DESIGN AND IMPLEMENTATION OF A CONTENT MANAGEMENT SYSTEM (CASE STUDY OF MATHS/COMPUTER SCIENCE DEPARTMENT FUT MINNA)

by

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CERTIFICATION

This project titled, Design And Implementation of a Content Management System (A case study of Maths/computer science FUT Minna) by OLUOKUN, Samsideen Rotimi with matriculation No. PGD/MCS/2008/1250 meets the regulations governing the award of Postgraduate Diploma in Computer Science of Federal University of Technology, Minna.

Mr G.A Bolarin	Date
Supervisor	
Prof. N. I. Akinwande	Date
Head of Department	

DECLARATION

I hereby declare that this project work is my original work and is a record of my research effort. It has not been presented wholly or partially in any previous application for the award of degree, diploma or certificate of any other university or institution of higher learning. All information from published and unpublished works of others has been dully acknowledged by means of reference.

DEDICATION

I am dedicating this project work to the Almighty Allah for his guidance, strength, protection and mercies throughout this programme.

Also, I dedicate my project work to my late father, Abdul-Lateef Oluokun for giving great education. MAY GRANT HIM BLISSFUL ETERNAL REST, AMIN.

ACKNOWLEDGEMENT

I wish to sincerely appreciate Allah for his wisdom, guidance and protection throughout my stay in school. I say all thanks and praises be unto His Name.

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Also, I wish to show my profound gratitude to my mother, Alhaja Modinah Oluokun;my uncle and his wife Dr and Mrs O. Owolabi; my brothers and sisters for always been there for me.

Finally, I wish to appreciate the effort of my loving colleague, Mr Anderson Obah, my friends and classmates, to them, I am saying God bless you all.

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ABSTRACT

The purpose of this project is to harness the power of world wide web for keeping departmental student records, prompt and convenient result checking. Likewise provide easy access, and download of e-books for both lecturers and students via the department portal. Students can view their curriculum, staff directory and grades where ever they are, as long as they have access to the internet.

CHAPTER ONE

1.0 Introduction

Most people are now making use of the Web, making it an increasingly dominant part of our lives. With it we explore, shop, diagnose, entertain, amuse, communicate, collaborate, and more. Millions of people all over the world are living their normal lives, with the web playing a central role. The popularity of the Web means interesting things for developers. The web has not only presented a means to develop information-rich resources such as Wikipedia, and so on, but it also provide a real opportunity to create online applications for doing everyday things, such as managing contacts, balancing accounts, selling products or services, creating content, expressing opinions, chatting, and much more. This is where PHP and MYSQL come into play. In recent years, PHP and MYSQL have come together to form a unique and awesomely powerful platform. With their roots in open source, these entirely free tools can be used to create hugely functional, dynamic, enterprise-class Web sites of which a Content management System is one.

1.1 Aim And Objectives

The Content Management System is a database web application for the Department of Computer Science, of which the page contents will be changing from time to time by an authorized user. Here are the objectives of the project:

- Online Result Checking by Departmental Students This is a way of making use of the internet to allow students to check their semester exam results anywhere on their PC's, whenever the result are ready to be checked. This reduces the congestion of the students in the Department when results are being checked.
- Online Lecturers Directory List all the lecturers of the department, rank, specialization and their contacts.
- Online semester Course List Semester course list at all level will be on the site for students to confirm which course to register for every semester

and the total credit unit, before making their registrations on the school portal.

- Online Students Registration Form- Keeping track records of all the students in the department.
- E-library This allow both lecturers and students to download e-books of their choice for studying.

1.2 Significance Of The Study

People visit news site each day or look up the weather in their area on web sites. These services are made easily by a web content management system. One of the jobs as a web site administrator is not only to figure out how to get as many people to visit a site as possible but how to keep them there and keep them coming back. Getting your users to return, however, is how one keeps a site going over time.

Most likely, the site periodically has new information. In each case, the content gets updated on a regular basis-sometimes daily, sometimes weekly, and sometimes even hourly. Can one imagine how much work the Web site developers must have to do to update the content every day? Actually, if the site is designed as a content management system, the designer shouldn't have to enter any content, since the site is being developed in such a way that provides a simple and effective means of managing the contents on the site by authorized users

1.3 Research Methodology

To put up the portal, the following, software tools are needed:

- WAMP server: A package that comprises PHP,MYSQL, and APACHE server all together, which runs on a windows machine.
- A Text Editor: like Notepad, Komodo Editor, Macromedia Dreamweaver etc
- Web browser: The program to view the finished work such as internet explorer, mozilla firefox, opera.

Installation of the WAMP server: Installing the server creates the platform on which the web site is developed and tested on the computer as a local host server.

Setting up the database: Creating a database on the server with MYSQL language to hold information of the web site by creating tables in the database to hold the students information and grades, student registration numbers, usernames to restrict lecturers access to compute grades.

