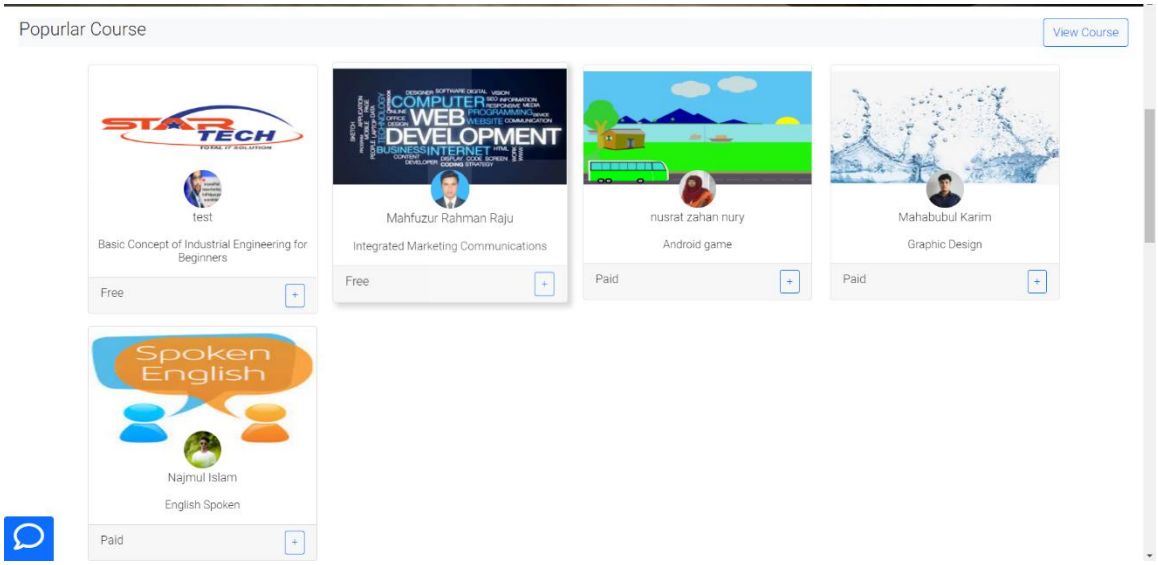
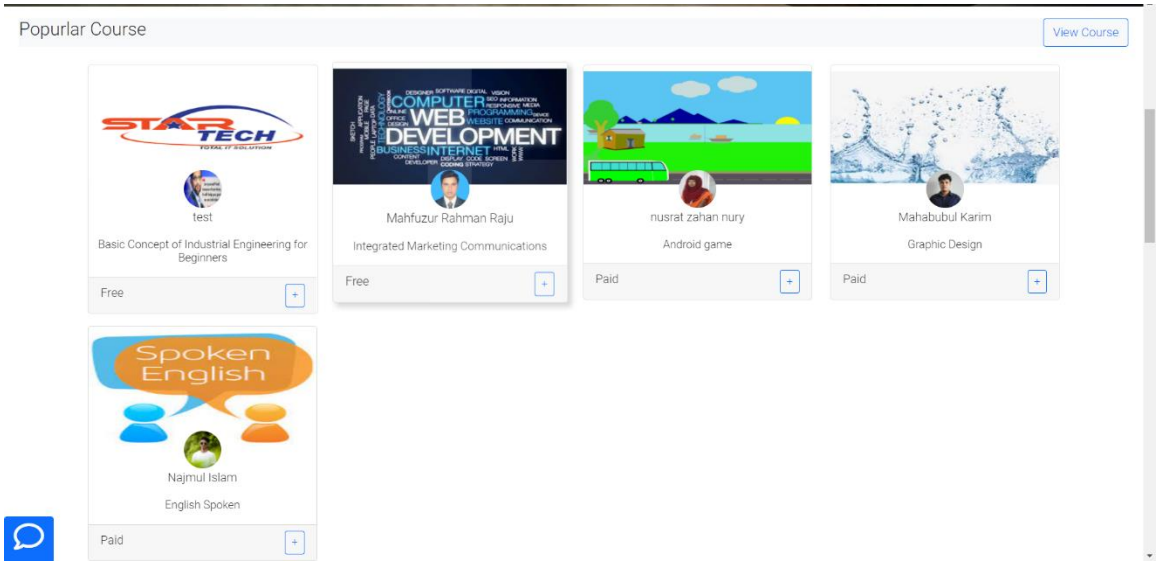
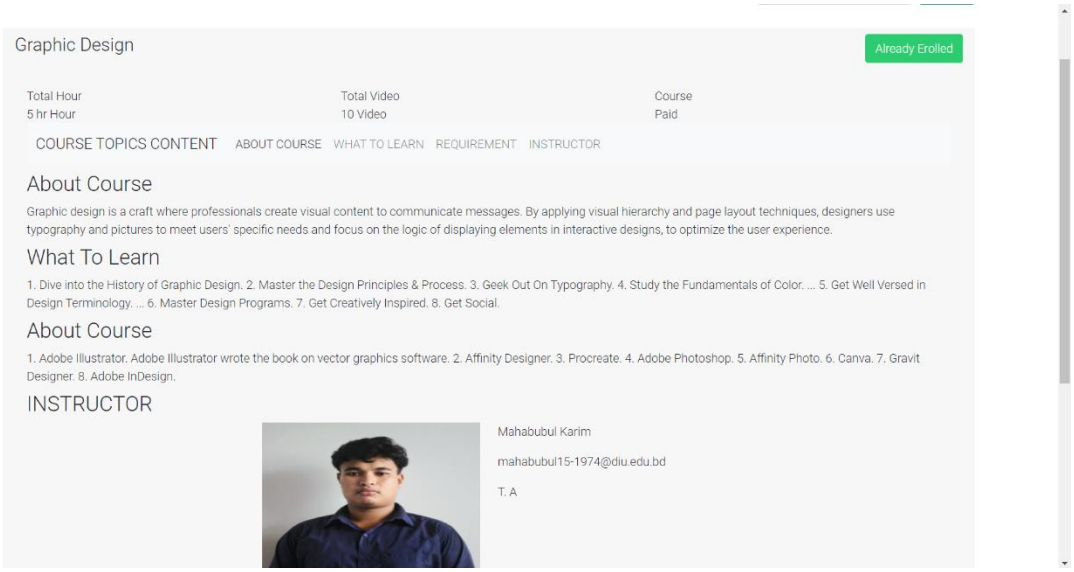


