**PROJECT – REPORT**

**WEB BASED OBJECTIVE EXAMINATION SYSTEM FOR SKYLINE UNIVERSITY NIGERIA**

**Submitted by**

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**Under the Guidance of**

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***In partial fulfillment of the requirements for the award of the degree of***

**BSc – Software Engineering**

**SSIT – School of Science and Information Technology**



**AUGUST 2022**



# CERTIFICATE

This is to certify that this project entitled " **WEB BASED OBJECTIVE EXAMINATION SYSTEM** **FOR** **SKYLINE UNIVERSITY NIGERIA**" by **AISHA MUSTAPHA HASHIM(ID** **1185**) in partial fulfilment of the requirements for the award of the Degree of B.Sc Software Engineering during the year 2022 of her/his study in the Department of Computer Science, Skyline University, Nigeria under my supervision and the report has not formed the basis for the award of any Degree/Fellowship or other similar title to any candidate of any University.

**Signature of the Supervisor**

(Guide name with qualification and designation)

**Place:**

**Date:**

Countersigned

**Head of the Department**

Submitted to the Department of (**NAME OF THE DEPARTMENT)**, Skyline University, Nigeria for the examination held on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**INTERNAL EXAMINER EXTERNAL EXAMINER**

# DECLARATION

I, Aisha Mustapha Hashim, hereby declare that this project Report, entitled **" WEB BASED OBJECTIVE EXAMINATION SYSTEM FOR SKYLINE UNIVERSITY NIGERIA"** , submitted to the **Skyline University, Nigeria** in partial Fulfilment of the requirements for the award of the Degree of Computer Science has been carried out by me during the period Mar 2022 – Aug 2022 under the supervision and guidance of **Dr. Vijay Arputharaj, HOD – Computer Science**,  **Department of Computer Science, Skyline University, Nigeria** and it has not formed the basis for the award of any Degree/Fellowship or other similar title to any candidate of any University. All sources of exams records are specifically acknowledged by means of references.

**Signature of the Student**

**Place:**

**Date:**

# ACKNOWLEDGEMENT

First, I am grateful to Allah (S.W.A) for sparing my life till this moment for giving me health, courage and understanding to witness a moment like this. May ALLAH’S mercy, blessing and peace be upon the last prophet and messenger, Muhammad (S.A.W) his family, companions and all those who follow his footsteps till the last day. I will like to express my sincere appreciation to my lovely parents and to the entire family of mine for their tireless effort to ensure that my educational dream becomes a reality.

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Finally, I would like to acknowledge the effort of friends, students of software engineering and computer science Department and everyone who had assisted me in any way; In fact words cannot express my appreciation. May Allah continue to guide, protect and reward all of you abundantly (Ameen).

**Student Name**

# CONTENTS

[CERTIFICATE i](#_Toc108614508)

[DECLARATION ii](#_Toc108614509)

[ACKNOWLEDGEMENT iii](#_Toc108614510)

[CONTENTS iv](#_Toc108614511)

[LIST OF TABLES vii](#_Toc108614512)

[LIST OF CHARTS viii](#_Toc108614513)

[LIST OF ABBREVIATIONS viii](#_Toc108614514)

[ABSTRACT ix](#_Toc108614515)

[CHAPTER ONE 1](#_Toc108614516)

[1.1 BACKGROUND OF STUDY 1](#_Toc108614517)

[1.2 STATEMENT OF THE PROBLEM 2](#_Toc108614518)

[1.3. AIMS AND OBJECTIVES 3](#_Toc108614519)

[1.4. SIGNIFICANCE OF THE PROJECT 4](#_Toc108614520)

[1.5. SCOPE OF THE STUDY 4](#_Toc108614521)

[1.6 LIMITATIONS OF THE STUDY 5](#_Toc108614522)

[1.7. ORGANIZATION OF THE PROJECT 5](#_Toc108614523)

[1.8. DEFINITION OF TERMS 6](#_Toc108614524)

[CHAPTER 2 7](#_Toc108614525)

[2.0 LITERATURE REVIEW 7](#_Toc108614526)

[2.1. INTRODUCTION 7](#_Toc108614527)

[2.2 A REVIEW OF EXAM RECORDS MANAGEMENT SYSTEMS 7](#_Toc108614528)

[2.3. SIMILAR SYSTEM/S (WITH SIMILAR FEATURES) 10](#_Toc108614529)

[2.3.1 M. R. HAMEED AND F. A. ABDULLATIF ONLINE EXAMINATION SYSTEM 10](#_Toc108614530)

[2.4. PROPOSED SYSTEM 11](#_Toc108614531)

[2.5. RESEARCH GAP 12](#_Toc108614532)

[2.6. SUMMARY 13](#_Toc108614533)

[CHAPTER 3 14](#_Toc108614534)

[3.0 METHODOLOGY 14](#_Toc108614535)

[3.1 INTRODUCTION 14](#_Toc108614536)

[3.2 SOFTWARE PROCESS MODEL (Water Fall Model) 14](#_Toc108614537)

[3.3 STEPS IN WATERFALL MODEL 15](#_Toc108614538)

[3.4 ADVANTAGES AND DISADVANTAGES OF WATERFALL MODEL 17](#_Toc108614539)

[3.5 FUNCTIONAL AND NON FUNCTIONAL REQUIREMENTS. 18](#_Toc108614540)

[3.5.1. FUNCTIONAL REQUIREMENTS. 18](#_Toc108614541)

[3.5.2. NON FUNCTIONAL REQUIREMENTS 18](#_Toc108614542)

[3.5.3 HARDWARE REQUIREMENTS 19](#_Toc108614543)

[3.6 FRONT END TECHNOLOGIES 19](#_Toc108614544)

[3.7 BACKEND TECHNOLOGY 20](#_Toc108614545)

[3.8 SERVER SUPPORT LANGUAGE 20](#_Toc108614546)

[3.9 SOFTWARE TOOL 21](#_Toc108614547)

[3.10 DATA COLLECTION METHOD 22](#_Toc108614548)

[CHAPTER 4 26](#_Toc108614549)

[4.0 SOFTWARE DESIGN, ARCHITECTURE AND TESTING METHOD 26](#_Toc108614550)

[4.1 INTRODUCTION 26](#_Toc108614551)

[4.2 SOFTWARE DESIGN 26](#_Toc108614552)

[4.3 UML DESIGN DIAGRAM 28](#_Toc108614553)

[4.4 DATABASE DESIGN 32](#_Toc108614554)

[4.6 TESTING METHODS 47](#_Toc108614555)

[CHAPTER 5 59](#_Toc108614556)

[SUMMARY, CONCLUSION AND RECOMMENDATIONS 59](#_Toc108614557)

[5.1. INTRODUCTION 59](#_Toc108614558)

[5.2 SUMMARY 59](#_Toc108614559)

[5.3 CONCLUSION 60](#_Toc108614560)

[5.4 RECOMMENDATIONS 61](#_Toc108614561)

[REFERENCES 62](#_Toc108614562)

[APPENDIX 64](#_Toc108614563)

# LIST OF TABLES

|  |  |  |
| --- | --- | --- |
| **Table No.** | **Particulars / Title of the Table** | **Page No.** |
| **2.1** | Shows some article that I reviewed | 8 |
| **2.2** | Research gap | 12 |
| **3.1** | Advantages and disadvantages of waterfall model | 17 |
| **3.2** | Shows the interview questions | 25 |
| **4.1** | Admin table | 32 |
| **4.2** | Course table | 33 |
| **4.3** | Examinee table | 34 |
| **4.4** | Feedback table | 35 |
| **4.5** | Exams attempt table | 34 |
| **4.6** | Exams table | 36 |
| **4.7** | Exams question table | 36 |
| **4.8** | Exams answer table | 37 |
| **4.9** | Unit test case | 49 |
| **4.1.0** | Integration testing | 50 |
| **4.1.1** | Responses to questionnaire | 51 |
| **4.1.2** | Question one 1 - I have strong opinion that the GUI is good | 52 |
| **4.1.3** | Usability testing: Question 2 -is the system user friendly? | 52 |
| **4.1.4** | Usability testing : Question 3 - The security level is correct | 53 |
| **4.1.5** | Usability testing : Question 4 - I believe the system is very simple | 54 |
| **4.1.6** | Usability testing : Question 5 - I see the system response rightly | 55 |
| **4.1.7** | Usability testing : Question 6 - I agree the system is comfortable to be used | 56 |
| **4.1.8** | Usability testing : Question 7 - I found the various functions of these systems well integrated | 57 |

# LIST OF CHARTS

|  |  |  |
| --- | --- | --- |
| **Chart No.** | **PARTICULARS / TITLE OF THE CHART** | **Page No.** |
| **4.1** | Question 1-I have strong opinion that the GUI is good | 52 |
| **4.2** | Question 2-is the system user friendly? | 53 |
| **4.3** | Question 3-The security level is correct | 54 |
| **4.4** | Question 4 - I believe the system is very simple | 55 |
| **4.5** | Question 5- I see the system response rightly | 56 |
| **4.6** | Question 6-I agree the system is comfortable to be used | 57 |
| **4.7** | Question 7- I found the various functions of these systems well integrated | 58 |
| **4.8** | Result of the questionnaire | 58 |

# LIST OF ABBREVIATIONS

|  |  |
| --- | --- |
| **ABBREVIATED FORM** | **EXPANDED FORM** |
| GST | GENERAL STUDIES |
| HTML | HYPERTEXT MARKUP LANGUAGE |
| PHP | Hypertext Preprocessor |
| XAMPP | Cross Platform, Apache, My sql, Php and Perl. |
| UML | Unified modelling language |

# ABSTRACT

This project work “web based Objective examination system for Skyline University Nigeria” describes a program that connects to a database system and allows database administrator and database users to collect and access data through a web client browser. There is an administration section where the administrator can login and make some modifications on stored data such as searching, deleting, adding or updating. On the backend, the system stores all the records entered for future references. The web based frontend consists of interpreted web pages that allow user accessibility to the documents on the web. These documents are linked to each other with text and graphic contents. In my system, most complicated and redundant work is transparent to database administrator and users. Also, the system provides friendly interfaces; this allows people with limited training to work with the system.

The Online Examination System will be created with students, instructors, and administrators in mind. The system makes it simple for administrators to manage both students and lecturers with regard to the examination processes while also assisting students in taking exams online and assisting lecturers in uploading questions and answers into the database so they can see which students pass or fail the exam. The admin is in charge of adding new students. Both users must register before using the system, and they then the student can now login using their username and password inorder to use the system. Interviews have been used to determine the analysis of the data to provide insights on others perspectives for the implementation.The existing approach has a flaw in that students take their exams by hand. Utilizing this antiquated technology will take a while, and the manual approach needed to administer exams takes time. More time is required for students to complete their exams as well as for professors to bring the question papers and answer sheets.

# CHAPTER ONE

**1.0 INTRODUCTION**

## 1.1 BACKGROUND OF STUDY

The development of modern technology has made it possible for people to share exam records and communicate with each other using internet and other electronic media. The University Wide Web (WWW) has witnessed explosive growth over the past few years after the invention by Tim Berners-Lee in 1980. This is largely due to the new ways of exam records sharing technologies via internet. In the same way there has been a paradigm shift from manual operation to computerized operation of most of the examination process of organizations.

Software that is supplied to users from a web server, such as the Internet, is referred to as a web application. Some companies also use intranets to run web apps. The increasing usage of web browsers as clients has led to an increase in the popularity of web applications. Some apps are more suited to the web and have a higher chance of success. Search engine optimization-focused web applications are becoming more and more well-liked. Web apps that are related to the Internet make sense in that they would thrive, whereas corporate applications might not be as appealing in a web environment.

Applications that may be used on the web offer solutions in a variety of application sectors, including entertainment, business, and education. Global education, for instance, enables students at the University to enroll in the same course online. In the majority of these applications, an existing database system is accessed using a Web browser. The other end of the connection is handled by web servers, which watch for incoming requests and send the desired document back to the browser. Web pages frequently correspond to actual, physical sheets of paper kept on a server's disk. The server locates the requested document on its disk drive and sends it when a request is received.

The usage of database management systems (DBMS) creates a setting where people may easily save and retrieve exam records. The most widely used and well-known test records service on the Internet is the University Wide Web. Such apps' main function is to interact with databases, which is essential in today's booming electronic B2C (Business to Customer) and B2B (Business to Business) marketplaces.

The institution's adoption of technology has made a significant contribution to raising the standard of education for its students. While they might use that time for other crucial tasks, teachers spend time on the test preparation and evaluation process. Another time-consuming operation is sending the test results to the information system or, at the very least, any type of computer environment. Due to human error concerns and the fact that these operations are carried out manually in the present paper-based systems, all of these actions also have erroneous risks. In addition, paper-based student assessment suffers from issues with data acquisition, analysis, and collection from different evaluators, as well as a low response rate. [1].

## 1.2 STATEMENT OF THE PROBLEM

Even while paper-based testing has many benefits, there are also potential drawbacks to this sort of procedure. Another problem with it is that it takes a lot of time. Since old methods are time-consuming, difficult to manually analyze tests, and have other disadvantages. There must be more observers present during the exam of numerous pupils. Due to hand computations, results are not correct. In the existing systems, there is a greater risk of exam results being lost, since result checking is done manually, it takes time. Restriction on the number of students that can take a test at once. With the advancement of information technology and correct use of it, the present flaw in the manual method may be fixed (Muna R. and Firas. A, 2017).

When it comes to taking a paper-and-pencil or mechanical exam, applicants' lack of flexibility is perhaps their most visible weakness. This goes far beyond the difficulties of travel (Louella, i 2017).

When taking an advanced accounting course, it appears odd to ask an accountant to prepare a set of accounts on paper since they are accustomed to working online. The goal of the operation is to record our initial ideas and instantly begin revising everything until we are satisfied with the outcome. One-dimensional paper and pen are unable to accurately represent this environment, which places applicants at a considerable disadvantage while taking exams (Louella, i 2017). It forces an alternative way of doing things by requiring you to plan out your responses in advance before you really begin to write. Exam pressure is excessive and difficult to handle.

One of the major problems with some exam systems is that they are less secure. Significant student information, such as name, student name, password, exam result, and student, is recorded by the examination system. Making students join up on their own makes the system less safe if the system doesn't use strong password and signup details and also adds certain measures that will help to secure the system.

## 1.3. OBJECTIVES

**PRIMARY OBJECTIVES**

The aim of this project is to investigate the problems of Skyline University Nigeria based test that are due to the manual system used in the university and to design and develop a system that will automate the examination process of the university.

To develop a web based objective examination system for Skyline University Nigeria.

**SECONDARY OBJECTIVES**

* Identifying the problems cause by the manual or semi-manual system in keeping exam records in Skyline University Nigeria.
* Transform some important examination process of the university from manual method into computerized system.
* To design a system that is security enable and with a friendly graphical user interface.
* Time saved with increased efficiency and less paperwork.
* Secure pathways for information transmission.
* To make it easier for the professor to manage all of the students' exam information.

## To create a system that will completely web-base the examination procedure.

## .1.4. SIGNIFICANCE OF THE PROJECT

The significance / importance of this project is to avoid problems such as omission of names, repetition of names, occurrence of ineligible names on list of exam records etc.

Based on these problems that are due to the existing manual system, it is mandatory or it is a necessity for skyline university Nigeria to be automated. Since these problems are due to manual method used in the university, there is a need for development of a robust computer based test system. The system will controls redundancy in data storage, restrict unauthorized access to data and will provide a storage structures for efficient query processing.

## 1.5. SCOPE OF THE STUDY

This project is specifically designed for Skyline University Nigeria to overcome the problems of the old manual system. The target users are the students, Administration and lecturers. However this system can be used by another university with little or no modifications.

## 1.6 LIMITATIONS OF THE STUDY

Despite the simportance of this project there are several drawbacks, such as

• Internet connectivity

• Project duration

• Publication duration

• Techniques

• To understand and perceive the requirements of the targeted users.

## 1.7. ORGANIZATION OF THE PROJECT

This project focuses on the design and development of a web-enable database management system for Maitama Sule University computer based test system to automate the examination process of the university.

**Chapter One** looks at the background of study, scope, objectives, limitations, statement of problem, significance and organization of the project.

**Chapter Two** focuses on literature review and some journals that I read.

**Chapter Three** focuses on the project software process model, Functional and non functional requirements and also the technologies used.

**Chapter Four** focuses on the software design, Architecture and testing method.

**Chapter Five** concludes with recommendation, summary and conclusion

## 

## 1.8. DEFINITION OF TERMS

**GST:** It stands for General studies. It is a combined course for all university students in Nigeria. It is common to all or most of the departments in Nigeria.

