**IN-HOUSE GARDEN FARM BUSINESS PLAN**

### **by**

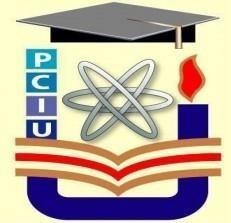
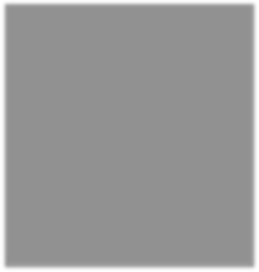
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#### ID: CSE 015 06379

**Batch: 15(Day)**

**Department of Computer Science & Engineering**

**This Project Report is presented in partial fulfillment of the requirements for the Degree of Bachelor of Science in Computer Science & Engineering.**



**PORT CITY INTERNATIONAL UNIVERSITY**

**7-14, Nikunja Housing Society, South Khulshi,**

**Chattogram, Bangladesh**

#### February 2022

**IN-HOUSE GARDEN FARM BUSINESS PLAN**

Submitted by

**Muhammad Arman**

#### ID: CSE 015 06379

**Batch: 15(Day)**

**Under the Supervision**

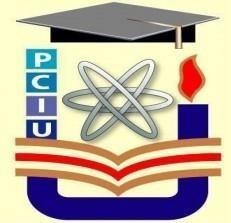
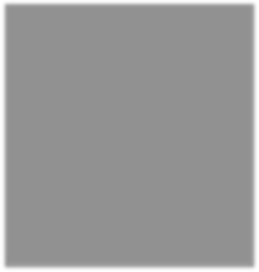
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**Senior Senior Lecturer**

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**Port City International University**

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**PORT CITY INTERNATIONAL UNIVERSITY**

7-14, Nikunja Housing Society, South Khulshi, Chattogram, Bangladesh

#### February, 2022

## RECOMMENDATION

This is to certify that Muhammad Arman (CSE 015 06379), student of Port City International University (PCIU) under the department of Computer Science & Engineering (CSE), had carried out the project titled “IN-HOUSE GARDEN FARM BUSINESS PLAN” successfully under my supervision and guidance. To the best of my knowledge, the matter embodied in the thesis has not been submitted to any other university/institute for the award of any Degree or Diploma.

……………………………..… (Signature of the Supervisor) **Abdur Rahman**

Senior Senior Lecturer,

Department of Computer Science and Engineering, Port City International University

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## DECLARATION

I hereby declare that this project under the supervision of Abdur Rahman, Senior Lecturer, Dept. of CSE, PCIU, has been done by us and not any portion of the work contain in support of any other system for any other qualification or degree of this or any other university or institution. Any material mentioned in this project has been properly acknowledged.

………………………..

(Signature of the student) Muhammad Arman ID: CSE-01005727

Department Of CSE

Port City International University

## DEDICATION

This project is dedicated to

My Beloved parents

## Md Humayun Kabir

&

## Mrs Koraishe Begum

&

My Honorable Senior Lecturers.

## ACKNOWLEDGEMENT

At first, I want to express gratitude to Almighty for being in the heart and helping me to remain calm which is helpful for me to complete my project under the prodigious supervision of my teacher.

I would like to show esteemed gratefulness to my honorable supervisor Abdur Rahman, Senior Lecturer, Computer Science and Engineering, Port City International University for his dedicated helping mind. Without his supervision, I would never be able to accomplish this task. I am always grateful to him. I’m also grateful to our faculty members for their support and inspiration all through long. I would also like to thank all my friends for mentally helping me and giving me good suggestions. There are no words of thanks for my parents, whose support and care keep me in the world.

#### Tajber Ahmed Tonmoy ID: CSE-01105727

## ABSTRACT

IN-HOUSE GARDEN FARM BUSINESS PLAN is a Web system that provides a communication facility along with a sharing service of educational material. The IN-HOUSE GARDEN FARM BUSINESS PLAN to be designed will provide a smooth flow of services between the students, admin, and the teachers, where the admin will be the head of management of an educational institution and the user will be the teachers and students of that institution. The admin panel needs to login into the system, the admin will have many functions by which he/she can modify the educational material related services.

The students and the teachers, who are connected with the same educational institution can use this system for making their communication easier to have any educational material sharing related service. The Web system is more effective for time-saving and a better place to have any educational material sharing service even if you are unable to be present in the institution.

The main objective of this project is to implement a Web-based IN-HOUSE GARDEN FARM BUSINESS PLAN. This system will help every student and teacher to meet their long-cherished dream for sure.

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## CHAPTER 1 INTRODUCTION

#### Overview

Port city International University Platform (PCIU Platform) is one kind of online lectures platform as well. This online platform will help our teachers to give theoretical lectures slides/pdf/documents for the students in a systematic online process and students can also collect their lectures from this platform. Similarly, they can submit their assignments/reports/documents by their own PCIU Platform drive.

#### Problem Statement

A few Educational Material Sharing Platform has developed in Bangladesh but they didn’t come across with any fruitful plan to succeed. Previous system has the following problems:

* + - Most people are still worried about information and communication technology as they are not used to it yet.
    - Does not provide much information about their service details.
    - There do not have any systematic own drive or space to save lectures.
    - People think they are not reliable.
    - Mass people don't attract by their service.

#### Objectives

The project objective summarized below:

* + - The main objective of this project is to implement a Web based Online Platform to share educational material.
    - Help to get Online Platform to make educational process at ease.
    - Students have their own profile where they have their own details.
    - Student can upload any of their class tasks through it and can download their course material as well.
    - Teacher can upload course materials based on the courses assigned to him.
    - There will be an admin who has basically controlled all the system for students and teacher of this institution.
    - This system will provide time saving service.

#### Preliminary Solution

The problem can be solved by replacing the current “IN-HOUSE GARDEN FARM BUSINESS PLAN” Web system which provides study material to the students. It will ensure time saving opportunity of its user.

#### Project Scope

This project aims to provide an effective solution to the problem. The scope of this project is described in Table 1.1:

Table 1.1: Project Scope

|  |  |  |
| --- | --- | --- |
| Serial No | Item | Details |
| 1 | Functions | 1. Authentication |
| 2 | Feature | 1. Teacher’s Information 2. Search Department 3. Assign Subject/Course 4. Search Teacher, Student 5. View Course Lectures 6. Upload Course Lectures 7. Upload E-Books 8. Upload Assignment/Report/ Task Submission 9. Digital Library |
| 3 | Facilities | 1. Providing accurate, up-to-date, and complete information about teachers & department at the point of transparency. 2. Students can each department and can view their teachers profile where he/she can find the subjects assigned to that respective teacher. 3. Give a specific way to deliver and to get lecture slides/documents in lecture Archive. 4. The Drive option can manage to save documents/slides etc. 5. Students can submit their assignment/report through their own profile to teachers drive. 6. The E-Book system will help to get pdf copy of books. |
| 4 | Required Time | 1. Around 5months of time is needed to complete  the project. |
| 5 | Estimated Cost | 1. About 2 lacs taka will be needed to complete the  project. |

#### Estimated Cost and Time for Feasibility Study

To make the best project work necessary to determination and organization .The system needs a feasibility study. It will help to propose the best solution to the problem according to the resource available. It will also determine the project is technically and financially possible or not.

So, I would like to propose at least 3-week time and a cost of 25,000 BDT to do the feasibility study.

#### Organization of the Report Chapter 1 Problem Definition:

The chapter is summarized through seven sections which are briefly described as following: Section 1 describes the problems with current IN-HOUSE GARDEN FARM BUSINESS PLAN. The purpose of this project is described briefly in Section 2. In section 3, here we discuss about project objectives. Section 4 provides and discusses preliminary solutions to this problem. Scope and limitations of this project is described in Section 5. Section 6 presents the estimated cost and required time for the feasibility studies. Section 7 presents the organizations of the report.

#### Chapter 2 Requirements analysis and system specifications:

The chapter is summarized through three sections. Section 1 describes the Software requirements specification documents, section 2 describes validations and section 3 describes feasibility study.

#### Chapter 3 System Design:

The chapter covers eight sections. Section 1 gives design approach to this document. Section 2 discusses detailed design. Section 3 illustrates about possible system design. Section 4 describes frontend design, section 5 describes database design, section 6 describe entity relationship design, section 7 describes methodologies and section 8 describes project schedule.

#### Chapter 4 Implementation, Testing and Maintenance:

The chapter contains three sections. Section 1 gives introduction to this document and system tools

while section 2 describes test plan and test activities.

#### Chapter 5 Results and discussions:

The chapter is composed of two sections. Section 1 describes the user interface representations and section 2 describes and show the graphical representations.

#### Chapter 6 Conclusion:

This chapter consists of two sections. Section 1 describes about the conclusions and section 2 describes the future works.

## CHAPTER 2

**REQUIREMENTS ANALYSIS AND SYSTEM SPECIFICATIONS**

This chapter discusses about the requirement analysis and system design for our IN-HOUSE GARDEN FARM BUSINESS PLAN project.

#### Software Requirements Specification Document

* + 1. **Data Requirements**

The set of data that is involved in any project is defined using data requirements. For this project, the main data required is the login information to register the system and the item’s information. Without this information the system cannot process the transaction.

#### Functional Requirements

Functional requirements are properties that must exist in the final system. For any mobile system, we need a latest version web browser to browse the system. The system could be either free or paid depending upon the store or merchant. To use the system, the user needs to register and login to the system after installing by providing login information. Once, he or she logins into the system, they can use all the features.

#### Performance Requirements

Response time, scalability, platform dependencies, tolerance are the performance requirements that should be considered when developing any system. The system or system should be able to respond quickly when the user interacts with the system.

The system should be developed in such a way that it should be scalable enough to accept new features when we want to expand the system complexity. The system should run in all the specified software and hardware requirements from the design phase of the project. Also, the tolerance rate (fault tolerance) of the system should be at a higher level in case of network issues, connectivity issues, and when the system crashes or stops. It should be able to deliver the information about any of those issues to the user when the system is no longer able to provide results when the user wants.

#### System Requirements

System requirements are the required specifications a device must have to use certain hardware or software. For example, a computer may require a specific I/O port to work with a peripheral device. Similarly, we have to maintain some instructions like need a web browser's latest version to get access to the system.

#### Testing and Maintainability Requirements

The system should be able to meet all the possible good and bad test cases under a test environment. System should be developed in such a way that it does not have any issues or crashes when the user is using the system. It should be able to extend itself when we expand the code or implement any new functions to the existing system.

#### Validation

Validating any system is an important criterion before releasing the system to the users. If there is no validation, the information entered by users may be redundant, formatted inappropriately and cannot be maintained. For example, we can validate mobile number in a way that it should use only digits and letters. Suppose, if the validation is not done, there are chances for the user to enter a wrong phone number and save it. In case of any emergency issues, the authorized person cannot contact the respective person. Similarly, validations for all the fields that are used to save information in any system are highly necessary. In this system, I have done several validations in the Login Page and Home Page. In the Login Page, I have validated all the login information that is required for the user to sign up for the first time. Fields like username, email, password, mobile number are validated appropriately by displaying error messages. The username should not contain any digits, password should be minimum of six letters, the email should be a valid address and if the email id is already registered, an error message is shown saying that email id exists. The mobile number should contain only digits, when students / teachers registered in this system, they have to confirm their email address through the validation link.

#### Feasibility Study

The analysis of the system is called a feasibility study. It requires some facts such as, it has to be cost effective from the economic view, the requirement has to be fulfilled technically, also it should be adaptable in the required environment.

#### Objectives of feasibility study

A project's potential is evaluated by a feasibility study for its success. So it is important that the perceived objectivity in credibility placed on the study with leading institution and potential investors. From the feasibility study of our project, we have identified three fundamental criteria of the project. The project will complete successfully, if the feasible project complete successfully. We found out four dimensions:

* + - 1. Technical feasibility
      2. Economic feasibility
      3. Operational feasibility/Organizational feasibility
      4. Schedule feasibility

#### Technical feasibility study

When the organization can obtain the equipment to install, develop and operate the system then a system request is feasible technically. We must solve the following questions that are pointed up

* + - * + Can the combination of software and hardware be able to supply performance?
        + After implementing what will be the impact on end users of our proposed system?

**Technical Criteria:** The study of technical criteria is basically concerned with the requirement of hardware. In our system there are these minimum hardware requirements.

**CPU:** Intel Core i3

**HDD:** 500GB

**RAM:** 4 GB

For our system the software requirements are :

#### Platform

* + **Web**
* **Front end**
  + **HTML, CSS, BOOTSTRAP, JAVASCRIPT**
* **Back end**
  + **PHP, MYSQL**
* **Web Server**
  + **XAMPP (Apache, My SQL & PHP)**
* **Development tools**
  + **Visual Studio Code**
    - 1. **Economic feasibility Study**

The benefits of the proposed system have to be outweigh the estimated cost involved in operating, installing and developing it. Only then it will be economically feasible. To determine economic feasibility, as certain the following:

* The system is economic feasible in the sense that people need not to wait for appointment.
* Estimate the cost of purchasing the necessary software.

First we analyze the cost benefit analysis of our system then we are able to answer the economic feasibility. It classifies the internal work of our system.

By studying the current system, we propose two alternatives to the current system to make the current IN-HOUSE GARDEN FARM BUSINESS PLAN more reliable, efficient, robust and cost effective. They are:

1. IN-HOUSE GARDEN FARM BUSINESS PLAN web system
2. IN-HOUSE GARDEN FARM BUSINESS PLAN android, IOS and web systems

A brief description of the alternative systems is shown in table 2.1:

Table 2.1: Description of Alternatives

|  |  |  |
| --- | --- | --- |
| SL No | Alternative 01 | Alternative 02 |
| 1 | It needs to develop in Visual Studio Code or similar kinds of  IDE. | It needs android studio, XCode to develop this apps. |
| 2 | Data is accessed through  webserver. | Data is accessed through any  android, IOS platforms. |
| 3 | Slightly cost to maintain | Very costly to maintain. |

Summary of cost for alternative 1:

Systems (Server + OS + Workstations) : 1,00,000 Tk. DBMS : 25,000 Tk.