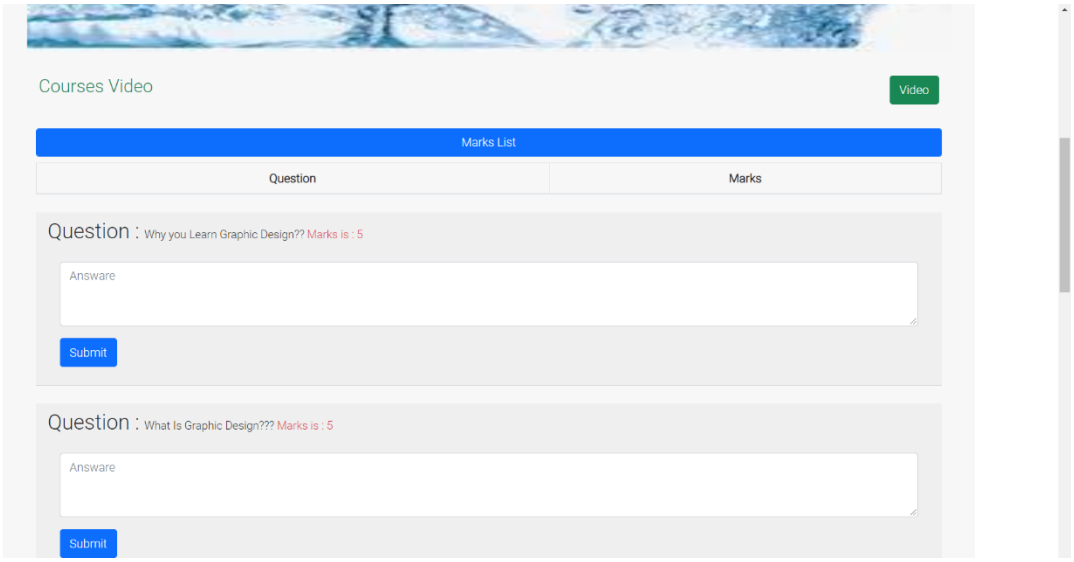

Figure – 4.4: Course for enrollment

## 4.5 About Courses and Teachers

In this part, user may access the specifics of each department, course related essential video or information, and teacher's information in the system via this area.




Graphic Design
Already Erolled
Total Hour
5 hr Hour
Total Video
10 Video
Course
Paid
COURSE TOPICS CONTENT
ABOUT COURSE
WHAT TO LEARN
REQUIREMENT
INSTRUCTOR
About Course
Graphic design is a craft where professionals create visual content to communicate messages. By applying visual hierarchy and page layout techniques, designers use typography and pictures to meet users' specific needs and focus on the logic of displaying elements in interactive designs, to optimize the user experience.
What To Learn
1. Dive into the History of Graphic Design. 2. Master the Design Principles & Process. 3. Geek Out On Typography. 4. Study the Fundamentals of Color. ... 5. Get Well Versed in Design Terminology. ... 6. Master Design Programs. 7. Get Creatively Inspired. 8. Get Social.
About Course
1. Adobe Illustrator. Adobe Illustrator wrote the book on vector graphics software. 2. Affinity Designer. 3. Procreate. 4. Adobe Photoshop. 5. Affinity Photo. 6. Canva. 7. Gravit Designer. 8. Adobe InDesign.
INSTRUCTOR
Mahabubul Karim
mahabubul15-1974@diu.edu.bd
T. A


