

SMART EXAMINATION ROUTINE
MANAGEMENT SYSTEM

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Department of Information and Communication Engineering
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SUPERVISOR'S DECLARATION

We hereby declare that We have checked this project and our opinion, this project is adequate in terms of scope and quality for the award of the degree of Master of Engineering in Department of Information and Communication Engineering of Noakhali Science and Technology University.

Name of Supervisor: DR. MD. ASHIKUR RAHMAN KHAN

Position: PROFESSOR

Date:

Name of Co-Supervisor:

Position:

Date:

STUDENT'S DECLARATION

I hereby declare that the work in this project is my own except for quotations and summaries which have been duly acknowledged. This project report has not been accepted for any degree and is not concurrently submitted for award of other degree.

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ABSTRACT

Our education system is based on examination. This examination routine is done before starting any kind of test, because no work can be done properly without routine. So it is important to have an examination routine before the examination. The examination routine helps the students a lot in their studies. For example, if you know the day of the examination, the students have the opportunity to prepare for the subject. So if we can easily get the examination routine online then it is more convenient. Online examination routine is a very crucial activities for any education and training institutes to conduct end-of-term examination which helps to optimize use of time slot and total exam duration. Currently most of institutes are doing their exam routine manually which is time consuming. Exam course overlapping, which means a student has more than one exam schedule in a certain time period, is a frequent incident for a term exam routine which is very challenging to avoid in manual routine. It will be able to manage examination routine of the department by modern computer. It will help to provide all the information of the exam schedule of the department in a quicker process successfully. This system makes easy to use the manual system. Online examination routine system can lead to error free, secure, reliable and fast management system. It can be used from anywhere anytime as it is a web based application. The long lockdown for the COVID-19 pandemic has closed schools, college, university and other educational institutions. Now our education system is dependent on online. So the online examination routine for online exams is time consuming for this period. This proposed system will have two part. They are user part and the administrator part. User must register themselves before login into the system. The users were easily able to view the routine from the systems. The administrators control the whole exam routine management system. In this proposed system I used hypertext markup language (HTML), Object oriented hypertext preprocessor (OOP PHP), cascading style sheet (CSS), Bootstrap, JavaScript, JQUERY, asynchronous JavaScript and xml (AJAX) as the web programming language and my structured query language (MYSQL) as the database server . I also used sublime text software as a text editor and Mozilla Firefox as a web browser.

TABLE OF CONTENTS

	page
TITLE PAGE	ii
SUPERVISOR'S DECLARATION	iii
STUDENT'S DECLARATION	iv
ABSTRACT	v
TABLE OF CONTENTS	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	xi

CHAPTER 1: INTRODUCTION

1.1	Introduction	1
1.2	Background and statement of the problem	2
1.3	Objectives of the project	2
1.4	Motivation of the project	3
	1.4.1 Advantages of online examination routine system	3
	1.4.2 Disadvantages of online examination routine system	3
1.5	Organization of the project	4

CHAPTER 2: LITERATURE REVIEW

2.1	Existing system of on online examination routine	5
2.2	Proposed system of on online examination routine	8

CHAPTER 3: METHODOLOGY & SYSTEM DESIGN

3.1	Functional system requirement	10
3.2	Non-Functional system requirement	12
3.3	Project methodology	14
3.4	ER diagram	16

3.5	Use case diagram	18
3.6	Context diagram	21
3.7	Activity diagram	22
3.8	Class diagram	24

CHAPTER 4: TESTING & MAINTENANCE

4.1	Languages, Tools and Technology	26
4.2	Testing Features	29
4.3	Test Approach	29
4.4	Testing Environment	31
	4.3.1 Test Cases	32

CHAPTER 5: RESULT & DISCUSSION

4.1	Result	33
4.2	View exam routine	33

CHAPTER 6: CONCLUSION AND FUTURE DEVELOPMENT

6.1	Conclusion	42
6.2	Future development	42

REFERENCES	43
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APPENDICES

A	Entities	39
B	Code Segment	41

SAMPLE OF LIST OF FIGURES

LIST OF FIGURE

Figure No.	Title	Page
3.1	Admin module	11
3.2	User module	12
3.3	Waterfall development model	15
3.4	E-R diagram of online examination routine system	17
3.5	Use case diagram of admin	19
3.6	Use case diagram of user	20
3.7	Context diagram of online examination routine system	21
3.8	Activity diagram of admin	23
3.9	Activity diagram of user	24
3.10	Class diagram of online examination routine system	25
5.1	View exam routine for all users	34
5.2	Admin login page	35
5.3	Admin home page	36
5.4	Admin create routine	37
5.5	Add exam	38
5.6	All subject	39
5.7	Add admin	40
5.8	All admin	41
5.9	Add notice	41

LIST OF ABBREVIATIONS

MYSOL	My Structured Query Language
Apache	Apache HTTP Server
PHP	Personal Home Page
XML	Extensible Markup Language
E-R	Entity Relation
DB	Database
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheets
HTTP	HyperText Transfer Protocol
API	Application Programming Interface
SDLC	Software Development Life Cycle
URL	Uniform Resource Locator.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Routine is a necessary things for any success. When someone follow routine, he can do a work successfully. All people have different routines. Just like reading routine for students, exam routine is needed for exams. This paper will outline all of the features and procedures that will be used to create a “Online Examination Routine System.” With the advancement of Internet technology, conducting end-of-term examinations online has become a very important activity for every education and training institute, as it allows for more efficient use of time slots and overall exam length. Currently most of institutes are doing their exam routine manually which is time consuming. Exam course overlapping, which means a student has more than one exam schedule in a certain time period, is a frequent incident for a term exam routine which is very challenging to avoid in manual routine. The use of online examinations is growing in popularity because it saves people a lot of energy and time. The online routine management system is a web-based program that can be accessed from any computer, such as a desktop, smartphone, or tablet. It not only relieves teachers workload, but it also maintains the objectivity of the examination process [1]. The scheme is used to construct and manipulate an educational institution's exam schedule. For our department's exam routine, we researched and introduced an integrated information system. Our system is set up in such a way that it is easy to use the manual system. It would be able to use a modern computer to build the department's exam schedule. It will make it easier to include both exam schedule and department status information in a more efficient manner. Our project could serve as a template for the rest of the department [2]. At this time of COVID-19 pandemic, Our online exams are done through online routine. As a consequence, the relevance of an online routine is important. This is an online system that can be used both inside and outside the company with the correct login credentials. Administrators and developers are the two types of users that can access the device. The supervisors are in charge of the whole exam schedule scheme. The user can only view the exam schedule, print it, and download it. He is unable to alter any aspect of the exam schedule.

1.2 Background and statement of the problems

Routines for the management of exams and the time allotted to them occur in any educational institution. These routines are currently generated manually by a specific department within the organization. The criteria for creating routines, such as instructor time, number of cycles, test time, and so on, are manually held in mind when creating these routines. In addition, the routines change over time. As a result of the shift in parameter values, their control has become much more complicated. If the above strenuous process of developing and maintaining a routine could be achieved using an automated system, it would alleviate the pressure on a department and improve productivity. Since there is currently no automated system for developing and maintaining exam routines, an online routine management system must be created. The online routine management system is a web-based program that can be used on any computer, such as a desktop, smartphone, or tablet. Routine that necessitates teacher-student contact and includes a search option for all device users. There is also an exam delete option for teachers, as well as options to define overlap tests, add exams, scan batches, and print the paper. Finally, our project could act as a template for the entire department.

The majority of educational institutions develop their schedules by hand, employing a human resource to do so. Some companies build such management systems for their own needs and use them exclusively, while others do it manually. Regrettably, there is no uniform framework for designing and managing exam schedules that can be used by all educational institutions. The Smart Routine Management System can assist educational institutions in more effectively and efficiently developing and managing routines [3].

1.3 Objectives of the project

The key goals of this proposed system are to create a web-based exam routine management system and to computerize the exam routine process in order to address issues with the current exam routine management system, such as

1. To shorten the time,
2. To reduce the manual work for managing the exam routine,
3. It can be used from anywhere anytime as it is a web based application.
4. To maximize operating efficiency by enhancing the process quality.

1.4 Motivation of the project

What we learn, how we learn, and when we want to learn can all be influenced by motivation. There are several defects in the current examination routine system. They needed a computerized system to do all of the work to address these issues. Since there is a need for a destination that benefits both institutes and students, the online examination routine system portal is being introduced. They want a system that will improve portability, usability, and user friendliness in this new technological age. So, as previously mentioned, we will introduce a web-based framework with all of the features that will make it more user-friendly and usable.

1.4.1 Advantages of online examination routine system

1. Physical presence at a given location is not necessary.
2. The device is safe because only authorized users have access to it.
3. Only the administrator has the right to add and remove tests.
4. Can be reached at any time of day.
5. User friendly.
6. Secure because of authentication.
7. Improve the efficiency of examination routine management.
8. Increased convenience and flexibility
9. Strong confidentiality.
10. Rapid and accurate.
11. Less complexity.
12. It saves time.
13. It saves the student money.

1.4.2 Disadvantages of online routine examination system

1. Only registered students will be able to get permit to access this system.
2. If internet connection is slow it may create problem.
3. This Examination system is designed for Educational Institutions (like universities and training centers)

1.5 Organization of the project

The following is a detailed outline of the remaining chapters of the project.

In chapter 2, Literature review are given. In literature review, we have showed related work on existing system.

In chapter 3, we have discussed methodology & system design.

In chapter 4, we have discussed testing & maintenance.

In chapter 5, we have discussed result and discussion.

In chapter 6, we have discussed conclusion and future development.

.

LITERATURE REVIEW

A literature review is a systematic study of written sources, also known as literature, on a specific subject. A literature review in a project report displays the numerous reviews and studies performed in the area of user interest, as well as the findings already reported, thus taking into account the project's various criteria and scope. The literature review of the current system will be defined in the following subsection.

2.1 Existing system

The first experiment was conducted in 1997, when students took a structured supervised test in which the examination paper and the students' responses were electronically transmitted between the Open University and the various examination sites. Exams and research have mostly concentrated on free-text entry style responses (Du Ploov 1992).

The second experiment, which took place in early 1999, required students to use a web page to take a "mock test" as part of their revision. The purpose of the experiment was to see whether it was theoretically feasible to deliver an unsupervised home test. Students accessed the paper via a website and submitted their responses in the same manner. The students typed their answers into a regular word processor, and the invigilator encrypted and returned the results via a protected web page at the end of the exam period (Breithaupt et al 2005, Carswell et al 1999) [4].

SIETTE: Guzman and Conejo (2005) suggested the Method of Intelligent Assessment using Assessments for Teleeducation, which is an online review system (SIETTE). SIETTE is a web-based environment that allows you to build and run adaptive tests. It integrates adaptive student self-assessment evaluation questions with hints and suggestions to achieve instructional objectives. SIETTE provides features including stable login and portability. Other features such as resumption capability, multi-instructor, random question collection, random question distribution, and random choice distribution, on the other hand, are absent.

EMS : Rashad et al. (2010) proposed Exam Management System, a web-based online test system (EMS). EMS oversees the review and auto-grading of student tests, as well as assisting in the administration of exams, the collection of responses, the auto-marking of applications, and the generation of test reports. Stable login, multi-instructor support, and portability are all available in EMS. The following features, however, are missing: resume functionality, random question collection, random question distribution, and random choice distribution.