Coding: Writing the PHP scripts to store, delete, and retrieve information by the user on the site from the database tables. The scripts are written in the notepad editor and saved in the www-directory folder on the server as a php extension – this is where all the web site scripts are processed when users make request to the server on the internet. The PHP scripts are embedded with HTML codes and MYSQL language for the web pages to work with the tables in the database.

Adding security to the content management system: A login Page is added to the staff area of the portal to restrict and authenticate users that will have access to the portal.

Testing the site pages: It is to ensure the scripts work properly as intended and the HTML codes are interpreted properly by the browser. This is done by launching the browser and typing the location of the file on the server by typing http://localhost/websitefolder/filename.php in the browser URL (uniform resource locator) bar.

Making the portal easy to use: The pages on the portal are divided into three areas:

- Banner area: This is where the department name and logo will be placed.
- Navigation area: What is on the portal and where it is located should be immediately be obvious to a user.
- Content area: The information the user wants from the portal can easily be found here.

1.4 Scope And Limitation

The application will have two areas – the public area and the staff area. The students will only have access to view the public portal where results will be checked, semester course lists and total credit unit will be viewed and Departmental news. The staff area is restricted for only

authorized staffs in the Department for the portal content updates. There will be an administrator who will be adding and removing access privileges to every lecturer, who is ready to compute his or her students course grades on the site. Until the students GPA and CGPA are computed by the authorized staff, they will not be able to access result.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

A content management system (CMS) is critical to the success of almost every website. Take a typical website, for example. Much of the content is out-of-date, it is hard for the user to update the site because he or she has no knowledge of web design, the update must be done by a skilled web designer by using manual tools such as Dreamweaver or Frontage. These problems are what a content management system is specifically designed to solve.

2.1 Overview Of A Content Management System

A CMS is web application that allows you to create articles or any other pages directly online, from a secured administration area (Antoq, 2009). It supports the creation, management, distribution, publishing, and discovery of corporate information. It covers the complete lifecycle of the pages on a site, from providing simple tools to create the content, through to publishing, and finally to achieving. It also provides the ability to manage the structure of the site, the appearance of the published pages, and the navigation provided to the users (Robertson, 2003). It can be defined as a system used to organized and create documents and other content. In terms of web applications a CMS is used for managing websites and web content which in many cases requires a backend system for editing and creating documents (Oosthuizen, 2006). Note that in this project we are focusing on the most common use of a CMS" to manage web content. In some circles, these systems are therefore called web management systems (WMS).

There is a range of business benefits that can be obtained by implementing a CMS, including:

- Streamlined authoring process
- Faster turnaround time for new pages and changes

See a go for mann

• Greater consistency

- Improve site navigation
- Increased site flexibility
- Support for decentralized authoring
- Increased security
- Reduced duplication of information
- Greater capacity for growth
- Reduced site maintenance costs

Beyond these, the greatest benefit the CMS can provide is to support a business or organization goals and strategies. For example, the CMS can help to improve sales, increase user satisfaction, or assist in communicating with the public.

The anatomy of a CMS is shown in figure 1:

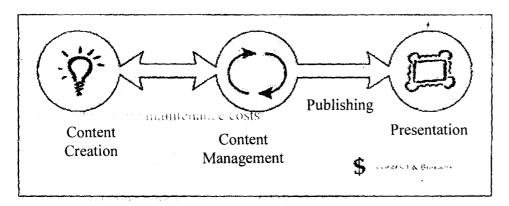


Fig 1: Anatomy of a Content Management System (Robertson, 2003).

As show in figure 1 the functionality of a content management system can be broken into main categories:

- Content creation
- Content management
- Publishing
- Presentation

The CMS manages the entire lifecycle of pages, from creation to archival (Robertson, 2003).

Content Creation: At the front of a content management system is an easy-to-use authoring environment, designed to work like MS Word. This provides a non-technical way of creating new pages or updating content, without having to know any HTML. The CMS also allows he user to mange the structure of the site. That is, where the pages go, and how they are linked together. Many even offer simple drag-and-drop restructuring of the site, without breaking any links. Almost all content management systems now provide a web-based authoring environment, which further simplifies implementation, and allows content updating to be done remotely. It is this authoring tool that is the key to the success of the CMS. By providing a simple mechanism for maintaining the site, authoring can be devolved out into the business itself. For example, the marketing manager might maintain the press release section, while the product manager keeps the catalogue up to date.

Thus, a CMS also support collaborative group work.

Content Management Once a page has been created, it is saved into a central repository in the CMS. This stores all the content of the site, along with the other supporting details. This central repository allows a range of useful features to be provided by the CMS:

- Keeping track of all the version of a page, and who changed what and when.
- Ensuring that each authorized user can only change the section of the site they are responsible for.

It maintains strict control over the quality, accuracy and consistency of the information.