Courses Video
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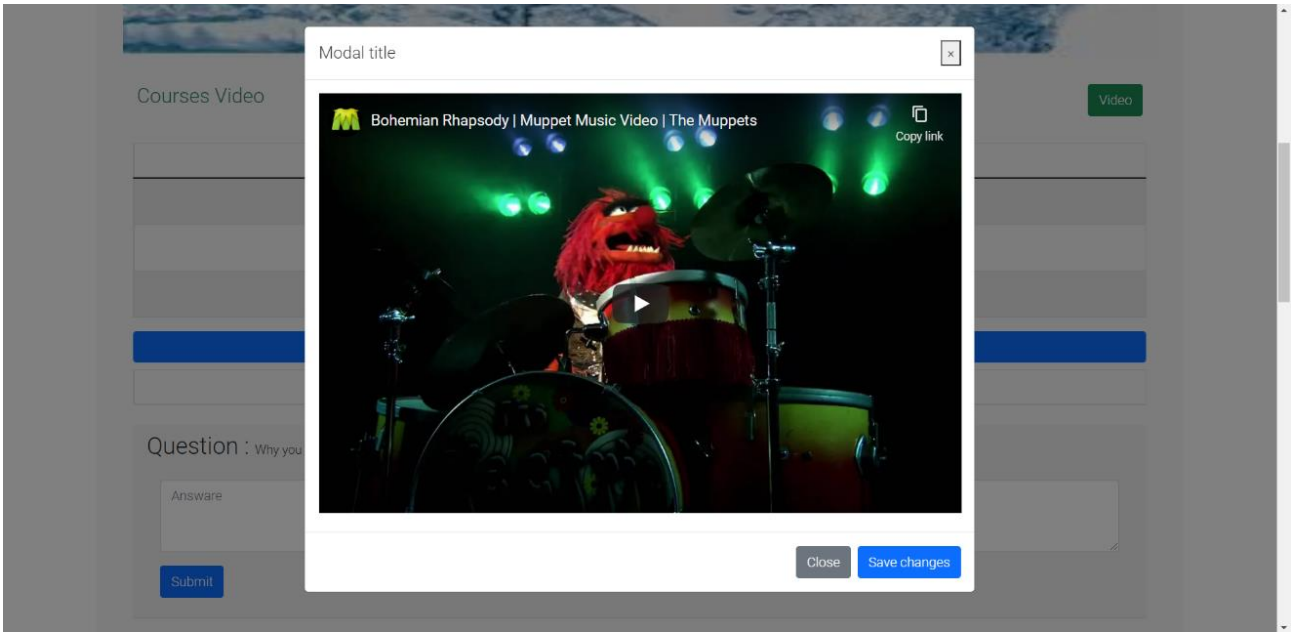


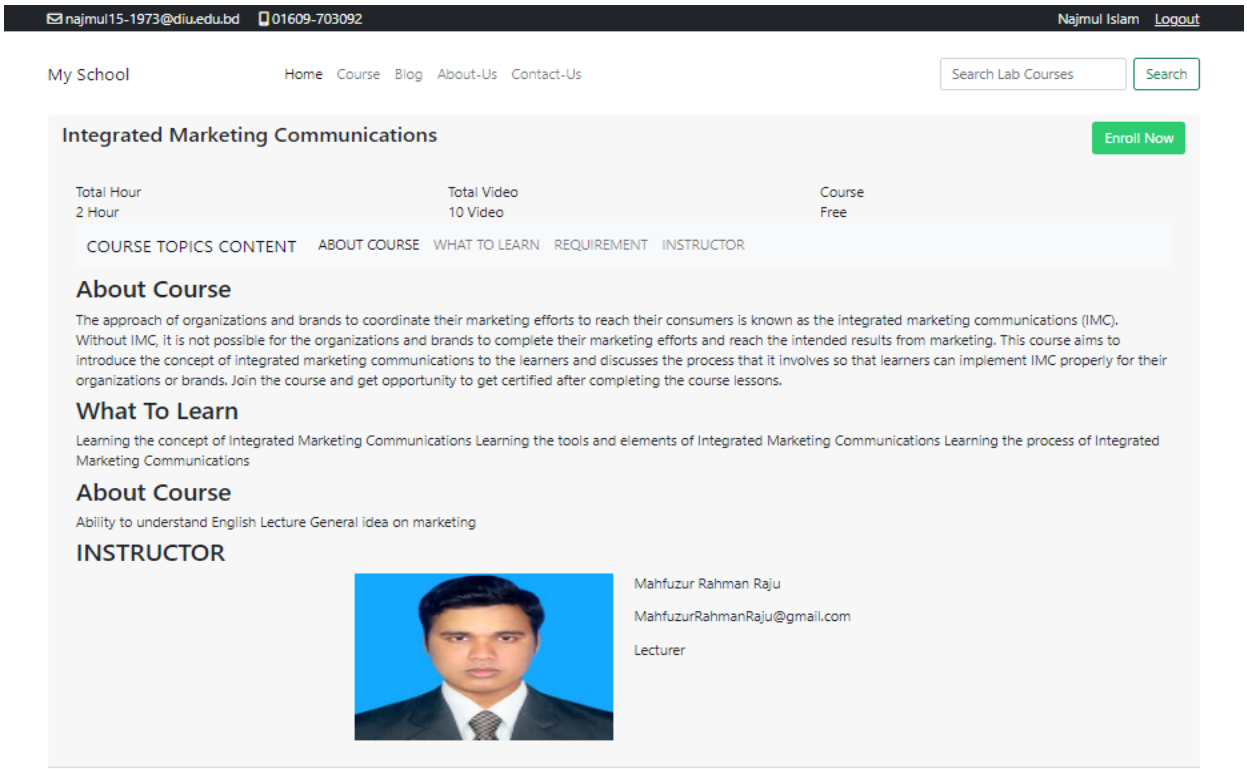




Figure – 4.5: About Course and Teacher's

## 4.6 Back-end Design

We're utilizing the administrator template in the admin panel. All administrator panel resources must use this template. The data is shown in a tabular format on the admin panel. The administrator may create courses, update, remove, modify, and show data via the admin interface. To gain access to the administrator panel, the administrator had to first sign in. The administrator panel dashboard appears when the administrator logs in to the administrator panel.