ArvindSingh, NirajShirke, KiranShette 2011: Using the idea of an online assessment scheme, the project tests the examiners. The exams would be fully adaptable. Based on the responses of the students, this device will automatically review the results.

CBTS : Fagbola et al. (2013) built a computerized test framework (CBTS). CBTS is a web-based online examination system designed to address issues such as lack of timing flexibility for automation, candidate log-off upon expiration of allotted time, result integrity, guaranty, stand-alone deployment, need for flexibility, robustness, designed to support examination processes and overcome challenges framing the conduct of examination, auto-marking, auto-submission, and more. [5].

Freund, et al. (2017), In fields such as education, government, banking, retail, entertainment, health care, research, travel, publishing, and manufacturing, people now engage directly with technology. Educators and educational institutions, they add, use technology to help with education. Laptops and desktop computers are commonly used in laboratories and classrooms. Some also provide students with computers or mobile devices. To access the school's network or the Internet wirelessly, or to access digital-only content provided by a textbook publisher, many require students to have a laptop computer or mobile device.

Educators can also use a Course Management System (CMS), also known as a Learning Management System (LMS), which is software that provides tools for organizing, distributing, and handling courses. Students, for example, can access course content, grades, tests, and a range of communication resources through the course management system. Many schools offer distance learning classes, in which the curriculum is delivered in one place while the students study in another. Students who live far from a campus or work full-time will benefit from distance learning courses in terms of time, distance, and location.

Referencing Wallace (2015), The Learning Management System (LMS) is a software program that monitors student progress and keeps track of their academic records. Online registration, evaluation tools, interactive technology, and payment processing are only a few of the additional features available. They also have content creation and importation tools [6].

According to Ralph, Buskirk, and Schmidt (2007), students who favored online projects said that having access to the professor for quick and easy feedback was a significant benefit. Furthermore, the study found that when it came to introducing technology, students were concerned about the cost, the need for internet access, and the technology's reliability. Students' reactions and satisfaction with the introduction of an online test can be gleaned from studies on student expectations and satisfaction with online courses.

According to Hale (2007), the most significant reason for enrolling in a distance education course is comfort. Furthermore, according to Steinman (2007), "students' impressions of online courses can be negative if they experience significant transactional distance with the teacher and other students, and this can affect whether a student will continue in or drop out of a class." "Many students prefer to enroll in online courses, and demand for online courses is high," according to Steinman (2007). Taking an online course may provide educational opportunities that would otherwise be inaccessible, especially for students who live in rural areas without easy access to schools." Rowh (2007) also discovered that "online courses provide easy learning and that online students work hard." They're all going at their own pace, on their own schedule, and in their own environment."

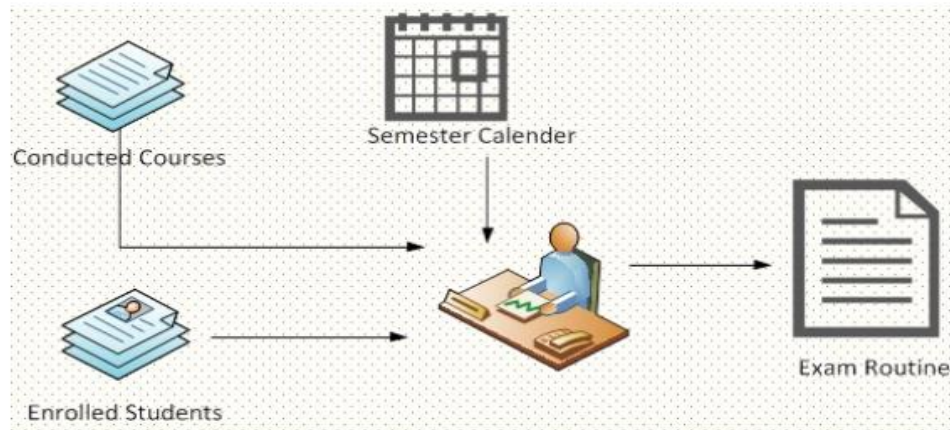
According to Walker (2007), "widespread availability of computers and the Internet offer major enrichment in terms of variety of content and formats for presentation over what was possible with the old correspondence courses." According to the Chronicle for Higher Education (2007), a university indicated that they "use electronic education to supplement their curriculum rather than as the primary basis." This allows for the incorporation of an online test into a conventional classroom environment, allowing students face-to-face contact with the teacher and peers while still maintaining power over when and where they take their exams. Patterson (2006) performed a post-examination survey of students who had successfully passed an online test. "A vast majority of students were able to quickly access the online exam, considered the assessment method to be easy to use, and completed the rigorous exam with little difficulty," according to the report. 87 percent of respondents decided that online assessment for the rigorous exam should be used in the future." Patterson also discovered that the "Web-based comprehensive exam procedures used allowed students to take the exam whenever and wherever they wanted." According to Patterson, the exam was able to alleviate stress for students by allowing them to select their exam time and place. Patterson (2006) also recognized that "challenges to test item protection and the design of procedures to reduce the risk of collaboration and cheating on this form of "high-stakes" analysis remain unmet." [7].

2.2 Proposed system of online examination routine

The proposed system would be less time consuming and more effective than the existing system. Identifying and evaluating the following criteria is the first step in the manual exam routine:

1. Courses offered during the semester.
2. Students involve with different courses.
3. Semester calendar & time slot and exam period.

Procedure of manual routine:



It would be able to handle the department's inspection schedule using a modern computer. It will assist in providing all details about the department's exam schedule in a more efficient manner. Since the proposed system is solely reliant on the administrator, it is extremely safe. The aim of the document is to collect and discuss all conflicting ideas that have surfaced in order to explain the framework and its specifications for teachers and students. In addition, we will forecast and categorize how we believe this method will be used in order to gain a clearer understanding of the project, schedule ideas that may be developed later, and record ideas that are being carefully considered but may be discarded as the system develops. In a nutshell, the purpose of this document is to provide a concise overview of our software product. This paper outlines the user interface, hardware, and software specifications for the device and its companions. It explains how administrators, instructors, and students perceive the system and its capabilities. There are two parts to it: the user part and the administrator part. Until logging into the system, users must first register. Users were able to display the routine from the systems with ease. The managers are in charge of the whole exam schedule management scheme. This project consists of a search option for students and teachers, an option for teachers to add and delete exams, and an option for teachers to detect exam overlap. Finally, have a paper printing service for students and teachers to use. Students and teachers profit from the scheme. Since it is a web-based program, it can be accessed from anywhere at any time. Protection is preserved

in the current system, which is one of the proposed system's advantages. All sensitive information is held in strict confidence. Fast entries can be made in this framework because it is easy to understand and use.

CHAPTER 3

METHODOLOGY & SYSTEM DESIGN

Design is an abstraction of a solution; it is a broad definition of a problem's solution without the specifics. Any techniques and principles for the purpose of describing a device, a procedure, or a system inadequate detail to permit its physical realization are referred to as design in the development phase. To build the project, I used a variety of programming languages and graphics programs. Adobe Photoshop Illustrator was used to create the context and feature, and PHP OOP was used to create the HTML, CSS, Bootstrap, and back-end programming. JavaScript and MySQL were used to build the database. There are two types of system requirements are given below:

3.1 Functional system requirement:

The functionality of each module is as follows:

Administrator Module:

This application's super user is the administrator. This admin page is only accessible to administrators. Admin may be the owner of the system. Teacher must have a login option. Admin never give permission any teacher if they go through into the login option. This module helps admin to register of exam routine management system members. Admin is able to maintain all the information of register of exam routine management system members

This module is divided into different sub-modules.

1. Manage exam routine
2. Manage register admin
3. Add/delete exam
4. Manage security
5. Select term.

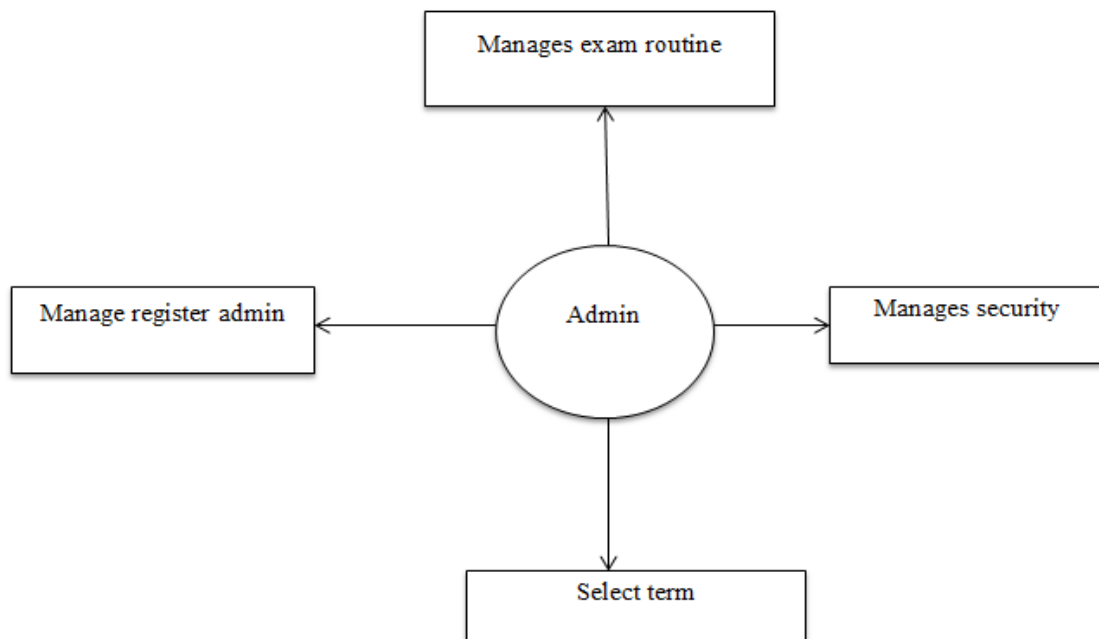


Figure 3.1: Admin module

User Module:

User must login with his email and password to the system after registration. Search option for teachers and students for find out their own batch exam routine.

This module is divided into different sub-modules.

1. View exam routine
2. Print/Download exam routine
3. Search batch exam routine

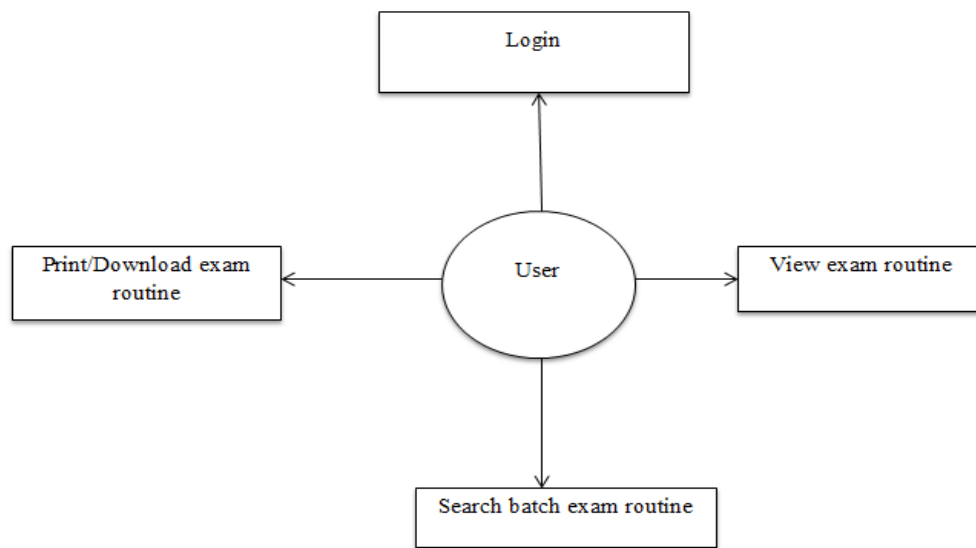


Figure 3.2: User module.