Publishing: Once the final content is in the repository, it can then be published out to the website. Content management systems boast powerful publishing engines which allows the appearance and page layout of the site to be applied automatically during publishing. It may also allow the same content to be published to multiple sites. Of course, every site looks different, so

the CMS lets the graphic designers and web developers specify the appearance that is applied by the system. These publishing capabilities ensure that the pages are consistent across the entire site, and enable a very high standard of appearance. This also allows the authors to concentrate on writing the content, by leaving the look of the site entirely to the CMS. The CMS fully automates the publishing of a site in many organizations, a driving factor behind obtaining a content management system is to enforce greater control over the publishing process such that only accurate and meaningful information is published to the site. A user can assign a task related to a specific piece of content to another staff member. For example, a request could be sent to review the content, update the content, add additional details.

Presentation: The content management system can also provide a number of features to enhance the quality and effectiveness of the site itself. As an example, the CMS will build the site navigation, by reading the structure straight out of the content repository. It also makes it easy to support multiple browsers, or users with accessibility issues. The CMS can be used to make a site dynamic and interactive, thereby enhancing the site's impact. The most important part in creating a CMS is having the knowledge of HTML. HTML means Hypertext Markup Language. It is the underlying program for designing web pages which instructs the browser on how to format text, add graphics, sound, and video, and save the code all in a text file that any computer can read.

2.2 Advantages Of A Cms

Using a CMS for website development and maintenance offers the following advantages over traditional method:

- It harnesses the efforts of many authors.
- Content creation costs and resources are spread more evenly throughout the organization.
- It makes the content owners responsible for their own information.

- It reduces the need for a large centralized authoring team.
- Integration of content creation into the daily activities of the business.
- It may also provide more up-to-date content.

2.3 Challenges Of A cms

The user must be trained on how to use the sytem. Staff may already have a full-time worked with their normal activities. Authoring is then an additional activity, on top of their existing responsibilities. Unless management provides staff with sufficient time and resources, it is unfair to expect them to shoulder this additional work for an extended period of time where the author (the person updating the site) must juggle using the CMS with their other responsibilities like computing the students results from 100 level to 400 level for every semester.

2.4 What Is Required For Developing The cms?

There are some content management system software developed by IT companies in the market. In this project we will create our own web application by using some of the very useful web programming languages to develop the web portal and manage the web portal contents in a cheaper and efficient way. The web programming codes that will be sued for the site are; HTML (Hypertext Markup Languages), PHP (PHP: Hypertext Preprocessor), and MYSQL database management system. We need a web server to serve the request of the client by their browser on the web. Apache is the web sever that will be used. A WAMP server is a packages that runs Apache web server, MYSQL database server, and PHP on a Windows operating systems machine. It is an open source software. A good text editor (editors that have syntax coloring/highlighting and syntax hinting) for writing the codes and scripts is also require. Whatever code that is written on the text editor is saved with a php extension in the www-folder of the WAMP directory on the computer hard drive. This is where the server processes pages.

2.5 How The cms Is Implemented

To implement a CMS requires a server to run the system — WAMP server, Additional requirements are needed to store the content that has been created-PHP functions and MYSQL queries, and a content management application to handle the user interaction-HTML (Oosthuizen, 2006). HTML is the basic web language that is used to design the page layouts of the site, it can do a static web site. MYSQL queries are used in the creation of database and tables that stores the information that will be shown to the public website. PHP functions are used to connect the web pages to the database and tables to view information in the tables to the public and to connect the authorized user to the database and tables to update or change the information in the tables. Thus, the user do not need any knowledge of the web programs to update the site after it is developed. This architecture is shown in figure 2.

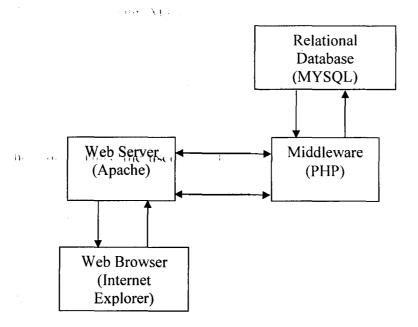


Fig 2: Architecture of the Web Application (Bulger, 2004)

2.6 Why Use php?

PHP is an open source, server-side web-scripting language for creating dynamic web pages. Apart of it being browser independent, it offers a simple and universal cross-platform solution for e-commerce, and complex web and database-driven applications. It has a simple syntax resembles C. it's easy for experienced C, C++, Perl, and shell coders to pick up PHP. Plus. it is open source, and it is free.

PHP is faster than ASP (Active Server Pages – the Microsoft version of web scripting i.e VB scripting), and runs virtually on every platform (Argerich et al, 2003). Unlike some of the sites designed with ASP. The departmental portal that will be developed for this project will process its web pages scripts faster on the server. Most especially when students are checking their results.