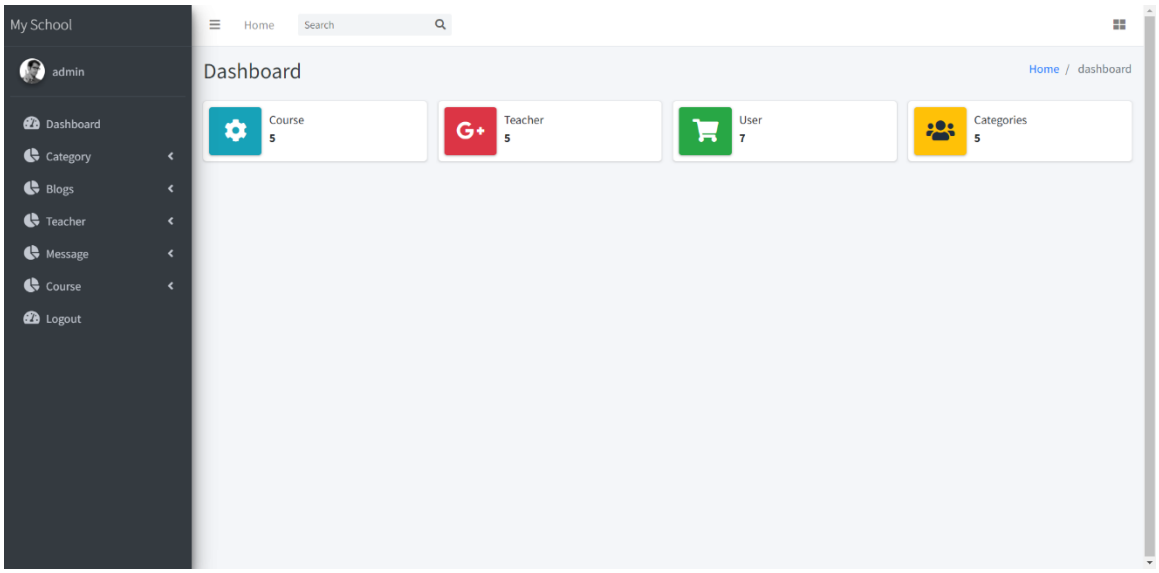
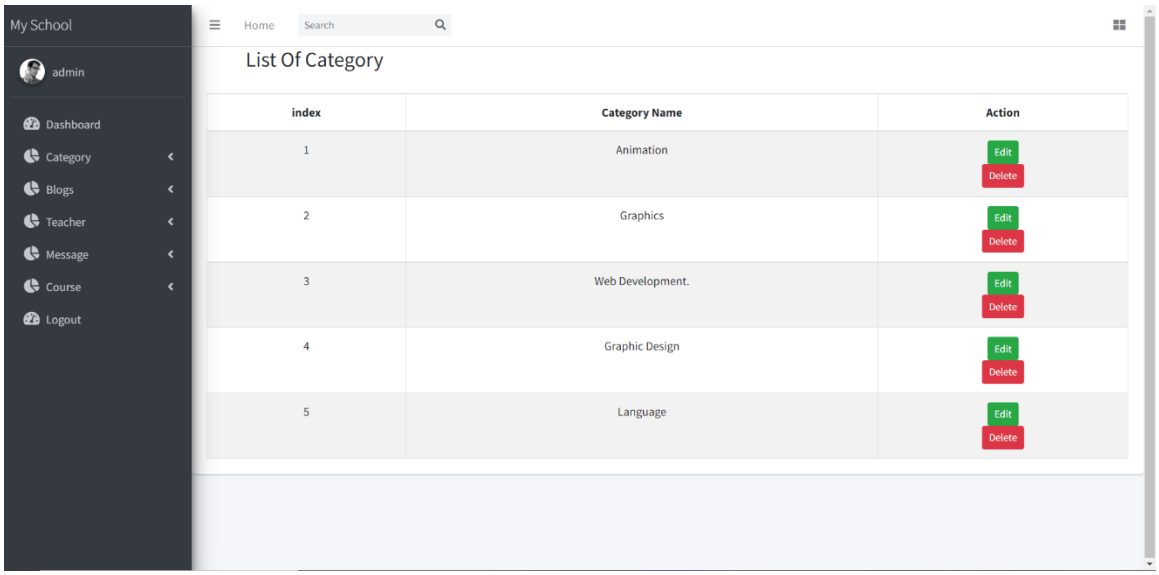
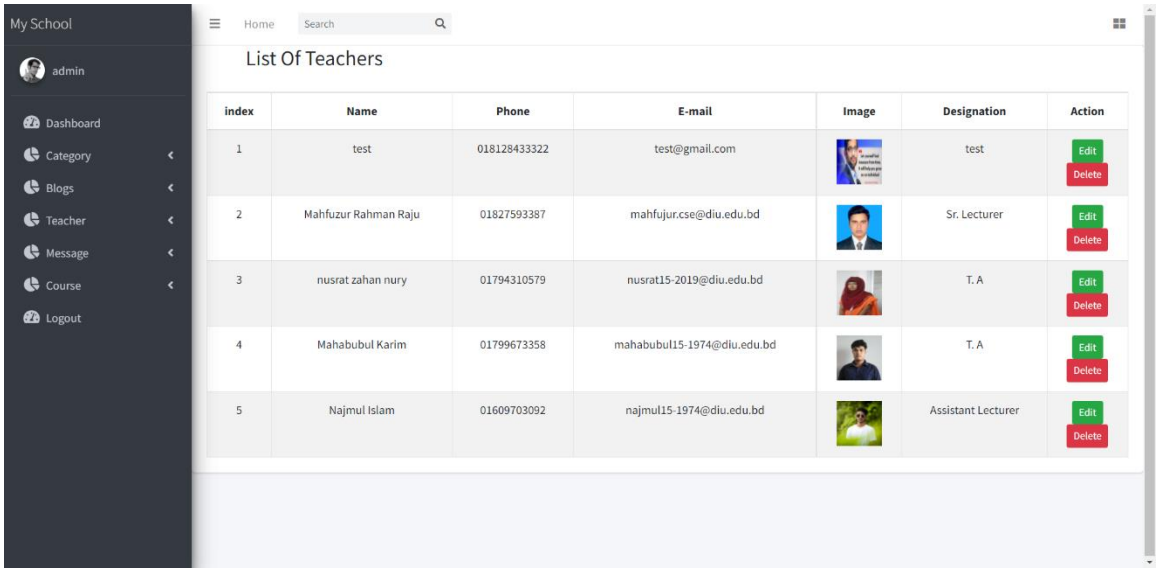