System Software Development : 40,000 Tk. Initial Data Entry : 35,000 Tk.

………………………………………………………….. Total : 2,00,000 Tk.

Summary of cost for alternative 2:

Systems (Server + OS + Workstations) : 1,00,000 Tk. DBMS : 25,000 Tk.

System Software Development : 40,000 Tk. Initial Data Entry : 35,000 Tk.

………………………………………………………….. Total : 2,00,000 Tk.

Associated software development : 3,00,000 Tk.

…………………………………………………………..

Total : 5,00,000 Tk.

Financial Analysis for Alternative 1:

* Initial Cost: 2,00,000Tk.
* Benefits and Costs (Yearly Basis)
* Salary for 4 Persons (4\*12\*4500): 2,40,000Tk.
* Maintenance Cost : 80,000Tk.
* Stationary Cost : 30,000Tk.
* Better Service time and more services (1): 50,000Tk.

Net Return Per year = 2,40,000+50,000-80,000-30,000 = 1,80,000Tk.

Table 2.2: Investment Analysis for Alternative 1

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Saving(Lakhs BDT) | Present Value (at 10%) | Cumulative Value |
| 1 | 1.5 | 1.34 | 1.34 |
| 2 | 1.5 | 1.2 | 2.54 |
| 3 | 1.5 | 1.07 | 3.61 |
| 4 | 1.5 | 0.95 | 4.56 |
| 5 | 1.5 | 0.85 | 5.41 |
| 6 | 1.5 | 0.76 | 6.17 |
| 7 | 1.5 | 0.68 | 6.85 |

Alternative 1:

* Net Investment : 2 Lacs
* System Life cycle : 7 years
* Pay Back Period : 4 years
* Net present return value : 4.56 lacs

Financial Analysis for Alternative 2:

* Initial Cost: 5,00,000Tk.
* Benefits and Costs (Yearly Basis)
* Salary for 4 Persons (4\*12\*4500) : 2,40,000Tk.
* Operational Costs (Maintenance + Bar Code Reader) : 90,000Tk.
* Stationary Cost : 40,000Tk.
* Better Service time and more services (1) : 80,000Tk.

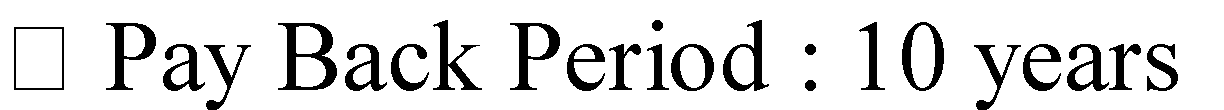
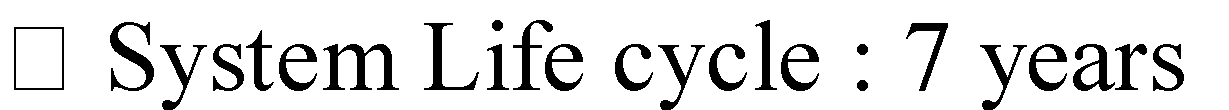
Net Return Per year = 2,40,000+80,000-90,000-40,000 =1,90,000Tk.

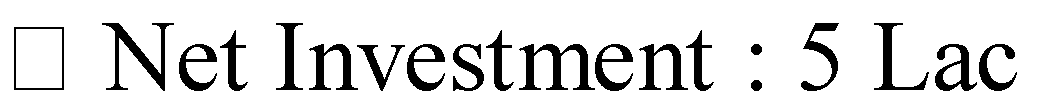
On the basis of investment analysis for Alternative 2 is shown in table 2.3

Table 2.3: investment analysis for Alternative 2

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Savings(Lacs BDT) | Present Value (at 12%) | Cumulative Value |
| 1 | 1.25 | 1.12 | 1.12 |
| 2 | 1.25 | 1.00 | 2.12 |
| 3 | 1.25 | 0.89 | 3.01 |
| 4 | 1.25 | 0.79 | 3.80 |
| 5 | 1.25 | 0.71 | 4.51 |
| 6 | 1.25 | 0.63 | 5.14 |
| 7 | 1.25 | 0.57 | 5.71 |
| 8 | 1.25 | 0.50 | 6.21 |
| 9 | 1.25 | 0.45 | 6.66 |
| 10 | 1.25 | 0.40 | 7.06 |

Alternative 2:





s

Net present return value : 4.56 lakhs

#### Operational feasibility

User acceptance of the system is necessary in Operational feasibility. We have to emphasize on the fact that the user should meet their satisfaction through our system. We developed and tried our best to make our system friendly to use and everyone can use it without complexity and difficulty. Both alternatives are operationally feasible.

#### Schedule feasibility

This feature is concerned with time period. Like how much time the system is taking to build and develop. It will not be a successful project if it’s not built on the time that is scheduled while planning. A project has to be completed by using some time period methods such as payback method. Planning a project strategy and building a project schedule to

* Project has to be completed within scheduled time.
* Resource management system.
* Productivity of the team should be maximized.
* Success rate should be calculated and increased
* Significant time and resource savings should be reanalyzed

We think we were able to finish the entire work of the system maintaining the time limit. The proposed system will easily be accessible as well be organized enough, also will have the capability to deliver the right information in the right place.

#### Cost benefit analysis (CBA) of the system

The purpose of cost benefit analysis (CBA) is to support improved decision making to ensure that resources are efficiently allocated to support their institute operations.

#### Time period

The CBA time period should match the system life cycle. The system life cycle includes the following

important stages:

1. Feasibility study
2. Design
3. Development
4. Implementation
5. Operation
6. Maintenance

#### Identifying and Measuring benefits and costs

CBA must include complete estimates of the projected benefits and costs for all alternatives. Benefits to which a taka value cannot be assigned (intangible benefits) should be included along with tangible benefits and costs.

After analyzing the alternatives in different sectors like economical, operational and technical according to money and time constraints, we recommend the best one of them on the basis of different features.

All of the alternatives are both technical and operational feasible. But by Economical analysis, we have found that, Alternative 1 is more beneficial than all other alternatives according to time and money. Also, it returns profit within system life cycle. So, finally we preferred alternative 1 for our project.

## CHAPTER 3 SYSTEM DESIGN

#### Design Approach

This project is based on the functional design approach, which helps in understanding the design of the project in a simpler way by explaining its flow, use cases, and implementation more like a modular approach. For example, there are different modules in this project which have separate functionality and, other sub functionalities/modules. All the modules are designed, implemented and integrated together to make a flawless working system.

#### Detailed Design

The detailed design including modules and sub modules of the systems is as follows:

* + 1. Student/Teacher Registration:

If the user wants to use the IN-HOUSE GARDEN FARM BUSINESS PLAN, they must access the system from the web browser and register it by providing login information. Once, they register the registered information is stored on the server and can be validated, checking the valid credentials for the next time he/she logins with the system. Similarly, Teachers can register here. But, need to contact with admin panels with their proper credentials.

* + 1. Student/Teacher Login:

After successfully registered, a student login in this system with validate email address and passwords. Similarly, teachers can login here with his/his valid email and passwords from the same UI.

* + 1. Oversee:

After successfully logged in, students can search their department and in there they will find all of their teacher’s profiles. Clicking that he/she will be able to view the courses assigned to that teacher and can view that course's lectures as well.

* + 1. Send registration approval request:

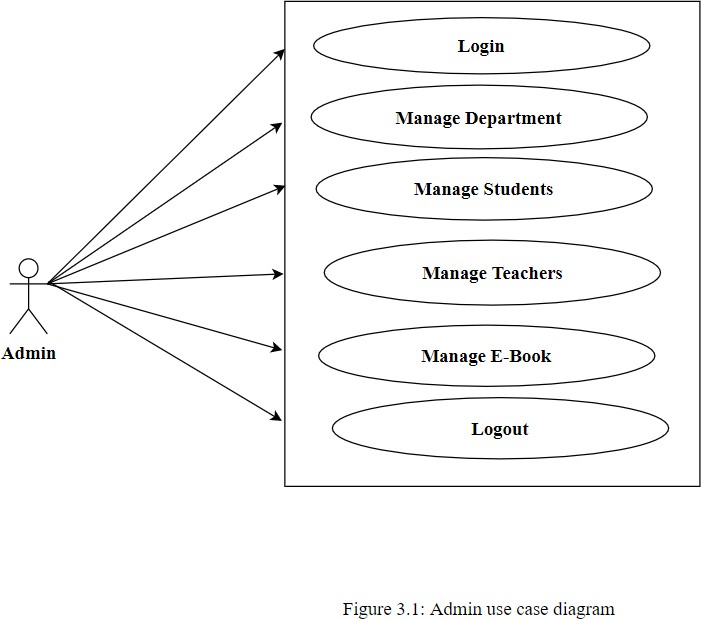
After successfully providing all the necessary credentials, the student's application to join will be in processing mode. Only after admins approval, he/she can enroll in the system to take advantages.

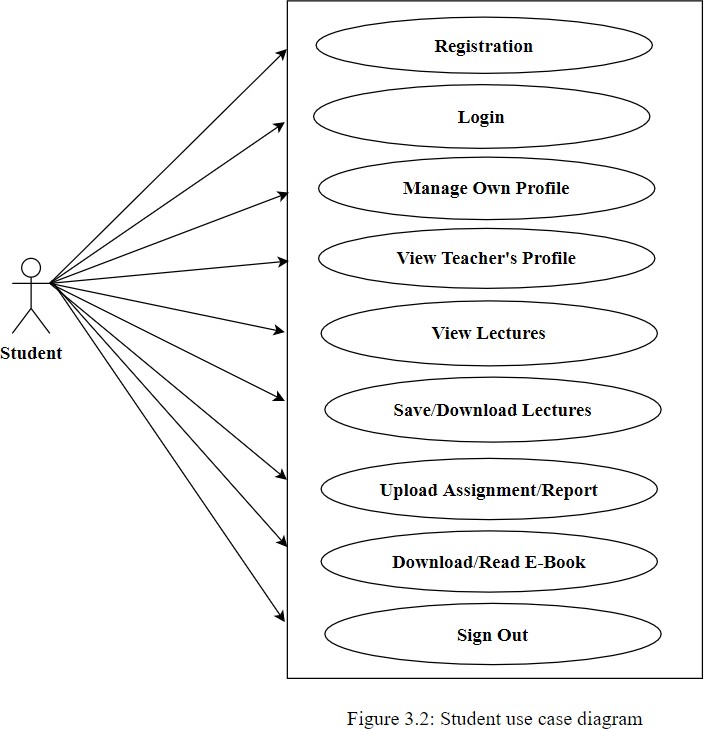
* + 1. Accept/reject registration approval request:

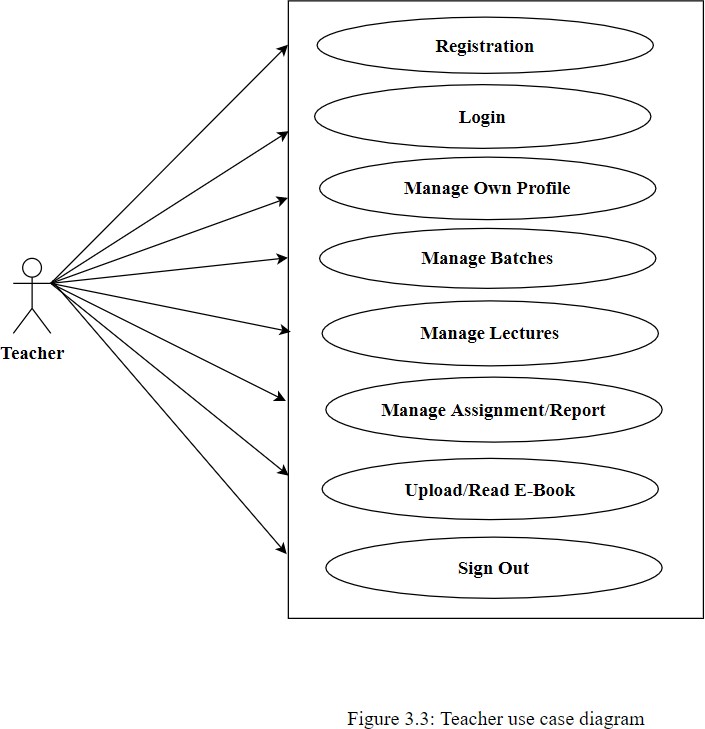
When students sent registration requests, the admin can accept or reject student registration requests upon several criteria. If the admin accepts student’s requests, then, students can get a chance to get enlist in the system’s database receiving a request accept notification alert.

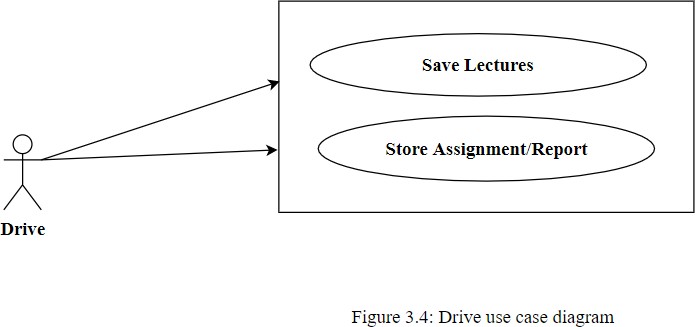
#### System Design

The main aim of the system design is to explain the scenario using use case diagrams. A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.









#### Front End Design

Front End Design for any system should be very simple. We should have only a few clicks or navigation among the features when using the system to avoid hassle. In this system, there are two main screens, the Login and Home screens. The login page is the first page which appears when the user uses the system. In that page, if he is a new user, he can sign up or if he is an existing user, he can login with the credentials. The next screen is the homepage where the users can select features and use the system.