2.7 Planning The cms

The first step is basic specification of what the CMS must do. Obviously, this will depend on the needs in the organization:

Content Management: Probably the most vital function of the system, it must store content such as documents and news in a database, and display to the user whatever he or she requests. An easy-to-use interface is required to allow editors to add, remove, or modify content.

- User authentication; There may be certain areas of the site to which access is limited. At the very least this will be the "admin" area, where the editor of the site will be able to add, edit or modify content. One may also which to have areas only available to certain department staffs (where lecturers compute grades).
- Page uniformity/templates: The system should have a uniform look and feel (Zeidman, 2004).

CHAPTER 3

SYSTEM ANALYSIS AND DESIGN

3.0 Review Of The Existing System

In the department a Web – Content management system is yet to be developed for online result checking. The present system uses paper print out of the computed result after the grades of courses offered by students are gathered and the GPA and CGPA for every student has been calculated. Students are informed through class representatives about result readiness, and they queue up in the department to check results.

Scholarship notices, semester course lists and total credit units and other information are presented on papers and pasted on the department notice board.

3.1 Merits Of The Existing System

The paper mode of presenting information to students is advantageous in the following ways:

- Students that do not have access to the internet can get the information provided by the department semester results, scholarship notice, course list.
- Students quickly get informed through their class representatives.

3.2 Demerits Of The Existing System

The major problems being faced with the present mode are that:

- Students congests the department to check their results, which causes a lot of inconvenience to the staffs the staffs walking to their office get obstructed by the queue of students at the entrance when they are waiting to check result.
- The lecturer or a staff who is in charged of reading out the results to students may be very busy or tired, so delay the time when students can know their results.

• The news, semester course lists, and other pieces of information pasted on the board are most times torn off by unknown persons or fall off due to wearing out of the glue substance of staple pins used to fix the papers on the wall of the notice board.

3.3 System Design

The portal that is being developed is a web – content management system. It is a database web application which allows content in the portal to be stored in the relational database management system (MYSQL), and provide easy and fast way to update, delete, and retrieve the information in the portal. The application has two areas – the public portal and the staff area.

The Public Portal: this is the area that every user or student visit to get information from the portal. In this area the user or student has access to read the information content stored in the database only. They cannot update or delete the information content.

The Staff Area: the area of the portal is designed to create security of the information of the web contents, by restricting the users that can have access to the pages in the portal. A user must be authorized to have access to the portal pages by being given a username and a password, created by an administrator of the portal. Only the administrator has access to all the pages in the area, while the other authorized users can only update and delete the information contents in particular areas of the portal for example, lectures can compute student's grades.

3.4 System Requirement

The system requirement are the implements that are put together to make the automated application work. The system requirements for this project are the following:

- 1. A minimum Pentium processor of 3.06 GHZ
- 2. A minimum random access memory (RAM) of 2 GB

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- 3. A minimum hard disk of 250 GB
- 4. A visual display unit (VDU) with minimum screen resolution of 1280 x 800 and minimum of 32 bit color quality
- 5. A standby UPS (uninterrupted power supply) of a minimum of 2KVA
- 6. A quality DeskJet printer
- 7. A mouse and keyboard

3.5 Software Requirement

The software requirements are the required software that are need to make the content management system work as expected. The software are

- 1. Apache server
- 2. PHP
- 3. MySql database server
- 4. Microsoft windows Xp or higher versions operating system, Mackintosh 2000 date versions operating system, Linux 2000 date versions operating system

Other software used in the developing the content management system includes;

- graphical software Adobe Fireworks
- animation software SwishMax
- Text editors Notepad++ and gedit

3.6 Data Modelling

Identifying Data Items:

The information on the web application is kept in a database called matcom on the MYSQL relational database management system. The following are the names of tables created in database matcom: table entry, ca, ca2, exam, exam2, security. The functions of the tables mentioned are described as follows:

- 1) Staff information: the login usernames and passwords of the authorized staffs are store into table security with column name id. Username and password.
- 2) Student information: The student information are entered as follows:
 - The students matriculation numbers, names, GP's, and CGP's are entered into table exam which has column id, matric, name, gpa, cgpa etc.
 - Students biodata are entered into table entry with column name id, matricno, department ,address, email etc .

Database Schema:

The tables of	created in th	e matcor	n database	are descri	bed in fig	ure 3 as	follows	:
mysql> use	matcom							
Database ch	nanged							
mysql> sho	w tables;							
+	+							
Tables_in_	matcom							
+	+							
ca								
ca2								
entry								
exam	1							
exam2	13							
security	1							

```
mysql> use matcom
Database changed
mysql> show tables;
Tables in matcom
ca
| ca2
entry
exam
exam2
security
mysql> describe ca;
| Field | Type | Null | Key | Default | Extra
| id | int(11) | NO | PRI | NULL | auto_increment |
| name | varchar(50) | NO | NULL |
mat_no | varchar(20) | NO | NULL |
| level | varchar(10) | NO | NULL |
     varchar(20) | NO | NULL |
sem
     | varchar(10) | NO | NULL |
| c1
     | varchar(10) | NO | NULL |
|cc1
```