Figure – 4.6: Admin Panel Dashboard

## 4.7 List of Category

From here, the administrator may see a list of course categories and how many are available in the system. If the admin so desires, the admin can additionally add one or more users to the course and course teacher. The course module may be modified by both administrators and teachers. Admin can assign Teachers for course.


My School
admin
Dashboard
Category
Blogs
Teacher
Message
Course
Logout
Home
Search
List Of Category
index
Category Name
Action
1
Animation
Edit
Delete
2
Graphics
Edit
Delete
3
Web Development.
Edit
Delete
4
Graphic Design
Edit
Delete
5
Language
Edit
Delete


My School
admin
Dashboard
Category
Blogs
Teacher
Message
Course
Logout
Home
Search
List Of Teachers
index
Name
Phone
E-mail
Image
Designation
Action
1
test
018128433322
test@gmail.com
test
Edit
Delete
2
Mahfuzur Rahman Raju
01827593387
mahfujur.cse@diu.edu.bd
Sr. Lecturer
Edit
Delete
3
nusrat zahan nury
01794310579
nusrat15-2019@diu.edu.bd
T. A
Edit
Delete
4
Mahabubul Karim
01799673358
mahabubul15-1974@diu.edu.bd
T. A
Edit
Delete
5
Najmul Islam
01609703092
najmul15-1974@diu.edu.bd
Assistant Lecturer
Edit
Delete

