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DESIGN AND IMPLEMENTATION OF A WEB-BASED INFORMATION AND REGISTRATION SYSTEM

(A case study of an Educational Consulting Center)

Technology and Communication

2017

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UNIVERSITY OF APPLIED SCIENCES
Degree Program in Information Technology

ABSTRACT

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Title	Design and Implementation of a Web-Based Information and Registration System
Year	2017
Language	English
Pages	44
Name of Supervisor	Prosi,Pirjo

The aim of this thesis was to generate an Online web-based application for the students registration and Information system in a Learning Center in Nigeria. It is developed and designed with a built-in Adope Dreamweaver software environment.

This application is developed to put in place a formation that will bring the students and college administration together and prepare the students for the upcoming examinations.

The administrator can add a course,delete a course,edit a course and update course information.When a correct username and password are input correctly, a welcome message is received with the name of the student information according to the registration.The center management will be able to make an update if there is any changes and provide complete student records system.

Keywords: Java, Jsp, Html, Mysql, Css, Design and Implementation of a Web-Based Information and Billing system.

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1 INTRODUCTION

Online registration and student Information system is a web-based application software that is designed to bring about a structured and conducive environment for students integration with teachers and the school administration. This application is designed with diverse potentials ranging from the simple student's management records at school to management of all student-related functions that involves the administrative functions of the consulting learning center. /1/

The Proprietor and Coordinator of this Educational Consulting Center is Mr. Oladayo Iyanda, a Nigerian, who has been running this consulting center.

These software systems will enable the educational consulting institution to monitor the student-related activities and functions. The educational consulting center is responsible for consultation, training of the students and registration. They will prepare the students for the following examinations: Graduate Records Examination (GRE), Graduate Management Admission Tests (GMAT), International English Language Tests System IELTS, Test of English as a Foreign Language (TOEFL) and Unified Tertiary Matriculation Examination (UTME).

1.1 Background and History

Part of the early initiative software programs such as Jet speed, WebCT, SCT Campus Pipeline and Blackboard merely enabled interactions between students and teachers for academics purposes and the benefits of having a student management system was really missing out. It was not possible to integrate any of the campus-based activities within this particular system./2/

1.2 Description

The main objective of this thesis was to design and Implement a web-based Information and billing system in which the student interface provides an online registration for students to register and enroll.

After a student submits his registration for enrolment, the web application records this information in a database management system. The information management system

will improve the process by managing it, processing the student's registration and tracing the payment for financial module.

2 OVERVIEW OF THE PROJECT TOOLS

This thesis project employs different technologies and tools which include Java Language, Java Server Pages (JSP), and Hypertext Markup Language (HTML), CSS, MySQL database and phpMyAdmin.

2.1 Description of Tools

2.1.1 Adobe Dreamweaver Software Environment

Dreamweaver is a software program that was developed by Adobe systems for designing web pages and combines a visual design web of Live view and a Code editor and it has a fully featured HTML web and programming editor. It assists multiple markup languages containing Extensible Markup Language (XML) and HTML.

Macromedia developed and published Dreamweaver in 1997 and it was purchased by Adobe Systems in 2005 and the development program continues from there.

2.1.2 JSP Environment

The JavaServer Pages (JSP) is built on top of the Java servlets and is designed for programmers and non-programmers to increase the possibility of creating web content effectively./3/

2.2 HTML Overview

Hypertext Markup Language (HTML) is the standard markup language for creating web pages and web applications. HTML describes the structure of Web pages using markup. HTML elements are the building blocks of HTML pages. HTML elements are represented by tags./4/

2.2 Java Overview

Java is a computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. It is a programming language that was invented by James Gosling in 1994./5/

2.3 MySQL Database

MySQL is an open-source relational database management system (RDBMS). Its name is a combination of My, the name of co-founder Michael Widenius daughter, and Structured Query Language (SQL). The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements/6/

2.4 PhpMyAdmin

PhpMyAdmin is a free open source GUI tool written in PHP intended to handle the administration of MySQL with the use of a web browser. It can perform various tasks such as creating, modifying or deleting databases, tables, fields or rows; executing SQL statements; or managing users and permissions./7/

3 DESCRIPTION OF WEB-BASED INFORMATION AND REGISTRATION SYSTEM

The description will be given in detail for the project requirements and objectives.

3.1 Background

Description of a web based information and registration system is of two interfaces: administrator interface and student interface.

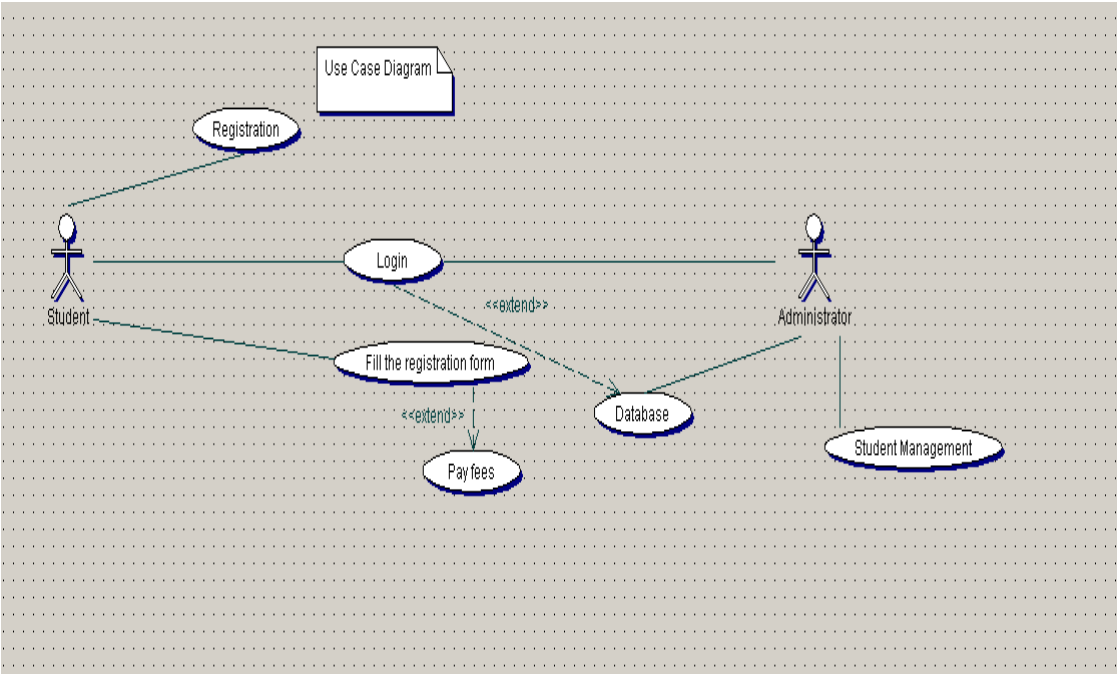


Figure 1. Use Case Diagram

3.1.1 Functional Objective

The Web-Based Information and Billing System are divided into two parts in terms of roles they perform: a user's interface for the students and the background for the administrator.

3.1.2 Log In

The login to Web-Based Information and Registration System needs two properties which are the Username and Password.

When this is connected to the background management platform, which is the "url", an administrator's log in page should be displayed and request a username and password, in order for the administrator to view the management pages. The original username and password are pre-set on the database that is registered for the administrators.

3.2 Administrator Pages

The administrative management provides an interface for administrator.

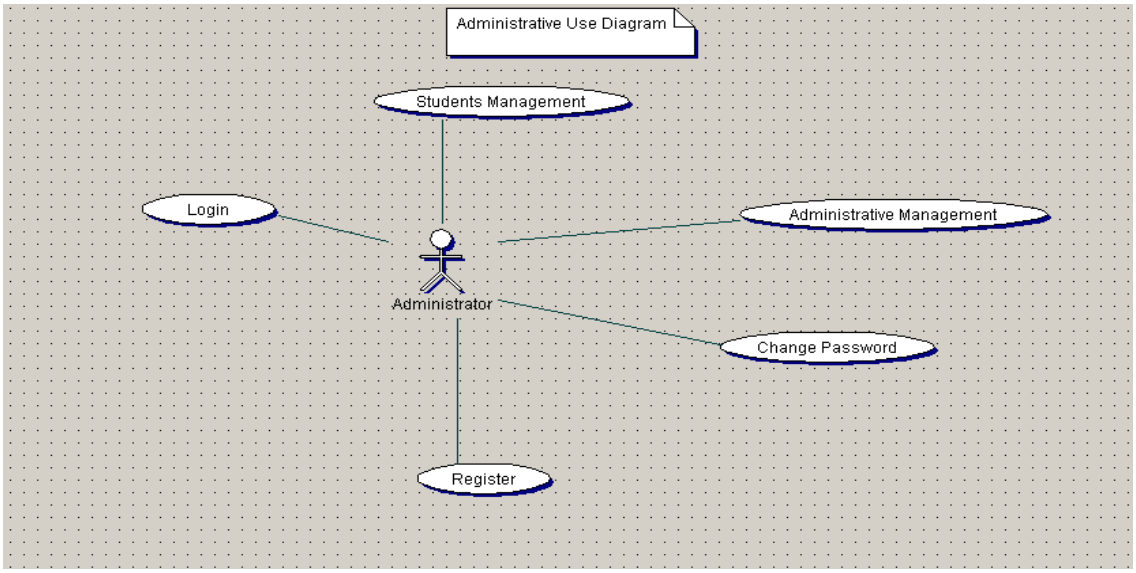


Figure 2: Administrator Use Case Diagram

3.2.1 Admin Management

The two properties in administrator login are Username and Password. After clicking the management space option, the user will have a preview of the admin list which shows all the administrators properties. The Administrators are the system admins who have the authority to manage the students catalog.