#### Database Design

The database should be designed in such a way that it should be easy to access and manipulate. Database definition and database manipulation operations should be performed accordingly to add, delete, and update values. In this project, I have used a MySQL database which is an open source database, easy to install and use. The database server could be installed by providing user credentials such as username and password.

#### Entity Relationship Diagram

There are three tables involved for this project under one database which was created in MySQL. One table includes information about admin login credentials. Another table includes student’s information and third one includes teacher’s information.

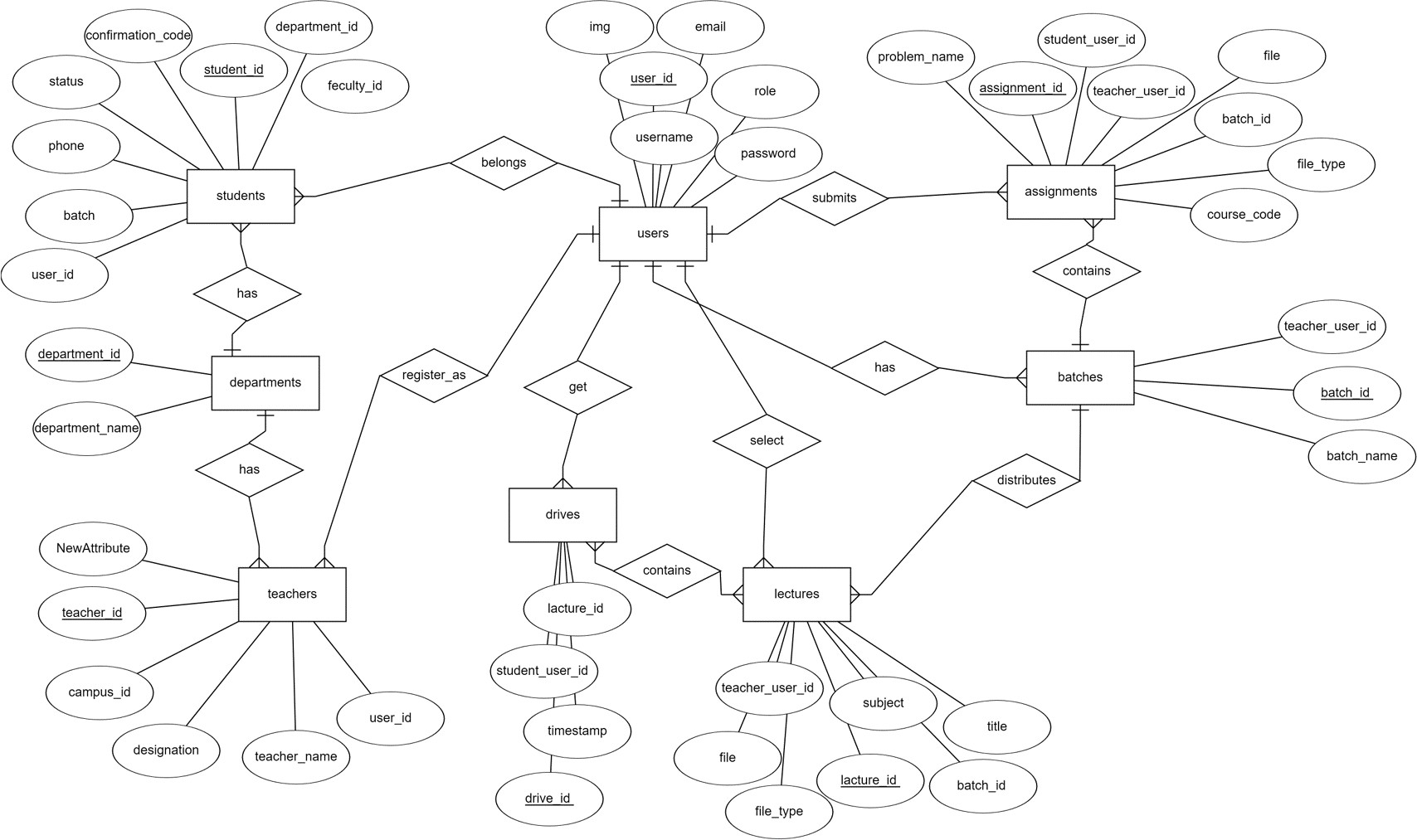


Figure 3.5: ER Diagram

#### System Architecture

A System Architecture is a conceptual model that defines the structure of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structure and behaviors of the system. The system architecture of **“IN-HOUSE GARDEN FARM BUSINESS PLAN”** described in figure 3.6

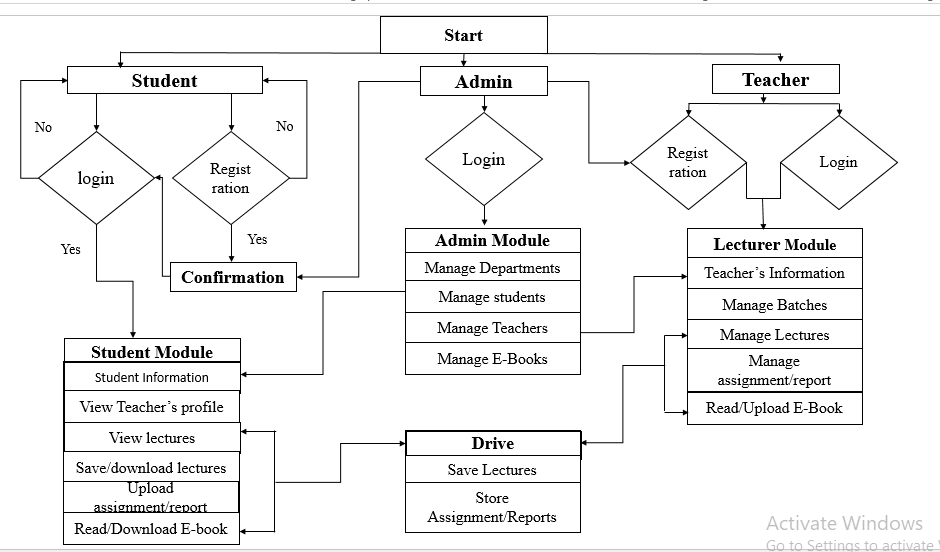


Figure 3.6: System Architecture

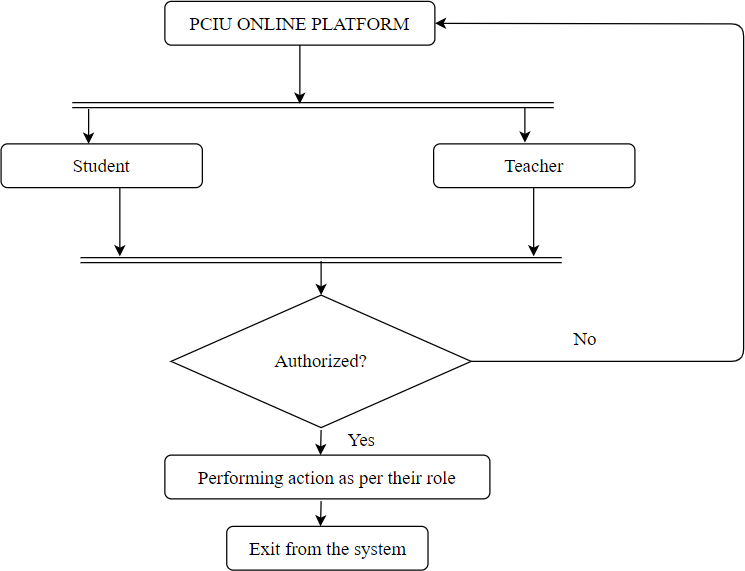


Figure 3.7: System flow diagram of IN-HOUSE GARDEN FARM BUSINESS PLAN

#### Project Schedule

Project scheduling is the process of deciding how the works in a project. It is done by estimating calendar time and effort required to complete each task. It also identifies who will work on these tasks. It maintains as follows:

* The total work involved in a project break down into separate tasks
* Estimating the time required to complete the task
* Tasks should last at least a week
* No longer than two months
* Finer subdivision means that a disproportionate amount of time
* The maximum amount of time for any task should be 8 to 10 weeks
* If it takes more time the task should be subdivided for project planning and scheduling
* Some tasks are carried out in parallel, with different people working on different components of the system.

Table 3.1: Schedule Representation

|  |  |  |  |
| --- | --- | --- | --- |
| Tasks | Effort (Person – Days) | Duration (Days) | Dependencies |
| T1 | 15 | 10 |  |
| T2 | 8 | 15 |  |
| T3 | 20 | 15 | T1(M1) |
| T4 | 5 | 10 | T3 |
| T5 | 5 | 10 | T2, T4 (M3) |
| T6 | 10 | 5 | T1, T2 (M4) |
| T7 | 25 | 20 | T1 (M1) |
| T8 | 75 | 25 | T4 (M2) |
| T9 | 10 | 15 | T3, T6 (M6) |
| T10 | 20 | 15 | T7, T8 (M6) |
| T11 | 10 | 10 | T9, (M7) |
| T12 | 20 | 10 | T10, T11 (M8) |

## CHAPTER 4 IMPLEMENTATION, TESTING AND MAINTENANCE

* 1. Introduction to Programming Languages, IDE’S, Tools and Technologies used for this Implementation.

#### PHP

PHP is a general-purpose scripting language especially suited to web development. It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1994; the PHP reference implementation is now produced by The PHP Group. PHP originally stood for Personal Home Page, but it now stands for the recursive initialize PHP: Hypertext Preprocessor.

PHP code is usually processed on a web server by a PHP interpreter implemented as a module, a daemon or as a Common Gateway Interface (CGI) executable. On a web server, the result of the interpreted and executed PHP code – which may be any type of data, such as generated HTML or binary image data – would form the whole or part of a HTTP response. Various web template systems, web content management systems, and web frameworks exist which can be employed to orchestrate or facilitate the generation of that response. Additionally, PHP can be used for many programming tasks outside of the web context, such as standalone graphical systems and robotic drone control. Arbitrary PHP code can also be interpreted and executed via command-line interface (CLI).

The standard PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on almost every operating system and platform, free of charge.

The PHP language evolved without a written formal specification or standard until 2014, with the original implementation acting as the de facto standard which other implementations aimed to follow. Since 2014, work has gone on to create a formal PHP specification.

By September 2020, two out of every three websites using PHP are still on discontinued PHP versions, and almost half of all PHP websites use version 5.6 or older, that not even Debian supports (while Debian 9 still supports version 7.0 and 7.1, those versions are unsupported by The PHP Development Team). In addition, PHP version 7.2, the most popular supported PHP version, will stop getting security updates on November 30, 2020, in less than 2 months, and therefore unless PHP websites are upgraded to version 7.3 (or newer), 84% of PHP websites will thus use discontinued versions.

#### IDE’s, Tools and Technologies:

* + - 1. **Sublime Text**

Sublime Text is a shareware cross-platform source code editor with a Python system programming interface (API). It natively supports many programming languages and markup languages, and functions can be added by users with plugins, typically community-built and maintained under free- software licenses. The following is a list of features of Sublime Text: "Go to Anything," quick navigation to files, symbols, or lines. "Command palette" uses adaptive matching for quick keyboard invocation of arbitrary commands. Simultaneous editing: simultaneously make the same interactive changes to multiple selected areas. Python-based plugin API. Project-specific preferences. Extensive customizability via JSON settings files, including project-specific and platform-specific settings. Cross-platform (Windows, macOS, and Linux) and Supportive Plugins for cross-platform. Compatible with many language grammars from Text Mate.

#### Notepad++

Notepad++ is a text and source code editor for use with Microsoft Windows. It supports tabbed editing, which allows working with multiple open files in a single window. The project's name comes from the C increment operator. Notepad++ is distributed as free software. At first the project was hosted on SourceForge.net, from where it has been downloaded over 28 million times, and twice won the Source Forge Community Choice Award for Best Developer Tool. The project was hosted on Tux Family [fr] from 2010 to 2015; since 2015 Notepad++ has been hosted on GitHub. Notepad++ uses the Scintilla editor component.

#### Atom

Atom is a free and open-source text and source code editor for macOS, Linux, and Microsoft Windows with support for plug-ins written in Node.js, and embedded Git Control, developed by GitHub. Atom is a desktop system built using web technologies. Most of the extending packages have free software licenses and are community-built and maintained. Atom is based on Electron (formerly known as Atom Shell), a framework that enables cross-platform desktop systems using Chromium and Node.js. It is written in Coffee Script and Less. Atom was released from beta, as version 1.0, on 25 June 2015. Its developers call it a "hackable text editor for the 21st Century". It is fully customizable in HTML,

CSS, and JavaScript.

#### Visual Studio Code:

Visual Studio Code is a free source-code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Users can change the theme, keyboard shortcuts, preferences, and install extensions that add additional functionality. Visual Studio Code's source code comes from Microsoft's free and open-source software VSCode project released under the permissive Expat License, and the compiled binaries are freeware for any use. In the Stack Overflow 2019 Developer Survey, Visual Studio Code was ranked the most popular developer environment tool, with 50.7% of 87,317 respondents reporting that they use it.

#### JavaScript

JavaScript often abbreviated as JS, is a programming language that conforms to the ECMAScript specification. JavaScript is high-level, often just-in-time compiled, and multi-paradigm. It has curly- bracket syntax, dynamic typing, prototype-based object-orientation, and first-class functions. Alongside HTML and CSS, JavaScript is one of the core technologies of the World Wide Web. JavaScript enables interactive web pages and is an essential part of web systems. The vast majority of websites use it for client-side page behavior, and all major web browsers have a dedicated JavaScript engine to execute it. As a multi-paradigm language, JavaScript supports event-driven, functional, and imperative programming styles. It has system programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM). However, the language itself does not include any input/output (I/O), such as networking, storage, or graphics facilities, as the host environment (usually a web browser) provides those APIs.

JavaScript engines were originally used only in web browsers, but they are now embedded in some servers, usually via Node.js. They are also embedded in a variety of systems created with frameworks such as Electron and Cordova. Although there are similarities between JavaScript and Java, including language name, syntax, and respective standard libraries, the two languages are distinct and differ greatly in design.