3.2 Non-Functional System Requirement

Performance Requirements:

Some Performance requirements identified is listed below:

1. The program must allow multiple users to use it at the same time.
2. No other particular performance criteria would have an impact on growth.

Safety Requirements:

Due to a virus or an operating system malfunction, the database could crash at any moment. As a consequence, a backup of the database is needed.

Security Requirements:

The following are some of the factors that have been established to protect software from unintentional or malicious access, use, alteration, degradation, or disclosure. Keep a particular log or collection of historical data.

1. Delegate unique roles to various modules.
2. Restrict the flow of knowledge between certain parts of the software.
3. Check the accuracy of the data for essential variables.

4. Encryption methods will be used in the user/license authentication phase in future versions of the program.

5. When the application is validating the user or certificate, contact must be restricted. (i.e., if you're using https).

Software Quality Attributes:

The system's quality is maintained in such a way that it is really user friendly for all users. The following are the software quality attributes:

1. Reliable because it is accurate.
2. It's secure.
3. Quickness.
4. The desire to work together.

System Interfaces:

This section explains the software's input and output interfaces with other software items or users.

User Interface:

A browser interface will be used to access the application. The best resolution settings for the gui are 1024 x 768 pixels and 800 x 600 pixels. Microsoft Internet Explorer 6 and higher will be completely compliant with the program. Without signing into the system, no user will be able to access any aspect of the application.

Hardware Interfaces:

Server Side

1. Operating System: Windows 7 ultimate, 64 bits.
2. Processor: Pentium 3.0 GHz or higher
3. RAM: 256 Mb or more.
4. Hard Drive: 10 GB or more

Client side

1. Operating System: Windows 7 ultimate, 64 bits.
2. .Processor: Pentium III or 2.0 GHz or higher.
3. RAM: 256 Mb or more.

Software Interfaces

Client Side: HTML, Web Browser, Windows 7 ultimate.

Web Server: HTML, Windows 7 ultimate.

Communications Interfaces:

The Customer must connect to the Internet to access the Website:

1. Dialup Modem of 52 kbps
2. Broadband Internet
3. Dialup or Broadband Connection with a Internet Provider.

3.3 Project methodology

The waterfall architecture approach will be used in the development of this proposed framework. A linear sequential life cycle model is the waterfall creation model. It is really easy to comprehend and use. In a waterfall model, each step must be completed before moving on to the next, and the phases do not overlap. The Waterfall model is the most basic SDLC method for software creation. The waterfall model depicts the software development process as a sequential flow of events. This means that every step of the development process will start only after the previous one has finished. The phases in this waterfall model do not overlap. The Waterfall Method was the first SDLC Model to be commonly used in Software Engineering to ensure project performance. The entire software development process is split into different phases in "The Waterfall" approach. Usually, the output of one phase serves as the input for the next phase in this Waterfall model. As a result, the waterfall architecture model was picked. It is easy to comprehend and use. Waterfall development model consists of 6 phases. They are planning, analysis, design, build, test and deliver. . In a waterfall model, each step must be finished before moving on to the next. At the conclusion of each process, a review is conducted to decide whether the project is on track and whether it should be continued or abandoned.

The following illustration is a representation of the different phases of the Waterfall Model.

1. **Requirement Gathering and analysis** – This step captures all possible specifications for the framework to be implemented and documents them in a requirement specification document.

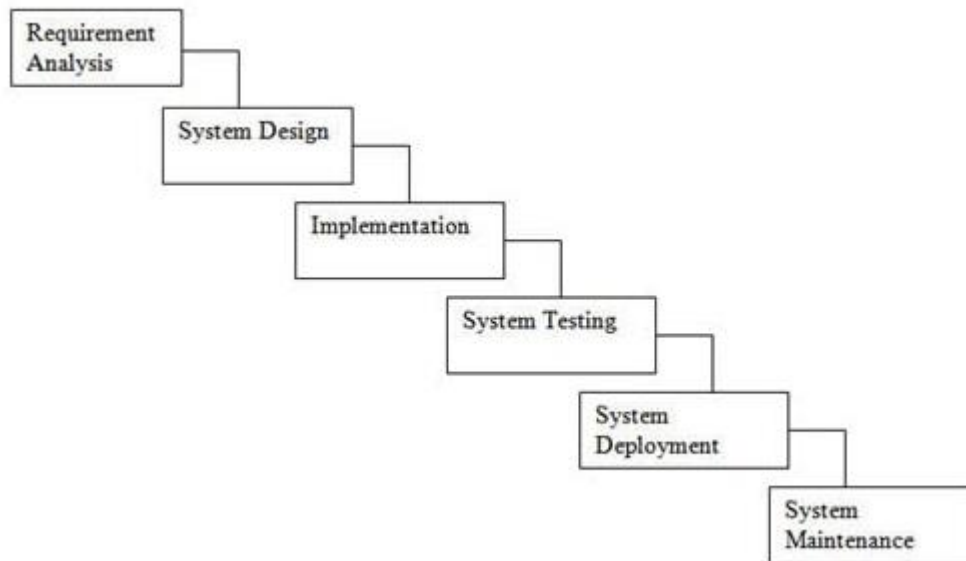


Figure 3.3: Waterfall development model.

2. **System Design** – This phase discusses the first phase's requirement requirements and prepares the device design. This system design assists in determining the overall system architecture as well as identifying hardware and system specifications.
3. **Implementation** – The system is first created in small programs called units, which are then implemented in the next step, using feedback from the system design. Unit testing is the process of developing and testing each unit for its functionality.
4. **Integration and Testing** – After each unit has been evaluated, all of the units created during the implementation process are incorporated into a system. The entire system is then checked for any defects or errors after it has been integrated.
5. **Deployment of system** – The product is implemented in the consumer environment or released into the market after functional and non-functional testing is completed.
6. **Maintenance** – In the client world, there are a few problems that arise. Patches are published to address these issues. In order to improve the product, newer versions have been released. Maintenance is carried out in order to bring these improvements to the customer's climate [8].

3.4 ER diagram

An ER diagram is a diagram that aids in the efficient design of databases. Entity Relationship Diagram (ERD) or Entity Relationship Diagram (ERD) is a diagram that shows the relationship between entity sets stored in a database. In other words, ER diagrams aid in the explanation of database logical structure. Entities, characteristics, and relationships are the three fundamental principles that ER diagrams are built on. Rectangles are used to describe entities, ovals are used to identify attributes, and diamond shapes are used to represent relationships in ER Diagrams.

Notations for the components of Entity-Relationship Diagram:

Entities: An organization is something about which the company wants to keep track of information. A class of people, locations, items, events, or concepts about which we need to collect and store data is referred to as an entity. Rectangles are used to represent entities. Rectangles are given names that correspond to the entity collection they represent.

Attributes: An attribute is a property or feature of an object that describes it. Element, land, and field are all synonyms for element. A composite attribute is made up of several attributes. Ellipse symbols are used to depict attributes. Each ellipse represents a distinct attribute and is related to the individual it represents (rectangle).

Relationship: A relationship is a natural business partnership between two or more parties. The connection between the entities can be represented by a relationship. Cardinality refers to the minimum and maximum number of instances of one individual that can be attributed to a single occurrence of another. Cardinality must be described in both directions for any relationship since all relationships are bidirectional. The diamond-shaped box symbolizes relationships. Within the diamond-box, the name of the relationship is written. A line connects all of the individuals (rectangles) that are involved in a relationship. [9].

Draw ERD for Online Examination routine system figure 3.4 are given below:

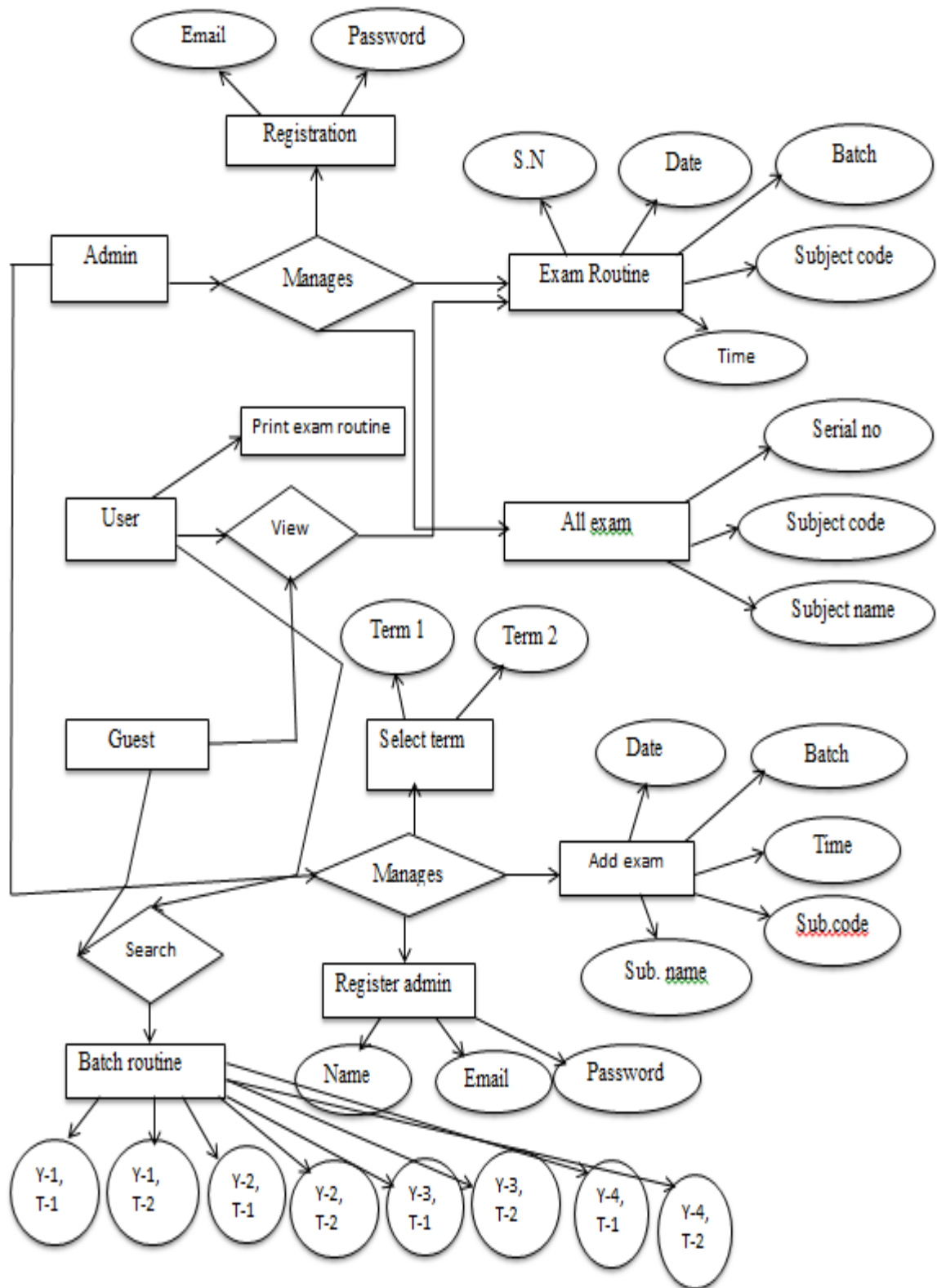


Figure 3.4: E-R diagram of Online Examination routine system.