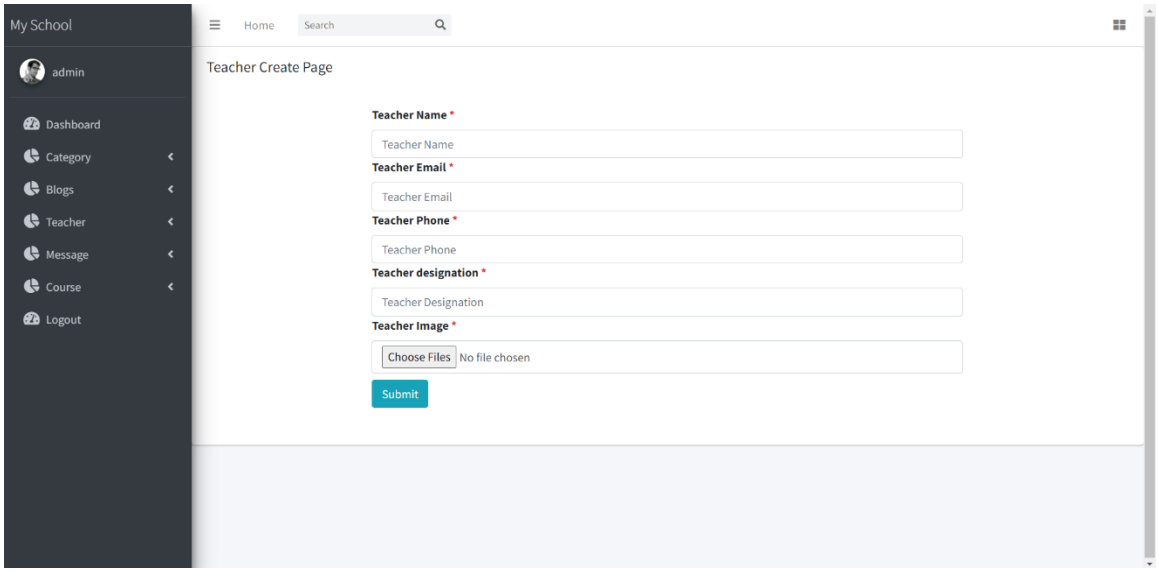
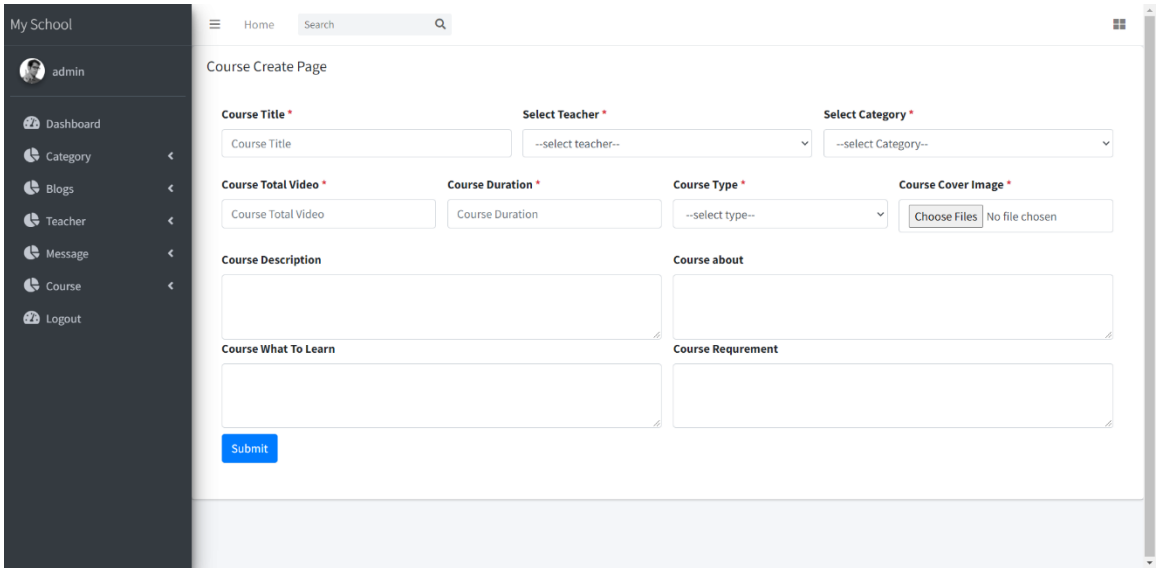



Figure – 4.7: Course category and Teacher

## 4.8 Create Course

Teachers can create new courses in any category they wish. Teachers must add course category, course module, course length time, course information, and course-related photo, video, article, and other materials in this location.