cn1	varchar(20) NO NULL	
cul	varchar(10) NO NULL	
score	el varchar(10) NO NULL	
c2	varchar(10) NO NULL	
cc2	varchar(10) NO NULL	
cn2	varchar(20) NO NULL	
cu2	varchar(10) NO NULL	
score	e2 varchar(10) NO NULL	
c3	varchar(10) NO NULL	1
cc3	varchar(10) NO NULL	
cn3	varchar(20) NO NULL	
cu3	varchar(10) NO NULL	
score	e3 varchar(10) NO NULL	
c4	varchar(10) NO NULL	
cc4	varchar(10) NO NULL	
cn4	varchar(20) NO NULL	-
cu4	varchar(10) NO NULL	1
score	e4 varchar(10) NO NULL	
c5	varchar(10) NO NULL	
cc5	varchar(10) NO NULL	
cn5	varchar(20) NO NULL	
cu5	varchar(10) NO NULL	
score	e5 varchar(10) NO NULL	
c6	varchar(10) NO NULL	

```
| varchar(10) | NO |
                         | NULL |
cc6
      varchar(20) NO
                         | NULL |
cn6
| cu6
      | varchar(10) | NO |
                         | NULL |
| score6 | varchar(10) | NO |
                          | NULL |
      | varchar(10) | NO | NULL |
| c7
      | varchar(10) | NO |
                         | NULL |
| cc7
cn7
      varchar(20) NO
                         NULL
      varchar(10) NO
                         | NULL |
cu7
| score7 | varchar(10) | NO |
                          | NULL |
      | varchar(10) | NO |
                        | NULL |
| c8
cc8
      varchar(10) | NO
                         | NULL |
cn8
      varchar(20) NO
                         NULL
cu8
      varchar(10) NO
                         | NULL |
| score8 | varchar(10) | NO |
                          | NULL |
| c9
      varchar(10) NO
                         | NULL |
cc9
      | varchar(10) | NO |
                         | NULL |
      varchar(20) NO
cn9
                         | NULL |
      | varchar(10) | NO |
cu9
                         NULL
| score9 | varchar(10) | NO |
                          | NULL |
| c10
      | varchar(10) | NO |
                         NULL
| cc10
      | varchar(10) | NO |
                          NULL
| cn10
      | varchar(20) | NO |
                          NULL
| cu10 | varchar(10) | NO |
                          NULL
| score10 | varchar(10) | NO |
                          | NULL |
```

```
| cal0 | varchar(10) | NO | NULL |
| lg10 | varchar(10) | NO | NULL |
gp10 | varchar(10) | NO | NULL |
mysql> describe exam;
| Field | Type | Null | Key | Default | Extra
+-----+
| id | int(11) | NO | PRI | NULL | auto increment |
name | varchar(50) | NO | |
mat_no | varchar(20) | NO |
| level | varchar(10) | NO | |
sem | varchar(20) | NO | |
cl varchar(10) NO
cc1 | varchar(10) | NO | |
| cn1 | varchar(20) | NO |
| cul | varchar(10) | NO | |
exam1 | varchar(10) | NO | |
| cal | varchar(10) | NO | |
| lg1 | varchar(10) | NO | |
pol varchar(10) NO
gp1 | varchar(10) | NO |
| c2
    | varchar(10) | NO | |
cc2 | varchar(10) | NO |
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			i .
cu2	varchar(10) NO		
exan	n2 varchar(10) NO		
ca2	varchar(10) NO		1
lg2	varchar(10) NO	1	
po2	varchar(10) NO	1	
gp2	varchar(10) NO		
c3	varchar(10) NO	1	
cc3	varchar(10) NO	1	
cn3	varchar(20) NO		1
cu3	varchar(10) NO		
exan	n3 varchar(10) NO		1
ca3	varchar(10) NO	1	1
lg3	varchar(10) NO	1:	-
po3	varchar(10) NO	1	
gp3	varchar(10) NO		
c4	varchar(10) NO	1	I
cc4	varchar(10) NO	1	;
cn4	varchar(20) NO		1
cu4	varchar(10) NO		
exan	n4 varchar(10) NO		1
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lg4	varchar(10) NO	1	1
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gp4 varchar(10) NO		1
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exam5 varchar(10) NO		
ca5 varchar(10) NO		
lg5 varchar(10) NO	1	
po5 varchar(10) NO		1
gp5 varchar(10) NO	1	1
c6 varchar(10) NO	I	
cc6 varchar(10) NO	1	1
cn6 varchar(20) NO	1	1
cu6 varchar(10) NO		1
exam6 varchar(10) NO	1	İ
ca6 varchar(10) NO	1	1
Ig6 varchar(10) NO		
po6 varchar(10) NO	-	
gp6 varchar(10) NO	1	
c7 varchar(10) NO	1	-
cc7 varchar(10) NO	[1
cn7 varchar(20) NO	ļ	1
cu7 varchar(10) NO	1	
exam7 varchar(10) NO		

ca7	varchar(10) NO	1	
lg7	varchar(10) NO	1	1
po7	varchar(10) NO	1	
gp7	varchar(10) NO	1	
c8	varchar(10) NO		
cc8	varchar(10) NO	1	
cn8	varchar(20) NO		
cu8	varchar(10) NO		
exam	8 varchar(10) NO	1	
ca8	varchar(10) NO	1	
lg8	varchar(10) NO	1	1
po8	varchar(10) NO		1
gp8	varchar(10) NO		1
c9	varchar(10) NO		
cc9	varchar(10) NO	1	
cn9	varchar(20) NO		1
cu9	varchar(10) NO		
exam	9 varchar(10) NO		1
ca9	varchar(10) NO	†	1
lg9	varchar(10) NO	1	1
po9	varchar(10) NO		
gp9	varchar(10) NO	1	
c10	varchar(10) NO	1	1
cc10	varchar(10) NO		1