3.5 Use case diagram

A use case diagram is a description of a user's interaction with a system that illustrates the relationship between the user and the various use cases in which the user is involved at its most basic level. A use case diagram can be used to describe the various types of users of a system as well as the various use cases, and it is often followed by other types of diagrams. Either circles or ellipses are used to represent the use cases. For a system's high-level requirement analysis, use case diagrams are used. The functionalities of a device are captured in use cases after the specifications are evaluated. Use cases are nothing more than the system's functionalities written down in a logical order. The actors are the second factor to consider in use cases. Actors and use cases are used to model the functionality of a device in use case diagrams. A collection of actions, services, and functions that the device must perform are referred to as use cases [10]. The term "actor" refers to everything that communicates with the system. A human user, internal software, or external applications may all be used as actors. The following things should be listed before we start drawing a use case diagram.

Functionalities to be represented as use case

1. Actors
2. Relationships among the use cases and actors.

Use case diagrams are drawn to capture the functional requirements of a system.

Draw use case diagram for admin figure 3.5 is given below:

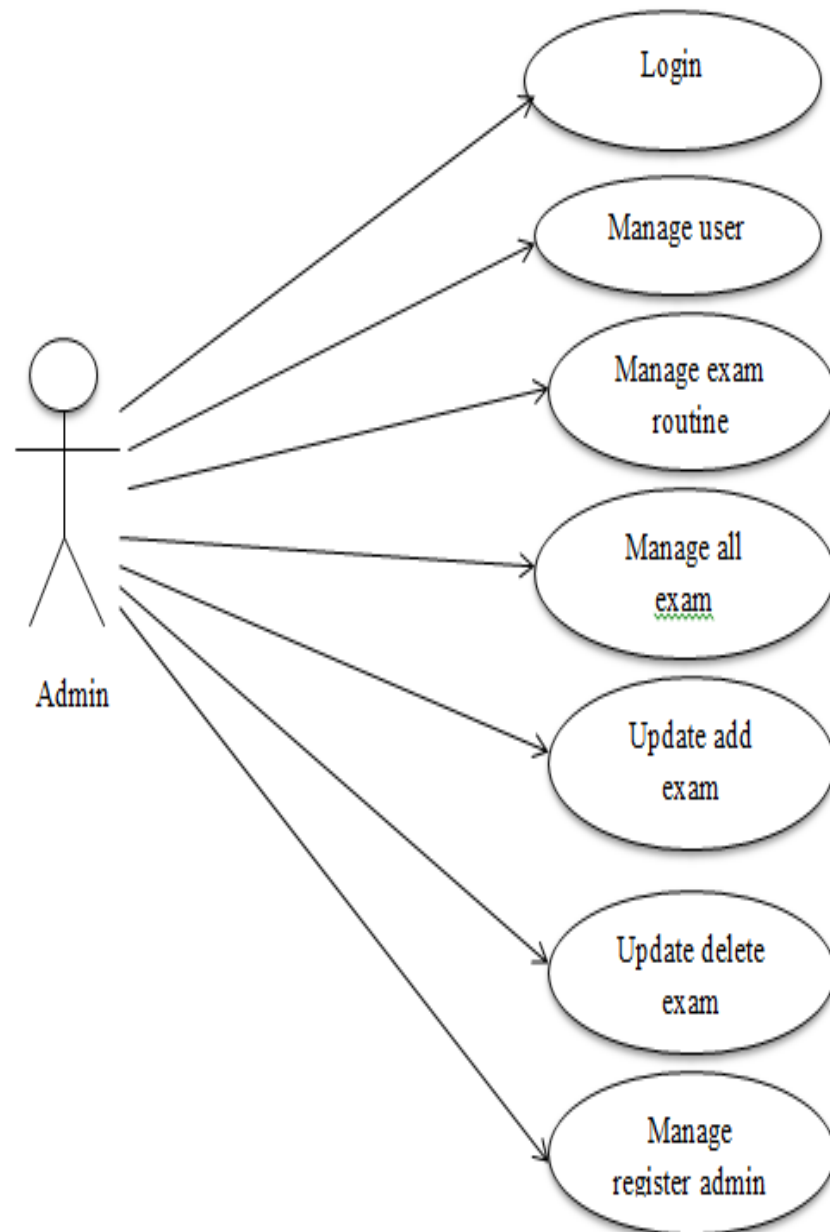


Figure 3.5: Use case diagram of admin.

Draw use case diagram for admin figure 3.6 is given below:

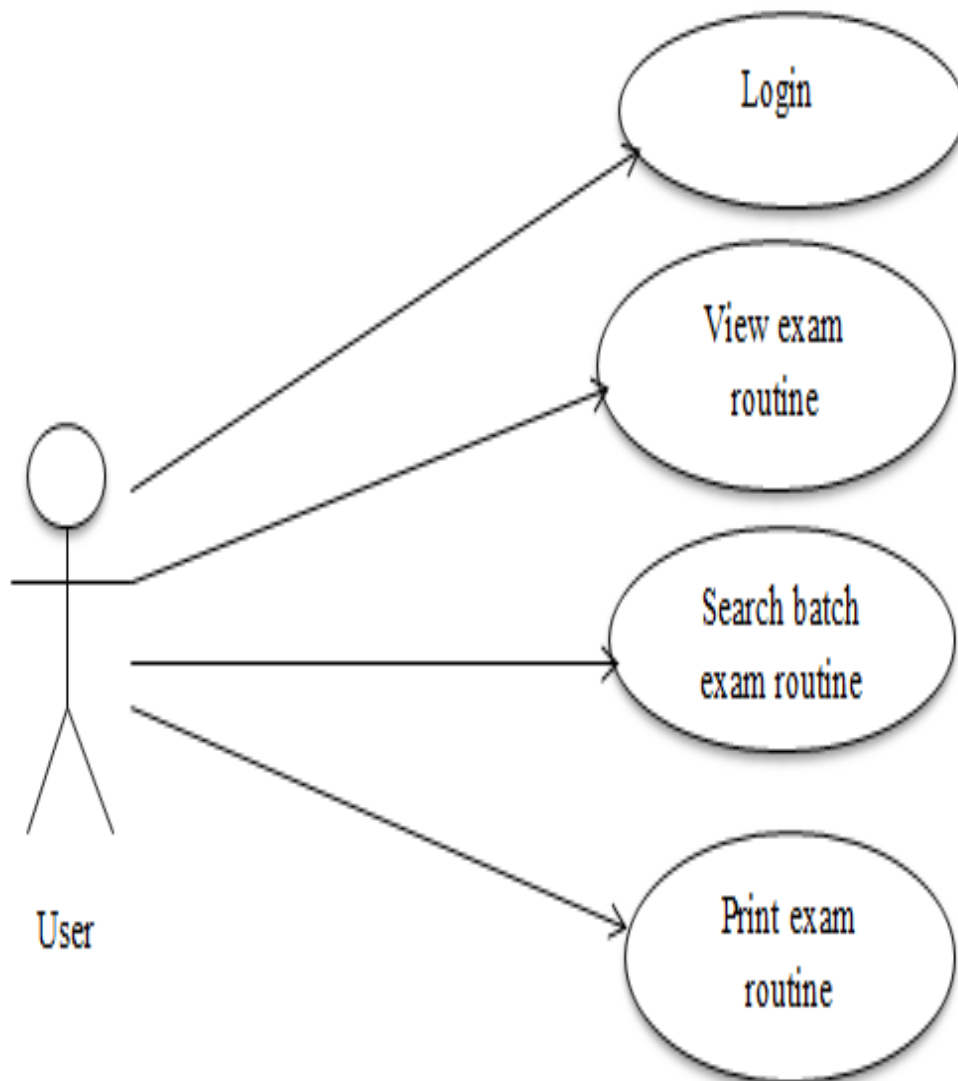


Figure 3.6: Use case diagram of user.

3.6 Context Diagram

The Context Diagram portrays the system in question as a single high-level mechanism, followed by the system's relationship with other external entities (systems, organizational groups, external data stores, etc.). A context diagram in engineering is a diagram that shows the entities that communicate with a system, or a part of a system, and describes the boundary between the system and its environment. This diagram depicts a structure at a high level. It resembles a block diagram.

Draw context diagram for online examination system figure 3.7 is given below:

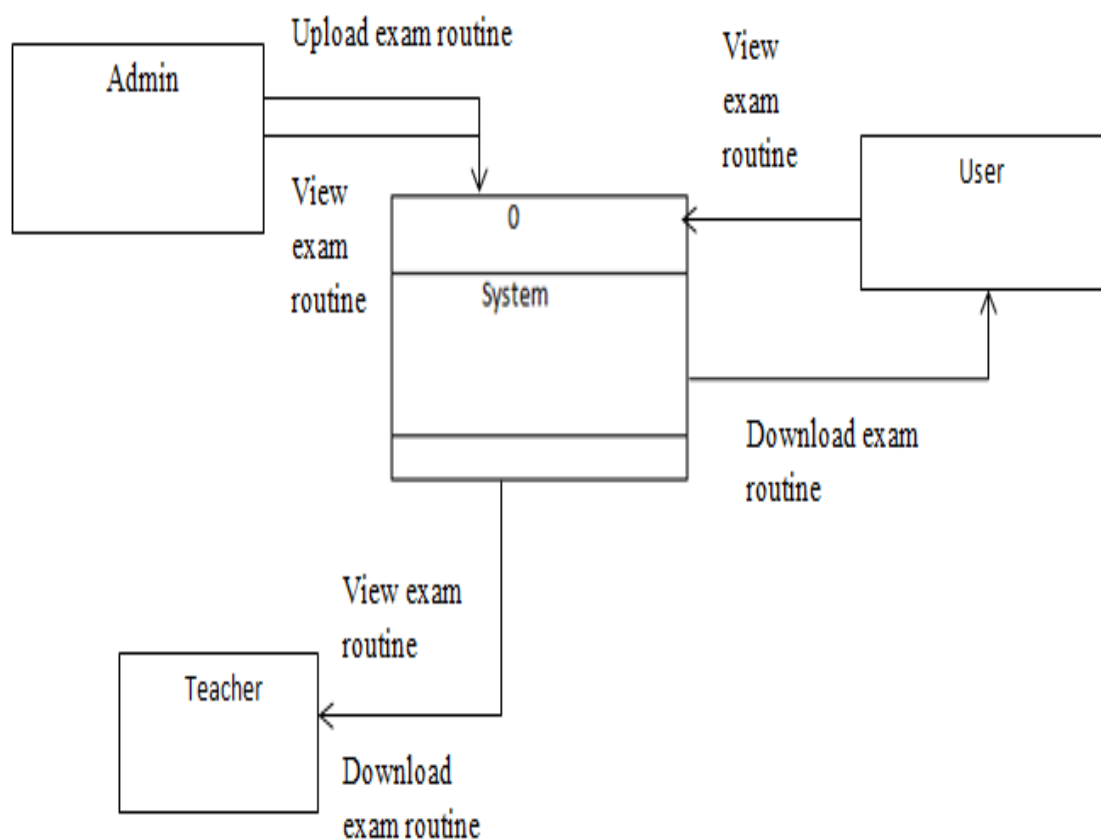


Figure 3.7: Context diagram of online examination routine system.