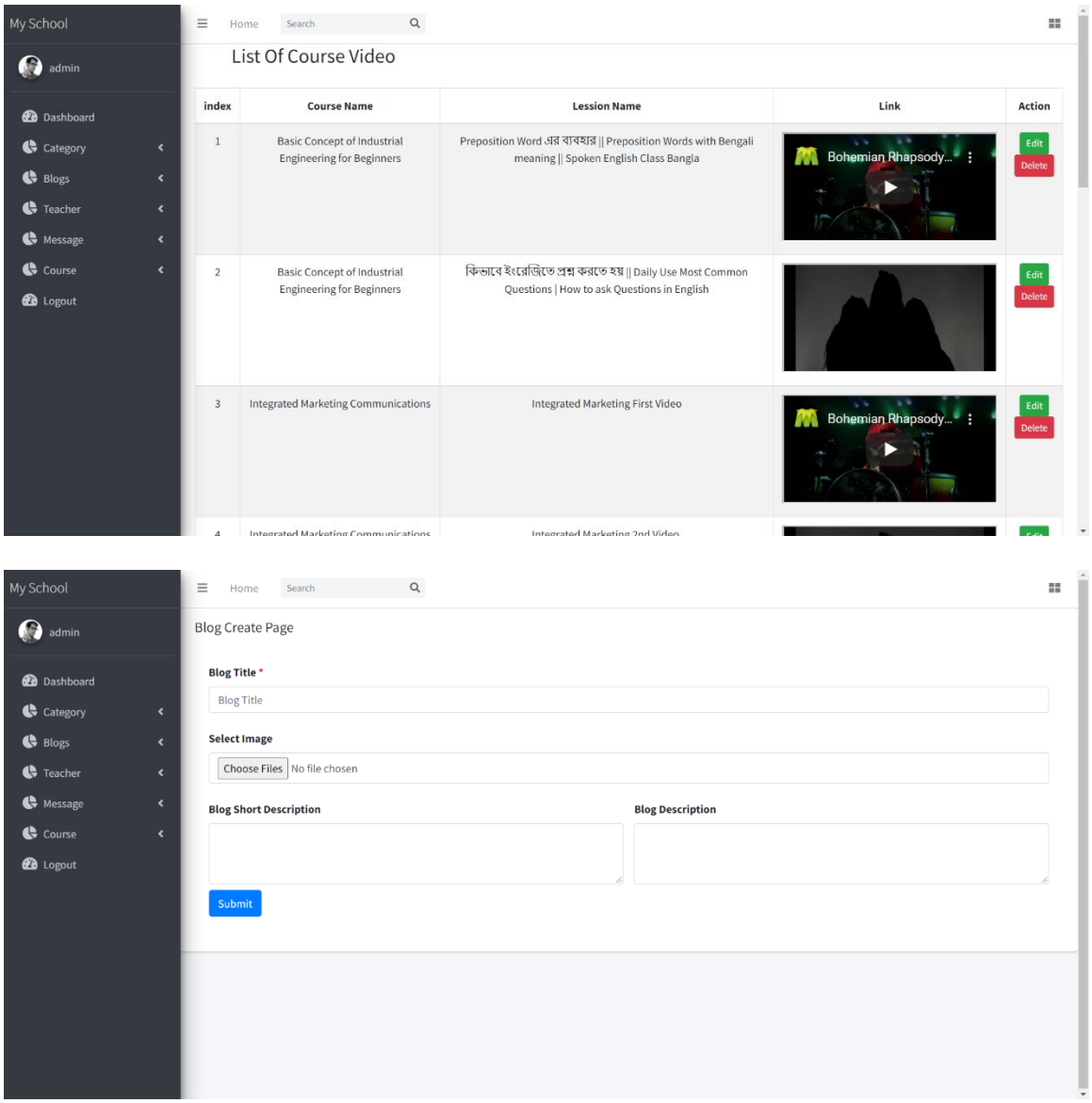



Figure – 4.8: Create Course

## 4.9 Implementation of requirements

HTML, CSS, JAVASCRIT, and PHP have all been mentioned in the past . By frame, we are using Laravel-8, which is the most recent version of Laravel. With PHP Laravel, we first constructed our template and then had to reproduce it using HTML, CSS, and JAVASCRIPT. We turn it into a blade template for Laravel. We utilize a separate folder and file for various portions.

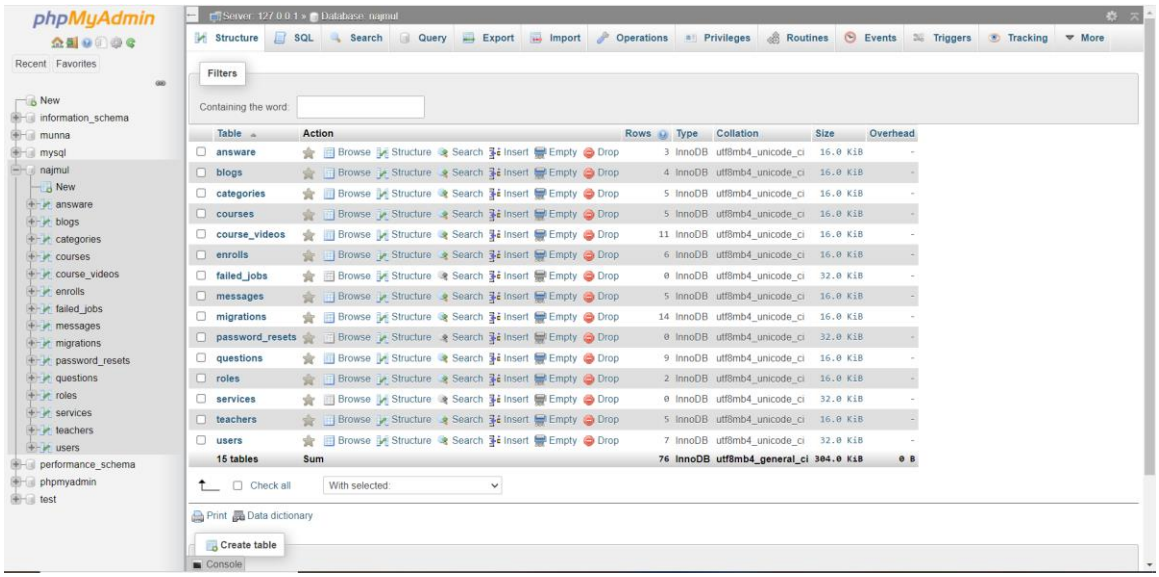



Figure 5.1.2: Database Table

# CHAPTER 5

# Implementation and Testing

## 5.1 Implementation of Database

We understand that database the most crucial component of any project. In this project, we're attempting to create a database for a wide range of categories. For our project, we're utilizing a MYSQL database.