3.1 Student Pages

The Student Interface provides for the students online web application.

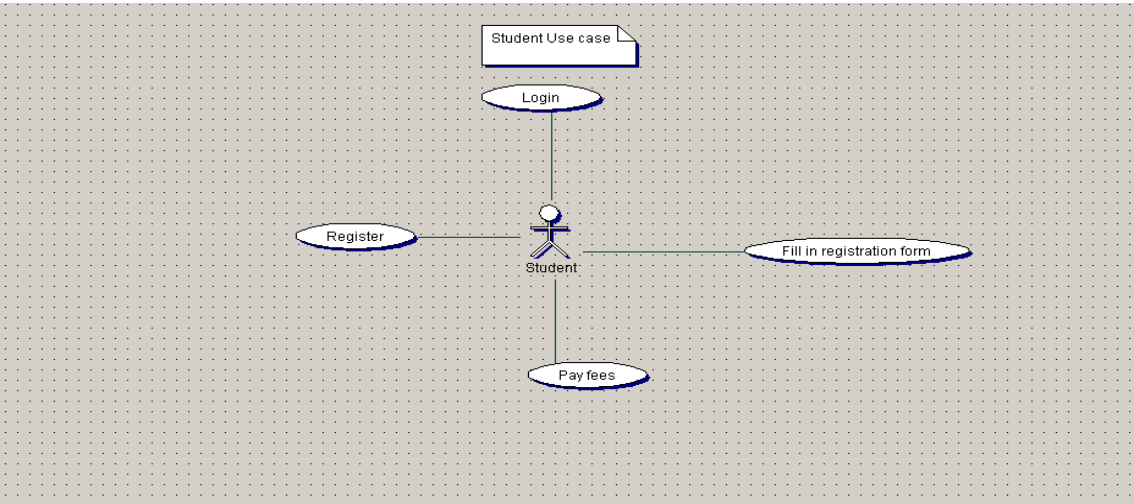


Figure 3. Student Use Case Diagram

3.1.1 User Registration

Every student will be requested to create a user name and password before making registration. This will be used and saved on the database for future references. As a mandate, the creation of online identification requires the potential student to fill out an online student registration form. This form usually demands detailed information from the prospective and incoming student.

The user's data, such as the student identification, is stored and saved on the database system.

3.1.2 Payment History

The Student will make a payment to a specified bank before they can make a registration and bring the payment receipt to the college. After this, the student can commence the registration process.

3.2 Sequence Diagram

The Sequence diagram shows the connectivity between the classes and how they are programmed. It shows that once the user is registered, the data are saved on the database which will help in the start-up login.

The sequence diagram is part of the UML; they are interaction diagrams that detail how operations are carried out in the project. It shows how objects operate with one another and in what order. It is a construct of a message sequence chart.

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical view of the system under development. Sequence diagrams are sometimes called **event diagrams** or **event scenarios**./8/

Immediately as the registration is completed successfully, the student will be able to login into the application.

The student fills in all the requirement fields on the form and submits it. The student's information will be saved automatically in the database and if any of the field is empty, the application will send an error message and returns to the student register page where the student is expected to finish all the fields in the form.

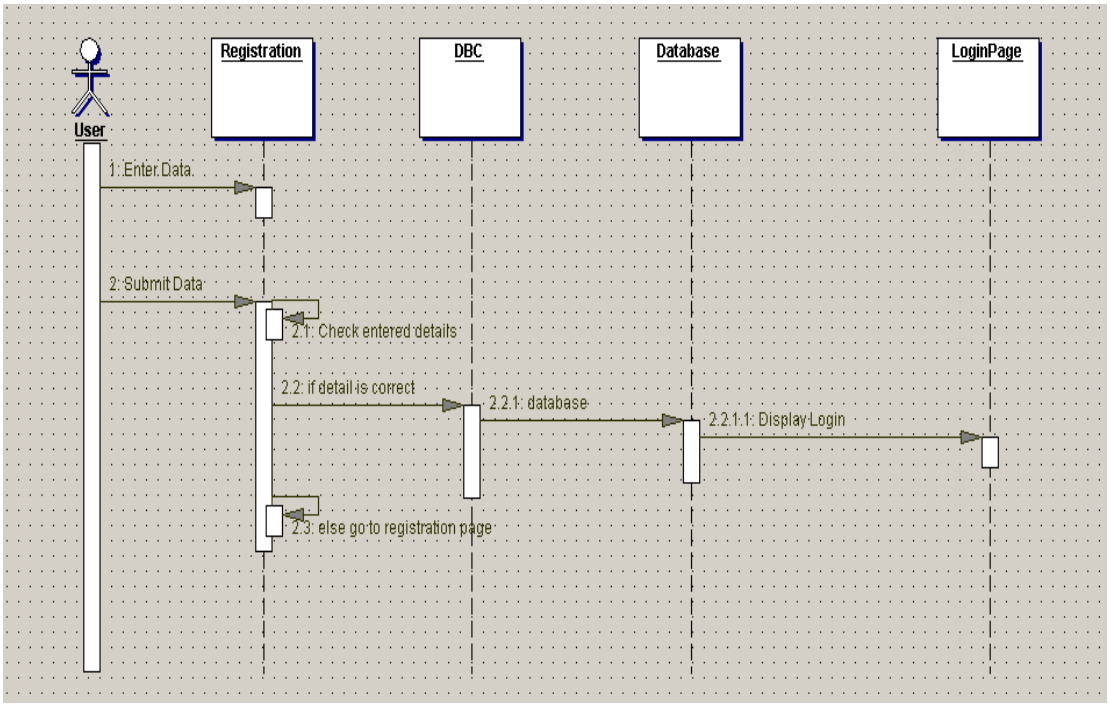


Figure 5. Sequence Diagram for Application Student Login Function

The figure above shows that when the student enter their information and submit for registration, it checks the information and if the details are correct then it will send to the Database, or otherwise it will show the page registration to check the information.

4 DATABASE AND GRAPHICAL USER INTERFACE DESIGN

This chapter deals with the database and the graphical user interface design. A database management system (DBMS) is system software for creating and managing databases. The DBMS provides users and programmers with a systematic way to create, retrieve, update and manage data.

4.1 The ER-Diagram of the database

It shows the computing in regard to the organization of data within databases or information systems. An entity is a piece of object or concept about which data is stored. /9/