3.7 Activity Diagram

Another important diagram in UML for describing the complex aspects of the system is the activity diagram. An activity diagram is a flowchart that represents the flow of information from one activity to the next. The activity can be defined as a machine process. From one operation to the next, the control flow is drawn. This flow may be sequential, branched, or running at the same time. The term "activity" refers to a specific device process. Activity diagrams are used not only to visualize a system's complex design, but also to construct the executable system using forward and reverse engineering techniques. The only part of the operation diagram that is lacking is the message. There is no evidence of a message flow from one operation to the next. The activity diagram is also known as a flowchart. The diagrams appear to be flowcharts, but they are not. It portrays numerous flows, including parallel, branched, concurrent, and single. Activity diagrams are graphical representations of workflows with support for choice, iteration, and concurrency in stepwise activities and behavior. The aim of activity diagrams is to represent both computational and organizational processes (i.e., workflows), as well as the data flows that interact with the relevant activities [11].

The purpose of an activity diagram can be described as –

1. Draw the activity flow of a system.
2. Describe the sequence from one activity to another.
3. Describe the parallel, branched and concurrent flow of the system.

Draw activity diagram for admin figure 3.8 is given below:

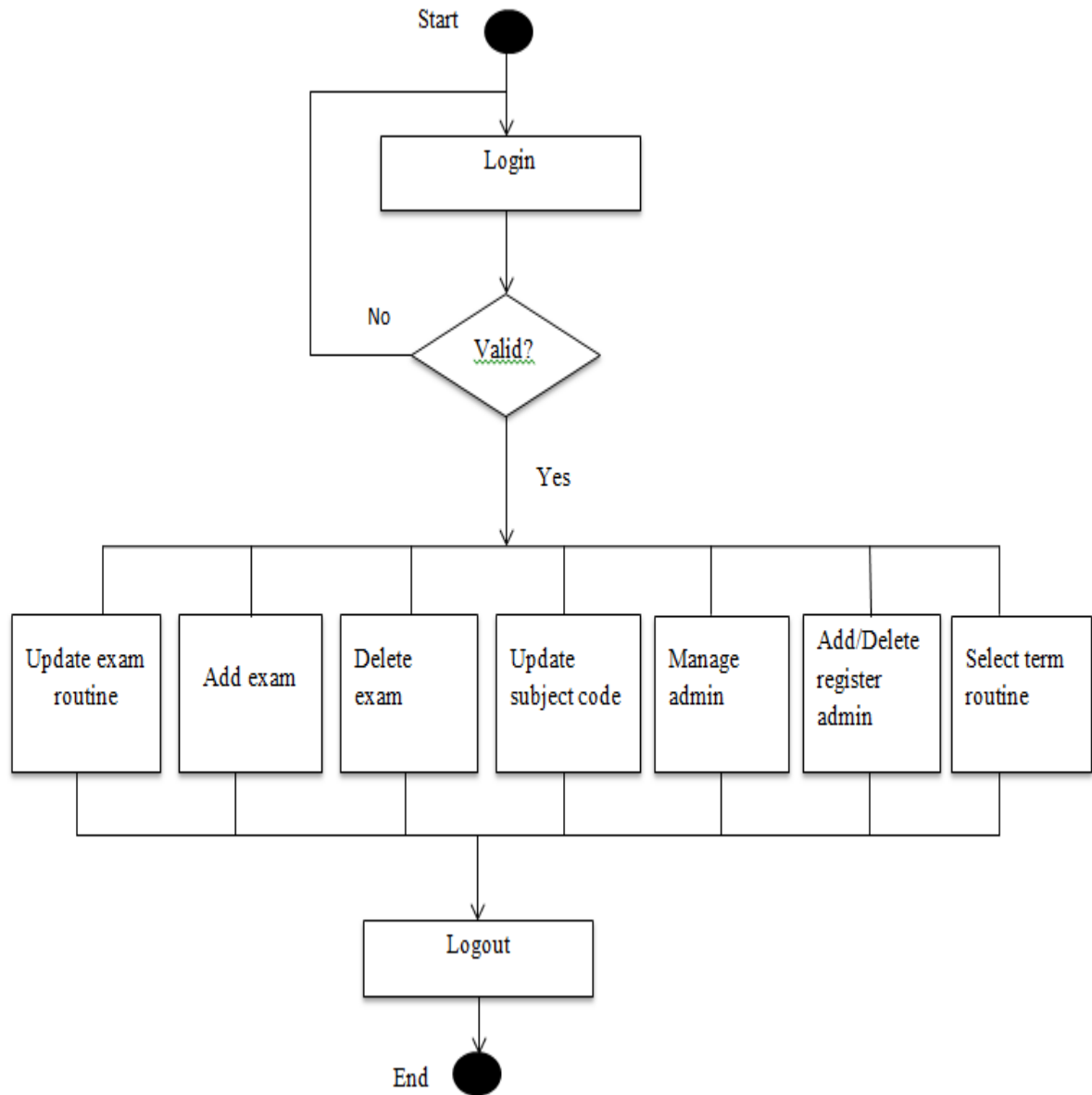


Figure 3.8: Activity diagram of admin.

Draw activity diagram for user figure 3.9 is given below:

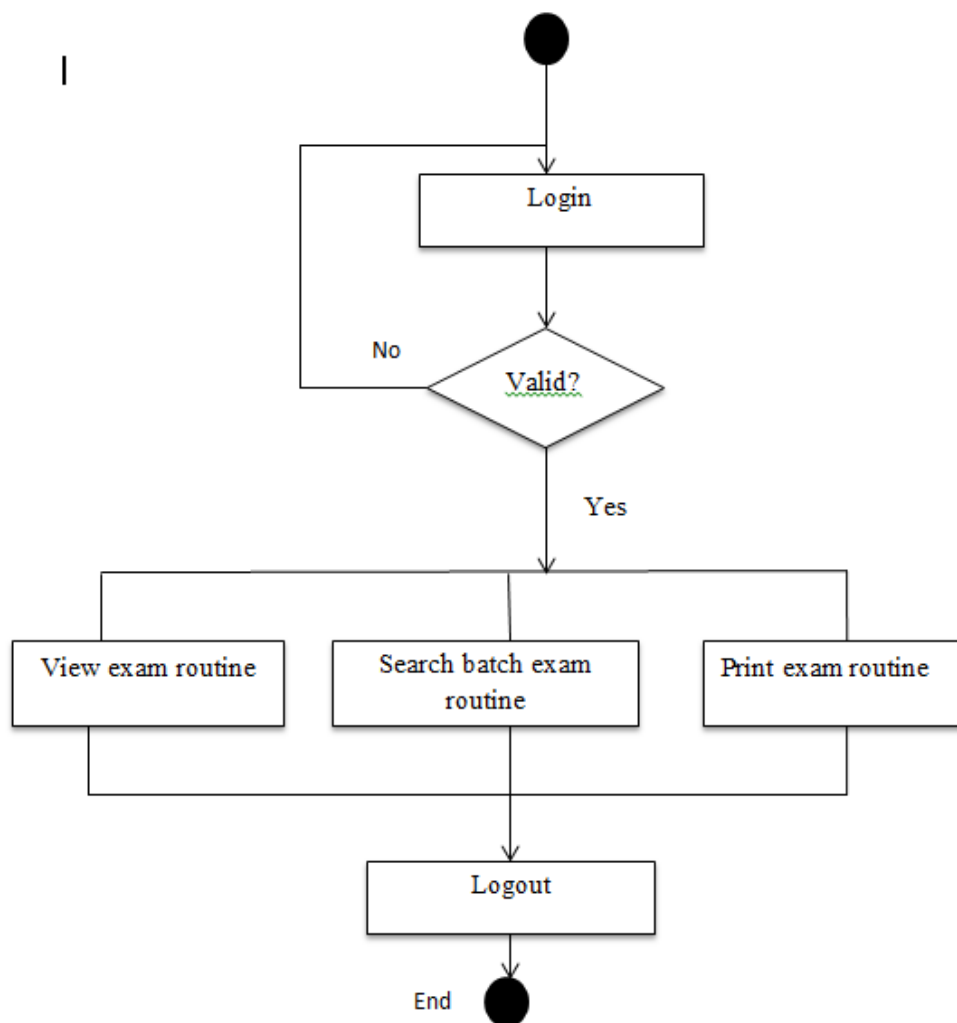


Figure 3.9: Activity diagram of user.

3.8 Class Diagram

A static diagram is a diagram that depicts a class. It's an application's static view. A class diagram is used for not only visualizing, defining, and recording various aspects of a structure, but also for creating executable code for a software application. The characteristics and operations of a class, as well as the system's constraints, are depicted in a class diagram. Since they are the only UML diagrams that can be mapped directly with object-oriented languages, class diagrams are commonly used in the modeling of object-oriented systems. A set of groups, interfaces, partnerships, collaborations, and constraints is described in a class diagram. A structural diagram is another name for it [12].