```
| cn10 | varchar(20) | NO | |
| cu10 | varchar(10) | NO | |
exam10 | varchar(10) | NO | |
ca10 | varchar(10) | NO |
| lg10 | varchar(10) | NO | |
| po10 | varchar(10) | NO | |
| gp10 | varchar(10) | NO | |
+----+
mysql> describe security;
+----+
| Field | Type | Null | Key | Default | Extra
+----+
    | int(11) | NO | PRI | NULL | auto_increment |
| username | varchar(40) | NO | NULL |
password | varchar(40) | NO | NULL |
+----+
```

Figure 3: The physical data model.

3.7 Process Modelling

Interface Design:

. . !

The interface of the web-content management system is designed with HTML (Hypertext Markup Language). It is used to present the texts, pictures, colors on the page. It is presented in such a way that allows the user to have an easy and quick navigation through all the page contents on the portal by dividing the pages into three panes- the content pane, the navigation pane, and the banner pane. This page formatting is uniform through out the pages in the portal.

The public area interface: This is where the students request for pieces of information in the department by clicking the links in the navigation pane. The home page interface is shown in figure 4, and the process flow diagram

The staff area interface: The administrator and authorized staff update the contents shown to the public in this area. The interface is designed in such a way to provide security to the contents in the database by the login pages to restrict access from the public. The administrator and authorized staff enter their login username and password in the same interface shown in figure 4. Before any authorized staff could enter the student course grades, a username and password access must have been created by the administrator, which the staff uses.

Program Codes/ Scripts:

The HTML codes used in designing the interface and forms are embedded within the PHP codes that make portal interactive and dynamic by taking input data and responding to the data

received. The Apache server processes the PHP functions that manipulate, insert, and retrieve data in the database. The source codes for the application are shown in Appendix A.

Input/Output Forms.

The input design specifies the manner in which the data enter the portal for processing. It ensures the reliability of the portal in responding to user requests. It also determines how efficient the application interacts with the user. The inputs to the portal are:

- Students entering matriculation numbers before they can have access to view results.
- The creation and deletion of authorized users by the administrator
- The entering of course grades by the authorized users.

The effectiveness of every portal is determined from the output it produces. It is one of the expectations of this web – content management system to produce useful and well presentable output to the user on screen. The outputs of information on the portal are shown in figure.

CHAPTER 4

SYSTEM IMPLEMENTATION AND TESTING

4.0 Overview

The chapter discusses some practical issues concerning the development of the web-content management system application, after the application was designed and modeled: issues relating to data implementation, program codes/scripts implementation, testing the application, documentation and hosting the application.

4.1 Data Implementation

The table definitions listed in chapter three are implemented in the following ways:

• The SQL statement used to implement table security is as follows:

mysqI> CREATE TABLE: security (

- > id int (1) NOT NULL auto _ increment,
- -> username varchar (8) NOT NULL,
- -> password varchar (15) NOT NULL,

4.2 Program Codes/Scripts Implementation

In this project the browsers considered in testing the application are Mozila firefox, internet explorer, and Opera. The HTML tags are interpreted by these browsers to create an interface between the users and the database. The Apache server processes the PHP codes used in interacting with the database and output the result to the browser with the HTML tags. PHP (PHP: Hypertext Markup Language) interacts with the MYSQL relational database in five steps stated as follows:

1) Create a connection:

The mysql _ connect () function is used in creating a connection with MYSQL relational database. The function is implemented as follows :<? Php \$dbc =

Mysql connect ("local host name", "username", "password") :?>

2) Select a database:

The mysql _ select _ () function is used selecting one of the database names created for the project in MYSQL. The function is implemented as follows :<? Php mysql _ select _ db ("database name"); ?>

3) Perform database query:

The mysq1 _ query () function is used in querying the database selected to respond to the user request. The function is implemented as follows:

<? Php \$result = mysq1 query ("make SQL query to the table") ;?>

4) Return the data of the query result (if any):

The mysql $_$ fetch $_$ array () function is used to return the query result to the browser.