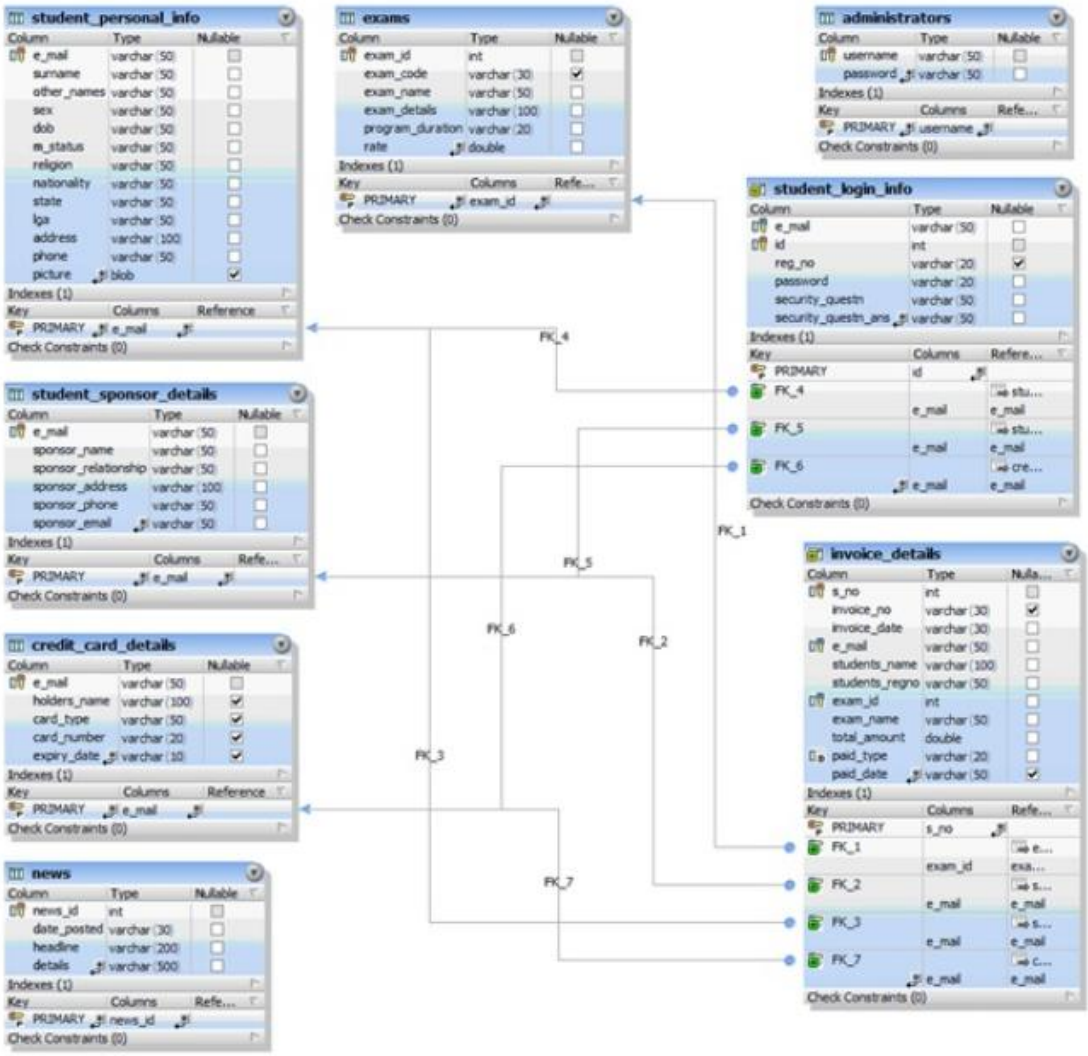


Figure 6. ER-Diagram for the Project

4.2 Database Design

The database for the project was created using MySQL.

The data was used to store and save all the information entered in the registration page which the users can later access through different operations. The database structure in MySQL shows administrator and student table.

The registration table contains the information about the client and administrator. The data of the student_log_in table is given below:

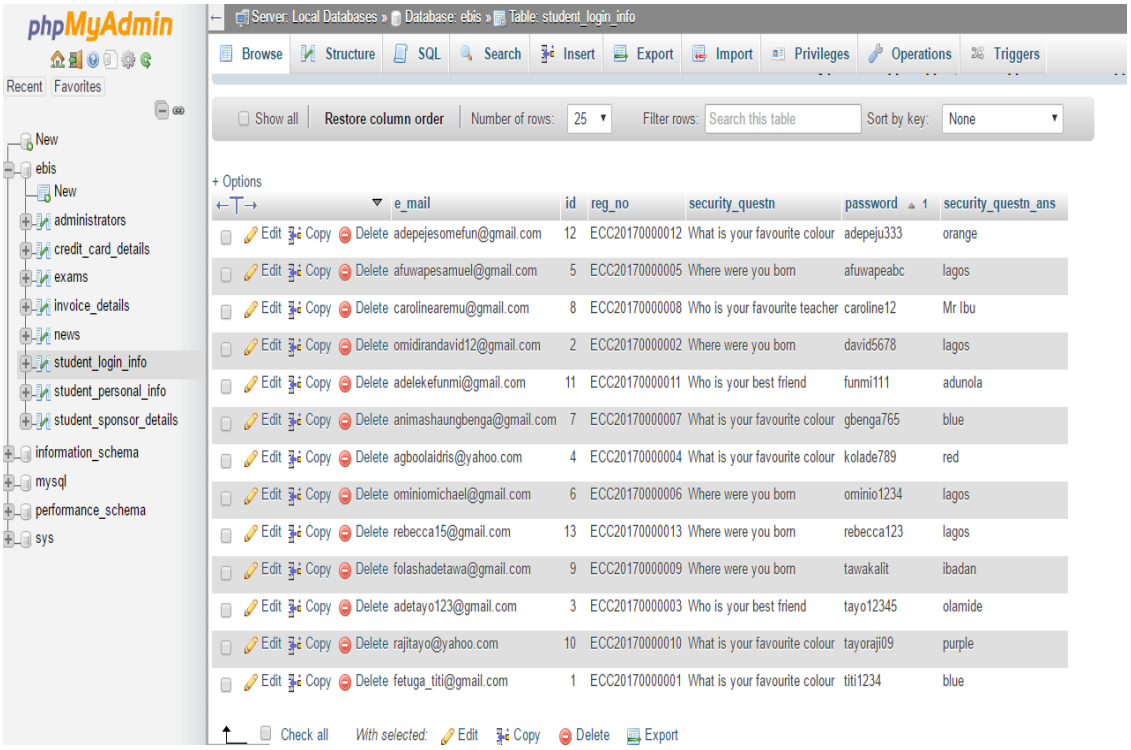


Figure 7: phpMyAdmin student_login_info

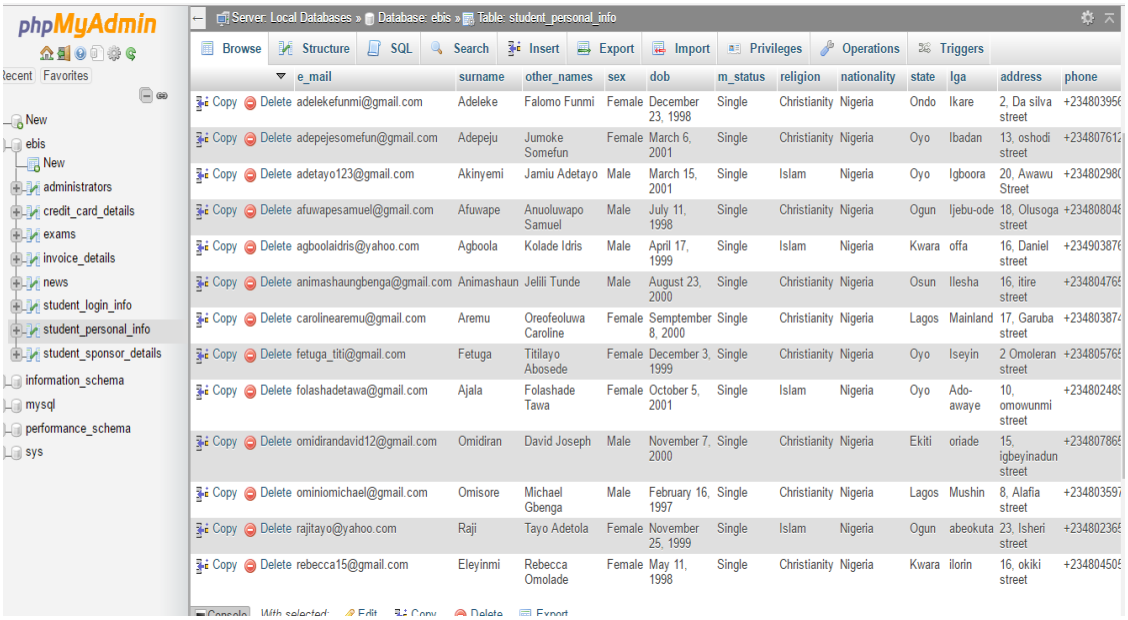


Figure 8: phpMyAdmin student_personal_info

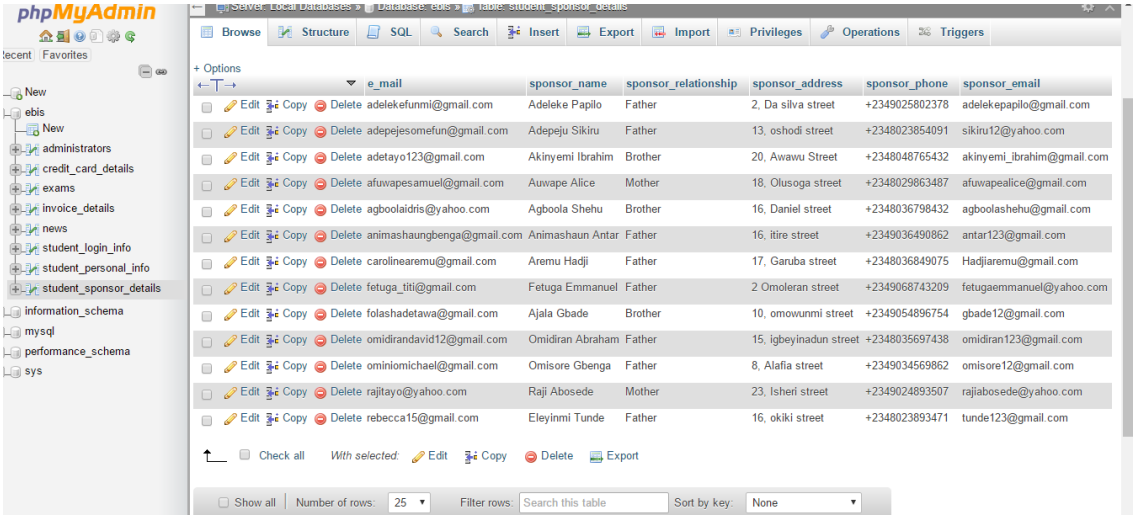


Figure 9: phpMyAdmin student_sponsor_info

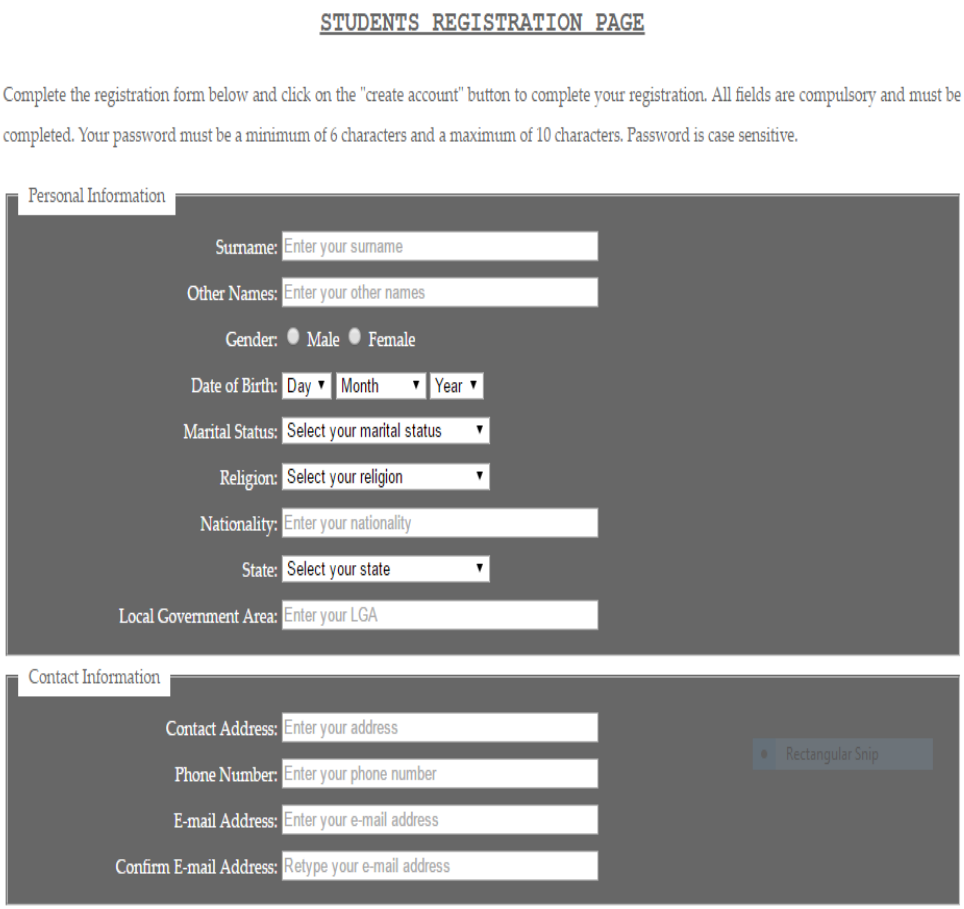
4.3 GRAPHIC USER INTERFACE (GUI) DESIGN

The working system has been divided into two in this application; it is the user interface and the administrative interface. The users or the students will be able to visit the

homepage and check to make their registration, whereas the administrator will be able to make all necessary addition or correction and so on.

4.3.1 Register in GUI

The registration page was designed using the html and each of the input fields offer contact personal information.



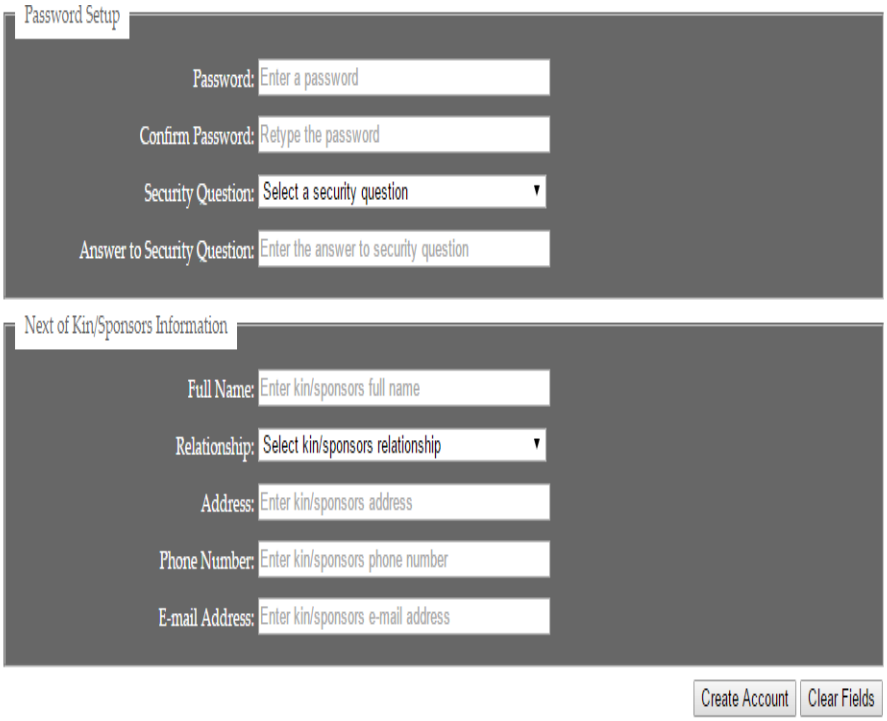


Figure 10: Register Student Page

4.2.3 Web Based Information and Registration System Details

This is an Online web-based application for the students Information system and registration of students in an Educational Consulting Learning Center in Nigeria. It is a Java web application developed with a built-in Adope Dreamwaver software environment and Mysql.

It shows the following pages;

- Homepage
- Administrative page
- Students Corner
- Program
- About us
- Contact us

Figure 11: Homepage for Web-Based Information and Registration System

4.2.4 Administrators Page

This shows the news headline of an upcoming events and the program offers by the school.

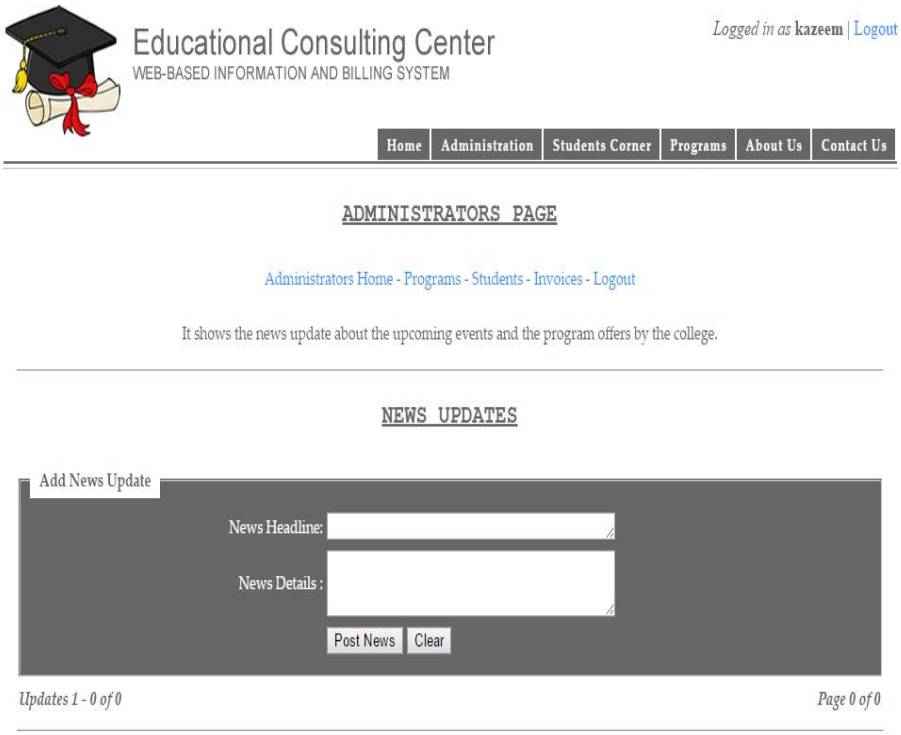


Figure 12: Administrators Page.

4.2.5 Administrators Page – Program

It shows the program in Universal Tertiary for Matriculation Examination (UTME) for the students preparing to take the exams.

Figure 13: Administrator Page with program in UTME

4.2.6 Administrative Page – GCE

It shows the program in General Certificate Examination (GCE) for the student preparing for the exams.