Draw class diagram of online examination routine system figure 3.10 is given below:

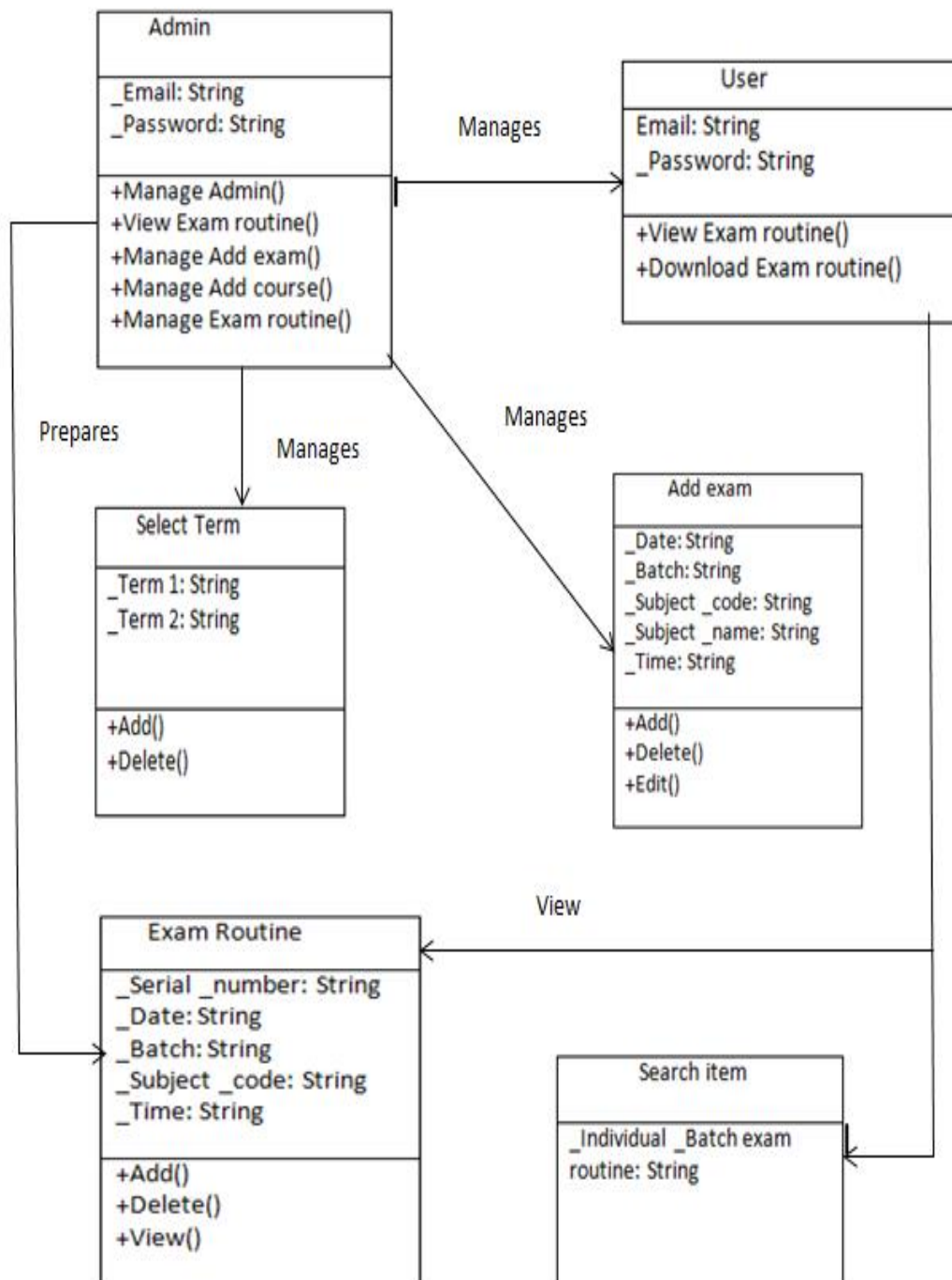


Figure 3.10: Class diagram of Online Examination routine system.

CHAPTER 4

TESTING & MAINTENANCE

4.1 Languages, Tools and Technologies

In the following subsection all of the tools are related to develop this project are described.

Front End

- **HTML:** HTML stands for Hyper Text Markup language. HTML is the key building technology for the Online Examination System. HTML is a markup language that is used to describe and define webpage content. A markup language is a set of markup tags that tell the web browser how to view the words and images on a web page for the user. The key HTML features used to create any web page are form and Cascading Style Sheet. The form was used to collect data from a user, including username and password, and a submit button to send the collected data to a web document for processing. HTML tags are secret keywords on a web page that determine how the text should be formatted and displayed by the browser. The tags are made up of two parts: an opening tag and a closing tag. The closing tag has the same text as the opening tag but adds a forward-slash (/) character. To build a web page, HTML5 is used. HTML5 is the most commonly used markup language for web pages. It allows you to define the layout of text-based information in a document by designating such sections of text as headings, paragraphs, or lists, among other things [13].
- **CSS:** CSS (Cascading Style Sheets) is a style sheet language for defining the look and formatting of HTML documents. Cascading Style Sheets were used to monitor how the browser displayed information to the user. CSS was created to separate the content of a document from its presentation, which includes elements like the layout, colors, and fonts. This separation will increase content usability, allow for more flexibility and control in the specification of presentation characteristics, allow multiple pages to share formatting, and reduce structural content complexity and repetition. It provides a list of formatting

instructions for each relevant HTML feature. CSS stands for Cascading Style Sheets, and it was created to allow web designers to alter the overall appearance of a website. CSS is divided into three levels: CSS1, CSS2, and CSS3. CSS is a modern HTML feature that allows website developers and users to have more control about how pages are presented. CSS is a basic design language that aims to make the process of making web pages presentable as simple as possible. CSS is a style sheet language that defines how an HTML (or XML) document is displayed. CSS specifies how items should be shown on a computer screen, on paper, or in other media [14].

- **Bootstrap:** The word bootstrap comes from the expression "to pick yourself up by one's bootstraps." The idiom implies that an individual is self-sufficient and doesn't need someone else's support. Bootstrapping is a concept used in the programming world to describe a mechanism that loads and executes commands automatically. The initialization phase that happens when you turn on your machine is the most simple method of bootstrapping. In reality, the word bootstrap is the root of the phrase "boot," as in "starting up a machine." When you power on or restart your computer, it executes a set of commands to configure the system, scan for hardware, and load the operating system. This method is referred to as a bootstrap process because it does not require any user feedback. Although most people equate bootstrapping with the device boot series, it may also be used for individual programs. When a program is opened, for example, it can immediately run a sequence of commands. These commands can be used to process user preferences, search for changes, and load dynamic libraries like DLL files. They're referred to as bootstrap processes because they start up the software immediately. Bootstrap is a popular front-end platform for creating modern websites and mobile applications. It's open-source and free to use, but it comes with a plethora of HTML and CSS templates for UI elements like buttons and forms. JavaScript extensions are also supported by Bootstrap [15].
- **JQuery:** jQuery is a JavaScript library that helps web designers to expand the features of their pages. It's open source and available under the MIT license for free. jQuery has been the most popular JavaScript library for web creation in recent years. A web developer just has to reference the jQuery JavaScript file inside the HTML of a website to use it. [16].

- **PHP:** PHP is a programming language that enables software developers to construct dynamically created web pages in HTML, XML, and other document styles in response to client requests. PHP is a free and open source programming language. The Hypertext Preprocessor is a commonly used open source general-purpose scripting language that is particularly well adapted for web creation and can be embedded in HTML.
- **MySQL:** MySQL is the database that this project program uses to store data. Build a link between the database and the HTML code to enter, remove, and erase data, among other things. MySQL is a Relational Database Management System (RDBMS) built on Structured Query Language that is free and open source (SQL). It is a web-based database system that is hosted on a cloud. It's fast, dependable, and simple to use, making it suitable for both small and large projects. It can be found in a wide variety of applications and operates on nearly all platforms, including Debian, Windows, and UNIX. MySQL is most widely associated with web-based software and internet blogging, and it is a core component of the LAMP (Linux, Apache, MySQL, and PHP) open source enterprise stack. LAMP stands for Linux as an operating system, Apache as a Web server, MySQL as a relational database management system, and PHP as an object-oriented scripting language for Web creation. MySQL is an open source relational database management system (RDBMS) that is used to build web-based applications. MySQL is a PHP-friendly database. It allows the development of a database that includes tables, columns, and indexes [17].

Software Requirement

- **Local Server:** Laragon is a portable, isolated, fast & powerful universal development environment for PHP, Node.js, Python, Java, Go, Ruby. It is fast, lightweight, easy-to-use and easy-to-extend. Laragon is great for building and managing modern web applications.
- **Sublime Text:** Sublime Text is a proprietary cross-platform source code editor that uses the Python programming language as its gui (API). Many programming and markup languages are natively supported, and users may add functions with plugs, which are usually community-built and maintained under free-software licenses.

Developing Software

- Operating system: Windows 7 Ultimate -64-bits.
- Database: Laragon server.
- Web browsers: Mozilla Firefox/Google Chrome.
- Text Editor: Sublime Text/Notepad++

4.2 Testing Features

A software feature may be as powerful as interface updates that incorporate new features or adapt existing functionality. All features are expected to have qualities that make them functional, intuitive, and reliable.

In fact, a new test set is produced for testing the functionality in conjunction with the announcement's duration. New features that are extremely important and often used must be thoroughly reviewed in each build of that update, as well as reversion testing.

Features to be tested

Features	Description
Registration	Get all service from this system, it is required to be registered.
Modify	Edit the information when need
Delete	Delete information from the list
Show details	All posted information will show in the page.
Login	Login as authenticated user
Logout	Logout from the system.
Application error message processing	It is important for all to get the proper error message

4.3 Test Approach

A test plan involves a product outline, goals, research methods, duration, scheduling, processes, testing tools, and deliverables, and a test strategy is the extension of a test plan to a project. Test plans are critical in the implementation of software and they detail what checking needs to be done to ensure that the software is up to code and running properly.

Various Testing Activities are as follow:

- **Black Box Testing**

Black box testing, also known as functional testing, lacks a system's or component's internal mechanisms and relies only on the outputs generated in response to specific inputs and execution conditions. For this scheme, we've opted to use equivalence partitioning and boundary value analysis.

- **White Box Testing**

White box testing is a software testing process in which the tester is aware of the item's internal configuration and execution. The tester selects inputs from which to practice code paths and decides the necessary outputs. Programming skills and knowledge of how to bring them into operation are needed.

- **Acceptance Testing**

Acceptance checking is a method for determining whether or not a software framework meets the requirements specifications. The key goal of this evaluation is to determine if the device complies with market conditions and whether it meets the requirements for distribution to end users.

- **System Testing**

System Testing (ST) is a black box testing methodology used to measure the overall system's compliance with defined specifications. The functionalities of the system are evaluated from beginning to end of system research. System monitoring is typically performed by a committee who is different from the production team in order to assess the system's consistency independently. Both functional and non-functional testing was used.

- **Integration testing**

Integration testing is a method of software testing that is conducted in an embedded hardware and software environment to ensure that the whole system operates properly. Units or individual elements of the program are evaluated as a group during this testing. The integration testing level focuses on exposing faults that exist during the interaction between interconnected components or units.

- **Unit Testing**

Unit testing is a testing method in which different components are checked by the manufacturer to see if there are any defects. It is concerned with the standalone modules' practical correctness.

- **Functional Testing**

Functional testing is a form of software testing that verifies that the software framework meets the functional criteria. Functional checks are used to validate the performance of a software program by supplying sufficient data and matching it to the functional specifications. Functional verification is mostly dealing with black box testing and is not concerned with the application's source code. This testing examines the application's user interface, APIs, database, security, client/server communication, and other features. Testing can be carried out manually or remotely.

4.4 Testing Environment

A testing environment is a collection of software and hardware that helps testing teams to execute experiments. In other words, it ropes test implementation with optimized hardware, applications, and network.

For test environment, key part to set up comprises

- System and applications
- Test data
- Database server
- Front end running environment
- Client operating system
- Browser
- Hardware includes Server Operating system
- Network
- Documentation required like reference documents/configuration guides/installation guides/ user manuals

4.3.1 Test Cases

A test case is a collection of parameters or variables that a tester uses to decide whether or not the device under test meets the criteria or functions properly. The method of creating test cases will also aid in the detection of flaws in an application's specifications or architecture.