**ONLINE EXAMINATION**: It is an exams that is taken over a network. There has to be an internet connection before taking the exams.

**COMPUTER NETWORKS:** Computer networking is the term for a network of connected computers that may communicate and share resources.

**METHODOLOGY:** Methodology is defined as either the process of doing something or the discipline of logic that analyzes reasoning. The method used to conduct an experiment is an illustration of methodology.

**ANALYSIS:** Breaking anything down into its constituent elements to understand what each one does and how they interact is the process of analysis.

**DATABASE:** A database is a planned grouping of material that has been arranged and is often kept electronically in a computer system.

# CHAPTER 2

# 2.0 LITERATURE REVIEW

## 2.1. INTRODUCTION

This chapter offers an analysis of the important research literature that has been offered by various researchers, academics, analysts, writers, and theoretical inclinations. Themes and aims are directly tied to the materials that are taken from a variety of sources. This study has been completed in a variety of ways to meet the specific goals and objectives of many scholars. In order to improve, this study specifically analyzes and investigates how students write exams and tests.

## 2.2 A REVIEW OF EXAM RECORDS MANAGEMENT SYSTEMS

Computer-based testing (CBT) has gradually gained popularity as a feasible substitute for paper-and-pencil testing during the past 40 years. The switch to CBT is neither simple nor affordable, though. To create a successful operational program, test development, numerous design engineering,,/logistics operations, and psychometric adjustments are necessary, According to Drasgow, Luecht, and Bennett (2006). Early CBT research nearly entirely concentrated on theoretical challenges like increasing measuring effectiveness by reaching sufficient levels of test score reliability with the fewest number of items possible However, it quickly became clear that additional practical concerns needed to be Departmented, such as assuring content representation, implementing new item scores, ensuring everyone has enough time to finish the examination, and limiting the amount of exposure that examinees receive to things. The development of models that meet required levels of measuring efficiency while also achieving other crucial objectives, such reducing item exposure and maintaining content validity, has been the main focus of CBT research during the last few years.

Additionally, practitioners are becoming more aware that basic CBT research using small samples or simulation studies requires cost-benefit analysis as well as implementation criteria and engineering design implementation criteria to ensure that scalability, feasibility, and efficiency are assessed in more detailed ways than by merely reporting a decrease in error variances for theoretical examinee scores (Luecht, 2005a, 2005b). A wide range of assessment scores, test delivery strategies, purposes, and item scores are appropriate for educational achievement testing accountability and accountability, college and graduate admission testing, professional certification and psychological testing licensure testing, , intelligence testing, employment testing language testing, adult education, and military use. CBT now has a wide range of applications. From the early days of "dumb" terminals attached to a minicomputer mainframe or mainframe, CBT delivery has likewise seen several improvements. Networked PC workstations, laptops, personal computers (PCs), netbooks, and even portable gadgets like tablet computers smart phones and smart phones can all be used to administrate CBTs. A Personal Computer with an Internet connection and an online proctoring service can be used to conduct personalized testing in the privacy of one's home as well as dedicated CBT centers, computer labs in schools classrooms, or classrooms, colleges, and universities. Temporary CBT testing facilities can also be set up at auditoriums, hotels, or other locations where large meetings are held.

**Table 2.1 shows some articles reviewed.**

|  |  |  |  |
| --- | --- | --- | --- |
| **S/No.** | **AUTHORS** | **ARTICLE TITLE** | **JOURNAL VOLUME** |
| 1. | P Bhavitha et al | Online examination system | Volume 8, Issue 5, 2020 |
| 2. | Yuan Zhenming et al | A novel web-based online examination system for computer science education | Session S3F |
| 3. | Prince Ana and Paul Tawo Bukie | Design and implementation of online examination administration system for universities | Global journal of mathematical sciences vol. 12, 2013: 39-51 |
| 4. | Mustafa Ya et al | Designing and Implementing an Adaptive Online Examination System**.** | Volume 116, 21 February 2014, Pages 3079-3083 |
| 5. | Sangeeta Srivastava | A Repository of Software Requirement Patterns for Online Examination System | IJCSI International Journal of Computer Science Issues, Vol. 10, Issue 3, No 2, May 2013 |
| 6. | Mohammed Younis | Construction of an Online Examination System with Resumption and Randomization Capabilities | International Journal of Computing Academic Research (IJCAR), Volume 4, Number 2, April 2015 |
| 7. | Ali Talib Qasim Al-aqbi et al | Design and Implementation of Online Examination System based on MSVS and SQL for University Students in Iraq | Webology, Volume 18, Number 1, April, 2021 |
| 8. | Nader Abdel karim | Proposed features of an online examination interface design and its optimal values | Volume 64, November 2016, Pages 414-422 |

**ONLINE EXAMINATION SYSTEM**

An important method for evaluating a student's capacity for accomplishment is through online tests. Students who would enrol in computer courses or register for technologies were the most likely candidates for this assessment. The examination effort, end user, and software development are all represented in a model of an online layout assessment framework. Online assessment frameworks are electronic assessment frameworks that allow for online evaluation, such as over the internet or an intranet using a PC framework. It is an effective response for assessing mass training. An online instructional framework with features for test management and electronic diaries. An instructor creates a set of course-related questions that take into account the line content in assignment ID. Customers who attempted the platform may access the electronic information they provided and carry out various tasks with the online instructional framework in order to participate in the online exams. Customers can access an online exam for the course with mixed media content and electronically submit their answers. Additionally, students receive an evaluation or impressions guaranteed in their evaluations after finishing their length of exam. For many decision addresses that are fed into the framework, the framework does the evaluation and automatic review.[2]

**A NOVEL WEB-BASED ONLINE EXAMINATION SYSTEM FOR COMPUTER SCIENCE EDUCATION**

An effective instrument for assessing public education is the Web-based Examination System. A novel online examination system based on a Browser/Server architecture has been developed for the testing and automatic grading of objective questions and operating questions, such as programming, using Microsoft Windows, operating Microsoft Word, Excel, and PowerPoint, etc. In university courses on computer skills and the national evaluation of high school graduates in Zhejiang Province, China, it has been successfully applied in the remote assessment of fundamental computer science skills.[3]

## 2.3. SIMILAR SYSTEM/S (WITH SIMILAR FEATURES)

### 2.3.1 M. R. HAMEED AND F. A. ABDULLATIF ONLINE EXAMINATION SYSTEM

The first similar system is called online examination system. It is a web-based examination system that saves exam information in a database. Teachers can add or delete questions, set answers, specify the exam period, register and delete students, show questions to students at random, calculate and display final results for students (Munai R.i Hameedi andi Firas.i A.i Abdullatif,i 2017). The online examination system has a client/server setup. When a client connects to a server through the internet or a local host, PHP and MySQL on the server side are in charge of setting up the testing procedures and storing and retrieving data from databases, respectively.

The system is made up of two (2) distinct users, an administrator and a student. If a person wants to manage administrative tasks, they may log on to the system at any moment using the admin details that have already been stored. Questions about management that include two primary operations are contained in administrative activities. Managing students involves two primary operations: adding questions, deleting questions, and managing students. Student registration, student deletion, and result management I display each student's performance. A series of questions will be provided to the student when he logs in so that he can start and administer a test while the student activity is ongoing. Get the outcomes: The student will complete the test if they have responded to all of the questions within the allotted time. According to Munai R. Hameed and Firas A. Abdullatif (2017), andi his/her degree will be displayed on the screen.[4]

## 2.4. PROPOSED SYSTEM

The propose system “Design and Developed Web-enable Database Application System for Skyline University Nigeria computer based test system” which will replace the present system in the Maitama Sule (manual or the Traditional method). The new system will used modern technologies which will facilitates secured records of the students and the management of the Skyline University Nigeria. And also if implemented this will reduce the hardship and difficulties in managing the examination process of the university.

Exam records is very important to any organization including Skyline University. In skyline University Nigeria, applications of computer based test system and exam records technology are important to support education management function including schools. Exam records technology is not only used for learning and teaching but, also used in management and administration task such as recording student’s exam records, academic exam records, and co-curriculum exam records. Therefore, exam records at education departments needs to be managed very effectively and in a systematic way.

## 2.5. RESEARCH GAP

**COMPARISON BETWEEN M. R. HAMEED AND F. A. ABDULLATIF ONLINE EXAMINATION SYSTEM AND THE PROPOSED SYSTEM.**

**Table 2.2 shows the research gap**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NO** | **FEATURES** | **EXISTING SYSTEM** | **M. R. HAMEED AND F. A.**  **ABDULLATIF ONLINE**  **EXAMINATION SYSTEM** | **NEW SYSTEM** |
| **1.** | Security | It has a very high security  performance because there  are some CCTV camera and  invigilator at every point of  the examination hall | Less secure, because the  system allow student to  register themselves | More secured |
| **2.** | GUI design | It has no user interface  because it is a manual  system | It has average good user  interface | It has very good user  interface |
| **3.** | Accessibility | Very fast, because is  manual system | Fast, depend on the internet  speed | Fast, depend on the  internet speed |
| **4.** | Simplicity | The manual system is rough  to interact with because it  requires large amount of  time and expenses | It has simple design, but  lack information and  features | It has simple design  structure and also has a  simple user interface for  easy interaction |
| **5.** | System Type | It is a manual system that  cannot be accessed online | It is an Online system that  Can be accessed online. | It is an Online system  that can be accessed  Online. |
| **6.** | Mode of operation | The manual system where  by the student can write  paper based exam | It can be operated online  and target user can interact  with the system 24/7,  because it is a web based  application | It can be operated online  and target user can  interact with the system  24/7, because it is a web  based application |
| **7.** | Flexibility | Not flexible | Less flexible | More flexible |

## 2.6. SUMMARY

This chapter has helped us to understand the significance of creating a new system and the necessity of it having new features and functionality in order to solve all the problems associated with the previous manual procedure. In order to have a better understanding of what has been incorporated into the new system, I conducted a literature analysis. I was able to determine that the majority of comparable systems either had issues with their systems or needed to be improved with new features.

# CHAPTER 3

# 3.0 METHODOLOGY

## 3.1 INTRODUCTION

Research methodology outlines the way in which research is to be undertaken and the lens through which analysis occurs. However, this chapter deals effectively with the method to be adopted in conducting a research and it is organized under various sub headings such as Research design, Population of the research, instrument for data collection, Sample and sampling technique, reliability of the instrument, validity of the instrument procedure for data collection and method of data analysis.

This chapter gives an insight into the design, method, process and technique used in generating and analyzing the data of the study. All the stages are captured under the following sub-headings:

3.2 Software process model

3.3 steps in process model

3.4 Advantages and Disadvantages

3.5. Functional and non-functional requirement

3.5 Front end Technologies

3.6 Backend Technologies

3.7 Servers Support

3.8 Software Tools

3.9 SRS/SDD documents.

## 3.2 SOFTWARE PROCESS MODEL (Water Fall Model)

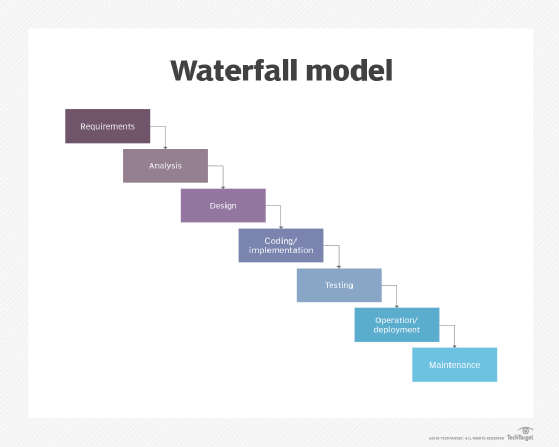
A software process model is a method used in software engineering to divide software development work into distinct phases in order to enhance project management, product management, and design. An alternative name for it is a software development life cycle. There are many software process models but the most popular ones are:

* Waterfall model
* Incremental model
* V model
* RAD model
* Agile model
* Prototype model
* Iterative model
* Spiral model

**WATERFALL MODEL**

Popular in software engineering and product development, the waterfall model is a linear, sequential approach to the software development life cycle (SDLC). The waterfall approach places an emphasis on logical step development. Distinct endpoints or goals are established at each stage of development and cannot be changed after completion, much as the direction water runs over the brink of a cliff. Dr. Winston W. Royce initially used the phrase in a study that was published in 1970, and it is being used in industrial design applications today. [5]

## 3.3 STEPS IN WATERFALL MODEL



* **STEP1: REQUIREMENTS:** Possible requirements, timelines, and guidelines are examined and incorporated into a functional specification for the project. This stage deals with the project's definition and planning without naming any particular procedures.
* **STEP2: ANALYSIS**: To create product models and business logic that will direct manufacturing, the system specifications are examined. At this point, the viability of the available financial and technological resources is also examined.
* **STEP3: DESIGN**: To describe the technical design requirements, such as the programming language hardware, architecture, data sources and services, a design specification document is developed.
* **STEP4: CODING/IMPLEMENTATION**: Using the logic, models and requirements specified in the earlier stages, the source code is produced. Usually, the system is developed in smaller parts or units before being put into action as a whole.
* **STEP5: TESTING:** To identify potential problems, quality assurance, system, unit, and beta tests are carried out. This can compel the debugging part of the coding process to be repeated. The waterfall process resumes if the system passes the tests.
* **OPERATION/DEPLOYMENT**: The product or application is released into a live environment after being verified as fully working.
* **MAINTENANCE**: To continuously improve, enhance and update the finished product, corrective, perfective and adaptive maintenance is carried out. This can entail the introduction of patch updates or new versions.

## 3.4 ADVANTAGES AND DISADVANTAGES OF WATERFALL MODEL

**Table 3.1 shows the advantages and disadvantages of waterfall model**

|  |  |
| --- | --- |
| **ADVANTAGES** | **DISADVANTAGES** |
| Large or moving teams may stay informed and work towards a unified objective with the help of early documentation and planning phases. | Design is not adaptable; frequently, the entire process must be restarted when a defect is discovered. |
| Organized and structured | Ignores the possibility of receiving user or client input mid-process and making adjustments based on outcomes. |
| Is easy to comprehend, follow, and organize work. | Waits till the conclusion of the development life cycle before testing. |
| Allows for easier departmentalization and management control based on deadlines. | Ignores the need for mistake correction. |
| Promotes the best coding practices of defining before designing and then coding. | Does not effectively respond to requests for scope modifications, alterations, or updates. |
| Makes it simple to make early design or specification adjustments. | Prevents operations from overlapping, which decreases efficiency. |
| Deadlines and milestones are precisely defined. | It takes till the later phases of the life cycle before a workable product is accessible. |
|  | Not the best choice for continuous, sophisticated, high-risk, or object-oriented projects |

## 3.5 FUNCTIONAL AND NON FUNCTIONAL REQUIREMENTS.

### 3.5.1. FUNCTIONAL REQUIREMENTS.

Functional requirements are product features that are focused on user demands. They are stated in an SRS document (software requirements specification) and describe what and how a software system must perform. In some cases functional requirements may also state what the system should not do.

The following are the functional requirements of a web based GST examination system:

* The admin should be able to log in.
* The admin should be able to register students.
* The admin should verify the admin login from database.
* The system should be able to give the result of the exams.
* The system should save examinees information in the database.
* The admin should be able to add, edit, delete or update examinee and exams questions.
* The examinees should be able to login.
* The system shall store admin login information in the database.

### 3.5.2. NON FUNCTIONAL REQUIREMENTS

The limitations or restrictions placed on the system are known as non-functional requirements. They define the quality aspect of the software. Scalability, maintainability, performance, security,

Dependability, portability, and many more challenges are covered by non-functional requirements.

* EFFICIENCY: The system should be able to provide process faster and in efficient manner.
* SECURITY: The system should be highly secured because of the data it contains.
* USABILITY: The system should be designed with friendly user interface and be able to be used interactively by the end user.
* RELIABILITY: The system should work without any loss of data.
* ACCURACY: The system should work correctly.
* ELIGIBILITY AND AUTHENTICATION: Only registered students should be able to use the system.