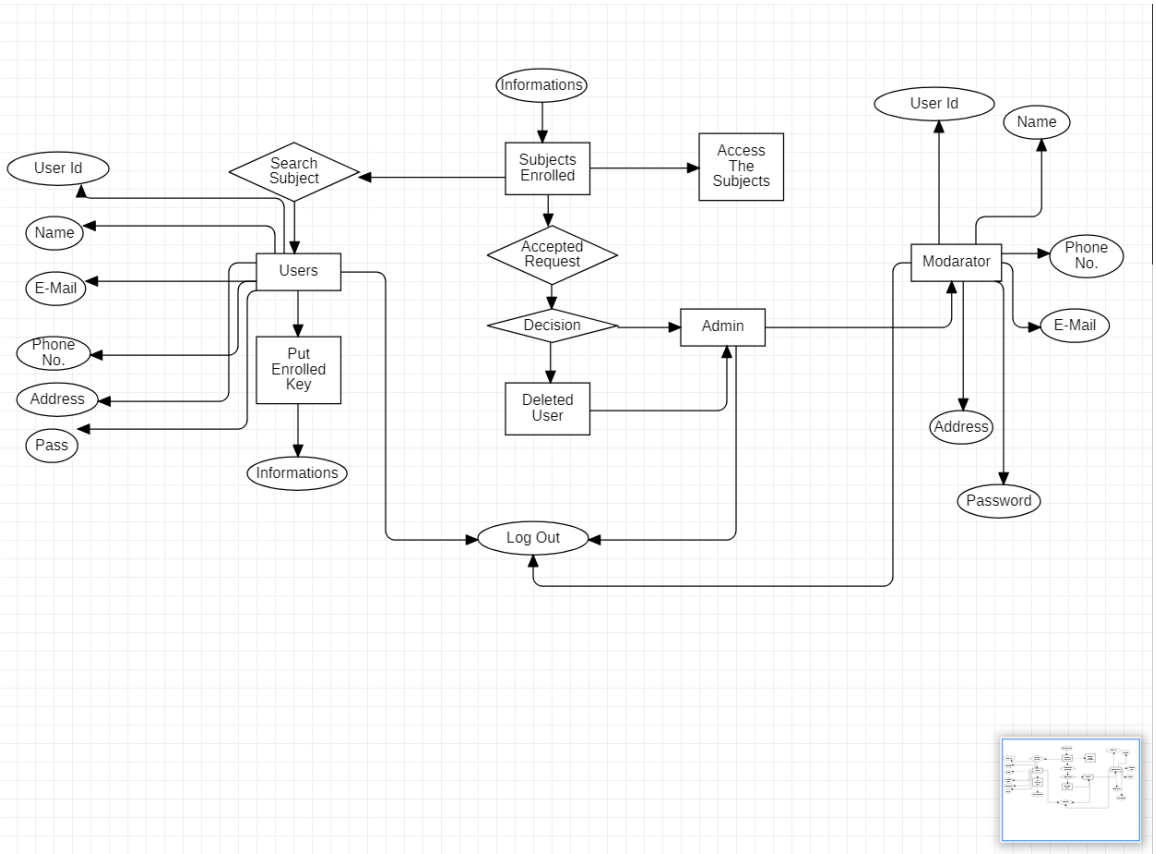



Figure 5.1.1: ER Diagram

### 5.2 Implementation

Any software design's implementation in code and form creation is a critical aspect of any project. It is a step in the development of an application. This area is where the codes are created and the prerequisites for building the software are built.

### 5.3 Integration and Testing

We aim to bring all of the elements together in each test area in this part. Make every effort to locate the bugs in the most efficient manner possible. After that, we'll look at bugs and bug interactions.

### 5.4 Testing Tools

For testing, we utilize Selenium testing tools. Selenium is a web application testing tool that automates tests across browsers. It's used to guarantee that web apps are of good quality, whether they're responsive, progressive, or standard. Selenium is a free and open-source software. Selenium is popular among testers since it is simple to create test scripts to verify functioning.

### 5.5 Result of Testing

In this section, we examine our strategy in order to determine the project's outcome. There are no technical errors in the application during testing. The system functions flawlessly, and there are no glitches to contend with.

| S.L No | Test Result | Expected Result | Result |
|---|---|---|---|
| 1 | Sign Up | The data is recorded in the MYSQL database when an unregistered user signs up or registers in the system. | Successful |
| 2 | Log In | When a user logs in to the system to enroll in a course, they should be able to access their account using the same credentials they used previously. | Successful |
| 3 | Forgot-Password | An e-mail is sent to the registered e-mail here we are using mail trap for authentication. | Successful |
| 4 | Upload Course | The administrator has the ability to upload the course's data as well as its specs. | Successful |
| 5 | Update Course | The administrator has the ability to edit the course's description, parameters, and designated teachers for each course. | Successful |
| 6 | Remove Course | If the website's administrators believe a course isn't important for users, they may quickly eliminate it. | Successful |
| 7 | Message Passing | When a user has a question regarding the course or anything else, they may utilize the contact us page, which has a form, to send a message through email or phone number. | Successful |
| 8 | Log Out | Exit from the application. | Successful |

Table 5.4: Result of Testing Table

# CHAPTER 6

# Conclusion and Future Scope

## 6.1 Conclusion

Our project's main purpose is to create a web-based system that allows customers to search for items and services by category or geographical region. Users will be able to contact with the firms who supply these services through this system.

## 6.2 Future Scope

Our project's major purpose is to give a simple and effective solution for users to receive the predicted course that they want. This assignment is simple to do by establishing an account, selecting the course, and viewing the course details. We will publish course information without enrollment in the future since anyone may easily examine the information and mentally prepare to participate in that course.

Our project's development can be carried out. Several areas of our project's future development are highlighted here:

a) Ensuring that there are many and varied possibilities for searching for course.
b) The administration panel should be dynamic.
c) We will conduct an evaluation of our system to see where we can improve.
d) In the future, we plan to transform the entire system to an Android system or application.

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