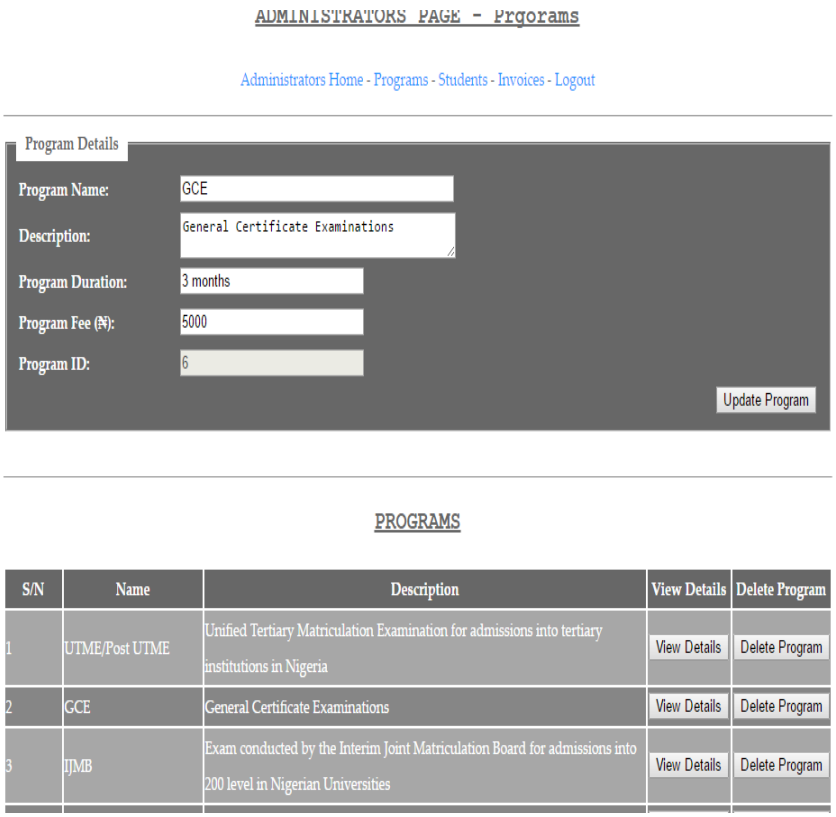


Figure 14: Administrator Page with program in GCE.

4.2.7 Administrative Page – IJMB

It shows the program for Interim joint Matriculation Board for the students that will take exams in it.

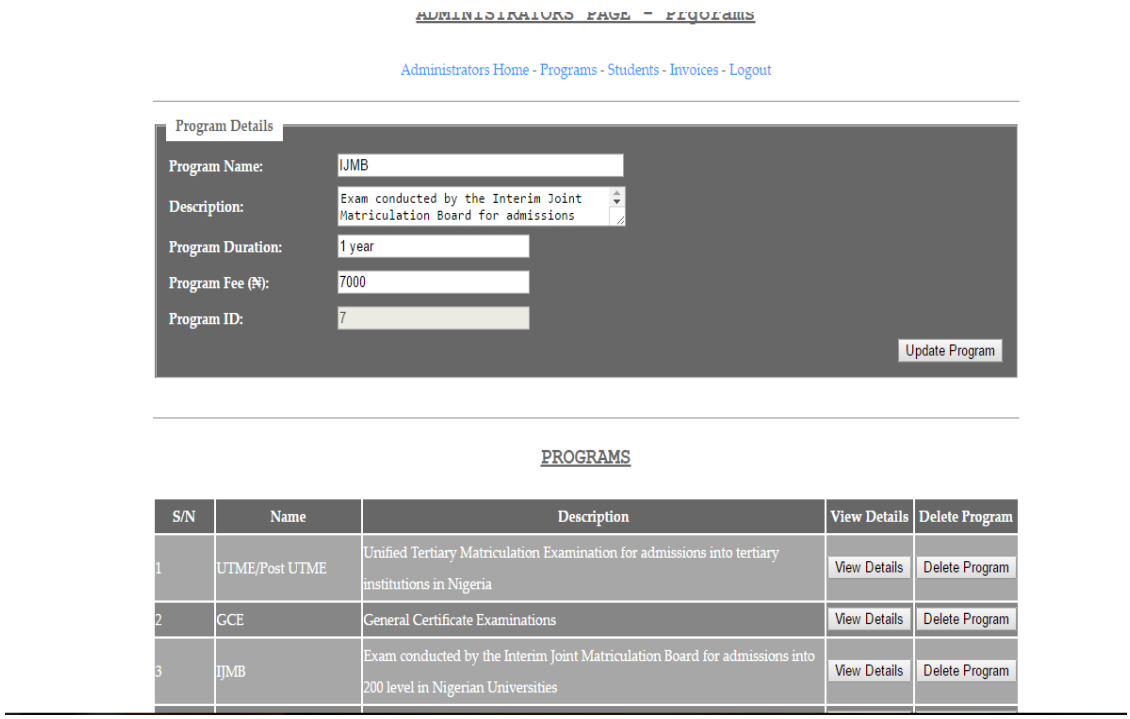


Figure 15: Administrator page for IJMB.

4.2.8 Administrative Page – SAT

It shows the program for standardized test for college admissions in the United States for any students willing to take the exams.

Figure 16: Administrator page for SAT.

4.2.9 Administrative Page – Student

It shows the names of registered students in the college with their registration numbers and all the information about them. The admin has the access to view details of each registered students.

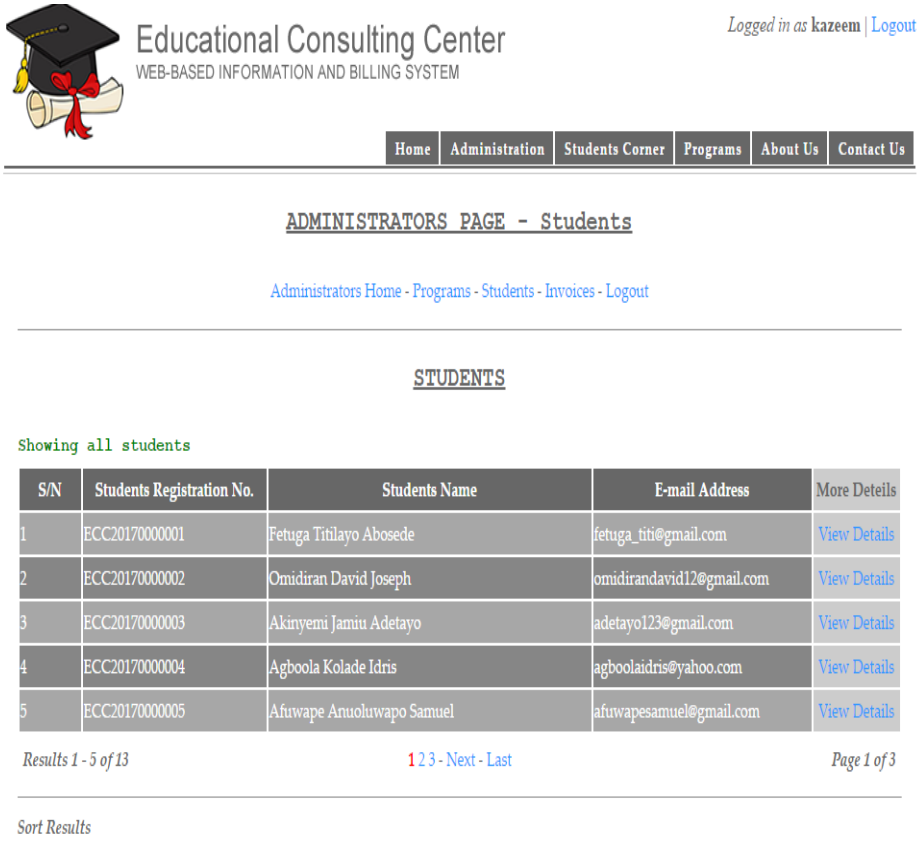


Figure 17: Administrators Page – Students.

4.3.0 Administrative Page for Student Details

It gives details of all information about each registered student in the college.

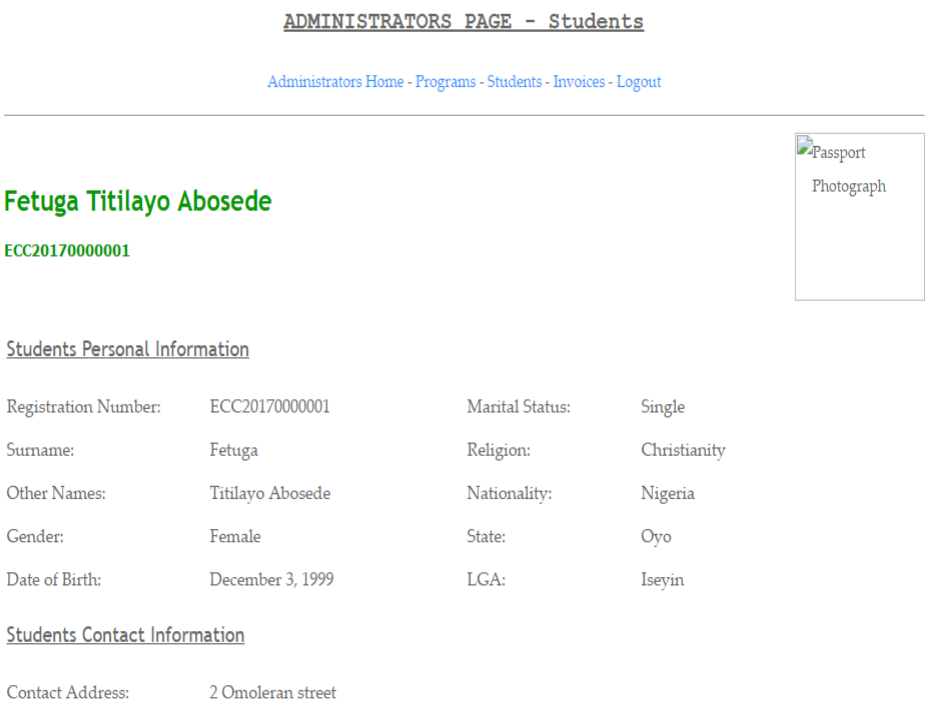


Figure 18: Administrative Page for student details.