### 3.5.3 HARDWARE REQUIREMENTS

* The minimum hardware configuration needed to run this project are:
* A 40GB (gigabyte ) capacity hard disk or above
* A RAM (random Access Memory
* An uninterrupted power supply
* A suitable printer laser jet (1320) or above

## 3.6 FRONT END TECHNOLOGIES

* **JAVASCRIPT**: A dynamic computer programming language is called JavaScript. Its implementation enables a client-side script to interact with a user and create dynamic pages. It is small and most frequently used as a component of web pages. It is an object-oriented programming language that may be interpreted.
* A Web programming language is JavaScript. In the present job market, this is one of the most important and highly demanded abilities. JavaScript creates widely used frameworks and libraries (like jQuery) in addition to improving cooperation on websites (such as AngularJS, ReactJS, and NodeJs). It is essential that you have a solid grasp of this versatile language if you want to work as a web developer. Both coding languages may be used to create apps. When consumers utilize the application, the developer's choice of programming language is flexible.
* **HTML:** The usual name for the markup language used to construct web pages is HTML, or Hyper Text Markup Language. HTML files can be read by web browsers, which can then convert them into aural or visual web pages. HTML is a markup language, not a programming language, because it provides presentation cues along with semantic descriptions of the structure of a website. It's a type of computer language used to display Web pages on the Internet. It is the underlying technology that powers everything you see in a web browser and is used to create everything from basic web pages to sophisticated online apps and services.
* HTML is easy to use and comprehend.
* HTML is supported by all browsers.
* **CSS:** Cascading Style Sheets is a language for creating style sheets that describe how a document presented in a markup language, such as HTML. The World Wide Web's foundational technologies, along with JavaScript, and HTML, include CSS.

## 3.7 BACKEND TECHNOLOGY

* MY SQL: The relational database management system MySQL is free and open source. That enables you save all of your blog articles, users, plugin data, etc. for WordPress sites. It is relational because it saves such data in several "tables" and links it with "keys."
* The relational database management system MySQL is built on the SQL (Structured Query Language) language. E-commerce, Data warehousing, and logging applications are just a few of the many uses for the program. But the most typical application of mySQL is as an online database.

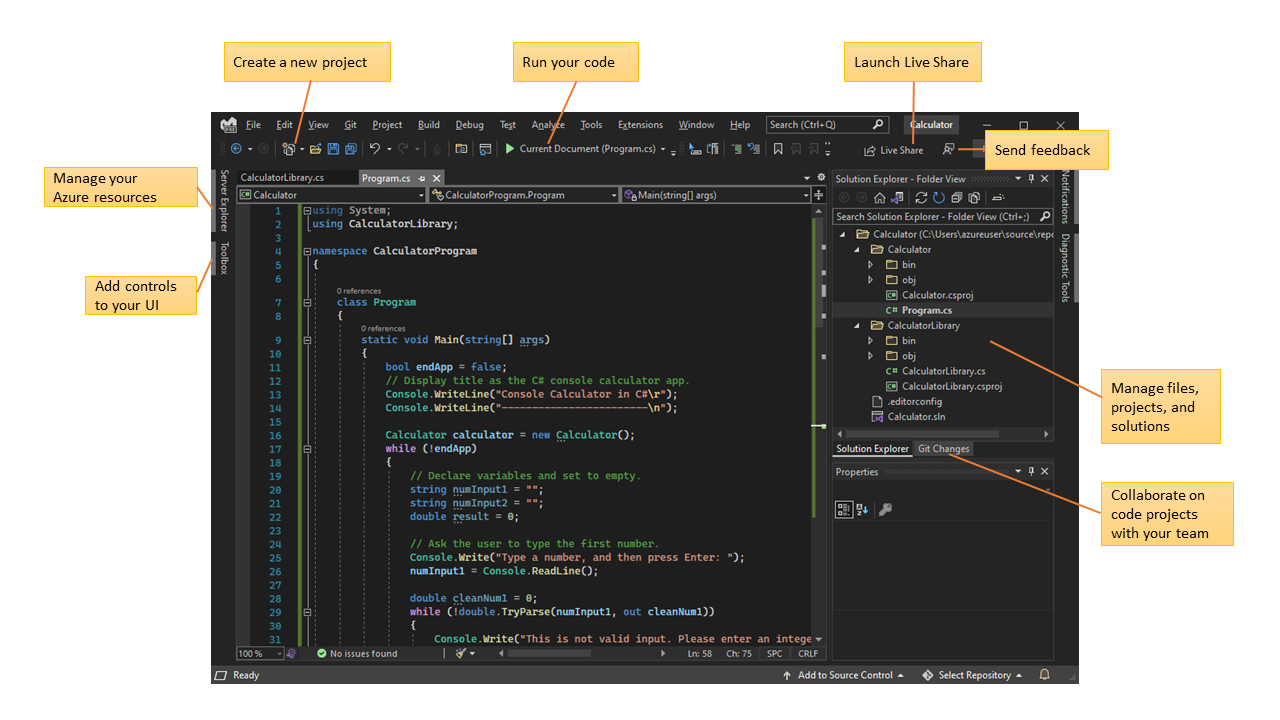
## 3.8 SERVER SUPPORT LANGUAGE

* **PHP:** The term "PHP: Hypertext Preprocessor" is an abbreviation. A popular open source programming language is PHP. On the server, PHP programs are run. You may use and download PHP for free. It is employed in the development of dynamic, static and web applications.
* The fact that PHP is cost-free and open-source is its main benefit. It is easily available for usage with events or online apps and may be downloaded from any location.
* It is independent of platforms. Applications built using PHP may operate on any OS, including Linux, UNIX, Windows, etc.

Easy management of code.

## 3.9 SOFTWARE TOOL

* **XAMPP SERVER LOCAL HOST:** It is a local host used to serve as a local network.
* Cross-platform Apache, MySQL, PHP, and Perl, often known as XAMPP, enables you to create WordPress websites locally on your PC using a local web server. This straightforward and lightweight solution is "cross-platform" in that it runs on Windows, Linux, and Mac.
* **VISUAL STUDIO:** A feature-rich tool called an integrated development environment (IDE) supports many different facets of software development. You may edit, develop, debug, and publish an app using the Visual Studio IDE as your creative launchpad, code completion tools, Compilers, graphical designers, and many other capabilities are included in Visual Studio in addition to the conventional editor and debugger that are offered by the majority of IDEs to improve the software development process.



* WEB-BROWSER: A bowser is a piece of software that allows you to view and interact with all of the content on the World Wide Web. This includes movies, images, and web pages, E.g Internet Explorer, Google Chrome etc.

**3.10. DATA COLLECTION METHOD**

* The act of measuring ,obtaining and analyzing precise data from a range of pertinent sources in order to address issues in research, provide answers to assess results, queries and predict future trends and probability is known as data collection.
* **PRIMARY DATA COLLECTION**
* This is authentic, first-hand data that the data researchers have acquired, as the name suggests. Prior to conducting any additional or connected study, this procedure is the first stage in acquiring information. Results from primary data are quite accurate as long as the researcher gathers the data. However, there is a drawback because in-person research may be time-consuming and expensive. E.g Interviews, Focus group etc.
* I collected my data using interview method.
* **INTERVIEW**

A sizable sample of people are surveyed by the researcher, either through in-person interviews or other forms of mass contact like mails or phone. This approach is by far the most typical way to collect data. However this research work I have an experience on CBT based test. I conducted an interview for 5 people.

* **Research Design**

Research design is the conceptual structure within which research is conducted. The research is qualitative research. Qualitative data analysis tends to be primarily an inductive process of organizing data into categories and identifying patterns. Qualitative data collection methods play an important role in impact evaluation by providing information useful to understand the processes behind the observe results and assess changes in people’s perceptions of their well-being. Research is an important way to get new facts or additional information. In this research, there are certain activities that have to be performed. In this case, methodology is necessary needed to make the research easy to conduct or to be effective.

* **Population of the research**

A population is defined as all elements (people, things, and events) that satisfy the sample requirements for inclusion in a study, according to Burn and Grove (1993:779). The target population must be located, and the sample frame must be built, in order to define the population. The teachers and students at Sky Line University are thus the study's target population. Based on their suitability for the study given the research topic, this population was chosen. As a result, in qualitative research, the population is seen as a group of capable individuals who are able to consider and articulate their experiences, values, beliefs, and opinions.

* **Sample and Sampling technique**

Sampling in qualitative research is termed non-probability sampling, which is means that members of qualitative study population do not have an equal chance of being selected. In this study, purposive sampling method is used in selection of the sample. Purposive sampling technique, also called judgmental sampling, is a deliberate choice of an informant due to the quality the informant possesses. It is non-random technique that does not need underlying theories or set number of informant. The researcher decides what needs to be known and set out to find who can and willing the information by virtue of knowledge or experience. In this research, five students and five lecturers are therefore, selected as sample.

* **Instrument for Data Collection**

Interviews were used as the data gathering tool in this study. Participants in a study are questioned in an interview to obtain their responses. Because they can be used to learn in-depth details about a participant's thought, belief, knowledge, reasoning, motivations, and feelings regarding a topic, qualitative interviews are also known as depth interviews. Through qualitative interviewing, a researcher can peek inside another person's head and comprehend their point of view. For this study, structured, open-ended interviews will be used.

* **Validity of the Instrument**

The participants of this research are selected where the research is conducted in order to ensure the standard of the instrument and the extent through which the result of the study will be valid.

* **Reliability of the Instrument**

To make the interview reliable, a warm and non-judgmental manner toward the participants, asking question in a balanced, and choosing appropriate setting for the interview will be strictly ensured. Also, the research adopted structured interview which follow a list of set of questions. In lieu of this, the interview question will be forward to the supervisor in order to better ascertain the reliability of the instrument.

* **Procedure for Data Collection**

The instrument for data collection followed the identification of the sample. In this research, the data collection takes the form of direct data. Direct data include recordable, spoken or written words and also observable body language, actions and interactions. Therefore, the study uses face to face interview technique.

* **Method of Data Analysis**

In this research, the data will be analyze using thematic analysis. Thematic analysis is a way of seeing, as well as a process for coding qualitative information. Thematic analysis is a method to analyze, identify, and report patterns (themes) within data and producing a report.

**Table 3.2 shows the interview questions.**

|  |  |
| --- | --- |
| **Question One** | Which method of conducting exam do you prefer |
| **Question Two** | Do you think the new system of GST will make things easier for you |
| **Question Three** | Do you think the new system will help Sky Line to manage their examination in easier in less time |
| **Question Four** | What do think should be added in the new system |
| **Question Five** | How far do you like the idea of online examination |

**INTERNET:** This method was used in sourcing out some information needed in carrying out the project work.

# CHAPTER 4

# 4.0 SOFTWARE DESIGN, ARCHITECTURE AND TESTING METHOD

## 4.1 INTRODUCTION

This chapter deals with the analysis, design, implementation and testing of the system.

## 4.2 SOFTWARE DESIGN

Software design is the process by which an agent develops a specification of a software artefact intended to achieve goals, utilizing a collection of simple building blocks and subject to limitations. Software architecture is simply how a system is organized. This organization encompasses all elements, their interactions, the setting in which they function, and the design concepts that guided the software.

The different tactics or strategies used to test an application to make sure it functions and appears as intended are known as software testing methodologies.

This also specifies the sub-systems that make up the entire system. The sub-systems are:

* Login page
* Main admin page
* Attempting examination
* View records
* Change password
* Logout

**EXAMINEE** It consists of:

* Login page
* Exams questions
* Feedback
* Edit exams
* Logout

LOGIN PAGE

ADMIN PAGE

Delete Records

ADD RECORDS

Questions

Examinee

Manage course

**DATABASE**

Manage examinee

Course cccccccccoCourse

Exam

View Records

LOGOUT

DATABASE FILES

**Fig 4.1. Shows the software design of the admin**

LOGIN PAGE

EXAMINEE PAGE

ADD RECORDS

Feedback

**DATABASE**

Write exams

View exams

Database files

Delete exams

LOGOUT

**Fig 4.2 shows the software design of the examinees page**

## 4.3 UML DESIGN DIAGRAM

The goal of a UML diagram is to visually represent a system together with its primary actors, actions, roles, artifacts, or classes in order to better understand, maintain, update, or document information about the system. UML diagrams are based on the UML (Unified Modeling Language).

Admin Login Page

Perform operation

Access denied

Login

Display menu

[Incorrect login info]

[Correct login info]

Confirm

Fig 4.3 shows the Admin flowchart

EXAMINEE

Start exams

Examinee registered

Input Data

Save Record

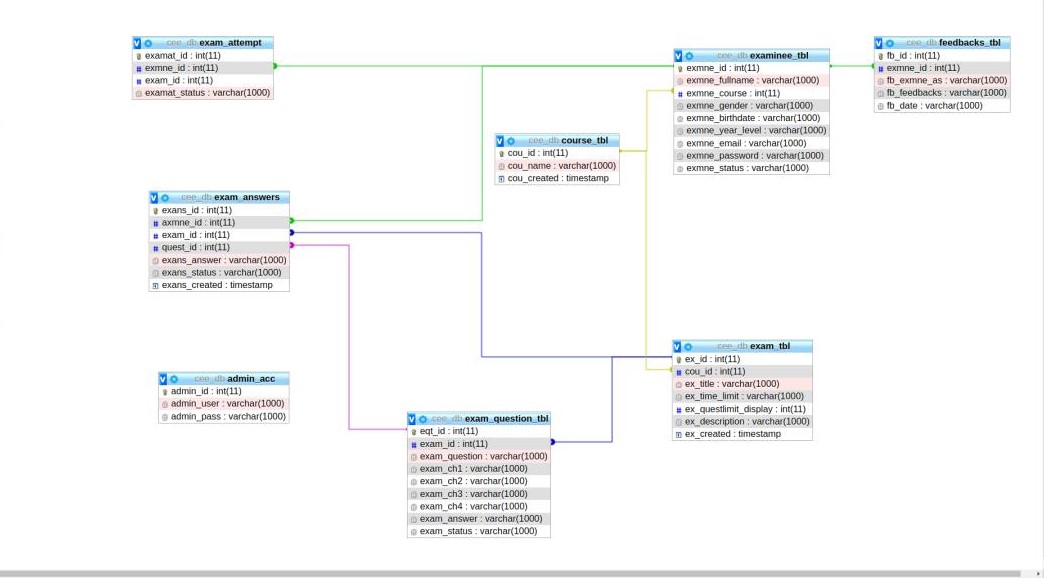
Yes

No

Registered?