#### HTML

Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and othis objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and othis items. HTML elements are delineated by tags, written using angle brackets. Tags such as <img> and <input> directly introduce content into the page. Othis tags such as

<p> surround and provide information about document text and may include othis tags as sub- elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

#### CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file which reduces complexity and repetition in the structural content as well as enabling the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.

Separation of formatting and content also makes it feasible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or screen reader), and on Braille-based tactile devices. CSS also has rules for alternate formatting if the content is accessed on a mobile device. The name cascading comes from the specified priority scheme to determine which style rule applies if more than one rule matches a particular element. This cascading priority scheme is predictable.

The CSS specifications are maintained by the World Wide Web Consortium (W3C). Internet media type (MIME type) text/css is registered for use with CSS by RFC 2318 (March 1998). The W3C operates a free CSS validation service for CSS documents. In addition to HTML, othis markup languages support the use of CSS including XHTML, plain XML, SVG, and XUL.

#### Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and othis interface components. Bootstrap is the seventh-most-starred project on GitHub, with more than 142,000 stars, behind freeCodeCamp (almost 312,000 stars) and marginally behind Vue.js framework.

#### MySQL Database

In this project, I have used MySQL database to store the data. This is one of the popular open source relational database management systems. We can perform all DDL, DML, DCL operations using this database. This also supports different programming language systems. The systems could connect the database using separate ways which includes PHP myadmin WAMP, LAMP, Web Services. To use this database, we should first download, install and configure the MySQL instance in our machine. While configuring, we should give access credentials which could be used furthers whenever you open the MySQL shell.

#### Apache Tomcat Server

It is one of the open source enterprise Java servlet containers which are widely used in many systems to maintain their database. The database is kept in this remote server and could be accessed whenever needed through MySQL shell.

#### XAMPP

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server possible.

XAMPP's ease of deployment means a WAMP or LAMP stack can be installed quickly and simply on an operating system by a developer, with the advantage that common add-in systems such as WordPress and Joomla! can also be installed with similar ease using Bitnami.

#### 4.2 Test Plan and Test Activities

Test plan is necessary for any project to plan the testing phase and decide the scope of the project. Test plan involves collecting design specifications about the project, wiring test cases, executing them manually or automatically using automated testing tools. Testing any system is highly important. Test plan is a method of documenting the test cases, specification plans and other basic level details about how the system works.

Test Activities for this project includes various testing like:

* Black Box testing: In this project, sample test cases are written and manual testing is done to check the functionality of the system.
* White Box testing: Once the system meets the user requirements and functionalities according to the test cases, its internal logic is completely tested to ensure that the system does not have any logical errors or issues.
* Unit Testing: I have tested all the modules of the system individually by running as a test program.
* Integration testing: After testing the modules individually, tested them by integrating all the sub modules, modules into one system.
* System Testing: It refers to checking whether the system in which the system is built meets the necessary requirements like software support. For example: In this project, I have checked whether the device in which the system developed is compatible with the software (Visual Studio Code)
* End to End Testing: End-to-end testing is a technique used to test whether the flow of an application right from start to finish is behaving as expected. The purpose of performing end-to-end testing is to identify system dependencies and to ensure that the data integrity is maintained between various system components and systems.
* Usability Testing: Finally, usability testing is performed by testing the system’s flow, UI design and how flexible and easy the system is easy to use.

## CHAPTER 5 RESULTS AND DISCUSSIONS

#### User Interface Representation

To make the system interactive, different controls have been used and designed using the layout file. Following are the important controls that are designed and used in this system:

* + - HTML Tag: On clothes, tags usually indicate the brand, size of the garment, fabrics used, and the washing instructions. In Web pages, tags indicate what should be displayed on the screen when the page loads. Tags are the basic formatting tool used in HTML (hypertext markup language) and other markup languages, such as XML. For example, to create a table on a Web page, the <table> tag is used. The data that should be inside the table follows the <table> tag, and the table is closed with a </table> tag.
      * If you want something to show up in **bold** on a Web page, you would use the bold tag. For example, the [HTML](https://techterms.com/definition/html):
      * This site is the <b>best website</b> ever!
      * would show up as:
      * This site is the **best website** ever!
      * Since there is often a need to format content within more general tags, the tags can be "nested," meaning one tag can enclose one or more other tags. For example:
      * <span style="font-family: Times">This is the Times font, and <i>this is in italics</i>. Pretty exciting, huh? </font>
      * would should up as: This is the Times font, and *this is in italics*. Pretty exciting, huh?
      * Tags are a fundamental part of HTML and they are pretty simple to understand. If you want to build a Web site of your own, you can either create it from scratch (using a text editor and typing your own tags) or you can use a layout program like Macromedia

Dreamweaver, which will generate the tags for you. Best of all, tags used in markup languages don't itch or chafe your neck.

* + - Div tag: The <**div**> tag defines a division or a section in an HTML document. The <**div**> tag is used as a container for HTML elements - which **is** then styled with CSS or manipulated with JavaScript. Any sort of content can be put inside the <**div**> tag!
    - Attribute: HTML attributes are a modifier of an HTML element type. An attribute either modifies the default functionality of an element type or provides functionality to certain element types unable to function correctly without them. Some attribute types function differently when used to modify different element types.
    - Container: In Bootstrap, container is used to set the content's margins dealing with the responsive behaviors of your layout. It contains the row elements and the row elements are the container of columns (known as grid system). The container class is used to create boxed content.
    - Meta Tag: The <**meta**> tag defines metadata about an HTML document. Metadata is data (information) about data. Metadata is used by browsers (how to display content or reload page), search engines (keywords), and other web services.
    - Href attribute: HTML links are defined with the **<a>** tag. The link address is specified in the

**href** attribute.

* + - Lang attribute: You should always include the **lang** attribute inside the **<html>** tag, to declare the language of the Web page. This is meant to assist search engines and browsers. Country codes can also be added to the language code in the **lang** attribute. So, the first two characters define the language of the HTML page, and the last two characters define the country.
    - Responsive Web Design: **Responsive Web Design** is about using HTML and CSS to automatically resize, hide, shrink, or enlarge, a website, to make it look good on all devices (desktops, tablets, and phones).
    - HTML Charset: To display an HTML page correctly, a web browser must know which character set to use.
    - From ASCII to UTF-8 conversion: ASCII was the first character encoding standard. ASCII defined 128 different characters that could be used on the internet: numbers **(0-9),** English letters **(A-Z)**, and some special characters like **! $ + - ( ) @ < >** .
      * ISO-8859-1 was the default character set for HTML 4. This character set supported 256 different character codes. HTML 4 also supported UTF-8.
      * ANSI (Windows-1252) was the original Windows character set. ANSI is identical to ISO-8859-1, except that ANSI has 32 extra characters.
      * The default character set for HTML5 is UTF-8, which covers almost all of the characters and symbols in the world!

#### Graphical Representation

In this section, we have provided snapshots of every step that a patient, doctor and admin can go through. The obtained results or outputs of IN-HOUSE GARDEN FARM BUSINESS PLAN is graphically showed in the next sections.

#### Admin Panel:

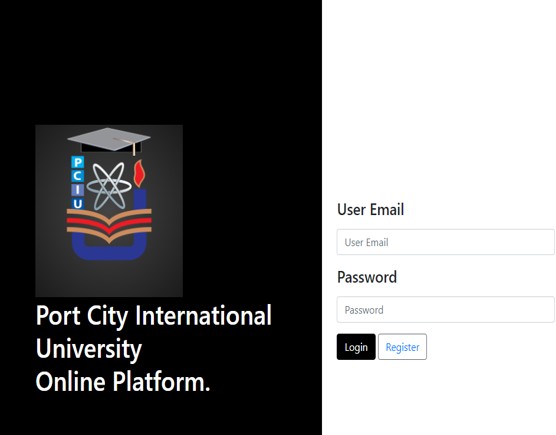


Figure 5.1: Admin Login

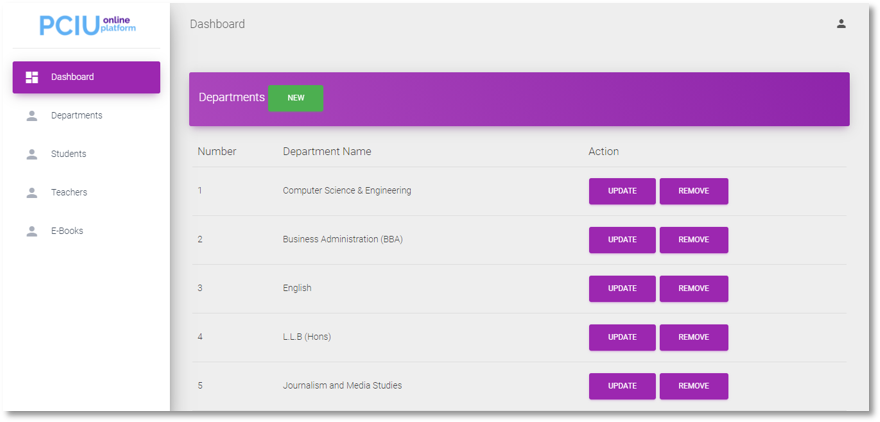


Figure 5.2: Admin Add Department

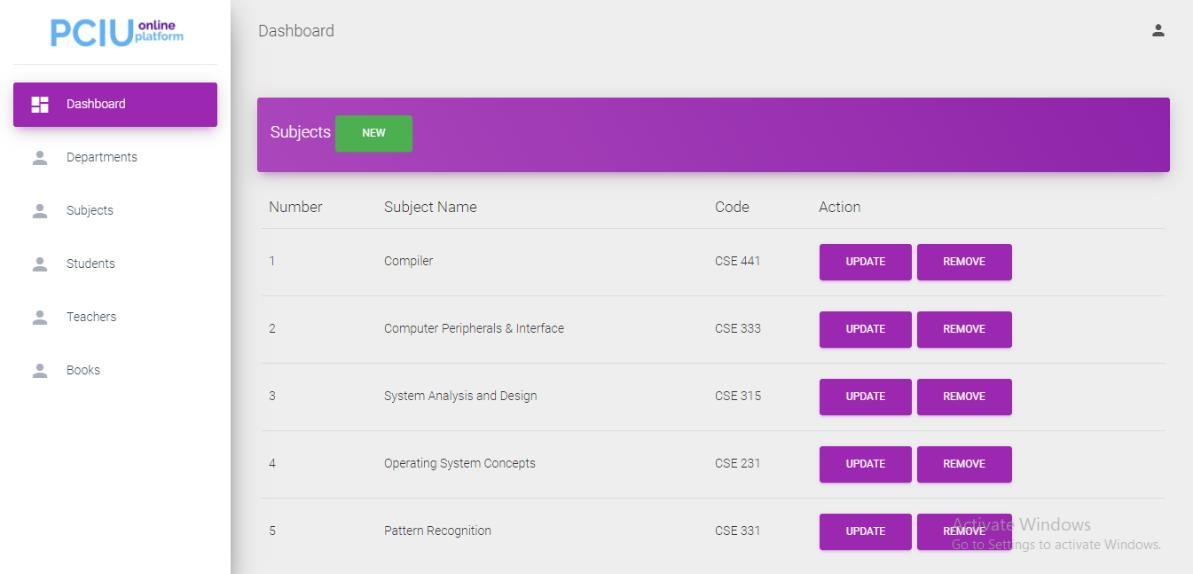
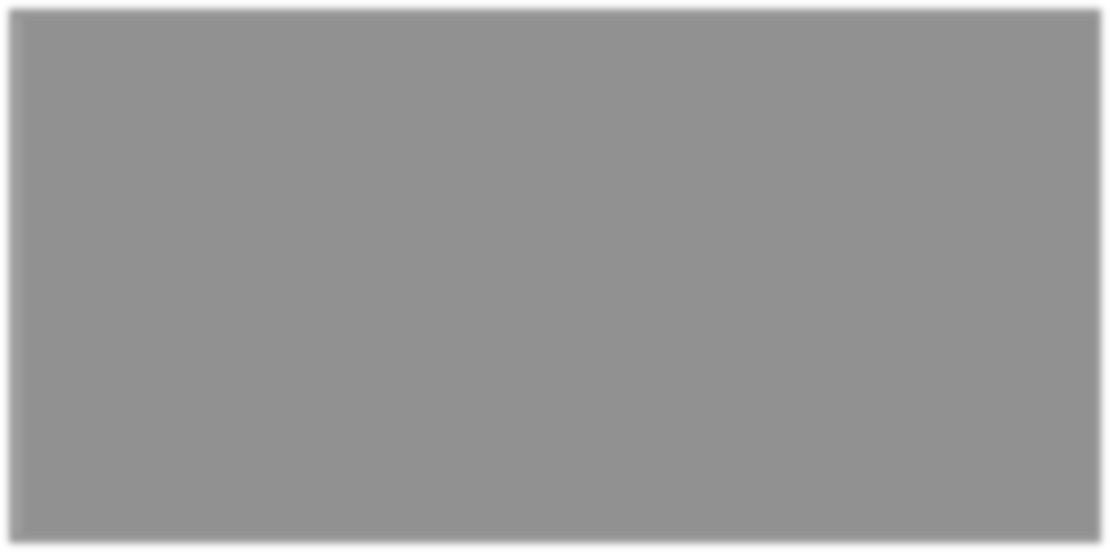