4.31 Administrative Page – Invoice

It shows the invoice of student after making payment.

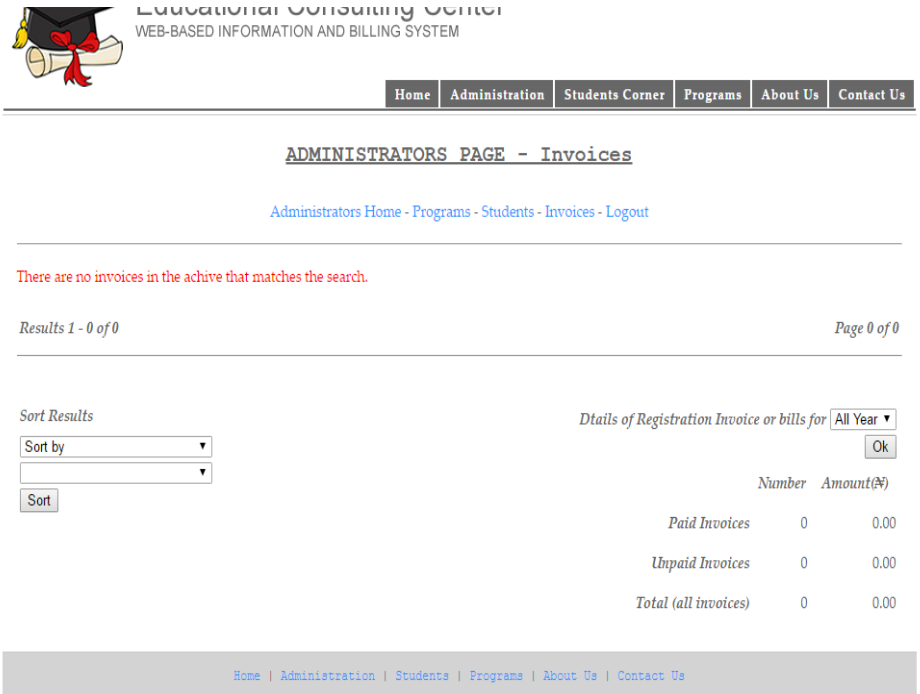


Figure 19: Administrative Page for Invoice.

4.3.2 Student Corner

This shows the login page where the student can fill in their registration number and password. Any student without registration number or account can visit the page by clicking on here to register.

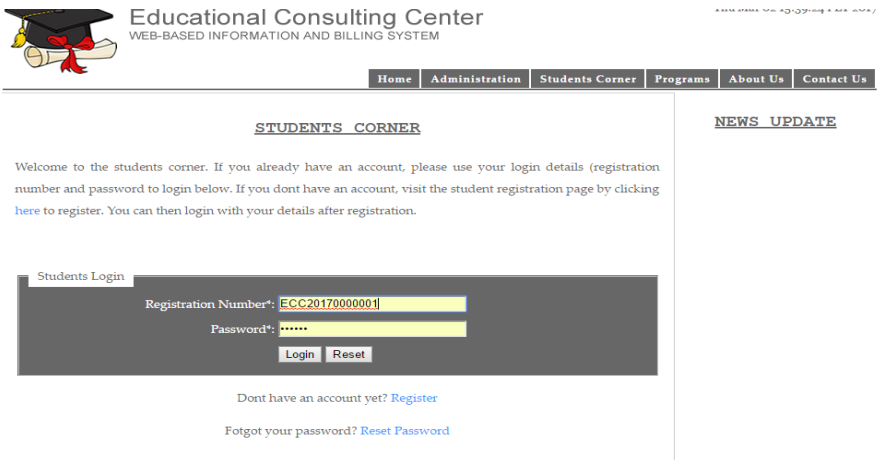


Figure 20: Students Corner

4.3.3 Registered Program

It shows the number of program registered by each student. It shows the program name, program description, and registration date and program duration.

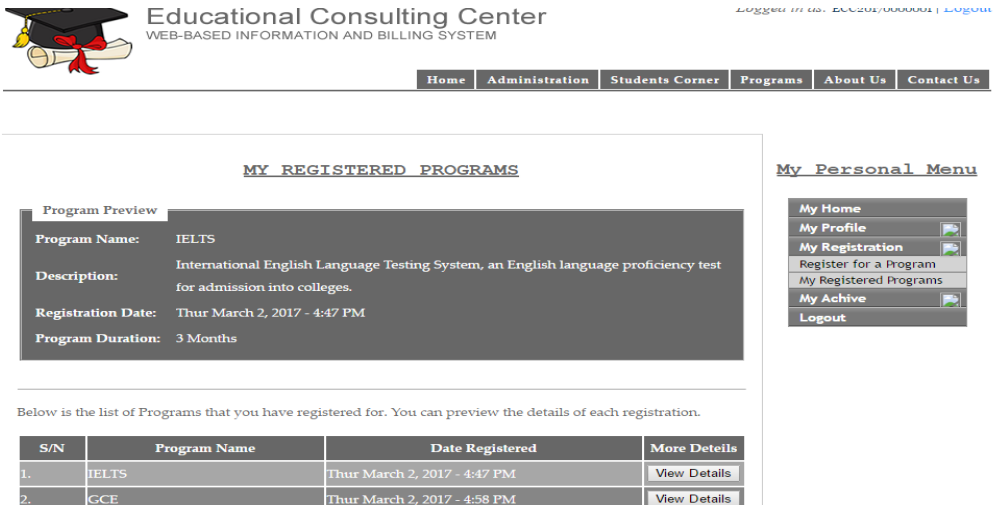
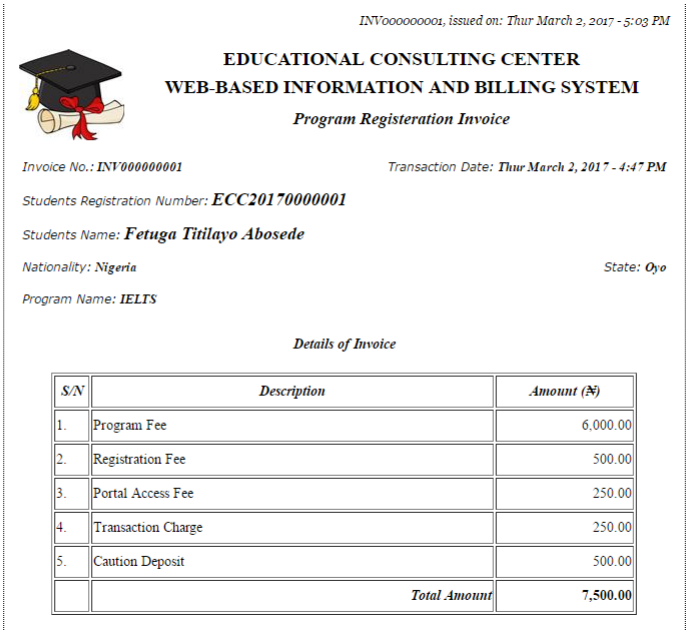


Figure 21: My Registered Programs

4.3.4 Program Registration Invoice

It shows the invoice issued by the school after payment is made.



INV000000001, issued on: Thur March 2, 2017 - 5:03 PM

EDUCATIONAL CONSULTING CENTER
WEB-BASED INFORMATION AND BILLING SYSTEM
Program Registeration Invoice

Invoice No.: ***INV000000001*** *Transaction Date:* ***Thur March 2, 2017 - 4:47 PM***

Students Registration Number: ***ECC20170000001***

Students Name: ***Fetuga Titilayo Abosede***

Nationality: ***Nigeria*** *State:* ***Oyo***

Program Name: ***IELTS***

Details of Invoice

S/N	*Description*	*Amount (₦)*
1.	Program Fee	6,000.00
2.	Registration Fee	500.00
3.	Portal Access Fee	250.00
4.	Transaction Charge	250.00
5.	Caution Deposit	500.00
	Total Amount	**7,500.00**

Figure 22: Program Registration Invoice

4.3.5 ABOUT US PAGE

Online web-based application for the student's information system and registration of students in an Educational Consulting Learning Center in Nigeria. It is Java web application developed with a built-in Adobe Dreamweaver software environment and Mysql. Design and implementation of web-based information and billing system was devised to offer large opportunities for students to register their names and prepare them for the upcoming examinations.