Fig 4.4 shows examinee activity diagram

**CLASS-DIAGRAM**



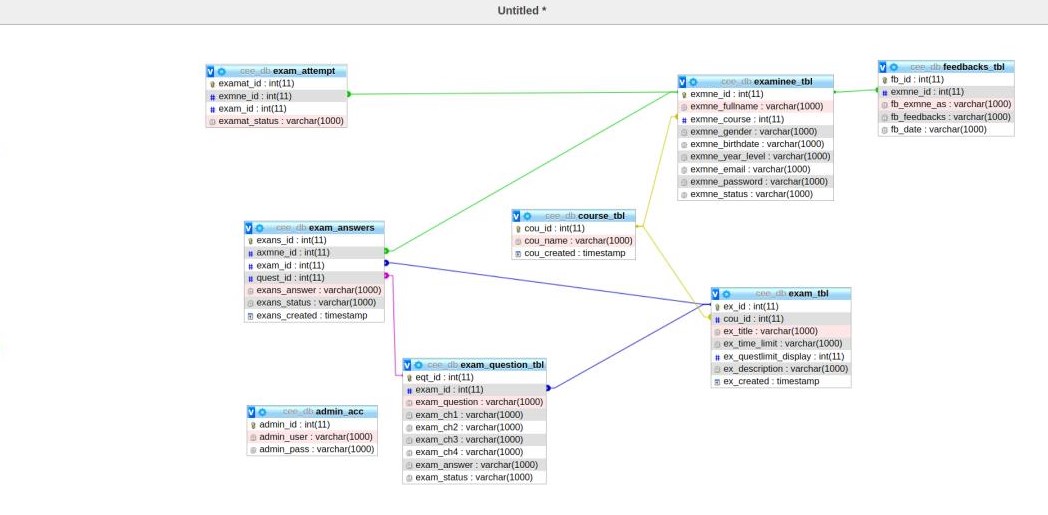
****

Fig 4.5 shows the class diagram

**ER DIAGRAM**

FEEDBACK TABLE

1 TOO MANY

EXAMS ATTEMPT

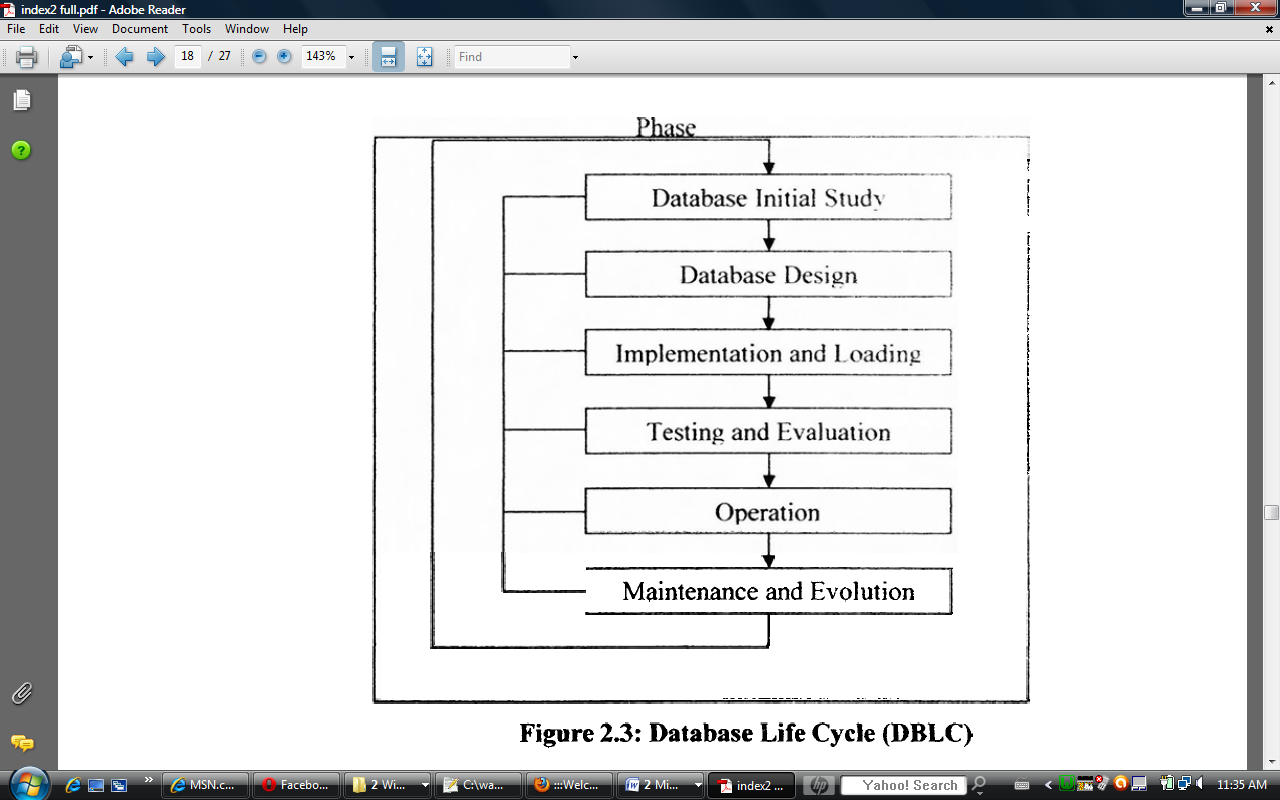
EXAMINEE TABLE

Fig 4.6 shows the ER diagram

## 4.4 DATABASE DESIGN

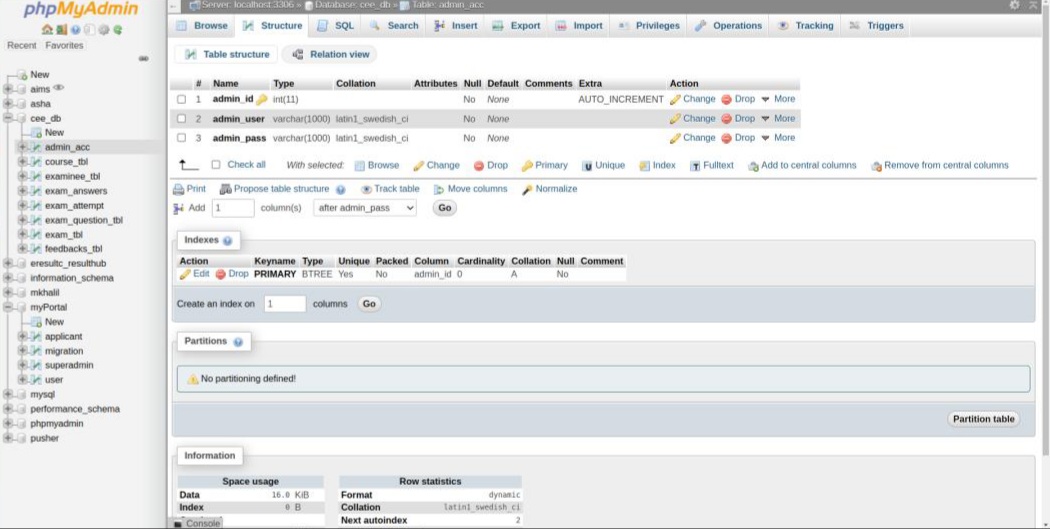
Database design is the organization of data according to a database model. The designer determines what data must be stored and how the data elements interrelate. With this information, they can begin to fit the data to the database model.

Fig 4.7 shows the database design

****

**ADMIN**

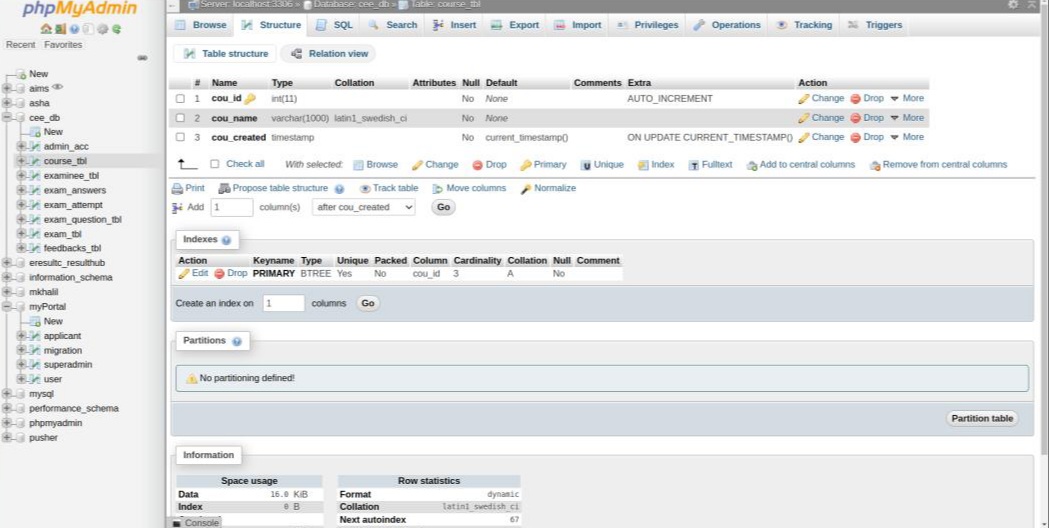
|  |  |  |  |
| --- | --- | --- | --- |
| S/N | FIELD NAME | DATATYPE | SIZE |
| 1 | ADMIN\_ID | INT | 11 |
| 2 | ADMIN\_USER | VARCHAR | 1000 |
| 3 | ADMIN\_PASS | VARCHAR | 1000 |



**Table 4.1**

**COURSE TABLE**

|  |  |  |
| --- | --- | --- |
| S/N | COURSE ID | COURSE NAME |
| 1 | 25 | ENTREPRENEURSHIP |
| 2 | 26 | ENTREPRENEURSHIP TEST |
| 3 | 65 | CRITICAL THINKING |



**Table 4.2**

**EXAMINEE TABLE**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| EXAMNE ID | EXMNE  FULLNAME | EXMNE COURSE | EXMNE GENDER | EXMNE  BIRTHDATE | EXMNE YR  LEVEL | EXMNE  EMAIL | EXMNE  PASSWORD |
| 4 | AMINA | 26 | male | 2019-11-15 | Third yr |  | 444 |
| 5 | HALIMA | 25 | female |  | Second yr |  | 555 |
| 6 | YUSUF | 26 | female |  | Fourth yr |  | 123 |
| 7 | YASMEEN | 26 | female |  | secondyr |  | 134 |
| 8 | KHADIJA | 26 | female |  | Fourth yr |  | 123 |
| 9 | AISHA | 26 | male |  | Fourth yr |  | 1185 |

|  |  |  |  |
| --- | --- | --- | --- |
| NO | NAME | DATATYPE | SIZE |
| 1 | EXMNE ID | VARCHAR | 1000 |
| 2 | EXMNE-FULLNAME | VARCHAR | 1000 |
| 3 | EXMNE-COURSE | VARCHAR | 1000 |
| 4 | EXMNE-GENDER | VARCHAR | 1000 |
| 5 | EXMNE-BIRTHDATE | VARCHAR | 1000 |
| 6 | EXMNE-YR-LEVEL | VARCHAR | 1000 |
| 7 | EXMNE-EMAIL | VARCHAR | 1000 |