Figure 5.3: Admin Add Subject

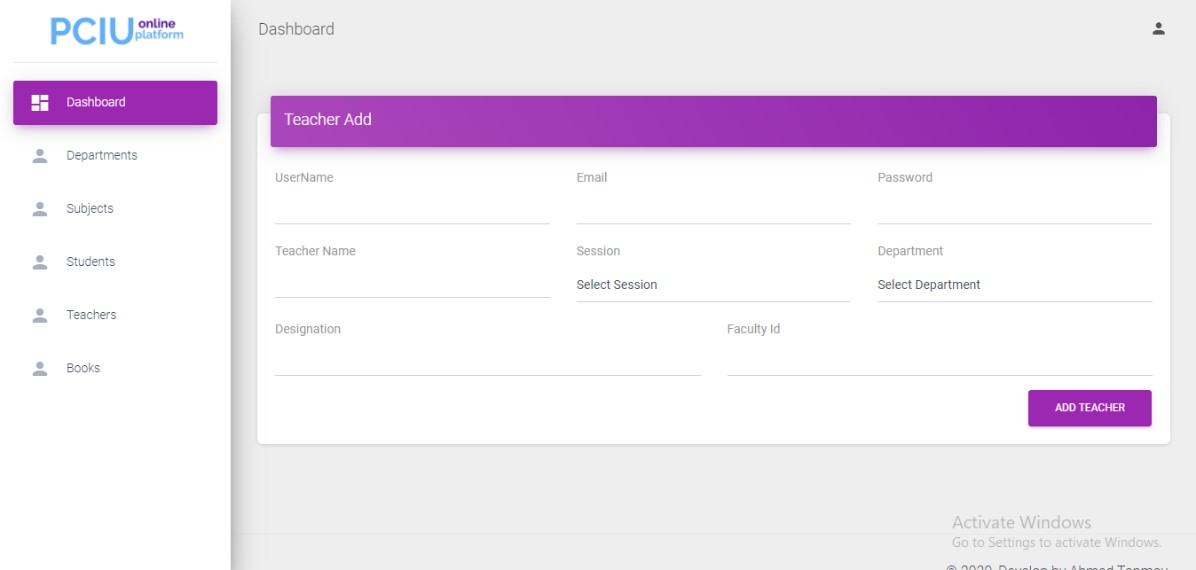
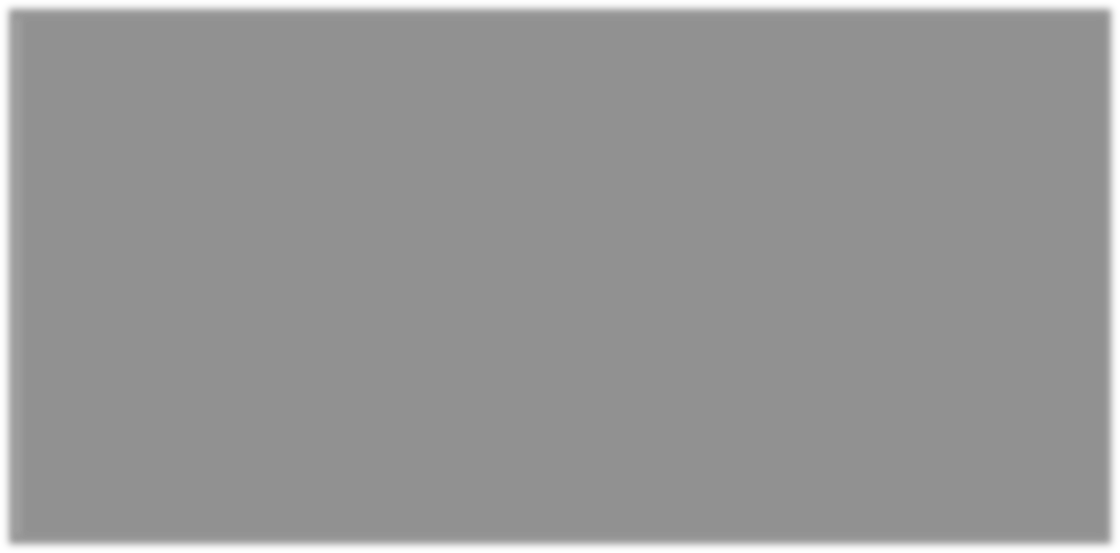


Figure 5.4: Admin Add Teacher

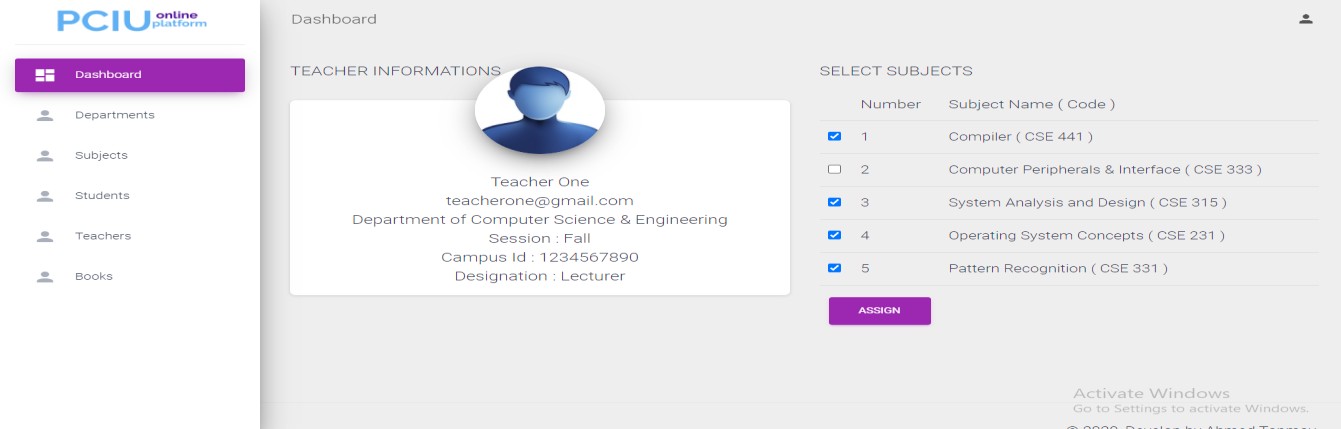
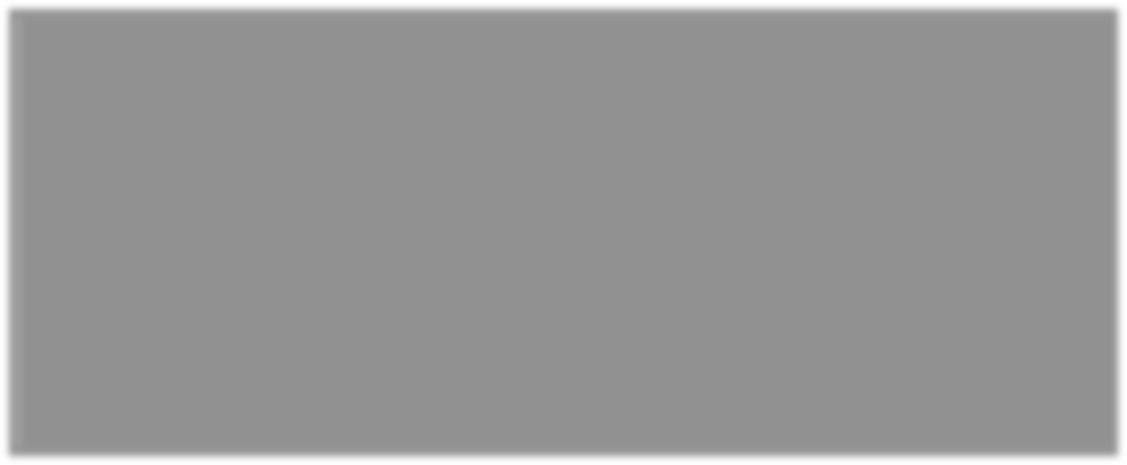


Figure 5.5: Admin Assign Subject to Teacher

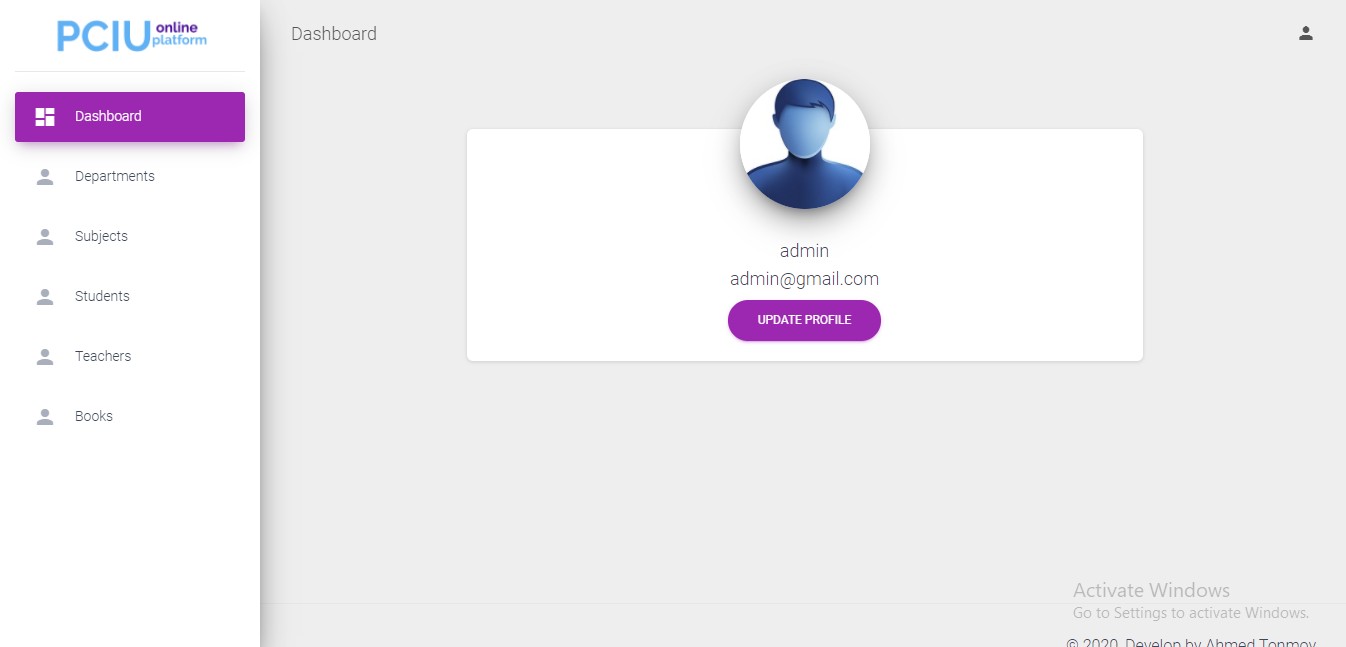
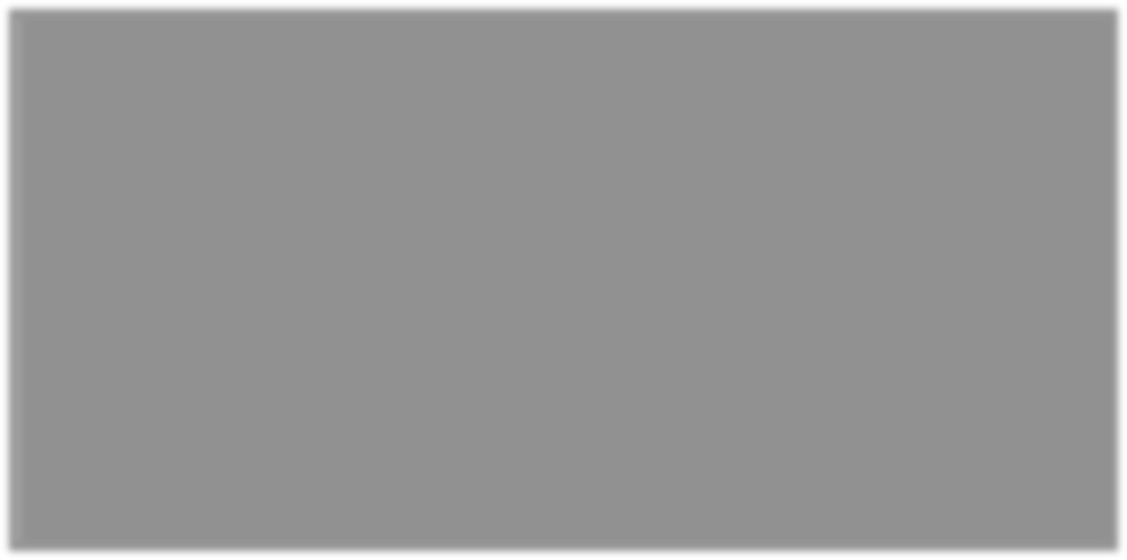