CHAPTER 5

RESULT & DISCUSSION

5.1 Result

Implementing a project entails carrying out the tasks outlined in the proposal form in order to meet project goals and produce outcomes and outputs. Many internal and external influences affect its performance. The process in which dreams and proposals become reality is known as project delivery (or project execution). After assessing, determining, visioning, preparing, applying for grants, and locating a project's financial capital, this is the natural conclusion. One of the most important components of an online educational system is the online test routine system. The proposed method would take less time and be more efficient. It is effective, fast, and saves a significant amount of resource content. The key purpose of this web-based online assessment routine method is to effectively test students using a fully integrated system that not only saves time but also provides reliable and timely results.

View exam routine

User can easily view the exam routine and download the exam routine. Search option for teachers and students for find out their own batch exam routine. Figure 5.1 show the first look of the project it was designed using HTML and CSS. The database used at the Back-end is MySQL database. Server-side scripting language used is PHP.

Home
shamia

print a routine

Noakhali Science And Technology University

Noakhali-3814

Dept Name : Information And Communication Engineering

Date : 01/15/2021

Y-1,T-1

Search

The academic year 2015-16,2016-17,2017-18,2019-20, of this department is respectively year-4,Term-1; year-3,Term-1; year-2,Term-1; year-1,Term-1; The schedule of honors final examination is given below:

Exam Routine

S.L	Date	Subject Code
1	2021-01-04	ICE-1101 ICE-3101
11	2021-01-20	HUM-1105 ICE-3107
12	2021-01-21	ICE-2109 ICE-4107
13	2021-01-25	ENG-1109
14	2021-01-26	MATH-2113 ICE-3109
15	2021-01-27	ICE-4109
16	2021-01-28	MATH-1111
17	2021-02-01	MATH-3113

Thanks

Signature Here

Professor Dr. Md. Ashikur Rahman Khan

(Chairman)

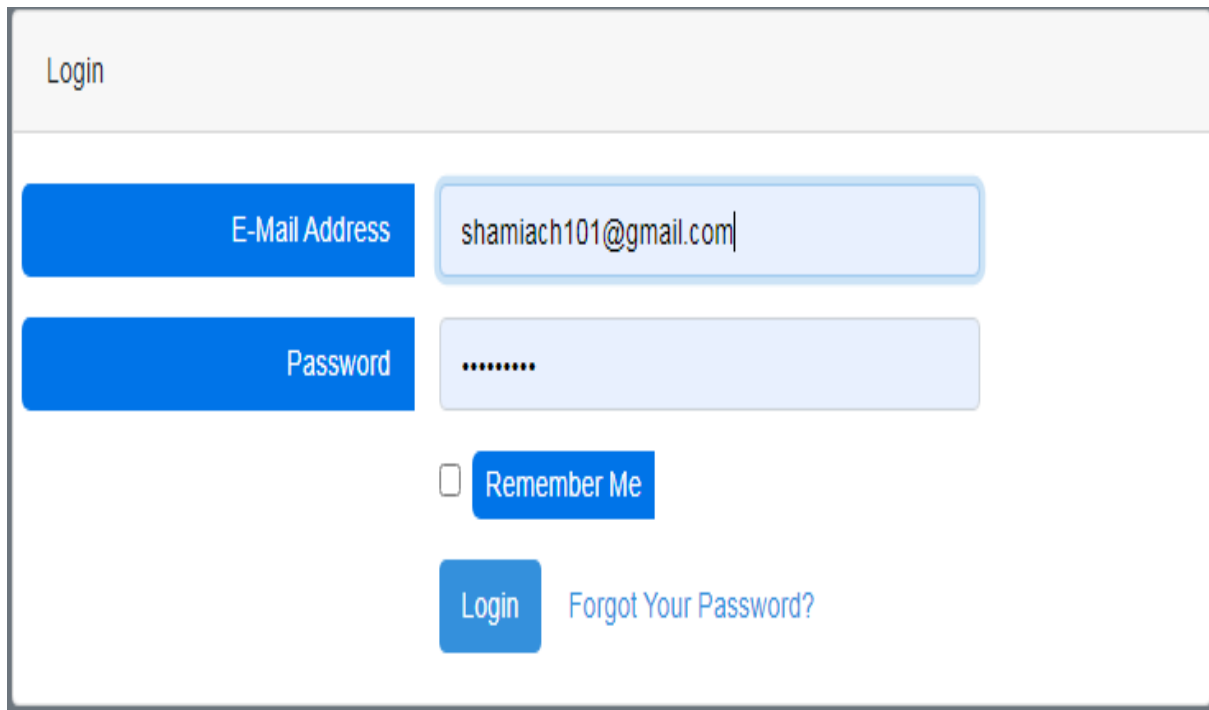
Information And Communication Engineering

Noakhali Science And Technology University

Figure 5.1: View exam routine for all users.

Admin login page

In this screen the login panel is at center .When admin touches the login it has need to username and password .And when admin entered a valid username and password it allow him to enter the project otherwise it reply him for the wrong username and password. After login admin can control the full exam system .Its looks like Figure 5.2.



The image shows a web interface for an admin login page. At the top, there is a light gray header bar with the word "Login" in a dark gray font. Below the header, the main content area has a white background. On the left side of this area, there are two blue rectangular labels: "E-Mail Address" and "Password". To the right of the "E-Mail Address" label is a light blue input field containing the text "shamiach101@gmail.com". To the right of the "Password" label is a light blue input field filled with seven black dots. Below these input fields, there is a small square checkbox followed by a blue button labeled "Remember Me". At the bottom of the form, there is a blue button labeled "Login" and a blue text link labeled "Forgot Your Password?" to its right.

Figure 5.2: Admin Login page.

Admin home page

An administrator account has privileges to manage services for other people in this project. The Admin console is only available when someone signed in to an administrator account. Admin Homepage is formed by some sections like create routine, Add subject, all subject, add admin, all admin and Logout. We will discuss the details about each section below. Its looks like Figure 5.3.

[Home](#) [Create Routine](#) [Add Subject](#) [All Subject](#) [Add Admin](#) [All Admin](#) [Add Notice](#) shamia ▾

[print a routine](#)

Noakhali Science And Technology University

Noakhali-3814

Teacher

Dept Name : Information And Communication Engineering

Date : 01/15/2021

Y-1,T-1 ▾

[Search](#)

The academic year 2015-16,2016-17,2017-18,2019-20, of this department is respectively year-4,Term-1; year-3,Term-1; year-2,Term-1; year-1,Term-1; The schedule of honors final examination is given below:

Exam Routine

S.L	Date	Subject Code
12	2021-01-21	ICE-2109 ICE-4107
13	2021-01-25	ENG-1109
14	2021-01-26	MATH-2113 ICE-3109
15	2021-01-27	ICE-4109
16	2021-01-28	MATH-1111
17	2021-02-01	MATH-3113

Thanks

Signature Here

Professor Dr. Md. Ashikur Rahman Khan
(Chairman)
Information And Communication Engineering
Noakhali Science And Technology University

Figure 5.3: Admin Home page.

Admin create routine

The admin will just give the start and end date then the routine will be created automatically. Create routine page consists of select term, start date and end date. The admin will just give select term, select the start and end date then the routine will be created automatically without any problem. Its looks like Figure 5.4

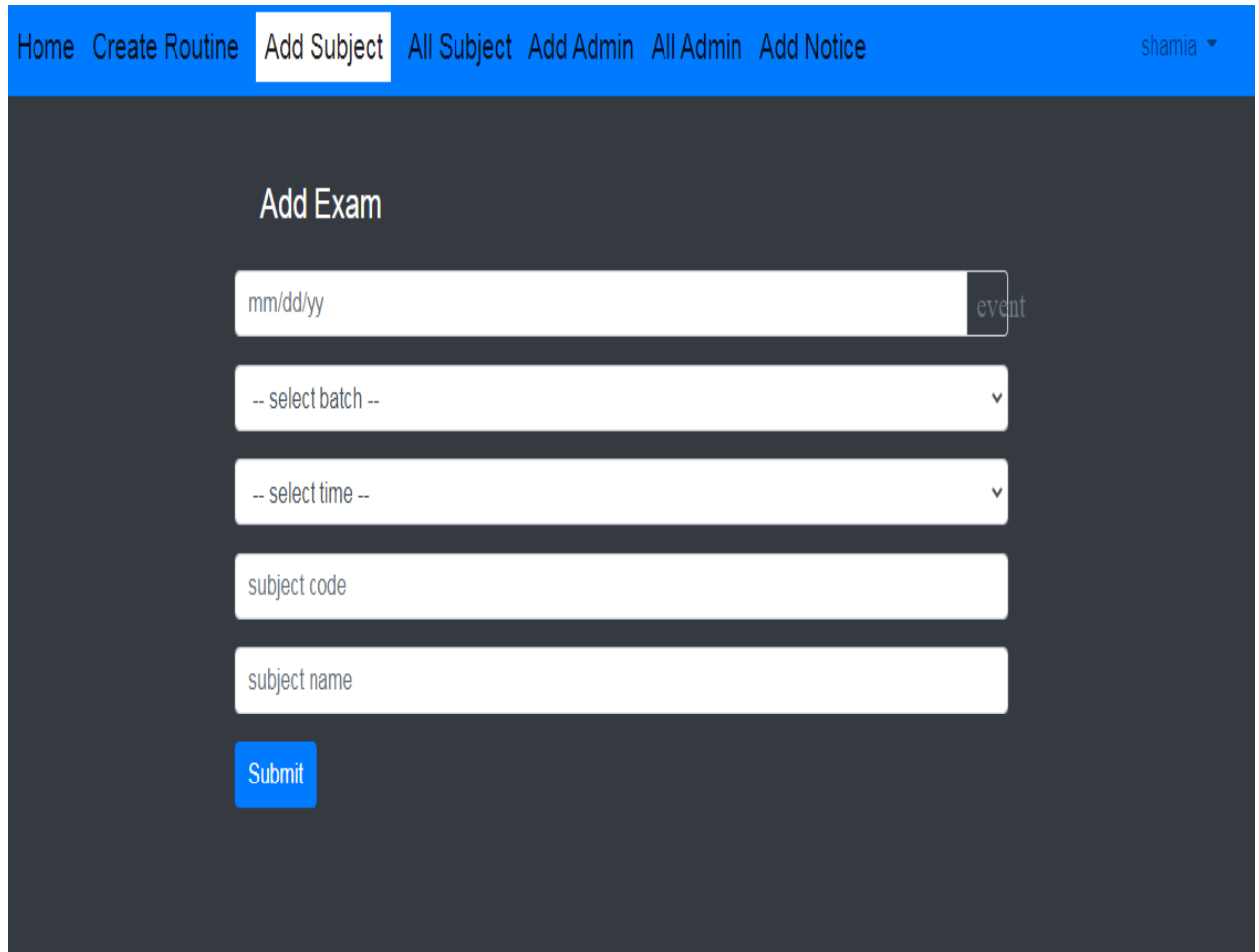


The screenshot shows a web application interface with a blue header bar. The header contains a navigation menu with links: Home, Create Routine (highlighted), Add Subject, All Subject, Add Admin, All Admin, and Add Notice. On the right side of the header, the user's name 'shamia' is displayed with a dropdown arrow. The main content area has a dark gray background. At the top of this area, the title 'Create New Routine' is centered in a light gray font. Below the title, there are three white input fields stacked vertically. The first field is a dropdown menu with the placeholder text '-- Select Term --' and a small downward arrow on the right. The second field is labeled 'Start date' and has a small 'event' icon on the right. The third field is labeled 'End date' and also has a small 'event' icon on the right. Below these fields is a blue button with the text 'Create' in white.