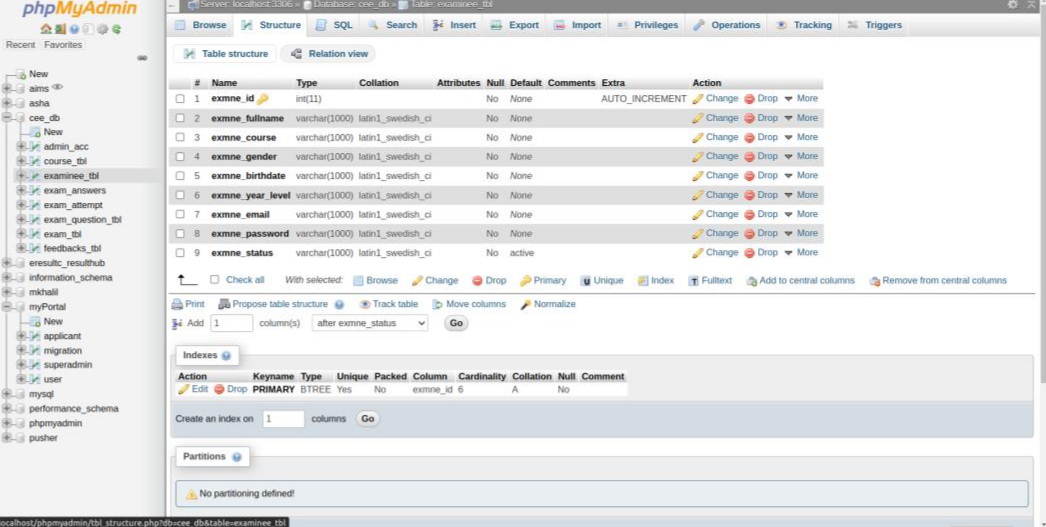


Table 4.3

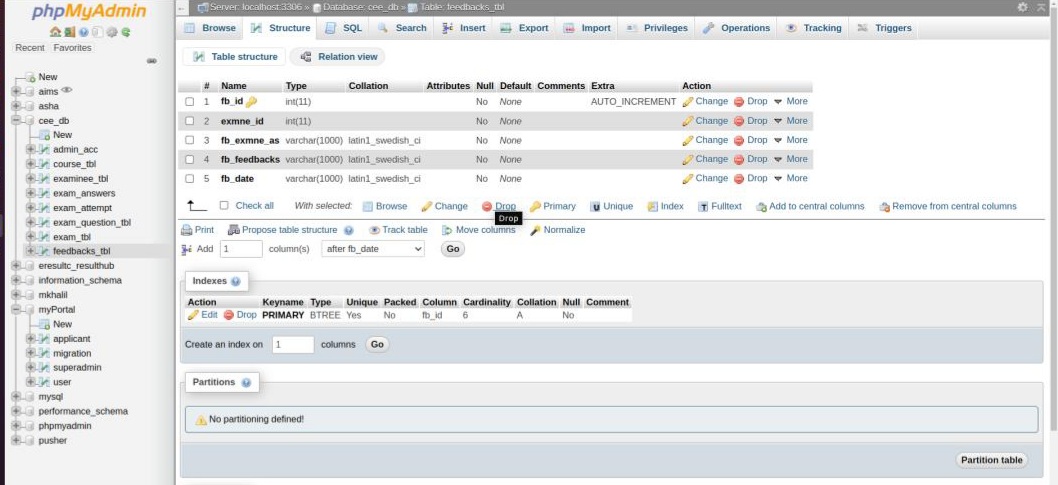
FEEDBACKTABLE

Table 4.4

EXAMS ATTEMPT TABLE

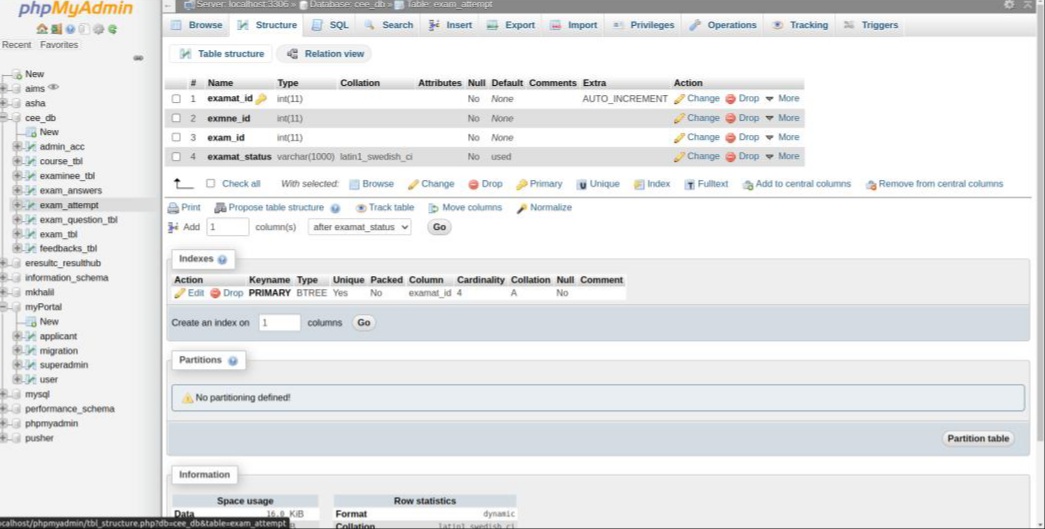


Table 4.5

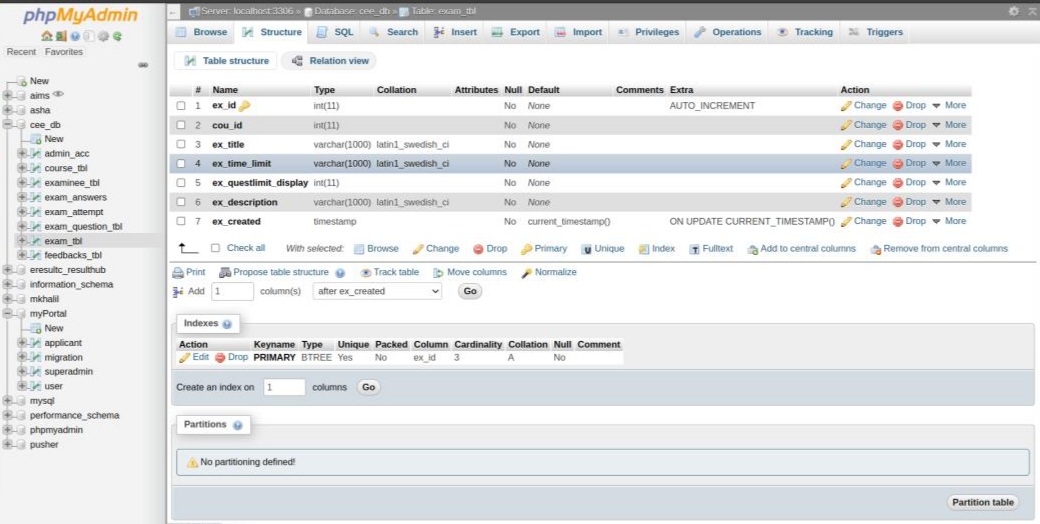
EXAMS TABLE

Table 4.6

EXAMS QUESTION TABLE

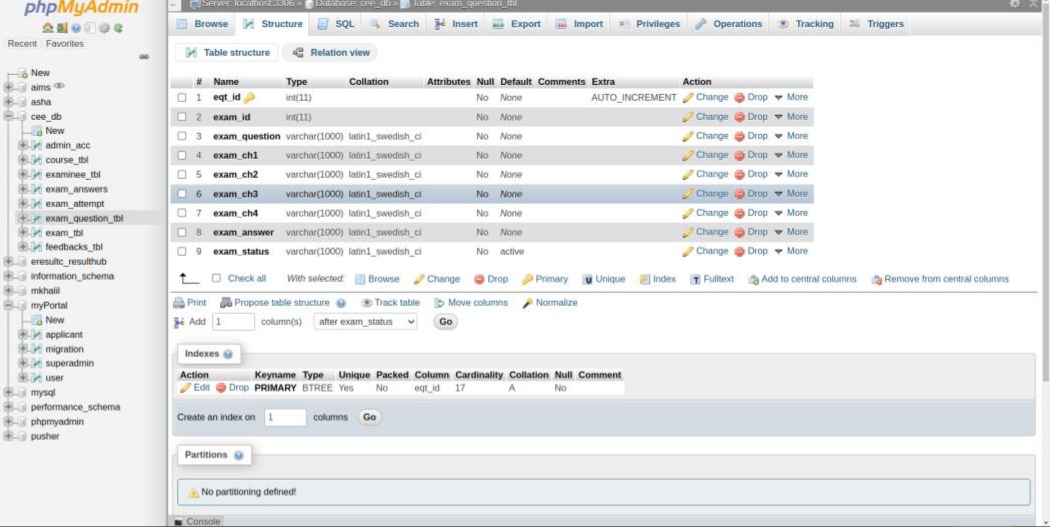


Table 4.7

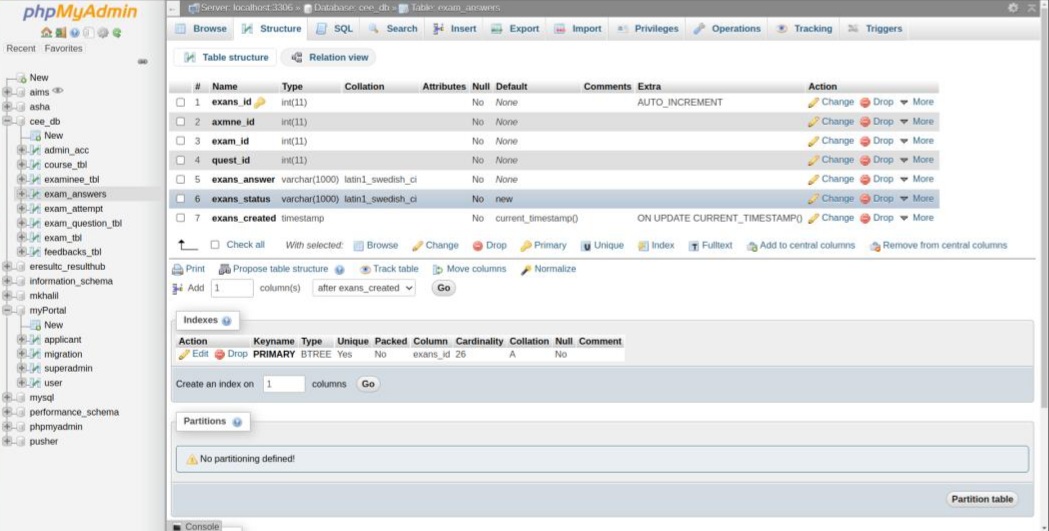
EXAMS ANSWERTABLE 

Table 4.8

Table 4.8

**4.5 SCREEN DESIGN**

Screen of Front-end development is the technical implementation of the software's user interface (UI). UI design is the graphical bridge that connects the two.

* Below is the examinees login page where the examinee can log using his/her email and password.

ADMIN LOGIN

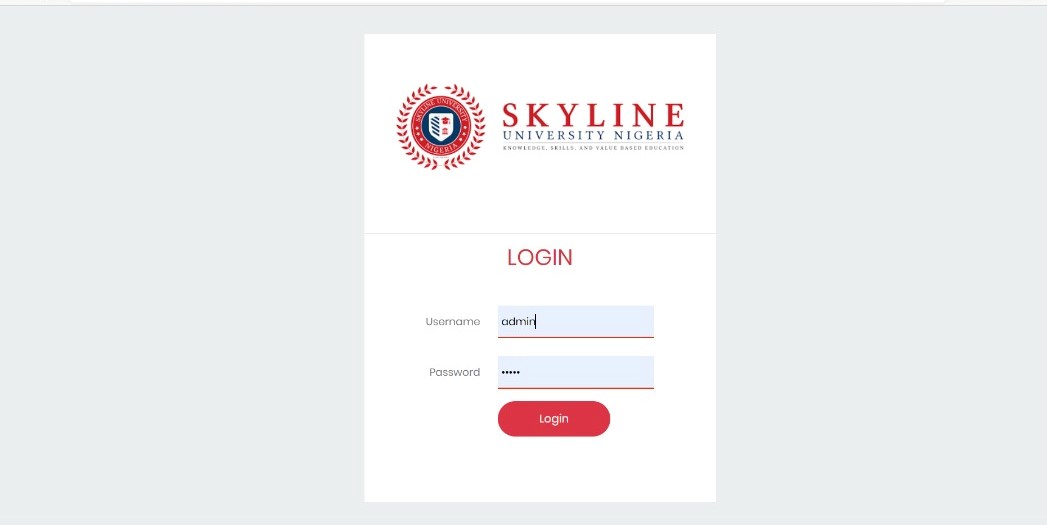


Fig 4.7

ADMIN DASHBOARD

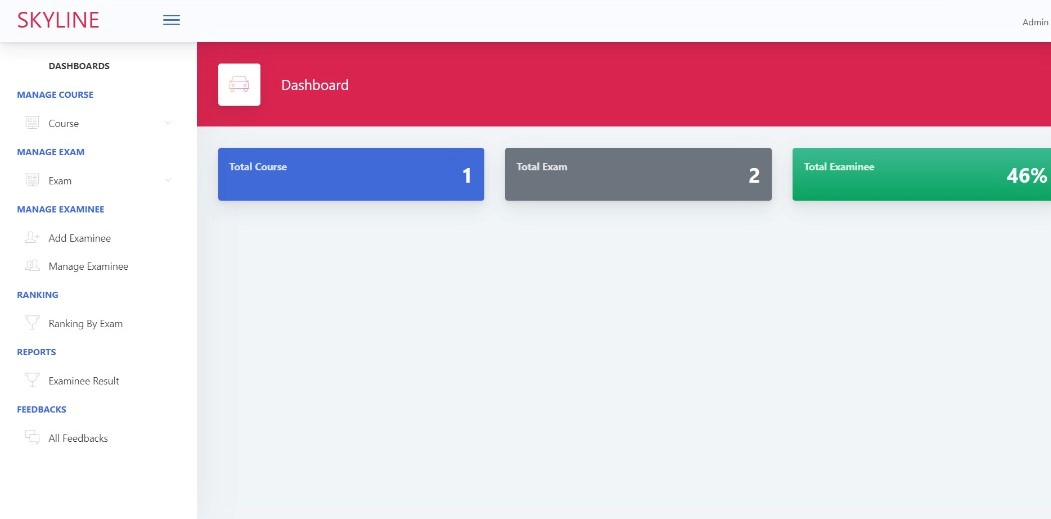
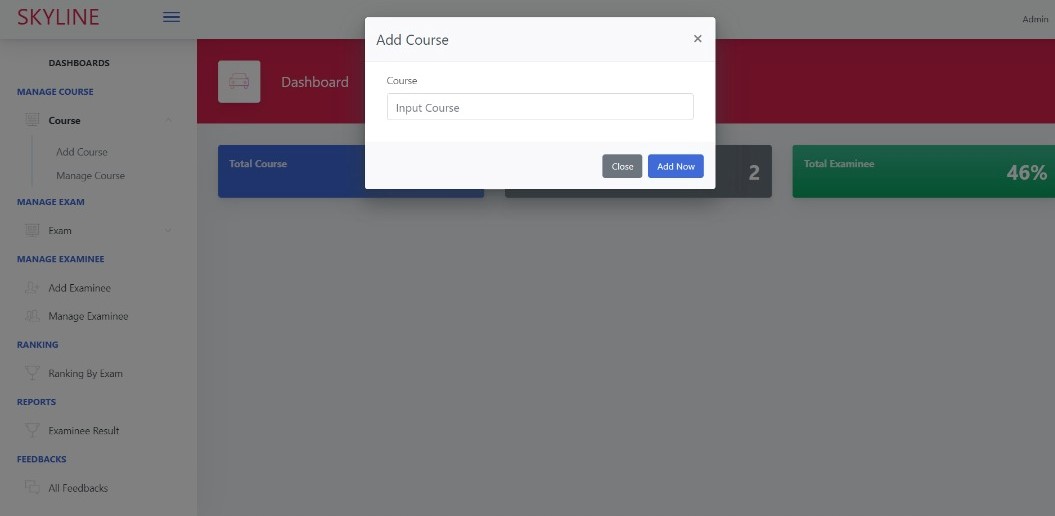


Fig 4.8

ADD COURSE



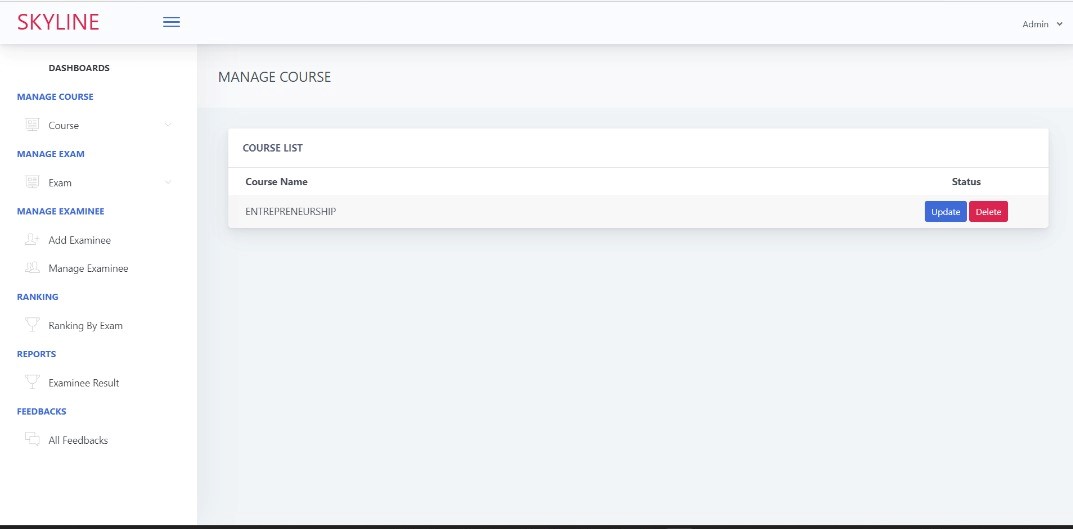


Fig 4.9

ADD EXAMS

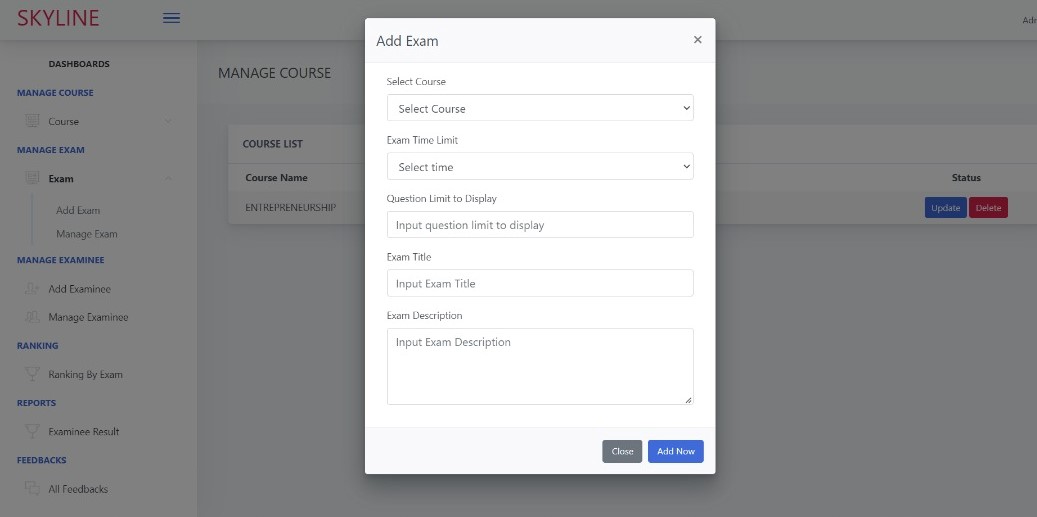
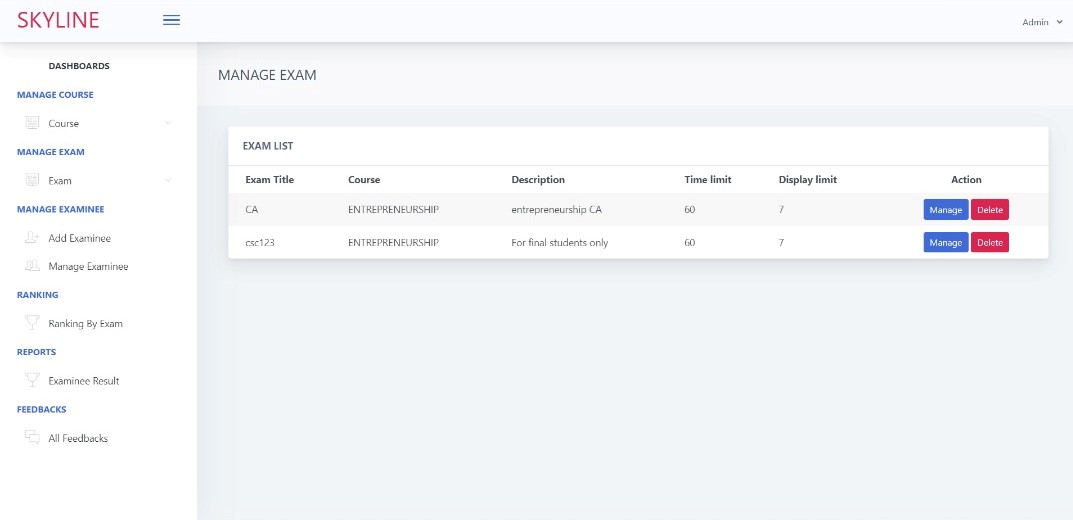