Figure 5.6: Admin Profile

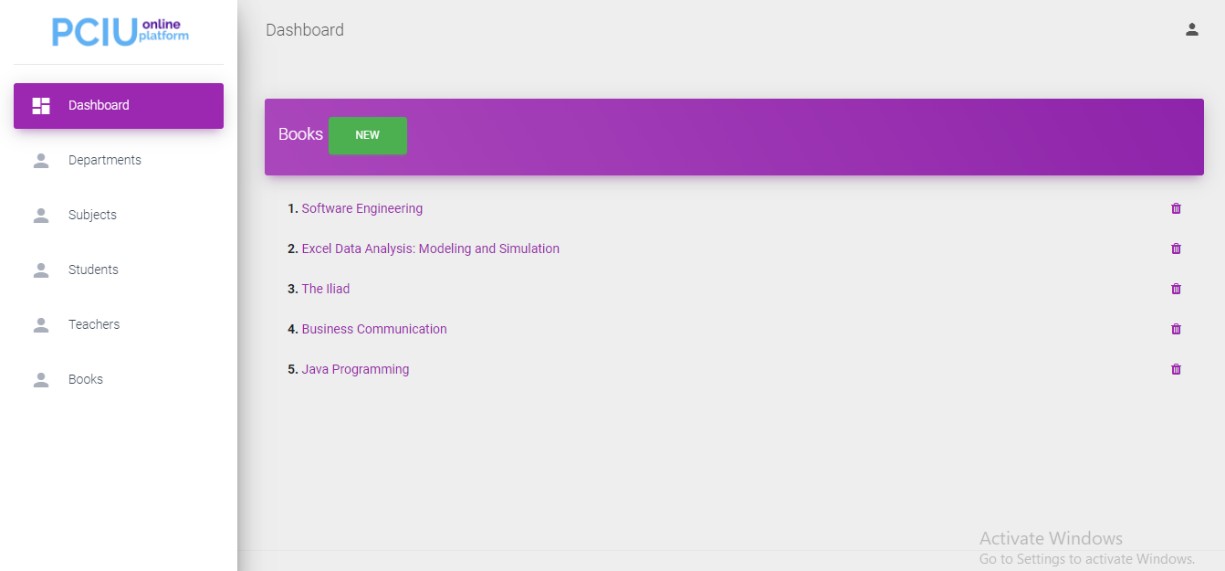
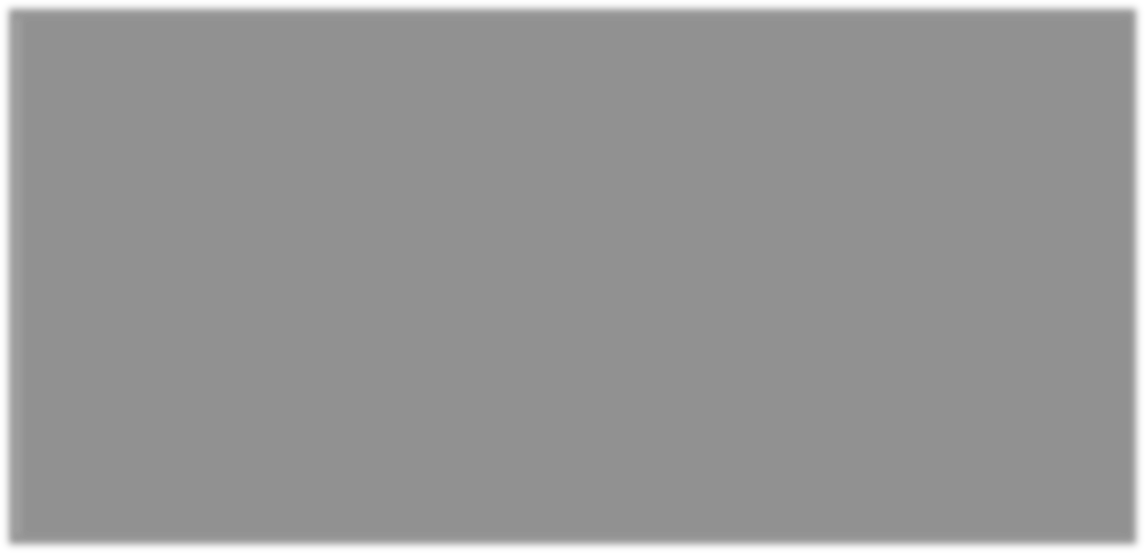


Figure 5.7: Admin Add E-Book

#### Student Axil:

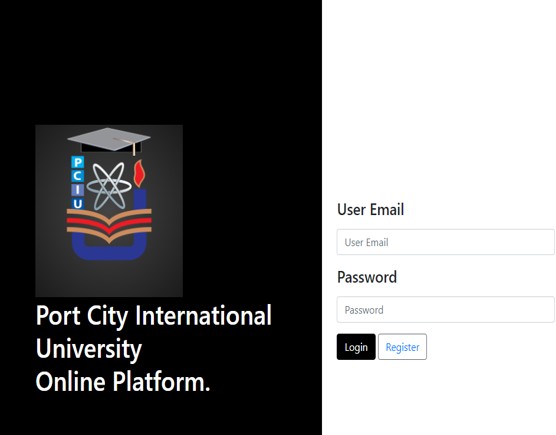


Figure 5.8: Student Login

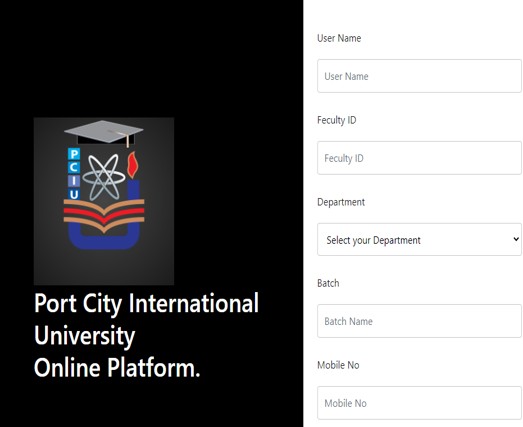


Figure 5.9: Student Registration (Part 1)

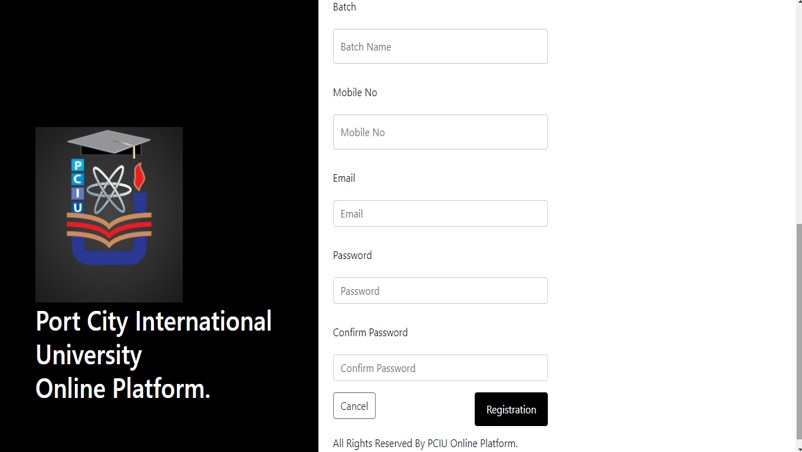


Figure 5.10: Student Registration (Part 2)

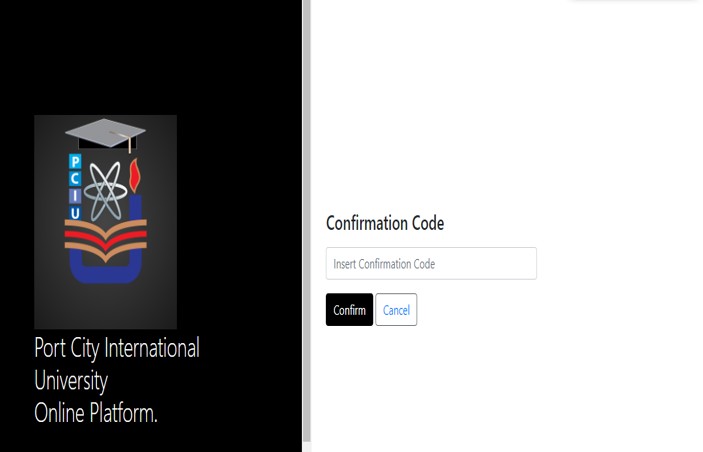


Figure 5.11: Student Confirmation

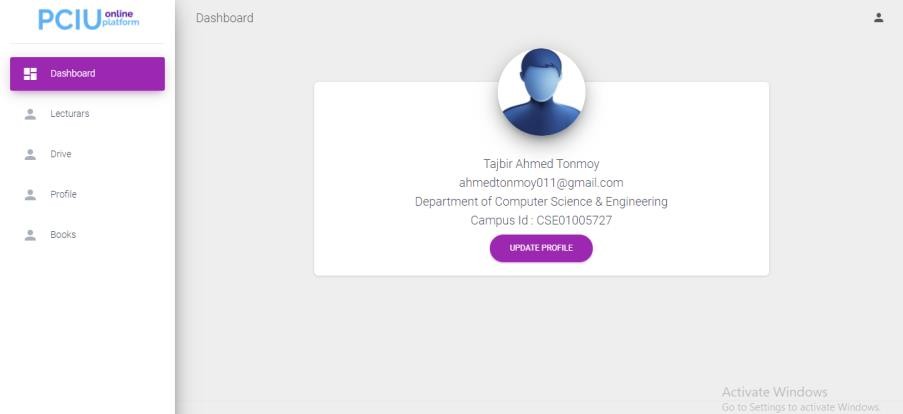
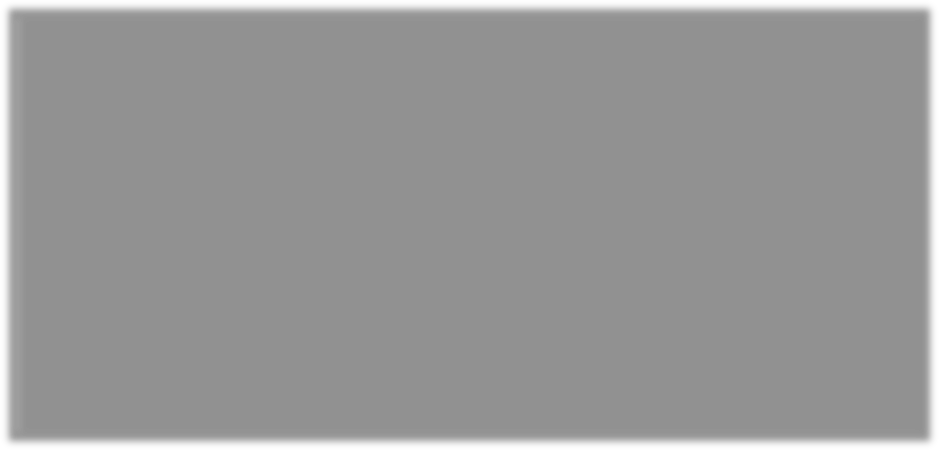


Figure 5.12: Student Profile

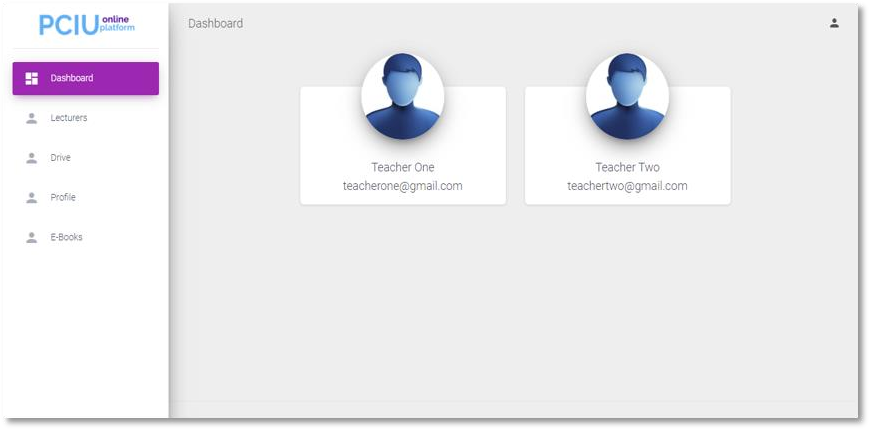


Figure 5.13: Student View Teachers

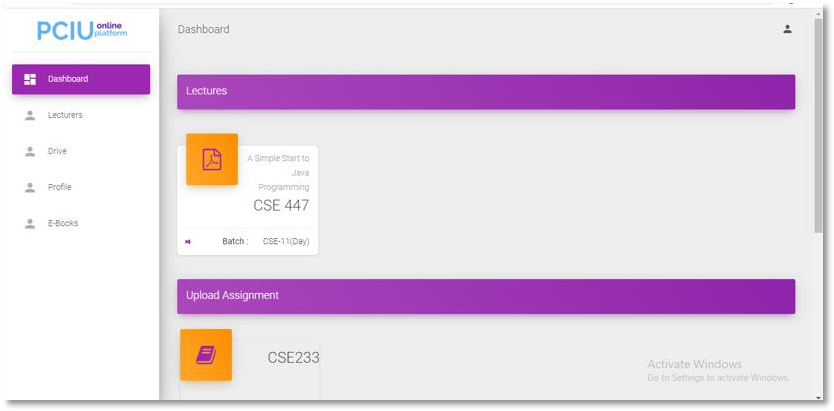
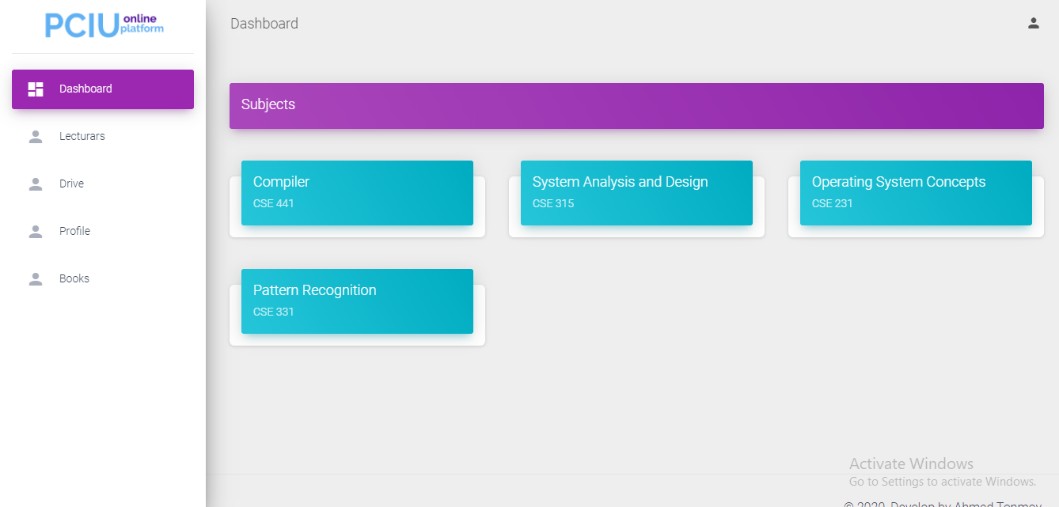
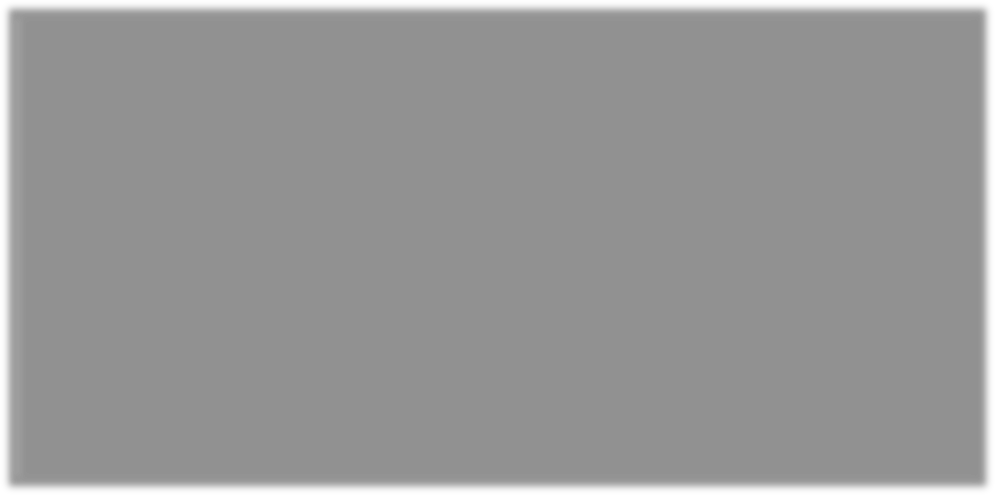