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Figure 23: ABOUT US PAGE

4.3.6 CONTACT US PAGE

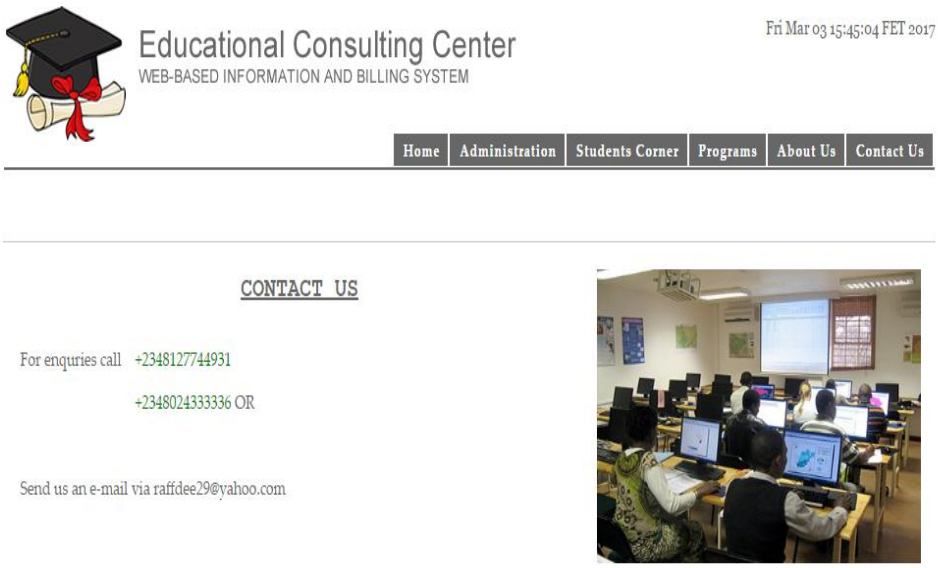


Figure 24: Contact us page.

5 IMPLEMENTATION

5.1 Description

The web application based on web-based Information and registration system should be implemented with the functionality of both the student interface and the administrative interface. The registering functionality of the student interface and the editing functionality of the administrative interface and the functionalities of the Mysql database system.

I concentrated on the Java and JSP files to come before the description of system implemented and installation processes.

5.2 Implementation of Function

In this project, the implementation is divided into Administrative interface implementation and student interface implementation. The student interface implementation was mainly implemented with html student interface based on JSP Page; the functions were implemented as shown sequence diagram. The details description is shown with code analysis.

5.2.1 Student Login

In this step, the student data filled into login student interface is checked from the database.

```
String reg_no = request.getParameter ("reg_no");

String password = request.getParameter ("password");

Connection con = null;

PreparedStatement pst1 = null;

PreparedStatement pst2 = null;

PreparedStatement pst3 = null;

ResultSet rs1 = null;

ResultSet rs2 = null;
```

```
ResultSet rs3 = null;
try{
    Class.forName ("com.mysql.jdbc.Driver").newInstance ();
}
catch (Exception e){
}
try{
    con = DriverManager.getConnection("jdbc:mysql://localhost:3306/ebis",
"root", "");
    String sqlStr1 = "SELECT * FROM student_login_info WHERE reg_no=?";
    pst1 = con.prepareStatement(sqlStr1);
    pst1.setString(1, reg_no) ;
    rs1 = pst1.executeQuery();
    if(rs1.next()){
        String actual_password = rs1.getString(4);
        if(password.equals(actual_password)){
            session.setAttribute("e_mail", rs1.getString(1));
            session.setAttribute("reg_no", rs1.getString(3));
            String sqlStr2 = "SELECT * FROM student_personal_info
WHERE e_mail=?";
            pst3 = con.prepareStatement(sqlStr3);
            pst3.setString(1,  rsl . getString(1);
            rs3 = pst3.executeQuery();
            if(rs3.next()){
```

```
                                                session.setAttribute("sponsor_name",
rs3.getString(2));
                                                session.setAttribute("sponsor_relationship",
rs3.getString(3));
                                                session.setAttribute("sponsor_address",
rs3.getString(4));
                                                session.setAttribute("sponsor_phone",
rs3.getString(5));
                                                session.setAttribute("sponsor_email",
rs3.getString(6));
                                        }
                                        response.sendRedirect("studentsHomepage.jsp");
                                }
                                else{
%>                                      <font color="Red">
                                        <%out.println("Registration number or password is invalid!
Please enter your correct registration number and password to login or create a new account.");%>
                                        </font>
<%                                      }
                        }
                        else{
%>                                      <font color="Red">
                                        <%out.println("Registration number or password is invalid!
Please enter your correct registration number and password to login or create a new account.");%>
                                        </font>
<%                      }
                }
```

```
            catch(SQLException e){


            }
            finally{
                  try{
                        con.close();
                        pst1.close();
                        pst2.close();
                        pst3.close();
                        rs1.close();
                        rs2.close();
                        rs3.close();
                  }
                  catch(Exception e){
                  }
            }
      }
```

Snippet 1: Student Login from the Database

5.2.2 Administrator Account

Administrator Login from the Database

```
            String username = request.getParameter ("username");
            String password = request.getParameter ("password");
            Connection con = null;
            PreparedStatement pst = null;
```

```
ResultSet rst = null;
try{
	Class.forName("com.mysql.jdbc.Driver").newInstance();
}
catch(Exception e){
}
try{
	con = DriverManager.getConnection("jdbc:mysql://localhost:3306/ebis", "root", "");
	String sqlStr = "SELECT * FROM administrators WHERE username=?";
	pst = con.prepareStatement(sqlStr);
	pst.setString(1,  username);
	rst = pst.executeQuery();
	if(rst.next()){
		String actual_password = rst.getString(2);
		if(password.equals(actual_password)){
			session.setAttribute("amin_username", rst.getString(1));
			response.sendRedirect("adminHome.jsp");
		}
		else{
%>
			<font color="Red">
			<%out.println("Username or password is incorrect! Please enter your correct username and password to login.");%>
			</font>
<%
		}
```

```
                    }
                    else{
%>                                  <font color="Red">
                                    <%out.println("Username or password is incorrect! Please enter your correct username and password to login.");%>
                                    </font>
<%                  }
            }
            catch(SQLException e){


            }
            finally{
                    try{
                            con.close();
                            pst.close();
                            rst.close();
                    }
                    catch(Exception e){
                    }
            }
    }
```

Snippet 2: Administrator Login from the Database

6 TESTING

In order to be sure about the quality of the application, a system test of a Web-Based Information and Registration System was implemented. Two interfaces were used in these projects that are the Administrative Interface and the User Interface.

6.1 Student Login

After the registration is done, the student can login in the online registration application. To log in first, login from the option bar has to be checked then the username and password have to be entered and login checked. If the username and password is not entered, or a wrong username and password is entered, it will show the "Registration number or Password is Invalid; Please enter your correct registration number and password to login or create a new account" as shown from the result below and in the red words.

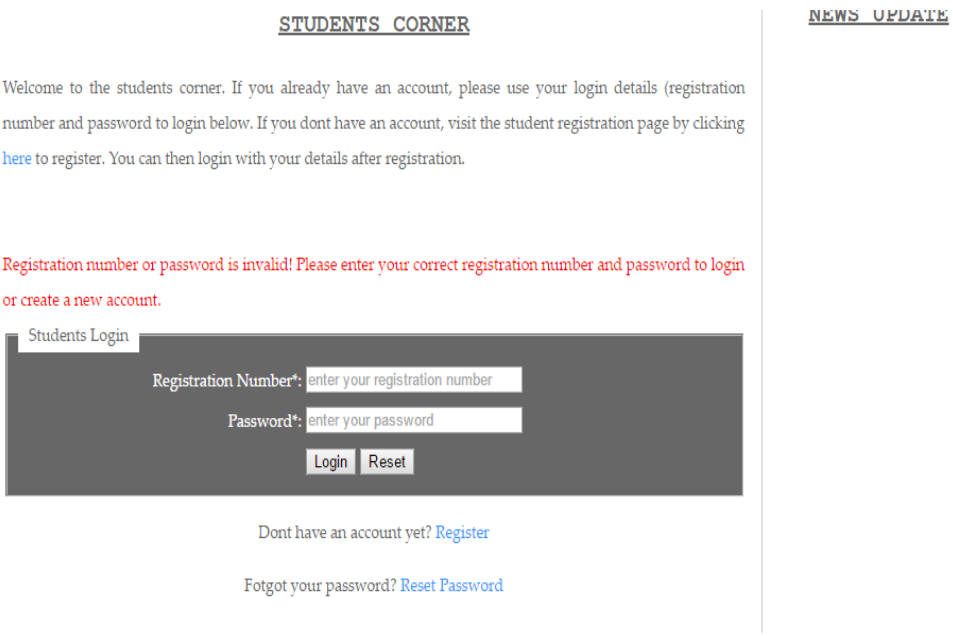


Figure 26: Testing Student Login

When a correct Username and Password are input correctly, a welcome message is received with the name of the student information according to the registration.