Fig 4.1.0

MANAGE EXAMS



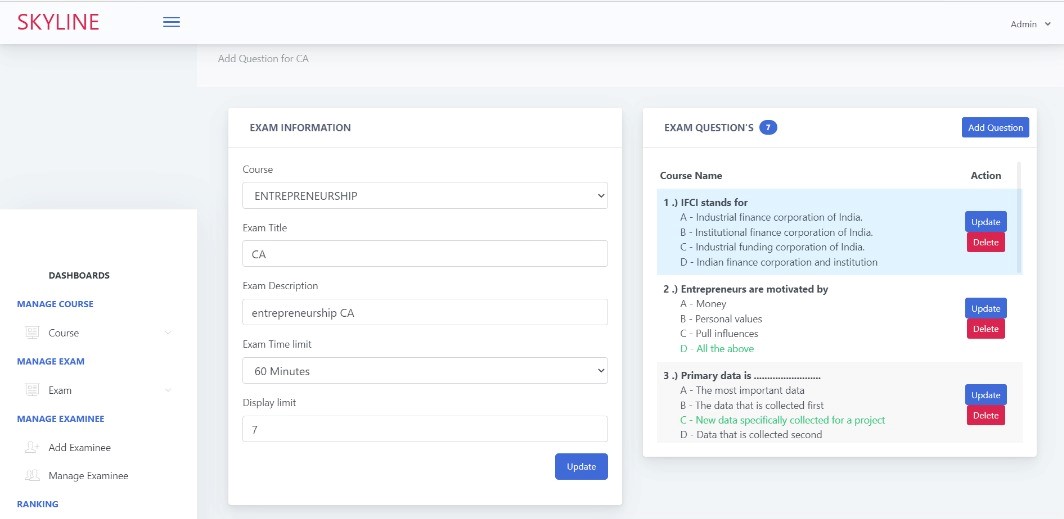


Fig 4.1.1

ADD EXAMINEE

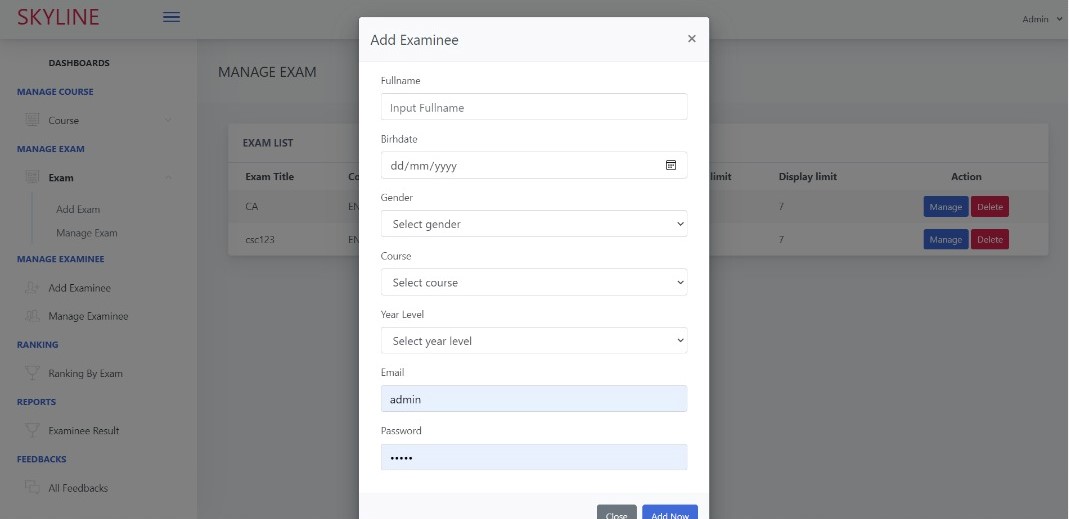


Fig 4.12

MANAGE EXAMINEE

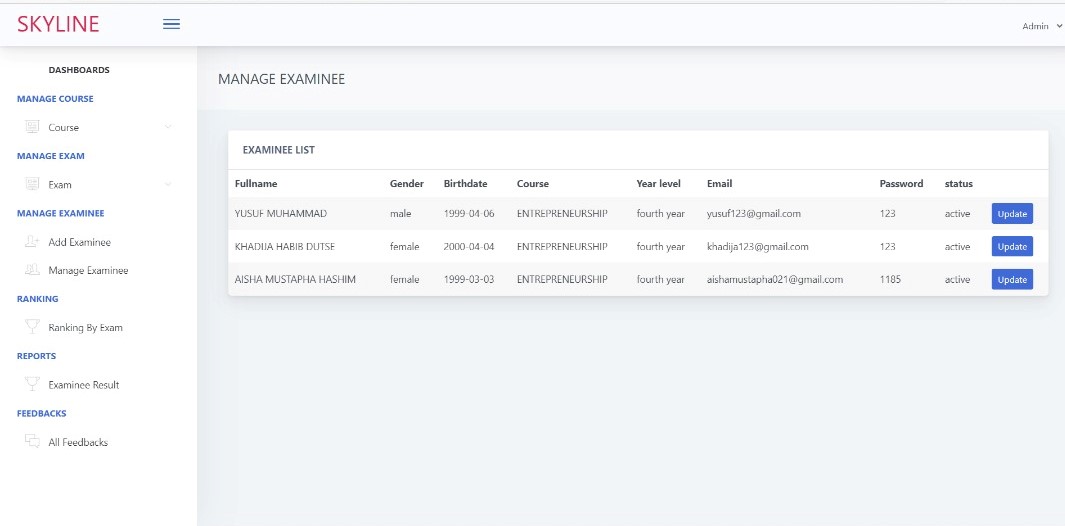


Fig 4.13

UPDATE EXAMINEE

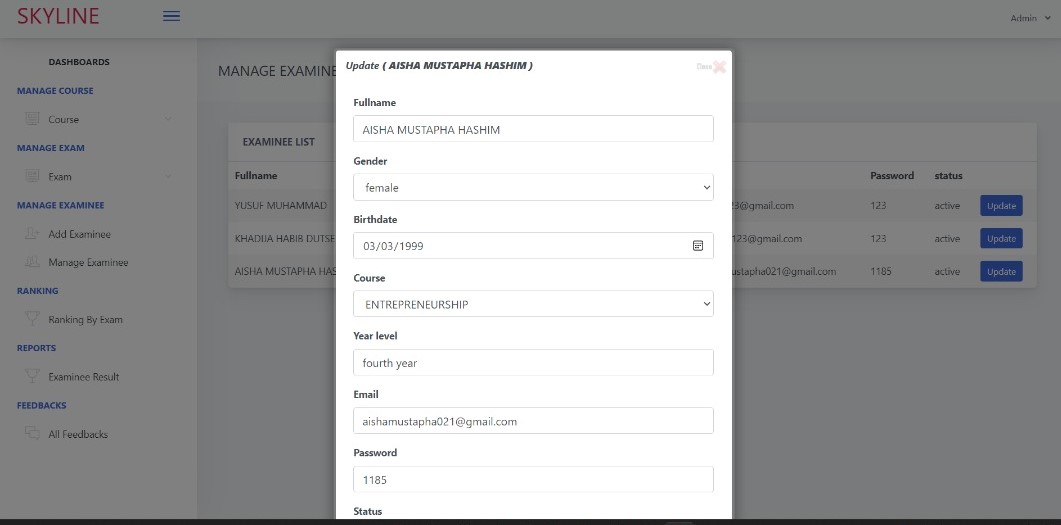


Fig 4.13

RANKING OF EXAMS

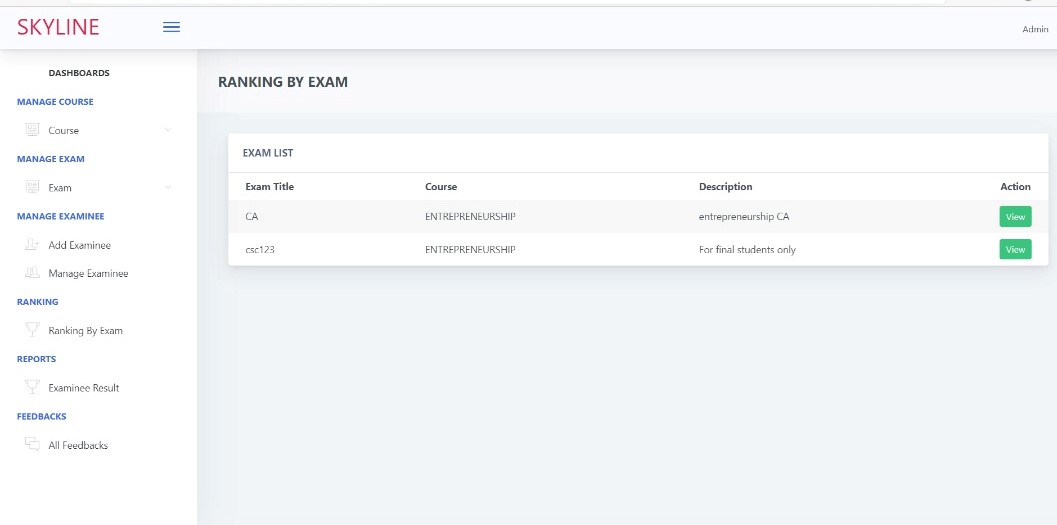


Fig 4.14

EXAMINEE RESULT

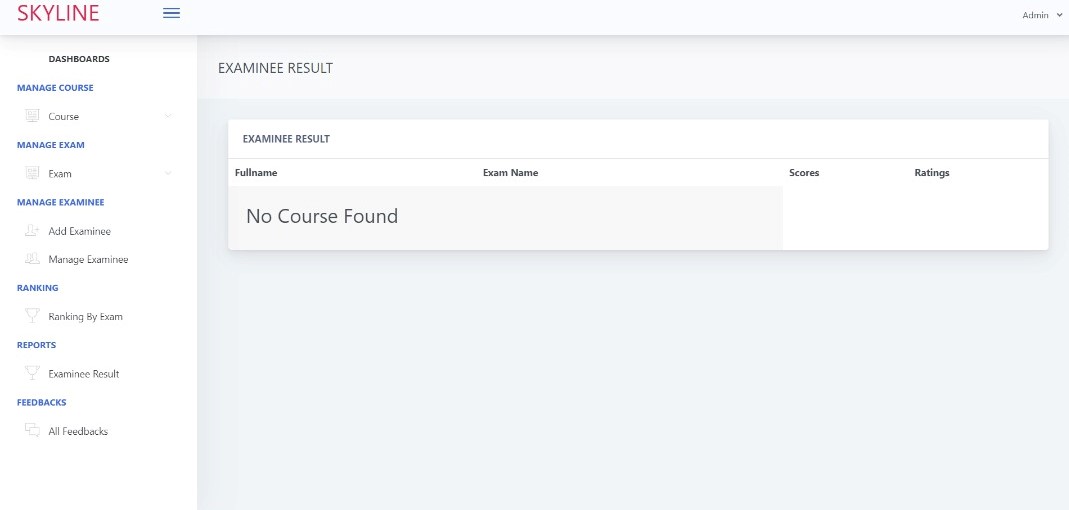


Fig 4.15

FEEDBACK FROM STUDENT

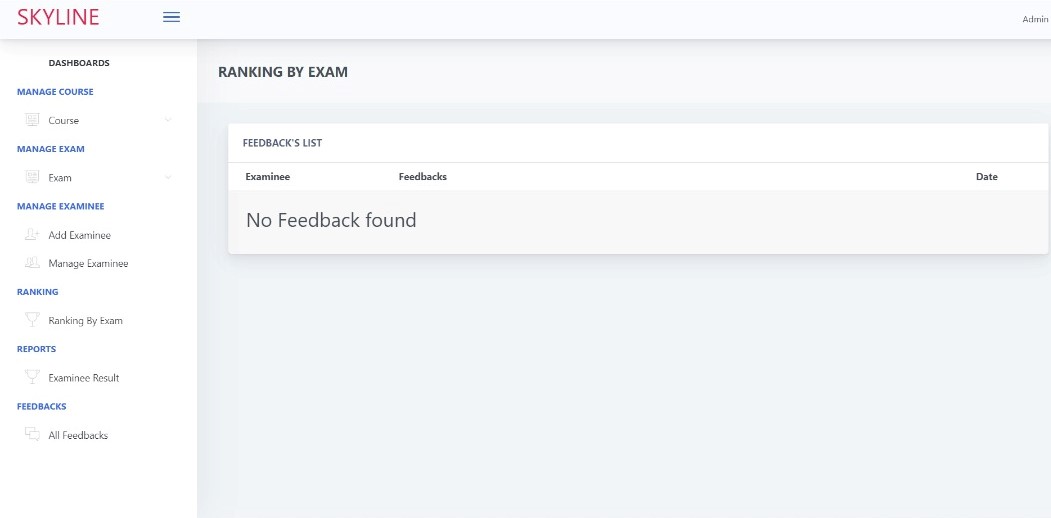


Fig 4.16

STUDENTS / EXAMINEE LOGIN

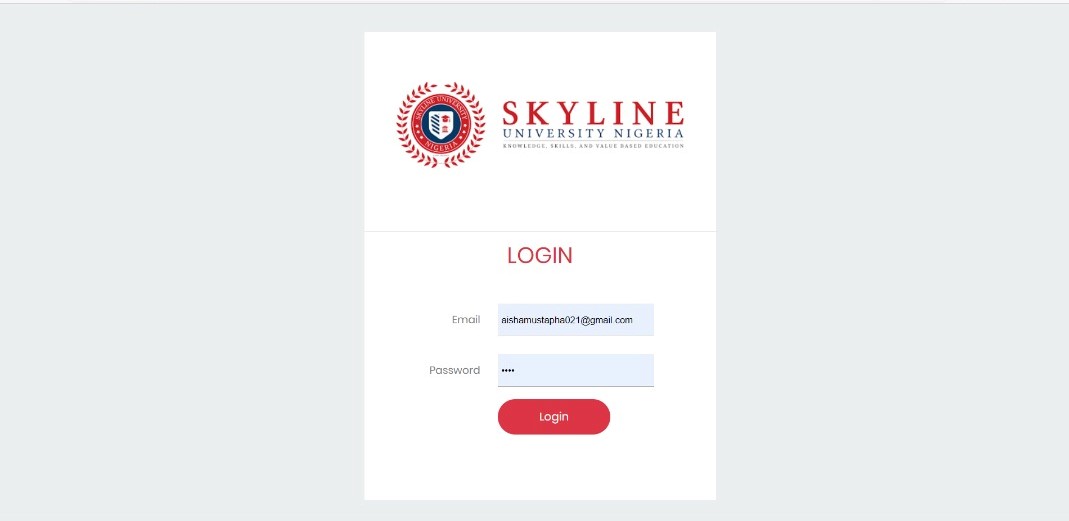


Fig 4.17

EXAMINEE/STUDENTS DASHBOARD

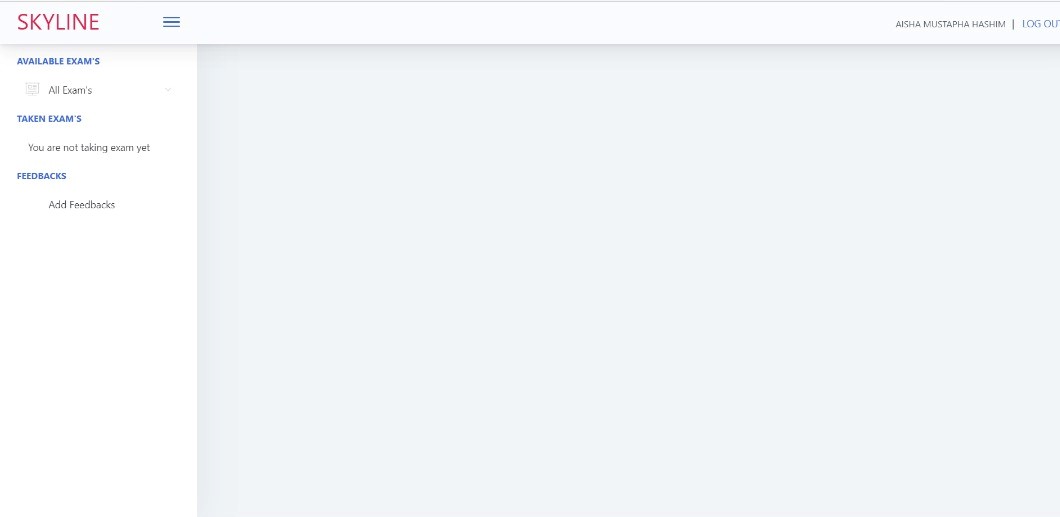


Fig 4.18

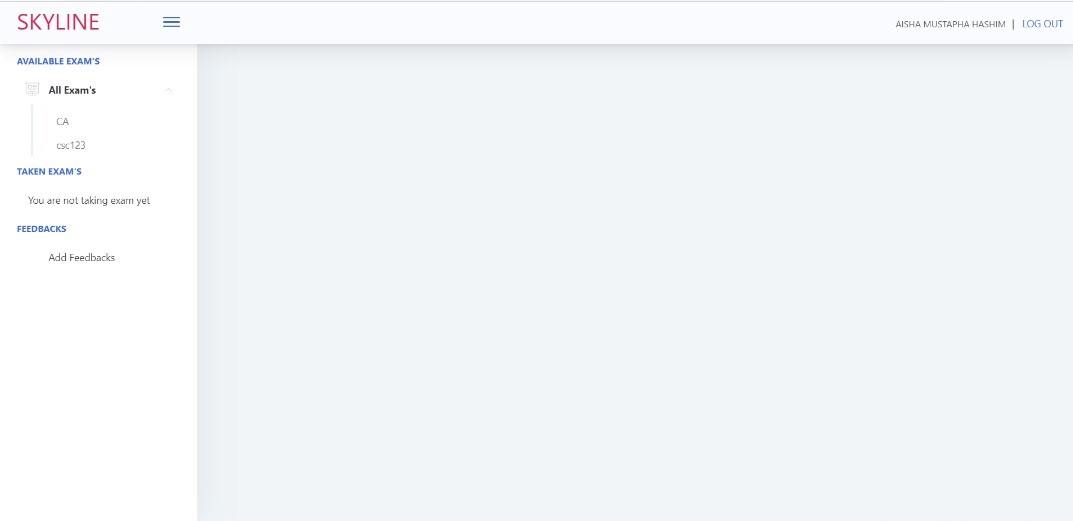


Fig 4.19

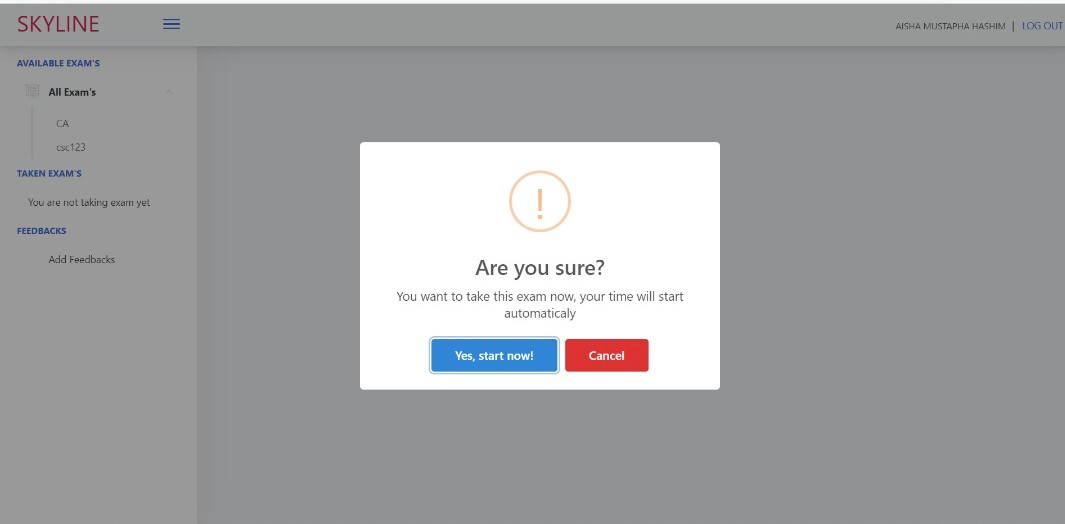


Fig 4.20

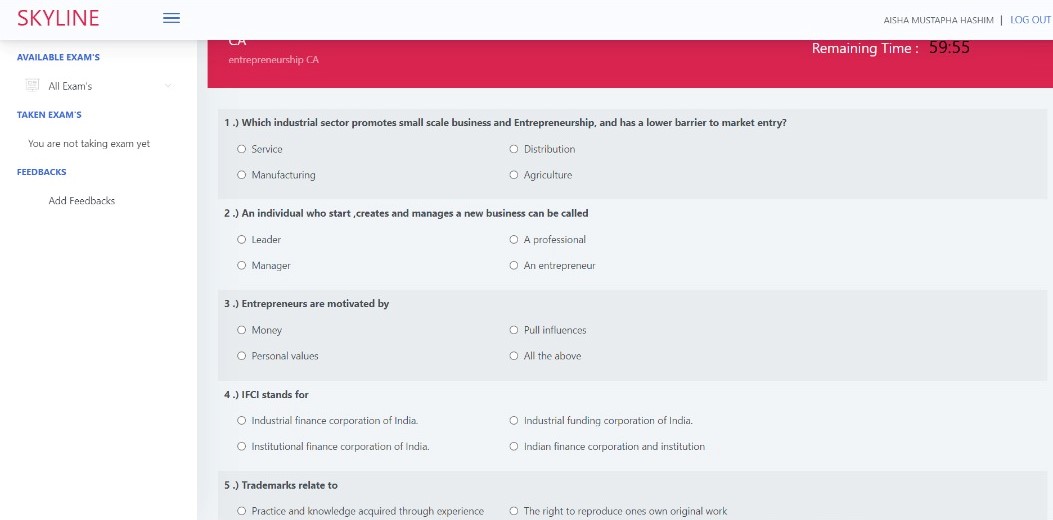


Fig 4.21

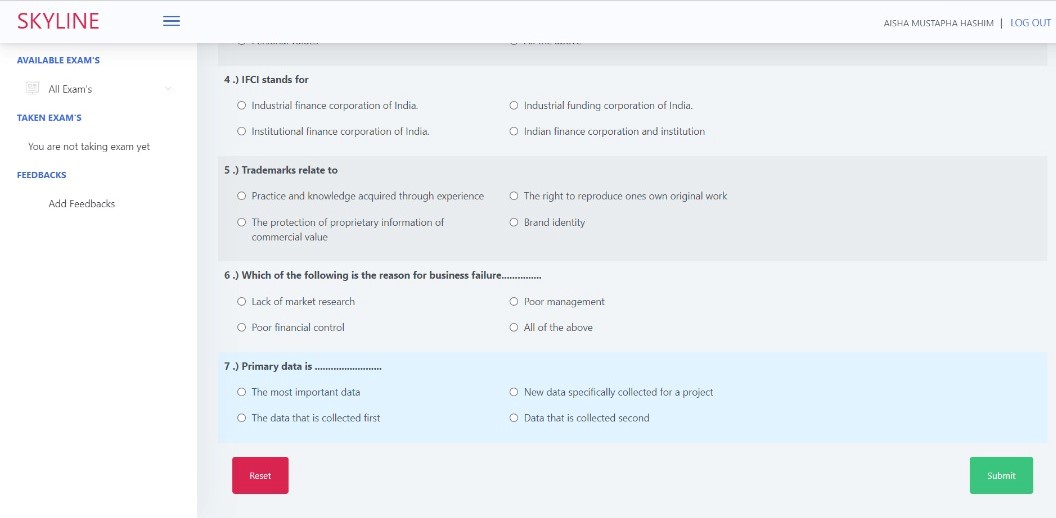


Fig 4.22

STUDENTS/EXAMINEE FEEDBACK

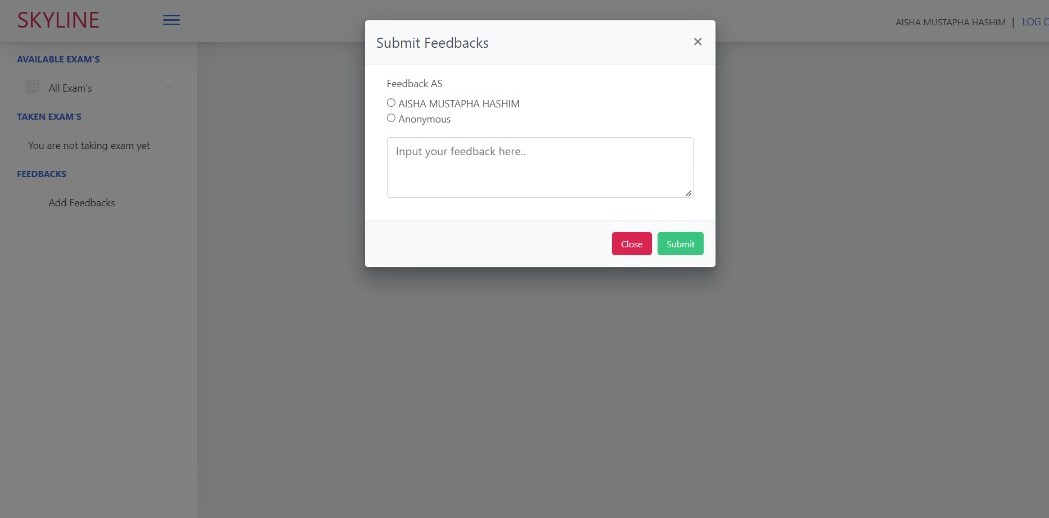


Fig 4.23

## 4.6 TESTING METHODS

Software testing methodologies are the various strategies or approaches used to test an application to ensure it behaves and looks as expected. However, when it comes to the different types of QA testing, the only two types that come to anyone's mind are manual and automated testing.

* **MANUAL TESTING**

Software faults are checked manually for during manual testing. In order to assure proper behavior, it calls for the tester to assume the position of an end user and make use of the majority of the application's capabilities.

* **AUTOMATED TESTING**

Test automation in software testing refers to the use of software other than the program being tested to manage the execution of tests and the comparing of actual results with anticipated results.

* **UNIT TESTING**

The smallest testable components of a program, known as units, are separately and independently examined for proper operation during the software development process.

**Table 4.9 Unit test case**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **TEST CASE ID** | **TEST CASE DESCRIPTION** | **PRECONDITIONS** | **TEST INPUT** | **STEP** | **EXPECTED RESULT** | **ACTUAL**  **RESULT** | **STATUS** |
| TC-01 | Verify the field in the examinee login screen | Examinee login screen must exist | All field or examinee email/password are blank and login button is clicked | Click login button | Error message: fill out this field | Error message should appear if all or one field are blank | pass |
| TC-02 | Verify the field in the admin login screen | Admin login screen must exist | All field or username or password are blank and login button is clicked | Click  Login  button | Error message will appear | error  message will appear if one or all field are blank | pass |
| TC-03 | Verify the screen in the examinee registration  Screen | Examinee registration screen must exist | All field are blank and the registration button is clicked | Click register button | Error message will appear | Fill out the field | pass |
| TCO-4 | Verify the feedback screen | Feedback screen should exist | The field is blank and the submit button is clicked | Click submit | Error message will appear | Fill out the field | pass |
| TC0-5 | Verify the option button(radio button) | The options buttons should exist | The submit button is clicked without answering the questions | Click submit | Error  will appear | Click the option | pass |
| TC0-6 | Verify the logout button | The logout button should exist | The logout button should be able to log you out from the system |  |  |  |  |

* **INTEGRATION TESTING**
* The integration testing was carried out after the unit testing.it tests the links interface and integrations between components of one activity and another to ensure both it goes well.
* **INTEGRATION TEST CASE**

Table 4.1.0

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **TEST CASE ID** | **TEST CASE OBJECTIVE** | **TEST CASE DESCRIPTION** | **INPUT** | **EXPECTED OUTPUT** | **RESULT** |
| TC-01 | Check the interface link between exams login and the exam process | Click on the login link module | Login clicked | To be directed to the exams module where u will choose which one to do first | pass |
| Tc-02 | Check the interface link between admin login field and exams module | Click on the login link module | Login clicked | To be directed to the exams module | pass |
| Tc-03 | Check the interface link between between login and logout module | Click on the logout link module on the dashboard | Login button is clicked/  Logout button is not clicked | Directed to the login module  Nothing happened | Pass  pass |

**USABILITY TESTING**

As part of the usability or working of the system the system was given to 6 students for testing and provide their feedback. The evaluation was conducted using the system usability scale (SUS) questionnaire.

4.1.1. Table: Responses to the Questionnaire

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Questions** | **Strongly Disagree** | **Disagree** | **Undecided** | **Agree** | **Strongly Agree** |
| 1-I have strong opinion that the GUI is good | 0 | 1 | 1 | 3 | 5 |
| 2-I have found the system user very cordial me | 0 | 0 | 1 | 6 | 3 |
| 3- The security level is correct | 1 | 1 | 1 | 5 | 2 |
| 4- I believe the system is very simple | 0 | 1 | 2 | 6 | 1 |
| 5- I see the system response rightly | 0 | 2 | 0 | 4 | 4 |
| 6-I agree the system is comfortable to be used | 1 | 0 | 2 | 3 | 4 |
| 7-I found the various functions of these systems well integrated | 1 | 1 | 2 | 4 | 2 |

Table 4.1.2. **Table: Question 1-I have strong opinion that the GUI is good**

|  |  |  |
| --- | --- | --- |
|  | Frequency | Percentage |
| Strongly Disagree | 0 | 0 |
| Disagree | 1 | 410.0% |
| Undecided | 1 | 10.0% |
| Agree | 3 | 30.0% |
| Strongly Agree | 5 | 50.0% |