Figure 5.14: Student View Courses and Course Lecture

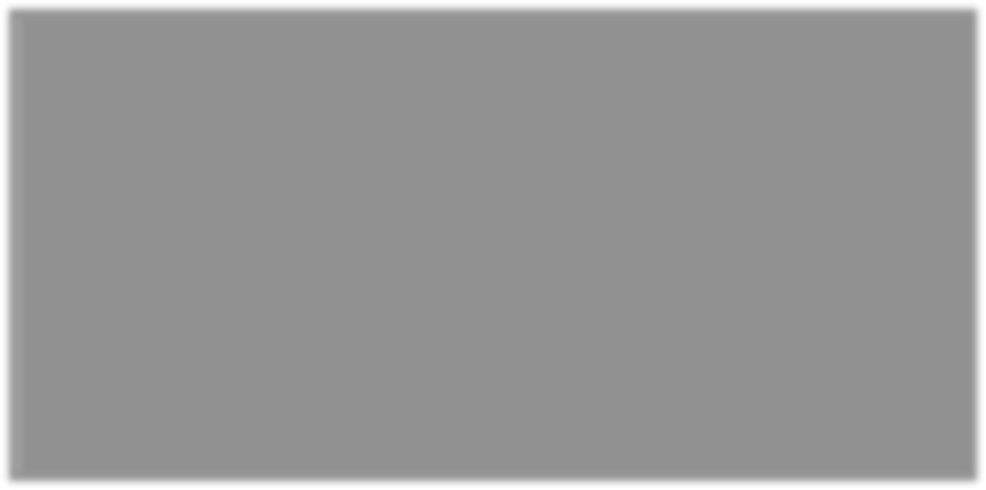


Figure 5.15: Student Upload Assignment/Report

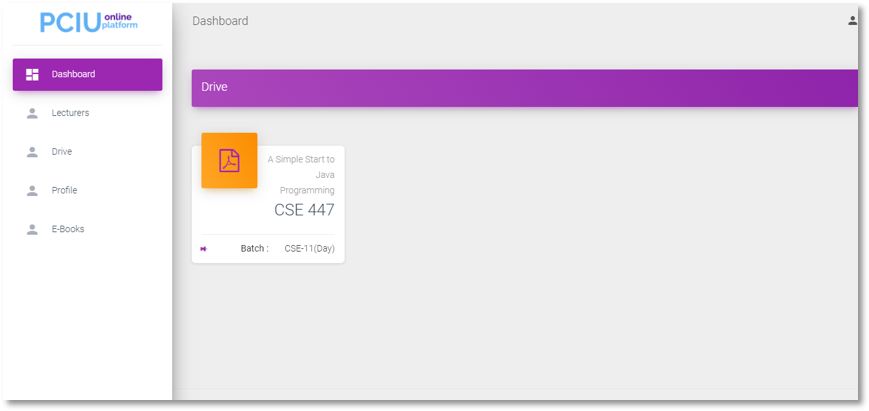


Figure 5.16: Student View Drive

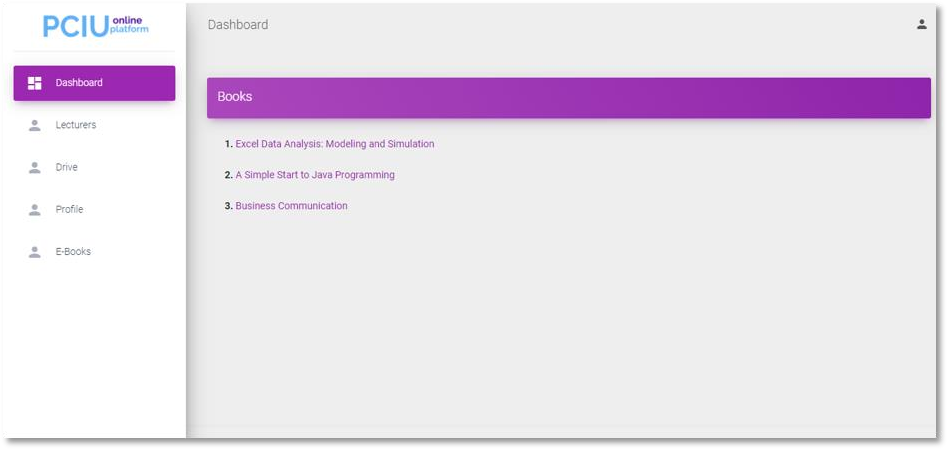


Figure 5.17: Student Read/Downloads E-Book

#### Teacher Closet:

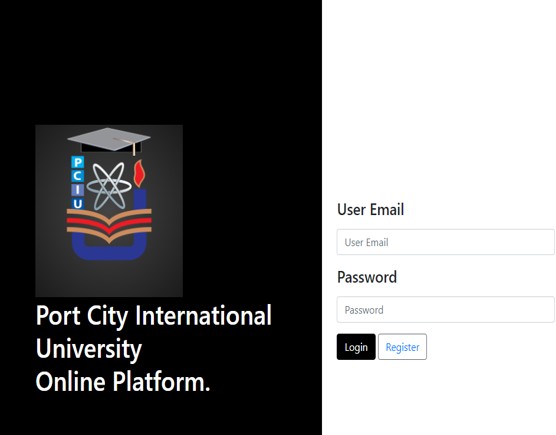


Figure 5.18: Teacher Login

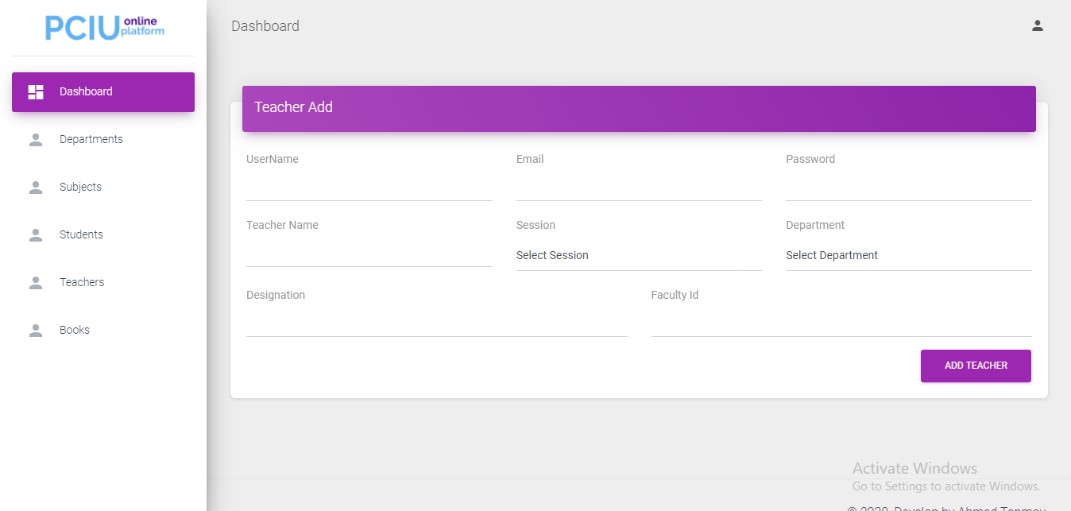
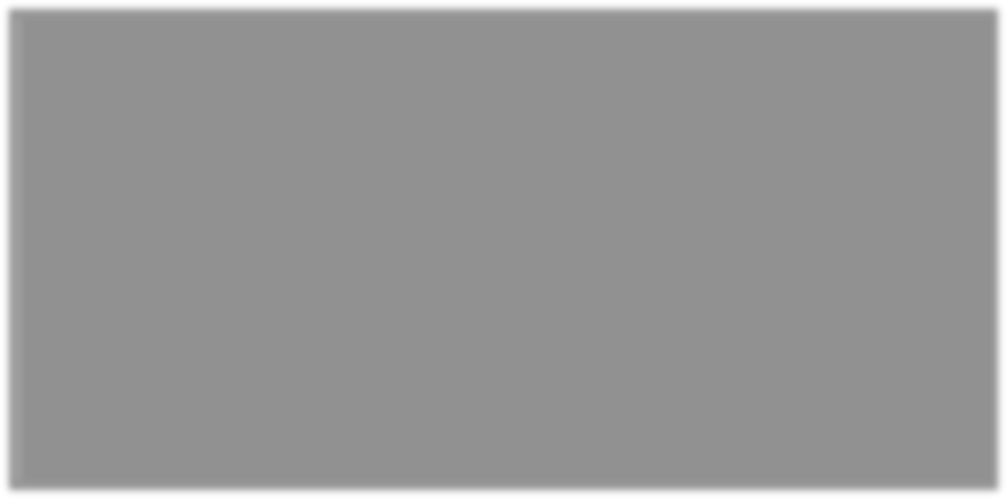


Figure 5.19: Teacher Registration by Admin

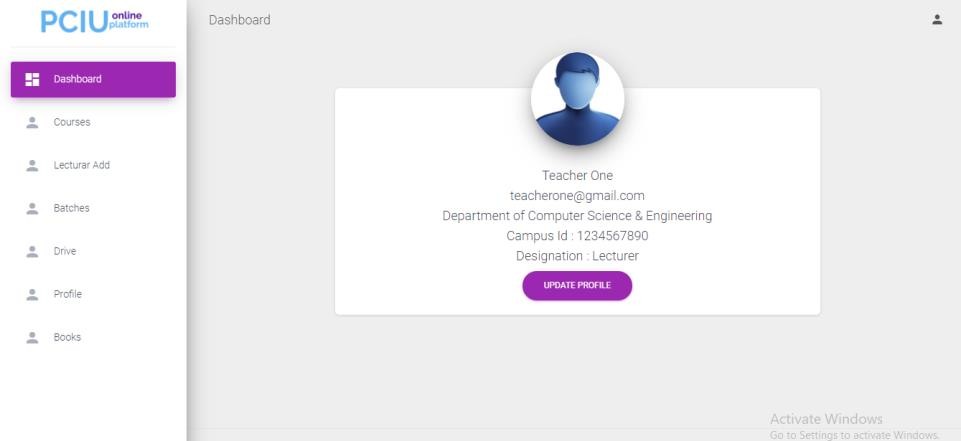
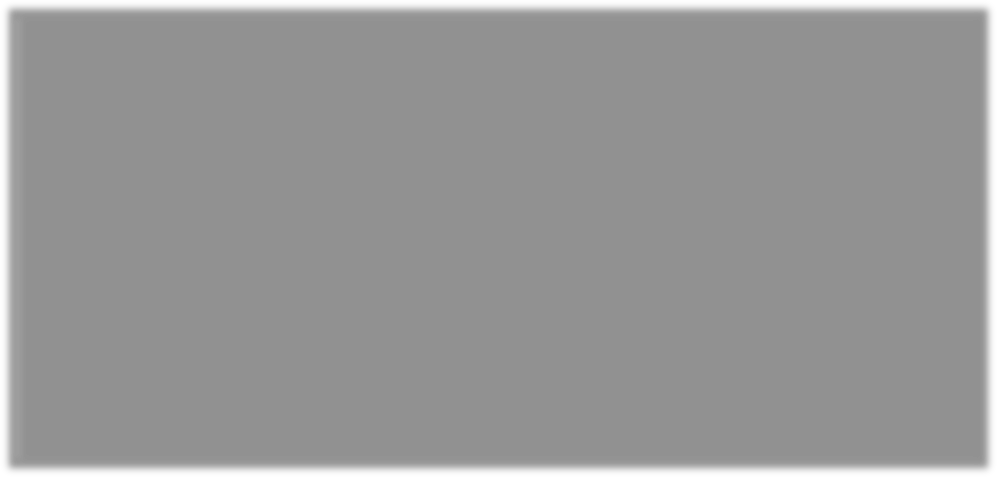