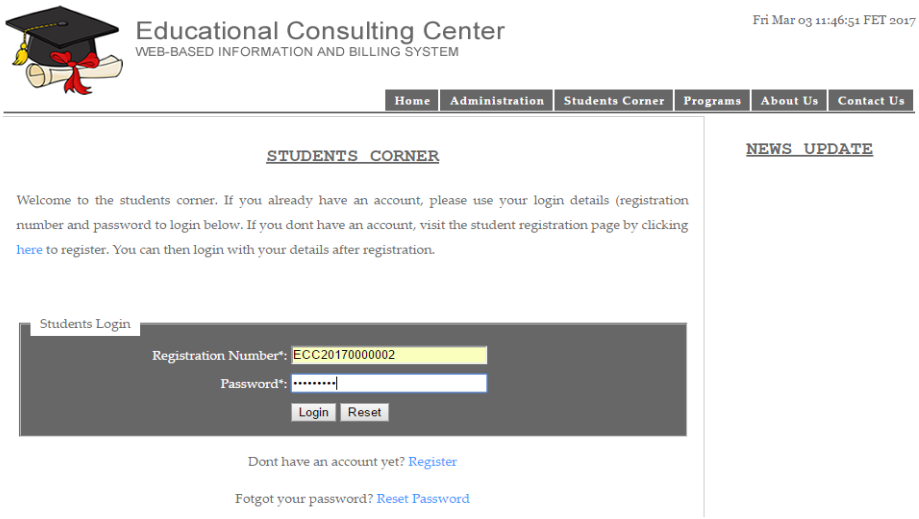


Figure 27: Testing Student Registration Login1.

Figure 28: Testing Student Registration Login2.

6.2 Course Adding Testing

Adding a new course is only possible by the administrator. Only the administrator can add a course, delete a course, edit a course and update course information. Available courses can be seen in the figure below.

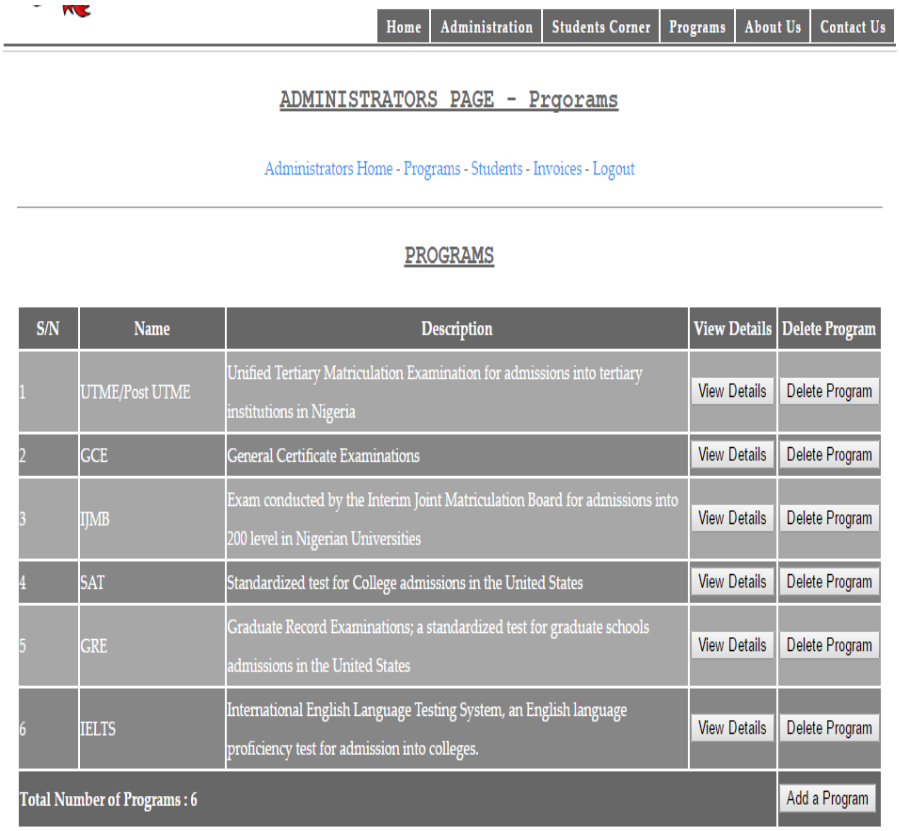
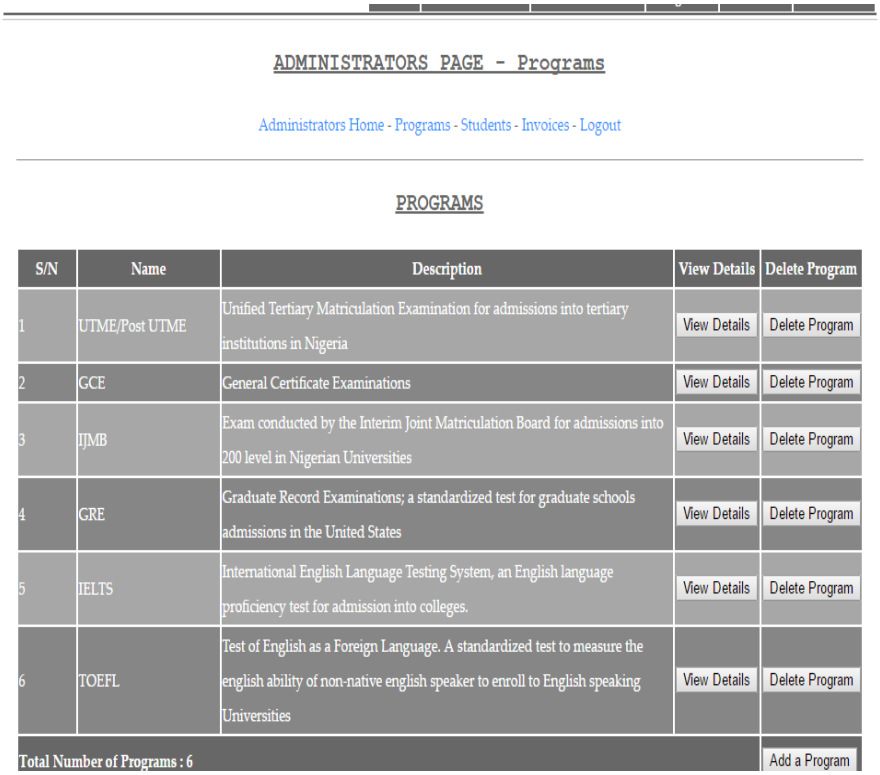


Figure 29: Testing course addition.

One extra course named TOEFL has been added to Figure 29 above and the result is seen below.

Figure 30: Testing Course Addition2

There are seven courses, such as GCE, IJMB, SAT, GRE, IELTS, UTME AND TOEFL. We have deleted SAT, after deleting the SAT course, the window shows:



ADMINISTRATORS PAGE - Programs

Administrators Home - Programs - Students - Invoices - Logout

PROGRAMS

S/N	Name	Description	View Details	Delete Program
1	UTME/Post UTME	Unified Tertiary Matriculation Examination for admissions into tertiary institutions in Nigeria	View Details	Delete Program
2	GCE	General Certificate Examinations	View Details	Delete Program
3	IJMB	Exam conducted by the Interim Joint Matriculation Board for admissions into 200 level in Nigerian Universities	View Details	Delete Program
4	GRE	Graduate Record Examinations; a standardized test for graduate schools admissions in the United States	View Details	Delete Program
5	IELTS	International English Language Testing System, an English language proficiency test for admission into colleges.	View Details	Delete Program
6	TOEFL	Test of English as a Foreign Language. A standardized test to measure the english ability of non-native english speaker to enroll to English speaking Universities	View Details	Delete Program
Total Number of Programs : 6				Add a Program

Figure 31: Testing Course Deletion

7 CONCLUSIONS

Web-Based Information and Registration System is a good technology for registration. The students will be able to use the modern technology to get their work done on time. The application will allow the users to access information and registration without delay.

The management will be able to pass across information to the users and can also link them with facebook and twitter in getting the information across to all. The users can make use of the website to make their registration suitable.

The development of the modern technology will have a positive impact on this application in future whereby it will be a link to social media like facebook, instagram, twitter and it will have a positive effect on user registration.

REFERENCES

/1/ The Student Information System

https://en.wikipedia.org/wiki/Student_information_system

/2/ Student Information System

http://www.techlearning.com/student-information-systems

/3/ JSP Tutorial Point

http://www.tutorialspoint.com/jsp/jsp_tutorial.pdf

/4/ HTML-5 Tutorial

http://www.html-5-tutorial.com/

/5/ Java Tutorial Point

http://www.tutorialspoint.com/java/java_tutorial.pdf

/6/ Mysql Tutorial

http://dev.mysql.com/doc/refman/5.7/en/tutorial.html

/7/ My PhpAdmin

https://www.phpmyadmin.net/

/8/ Sequence Diagram

http://www.inf.ed.ac.uk/teaching/courses/seoc/2011_2012/notes/SEOC08_notes.pdf

/9/ Er-Diagram

http://www.webopedia.com/TERM/E/entity_relationship_diagram.html

/10/ Dreamweaver

http://www.computerhope.com/jargon/d/dreamweaver.htm

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APPENDIX 2