**Fig 4.1 chart 1.**

**Table 4.1.3: Question 2-is the system user friendly?**

|  |  |  |
| --- | --- | --- |
|  | Frequency | Percentage |
| Strongly Disagree | 0 | 0 |
| Disagree | 0 | 0 |
| Undecided | 1 | 10.0% |
| Agree | 6 | 60.0% |
| Strongly Agree | 3 | 30.0% |
| Total | 10 | 100% |

Fig 4.2 chart 2

**Table: 4.1.4: Question 3 - The security level is correct**

|  |  |  |
| --- | --- | --- |
|  | **Frequency** | **Percentage** |
| Strongly Disagree | 1 | 10.0% |
| Disagree | 1 | 10.0% |
| Undecided | 1 | 10.0% |
| Agree | 5 | 50.0% |
| Strongly Agree | 2 | 20.0% |
| Total | 10 | 100% |

Fig 4.4 chart 3

**Table 4.1.5 Question 4 - I believe the system is very simple**

|  |  |  |
| --- | --- | --- |
|  | Frequency | Percentage |
| Strongly Disagree | 0 | 0 |
| Disagree | 1 | 10.0% |
| Undecided | 2 | 20.0% |
| Agree | 6 | 60.0% |
| Strongly Agree | 1 | 10.0% |
| Total | 10 | 100% |

**Fig 4.5 chart 4.**

**Table 4.16 Question 5 - I see the system response rightly**

|  |  |  |
| --- | --- | --- |
|  | Frequency | Percentage |
| Strongly Disagree | 0 | 0 |
| Disagree | 2 | 10.0% |
| Undecided | 0 | 20.0% |
| Agree | 4 | 60.0% |
| Strongly Agree | 4 | 10.0% |
| Total | 10 | 100% |

Fig 4.6 chart 5

**Table 4.1.7 Question 6 - I agree the system is comfortable to be used**

|  |  |  |
| --- | --- | --- |
|  | Frequency | Percentage |
| Strongly Disagree | 1 | 10.0% |
| Disagree | 0 | 0 |
| Undecided | 2 | 20.0% |
| Agree | 3 | 30.0% |
| Strongly Agree | 4 | 40.0% |
| Total | 10 | 100% |

Fig 4.7 chart 6

**Table 4.1.8 Question 7 - I found the various functions of these systems well integrated**

|  |  |  |
| --- | --- | --- |
|  | Frequency | Percentage |
| Strongly Disagree | 1 | 10.0% |
| Disagree | 1 | 10.0% |
| Undecided | 2 | 20.0% |
| Agree | 4 | 40.0% |
| Strongly Agree | 2 | 20.0% |
| Total | 10 | 100% |

**Fig 4.8 chart 7**

**Fig 4.9 chart 8**

# CHAPTER 5

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 5.1. INTRODUCTION

This chapter contains the summary, conclusions and recommendations of web based GST examination system for skyline university Nigeria.

## 5.2 SUMMARY

In summary, this project was design and implementation web based software (Web based GST examination system) for Skyline university Nigeria. This project automates the manual system of exams and my implementation provides the following features. It reduces the stress of marking scripts, and it makes it easier for the admin to store exams data and records.

A web based GST examination system for Skyline University Nigeria was therefore proposed and develops, in this project. Waterfall development model was chosen for the development of the system. The examination system has two modules, exams module, and admin module. The exams module allows examinee to login to the system and write his/her exams. . The admin module allows admin to login to the system, register examinee, and view the registered students and, adds exams questions, view questions and edit and delete exams questions, students and view the examination result.

Requirement analysis of the web based GST examination system for Skyline University Nigeria was made using use case diagram. Each module of the system and its functionalities were shown using a use case diagram. After all the requirements have been analyzed, system design was carried out. The design of the web based examination system was made using activity diagrams which show the flow of activities within the system and class diagrams that shows the attributes and methods in each module of the system. After designing web based GST examination system for skyline university Nigeria, implementation was carried out.

The implementation was made using visual studio code (VS code). The web pages were developed in HTML with the support of Java Scripts. PHP framework was used as a server-side scripting language together with MySQL Database Management System (DBMS). The Operating Systems (OS) platform on which the system runs include: Windows 7, Windows 8 and Windows 10 and Mac OS.

Testing was then carried out using test cases. Unit test cases were developed to test each unit of the two modules. After all errors were corrected, integration testing was performed to check the interfaces link between the modules and finally the whole system was tested to ensure it has meets its requirements.

Finally, usability testing carried out using SUS Questionnaire.

## 5.3 CONCLUSION

The Web based GST examination system for Skyline University Nigeria was successfully developed in this project. It was developed to replace the manual way of conducting exams, which is associated with many problems such as invalid time consuming, stressful for both lecturers and students, difficulty in storing data, delays in result publication. And provide an automated web based GST examination system for skyline university Nigeria to eliminate/reduce the above problem.

In developing this system almost all the requirements was achieved and the works as expected by the system. Moreover the system is capable to carry out all its features smoothly without development errors and all the testing are made and result errors are fixed successfully. In order to allow future expansion, the system has been designed in such a way that it will allow possible modification and additional functionalities.

## 5.4 RECOMMENDATIONS

It is very obvious that the implementation of this automated system to be necessary, because without it being done; the design will be useless and obsolete. However, it should be noted that this work did not cover the entire necessary parts of a complete automated management system due to time constraint and availability of resource used. I therefore, recommend these to the university management.