Figure 5.20: Teacher’s Profile

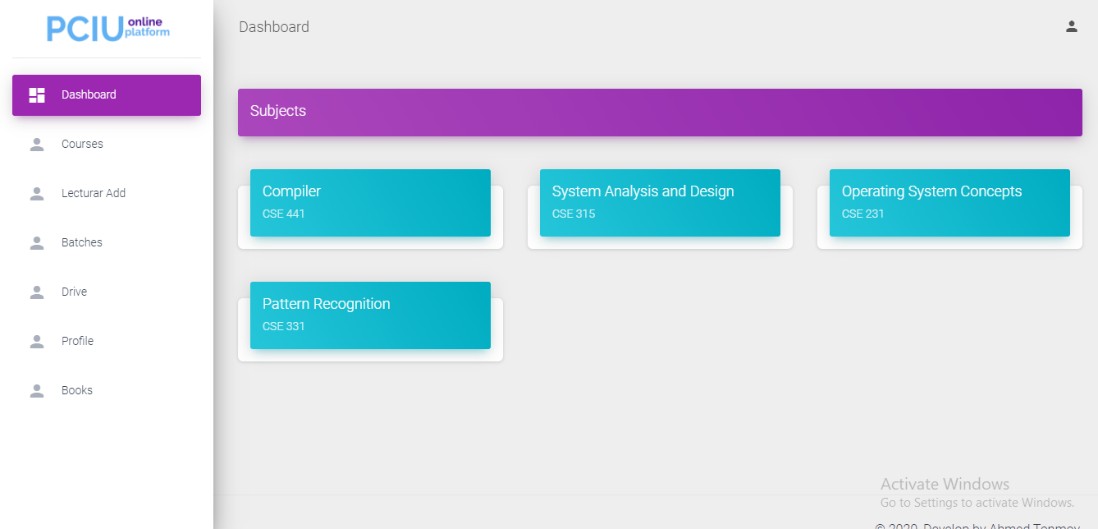
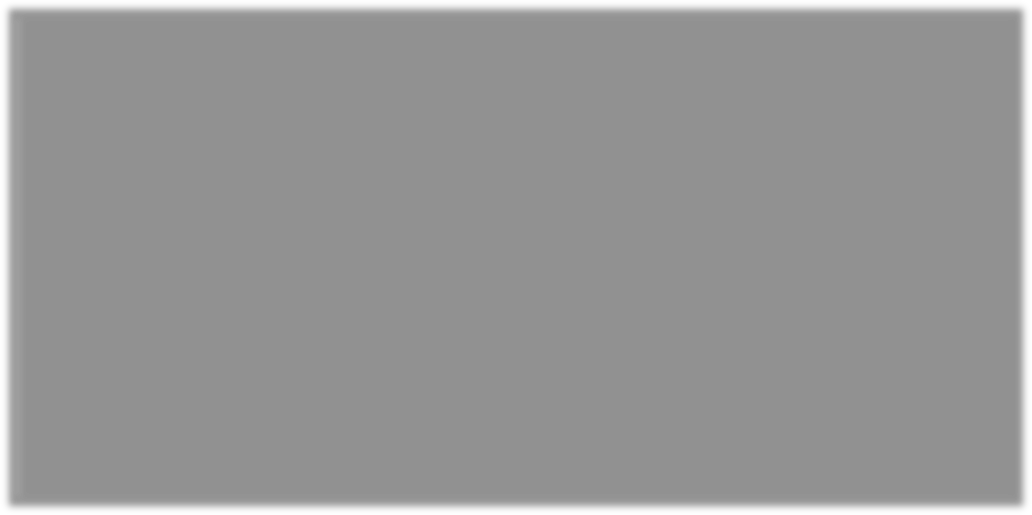


Figure 5.21: Teacher’s Courses

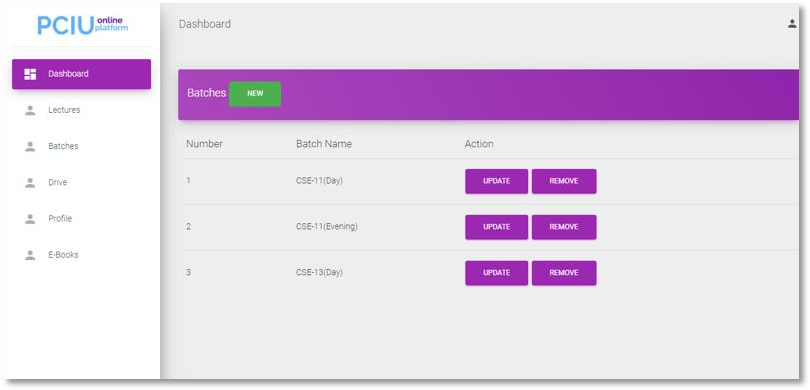


Figure 5.22: Teacher Add Batches

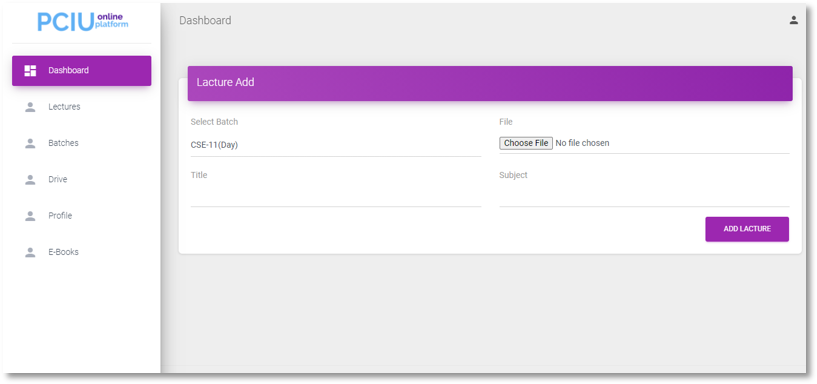


Figure 5.23: Teacher Add Lecture

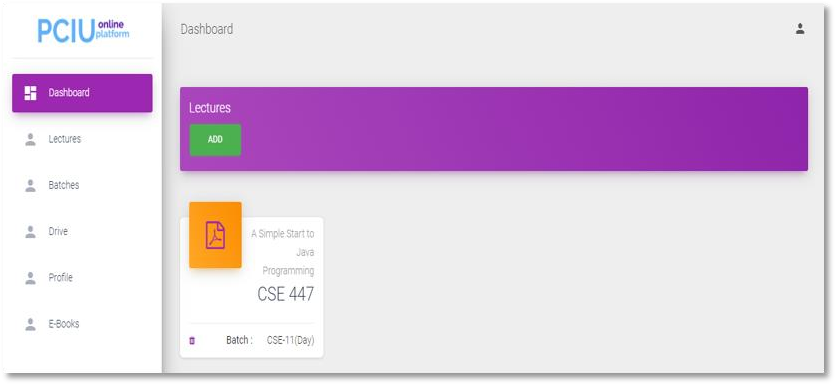


Figure 5.24: Teacher’s Uploaded Lecture

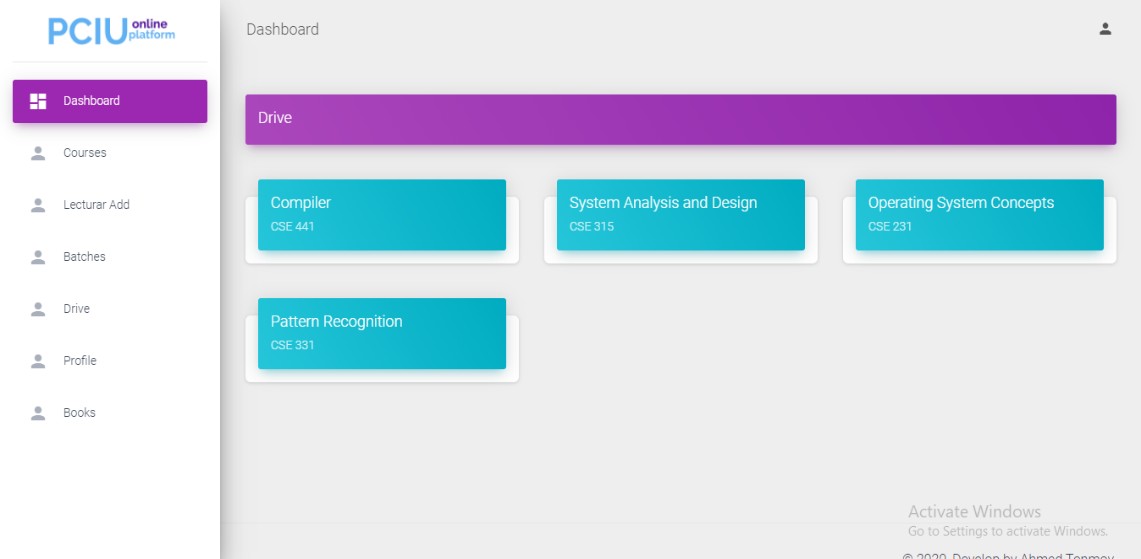
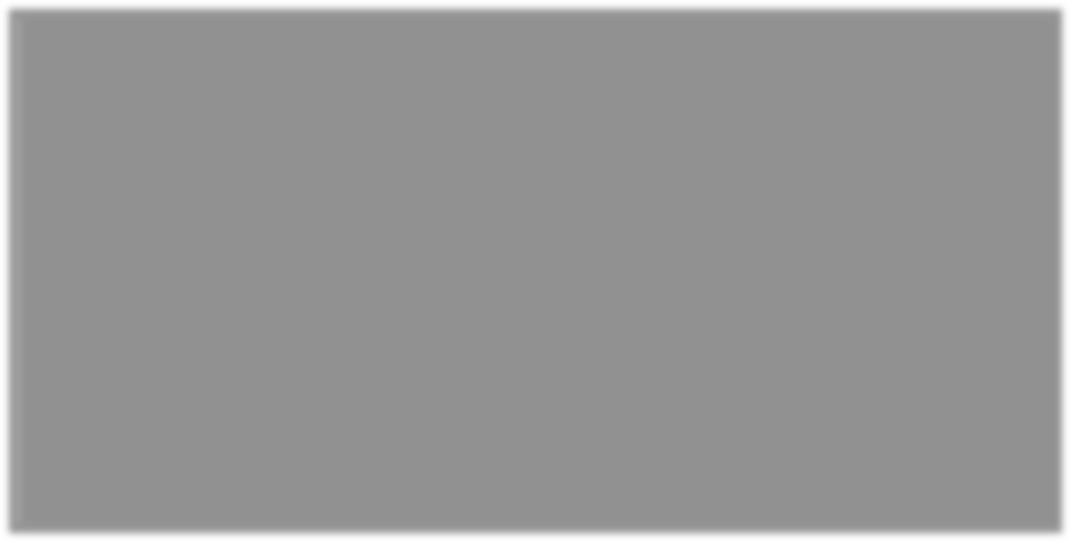


Figure 5.25: Teacher’s Drive (Part 1)

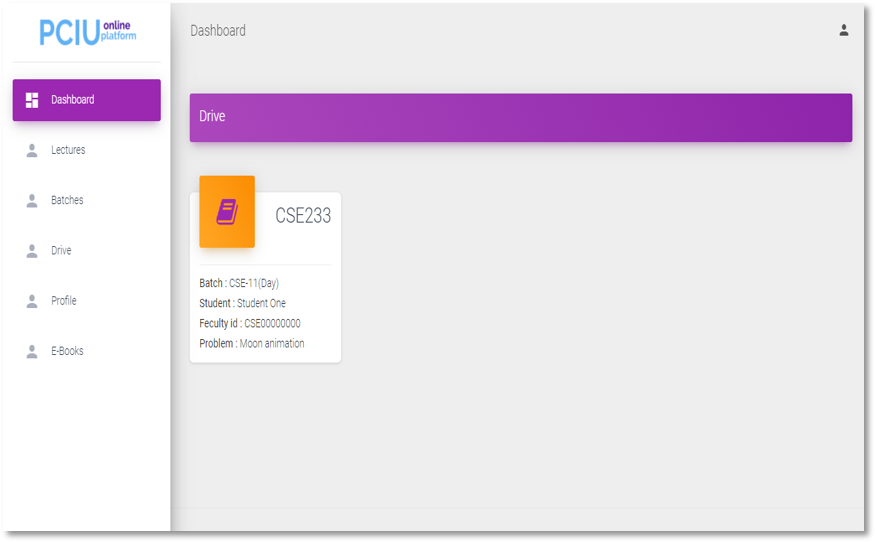


Figure 5.26: Teacher’s Drive (Part 2)

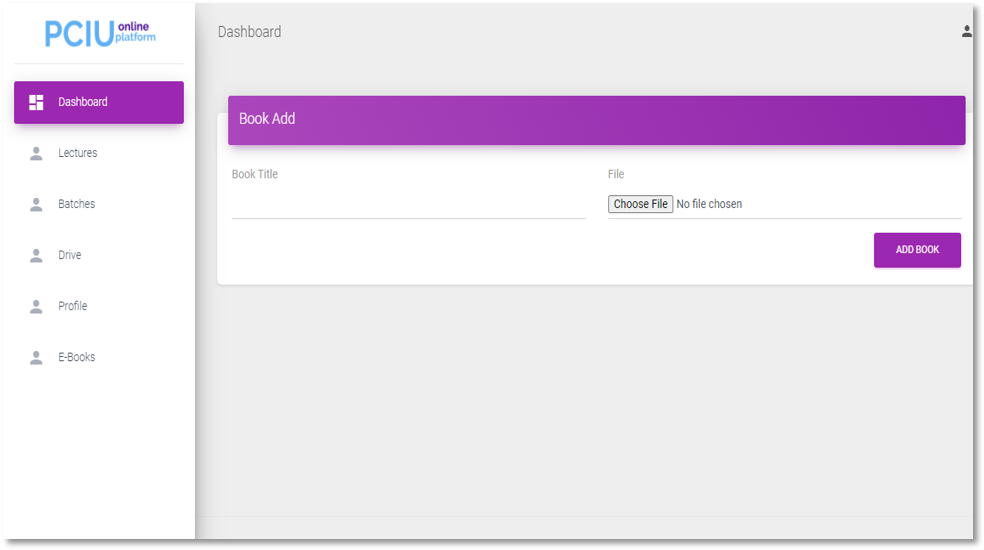


Figure 5.27: Teacher Add E-Book

## CHAPTER 6 CONCLUSION

#### Conclusion

The User Interface of it is very friendly and can be easily used by anyone. It also decreases the amount of time taken to write patient details and other modules. In the end, we can say that this software is performing all the tasks accurately and is doing the work smoothly for which it has been made.

#### Future work

In near future, we intend to improve our system by adding some amazing features and functionalities so that it eventually becomes the most powerful IN-HOUSE GARDEN FARM BUSINESS PLAN in Bangladesh. Also, we will develop its IOS version and we will develop its android version as well. We can assure you that the notification system will be added and also more features will be added.

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## APPENDIX