Figure 5.4: Admin create routine.

Add subject

Admin can add here if you want to add a new exam. Add exam page consists of date, select batch, select time, subject name and subject code. Its looks like Figure 5.5.



The screenshot shows a web application interface with a blue header bar. The header contains navigation links: 'Home', 'Create Routine', 'Add Subject' (which is highlighted), 'All Subject', 'Add Admin', 'All Admin', and 'Add Notice'. On the right side of the header, the user's name 'shamia' is displayed with a dropdown arrow. Below the header, the main content area has a dark gray background. At the top of this area, the title 'Add Exam' is centered. Below the title, there are five input fields: 1. A date field with a placeholder 'mm/dd/yy' and a small 'event' button to its right. 2. A dropdown menu with the placeholder '-- select batch --' and a downward arrow. 3. A dropdown menu with the placeholder '-- select time --' and a downward arrow. 4. A text input field with the placeholder 'subject code'. 5. A text input field with the placeholder 'subject name'. At the bottom left of the form, there is a blue 'Submit' button.

Figure 5.5: Add exam.

All subject

In all subject section the admin are shown in order list. Here has six options like date, term, time, subject code, subject name and action. Action has two options .Left option is used to edit exam .On the other hand right option is used to delete exam. Admin wants to add or remove course code or course name of any new subject then you can add or delete here. Its looks like Figure 5.6.

Home Create Routine Add Subject All Subject Add Admin All Admin Add Notice shamia ▾						
All Exam Table						
#	Action	Date	Term	Time	Subject Code	Subject
1	Edit Delete	10/01/2020	1	2:00 PM - 6:00 PM	ICE-1101	asad
2	Edit Delete	10/05/2020	1	9:00 AM - 1:00 PM	HUM-1105	
3	Edit Delete	10/05/2020	3	2:00 - 6:00 PM	ICE-2101	
4	Edit Delete	10/06/2020	1	2:00 - 6:00 PM	ENG-1109	Technical & Communication English
5	Edit Delete	10/07/2020	1	2:00 - 6:00 PM	MATH-1111	Differential and Integral Calculus
6	Edit Delete	10/08/2020	2	2:00 PM - 6:00 PM	ICE-1201	
7	Edit Delete	10/09/2020	2	9:00 AM - 1:00 PM	ICE-1203	

Figure 5.6: All subject.

Add admin

Add admin page is consists of user name, email and password when he clicks the submit button then the register admin are created successfully. Its looks like Figure 5.7.

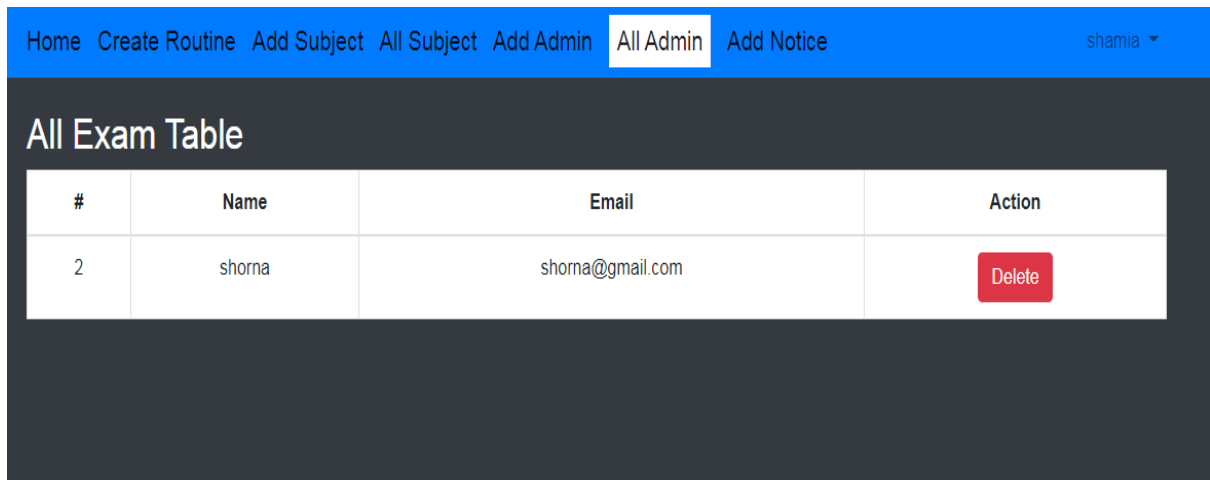


The screenshot displays a web application interface with a blue header bar. The header contains a navigation menu with links: Home, Create Routine, Add Subject, All Subject, Add Admin (highlighted with a white background), All Admin, and Add Notice. On the right side of the header, the user's name 'shamia' is displayed with a dropdown arrow. The main content area has a dark gray background. At the top of this area, the word 'Register' is written in a large, white, serif font. Below this, there are three input fields: the first is labeled 'name...' and is white; the second contains the email address 'shamiach101@gmail.com' and is light blue; the third contains a series of dots representing a password and is also light blue. At the bottom left of the form, there is a blue button with the word 'Submit' in white text.

Figure 5.7: Add admin.

All admin

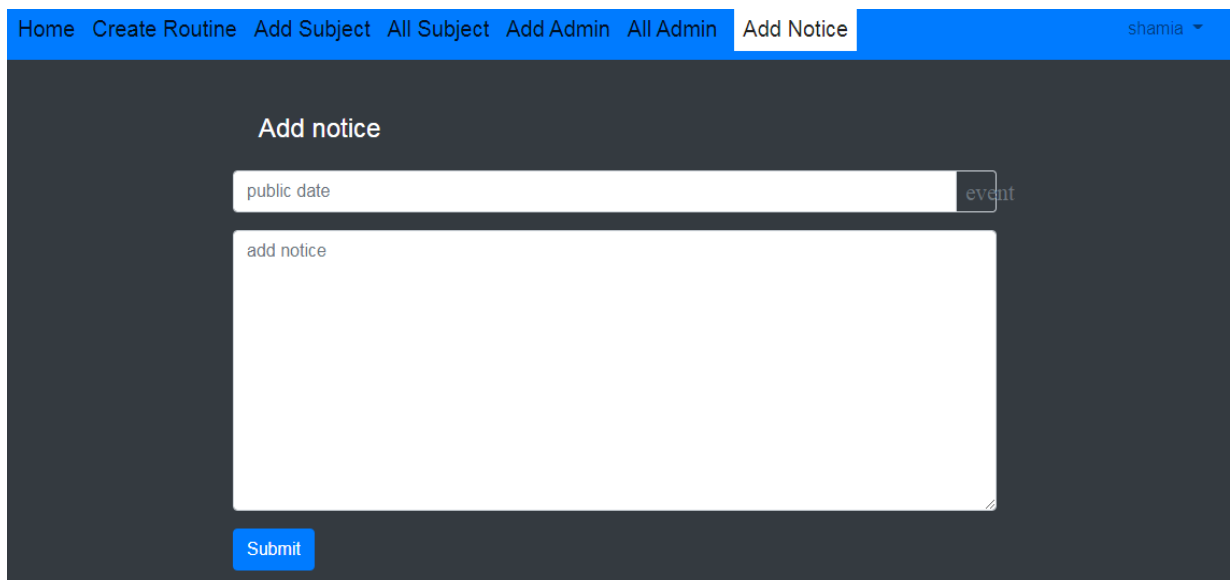
This page shows the all register admin. Its looks like Figure 5.8.



All Exam Table			
#	Name	Email	Action
2	shorna	shorna@gmail.com	<button>Delete</button>

Figure 5.8: All Admin.

Add notice



Add notice

public date event

add notice

Submit

Figure 5.9: Add notice.

CHAPTER 6

CONCLUTIONS AND FUTURE DEVELOPMENT

6.1 Conclusion

This project is about exam routine management system. The project presents the work on Exam Routine Management System of for The Department of I.C.E Noakhali Science and Technology University. I analyzed a designed the manual. By this technique I find out the actors, and database design for the system which is more accurate for my environmentFor server-side scripting, I use PHP, and for UI architecture, I use HTML, CSS, Java Script, and JQuery. My database framework was created using MySQL. In contrast to the existing manual system, the proposed system would save time and labor. It will be able to save the important data. The structure I suggest would include the whole agency. My suggested method, in my view, would play a very effective and significant role in the department's system. It's only natural that the incentive to build a more efficient system would emerge as a result of the implementation of a more efficient system.

5.2 Future development

The developing software is good quality software. I am trying my best to satisfy the actual need of the department system. I will do this system for the whole university in the future. This will make it possible for any university system, private or public. I have implemented the software and try my level best to deliver an excellent system though it has some bug it will try to recover them In sha- Allah.

References

- [1] Song Luo, Jianbin Hu and Zhong Chen."Task based automatic examination system for sequenced test". 2009 International Conference on Electronic Computer Technolgy, 2009, pp.18-21
- [2] [http://www.assignmentpoint.com/business/management/routine-management system.html](http://www.assignmentpoint.com/business/management/routine-management%20system.html) ; Last access on 5 september 2020.
- [3] Anil Lama."Routine management system ". pp.1, August, 2016.
- [4] Ainscough, T. L., "The Internet for the rest of us: marketing on the World Wide Web", Journal of consumer marketing 13(2):1996, pp. 36-47.
- [5] P Thomas,"Experiments with electronic examinations over the internet", Chapter 2,1997.
- [6] Lorgat M," Web-Based Student Result Management System",pp.4, October 2018.
- [7] David L. Ralph, Bruce B, ," Utilizing Online Exams", volume 6, pp.2-3,December 2009.
- [8] https://www.tutorialspoint.com/sdlc/sdlc_waterfall_model.html, Last access on 1 january 2021
- [9] https://www.tutorialspoint.com/dbms/er_diagram_representation.html,Last access on 2 january 2021.
- [10] <https://www.smartdraw.com/use-case-diagram/>,Last access on 2 january 2021.
- [11] https://en.wikipedia.org/wiki/Activity_diagram,Last access on 2 january 2021.
- [12] https://www.tutorialspoint.com/uml/uml_class_diagram.html,Last access on 2 january 2021.
- [13] <http://www.w3schools.com/css/HTML5Tutorial>; Last access on 2 january 2021.
- [14] [http://www.trainingwithliveproject.com/Bangla Tutorial PHP, CSS, HTML5, MySQL](http://www.trainingwithliveproject.com/Bangla%20Tutorial%20PHP,%20CSS,%20HTML5,%20MySQL); Last access on 2 january 2021.
- [15] <https://techterms.com/definition/bootstrap>; Last access on 3 january 2021.
- [16] [15] <https://techterms.com/definition/bootstrap>; Last access on 3 january 2021.
- [17] <http://www.tutorialspoint.com/mysql/mysql-introduction.html>/What is Database; Last access on 3 january 2021.