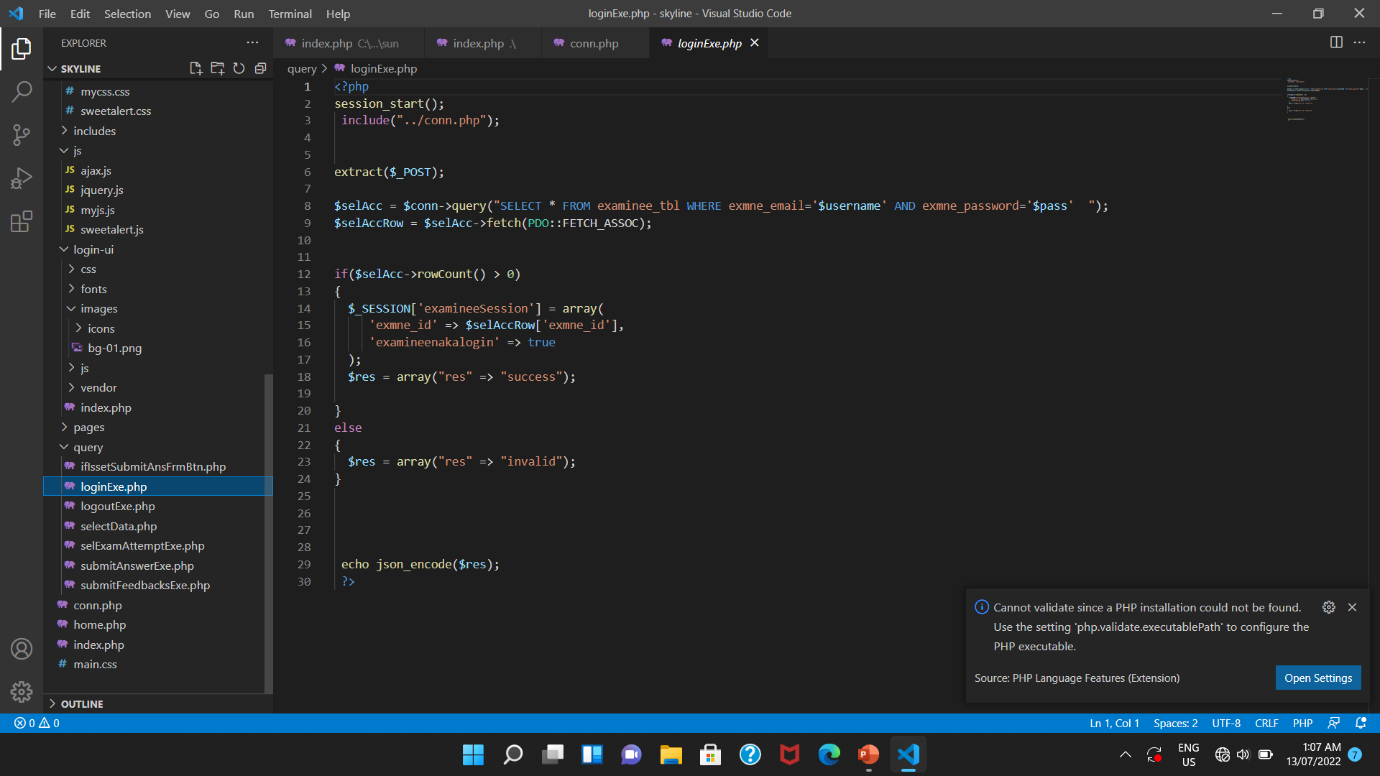
* Further research should be carried out on this work so that necessary amendments and improvements can be done in other to have a complete functional system for the university.
* The use of other application packages such as SQL, VB, C++, PHP and the use of other programming languages should be encouraged, so that active programs and databases would always be developed.
* Adequate time should be provided so that the work can be efficiently designed.
* The use of Biometrics (Finger print/iris), should also be incorporated into the system in future to enhance the security strength.
* The system should incorporate design considerations for disable person.

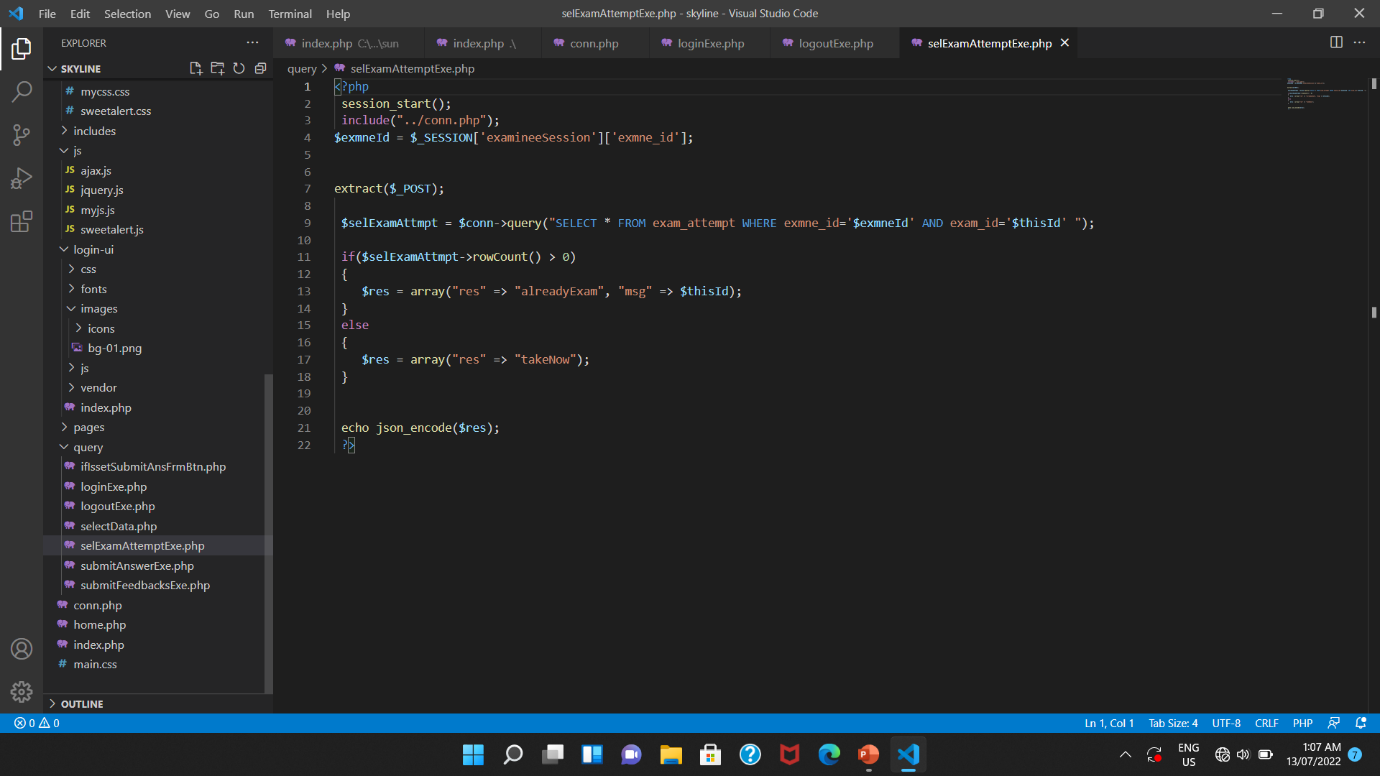
# REFERENCES

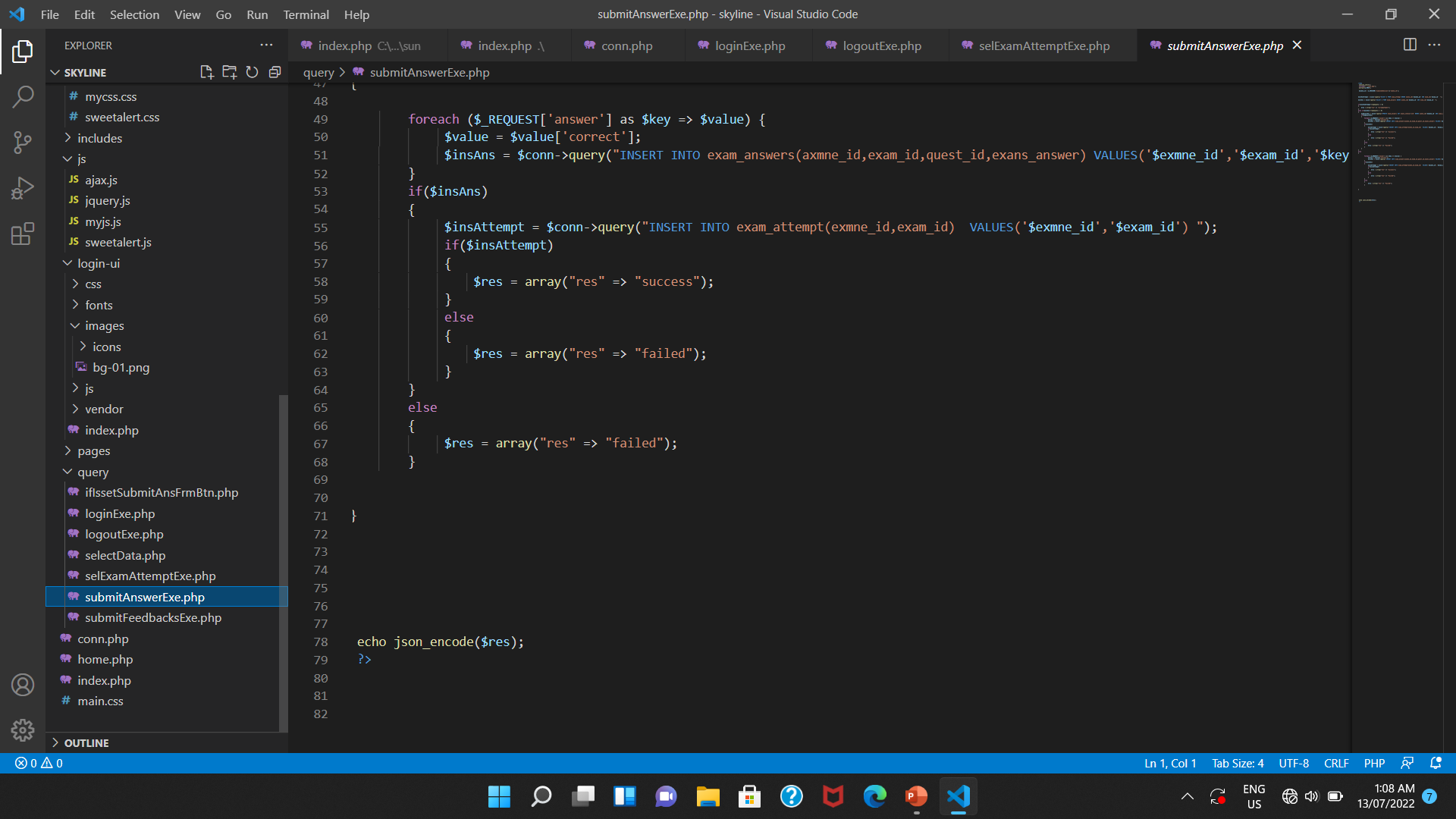
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* Designing and implementing an adaptive online examination system by Mustafa Yağci \*, Menderes Ünal
* <https://pdf.sciencedirectassets.com/277811/1-s2.0-S1877042814X00108/1-s2.0-S1877042814007289/main.pdf?X-Amz-Security-Token=IQoJb3JpZ2luX2VjEMb%2F%2F%2F%2F%2F%2F%2F%2F%2F%2FwEaCXVzLWVhc3QtMSJHMEUCIE45gvih9kwZMCLJ%2BESHMguWpE8CPCf%2FUbAV5RtEXTl4AiEAvaDP8Td7IEuSz0i2Qay2jyhV9DrJ3tXqq7ltlTWx9Ooq2wQI7v%2F%2F%2F%2F%2F%2F%2F%2F%2F%2FARAEGgwwNTkwMDM1NDY4NjUiDKsaKBuCP9%2BIGbWCCSqvBFZpgjIVys1cgi%2FPN272bgonebtBNv0l7bkOWo1jXjF%2BR8EytafXj30Ufr5yd2AQ5AMxpGh4I2djIs%2FUJo6xcXztjvNE8G7Jaly4Pr6gqPGlHmDiHud%2BiGvhudttRefRY6hHLn1Mr427%2B8HQqAj6vifAI3XD8m2UeOuhrNwntP4RiHjzr5wqf9%2FoVBKqF4zyMK0Z4c83bdPxcRXExS4DF0%2BGim5EnI6PbdTkv5z3MDIjavYfX6F096H0zZj2JGVoYpdXwpWsM2OyLiulWNeCP58FKpKzjrPene9Rjc3M5flSoMZRRxTrpT8aKfy1hVx2%2Bv2C4G1h9>
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# APPENDIX





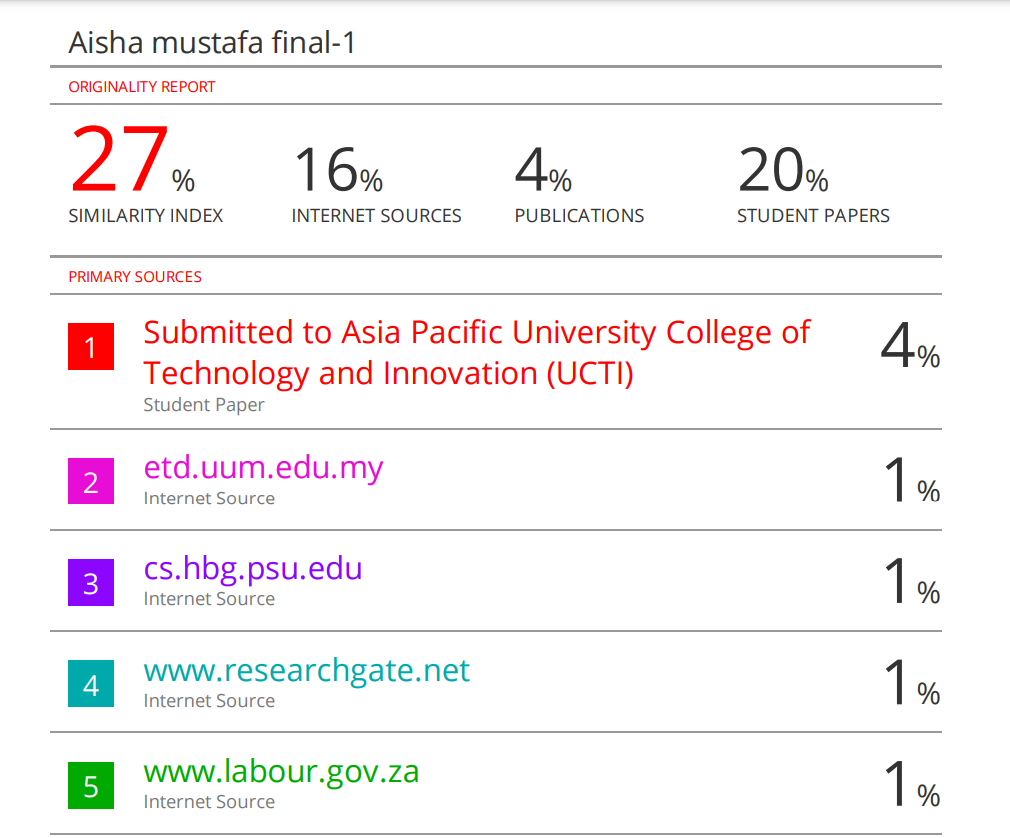


**SRS/SDD DOCUMENTS**

**PROJECT WORK PLAN TEMPLATE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **GOAL 1:** | | | | | |
| **KEY ACTION STEPS** | **TIMELINE** | | **EXPECTED OUTCOME** | **DATA SOURCE AND EVALUATION METHODOLOGY** | **PERSON/AREA**  **RESPONSIBLE** |
| PROPOSAL | MAY | | Proposal document | Proposal defence | Ms.Aisha |
| **GOAL 2:** | | | | | |
| DESIGN | | MAY 25th-JUNE 5th | UML diagrams | Documentation | Ms.Aisha |
| **GOAL 3:** | | | | | |
| CODING | | JUNE 5th  -july 5th | Complete software | Software Testing Plan | Ms.Aisha |
| **GOAL 4:** | | | | | |
| TESTING | | JULY 6th  -july 7th. | Quality Assurance | Software Testing Plan | Ms.Aisha |
| **GOAL 5:** | | | | | |
| DOCUMENTATION | | May –july | Project report | Report | Ms.Aisha |

**PLAGIARISM REPORT**

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