The function is implemented as follows:

<? Php while (\$row = mysql _fetch _ array (\$result)
{echo \$row ["table field"];} ?>

5) Close connection to MYSQL

The mysq1 _ close () function is used to close the connection to the database after the result of the user request have been sent to browser. The function is implemented as follows;

<? php mysq1 _ close (\$dbc); ?>

4.3 System Testing

The scripts are saved in the Wamp directory folder named www in the hard drive of the computer. When the server has been put on. The outputs of the scripts are viewed by launching a browser and entering http://local host/ into the URL bar of the browser, then click enter. It outputs the interface shown in figure 9.



Figure 14: The WAMP server projects

The project folders saved in the server are listed and the folder for this particular project is clicked, and it leads to the page that list all the scripts present in the project folder. This is shown in figure 15.

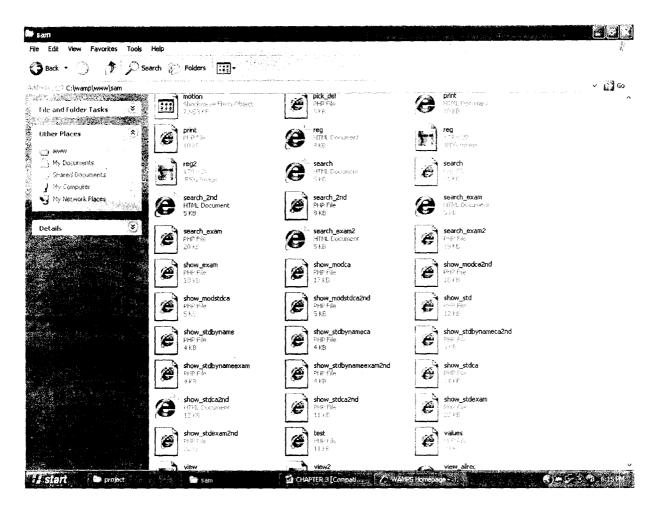


Figure 15: the list of all scripts present in the project folder

4.4 System Documentation

System documentation refers to the steps the user will follow that will allow users to operate the system. In the web portal every student must enter their matriculation number before they can view results computed. The administrator must create a username and password access account for any lecturer who is ready to enter the student course grades before they can login.

Federal University of Technology Minna Mathematics/Computer Science Department	
√Welcome	Restricted Area
QuickSearch	Username
★ First Semester CA ★ First Semester Exam ★ Second Semester CA ★ Second Semester Exam	Password Login

Figure 4: The interface design of the home page



this interface design of the home power

	Federal University of Technology Minna
	Mathematics/Computer Science Department
	Welcomo, attala Teday is Sunday, June 27th, 2010
etterantitionaanitionaanitionaanitionaanitionaanitionaanitionaanitionaanitionaanitionaanitionaanitionaanitiona	Strieut Decords
	ADD COURSES VIEW RECORD REGISTRATION
Logout	
	Anne agreement and a state of the state of t

Figure 5: Staff area

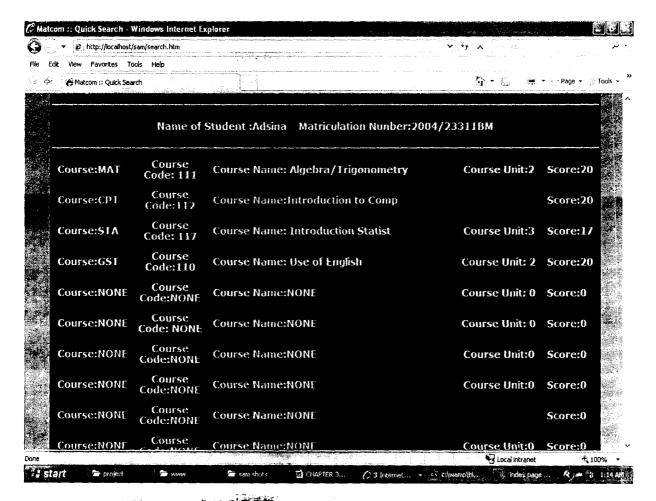
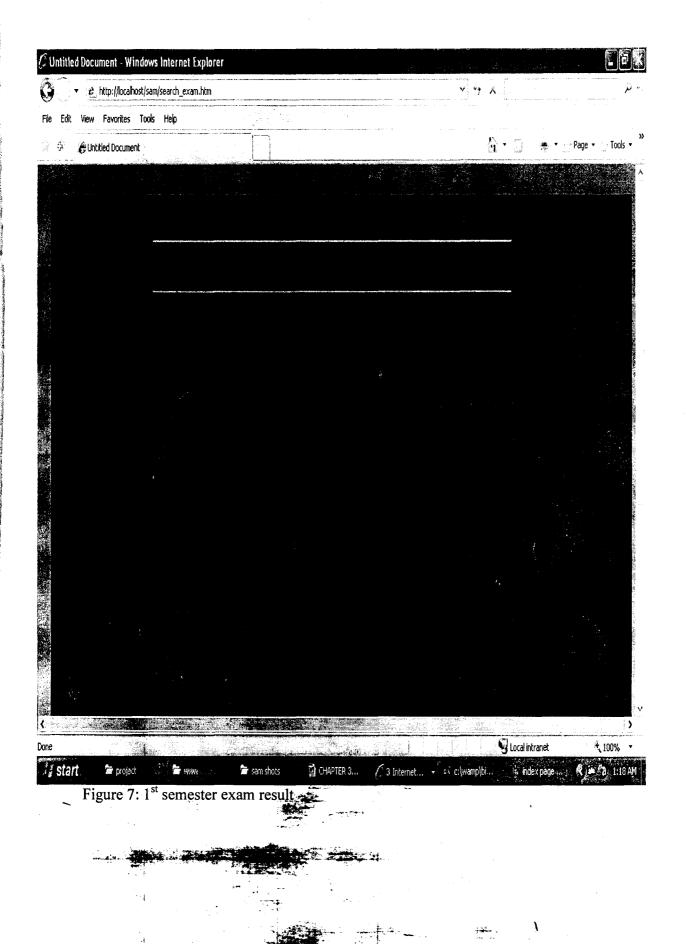


Figure 6: continuous assessment result



er control cases ment result



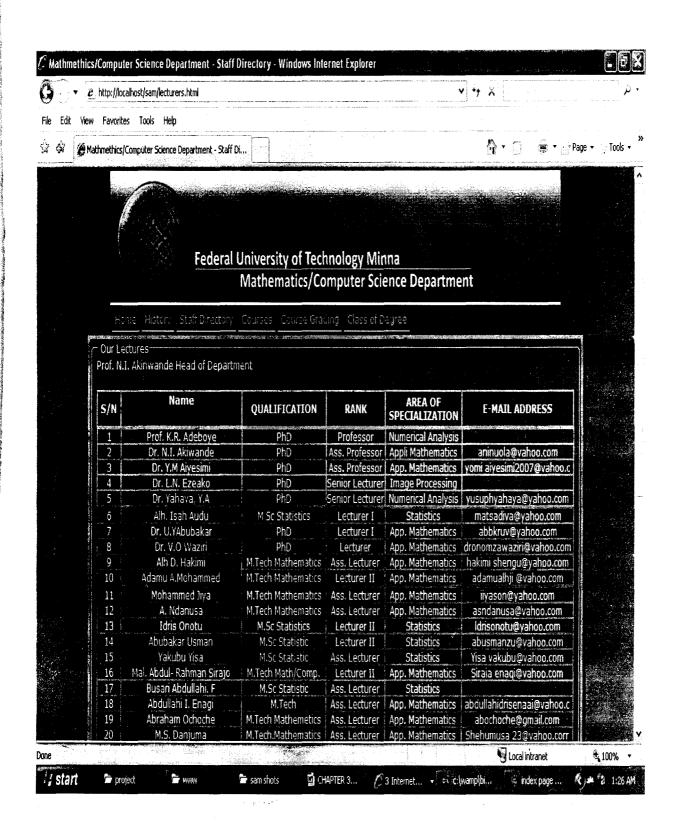


Figure 8: Staff Directory

and which he

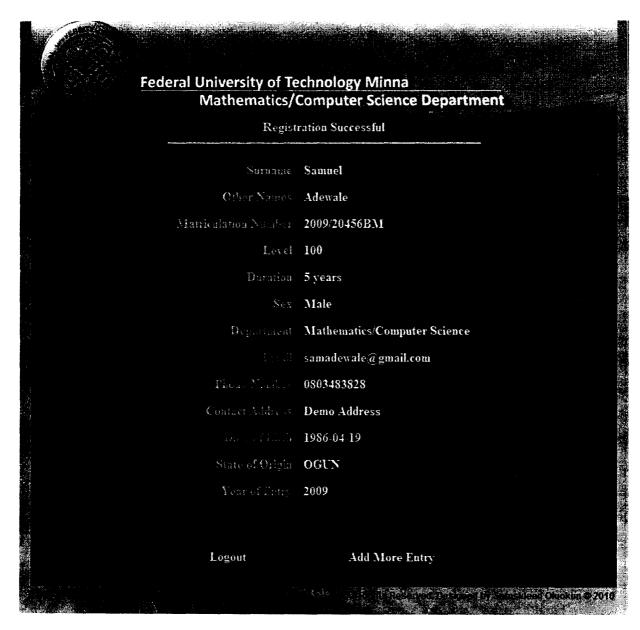
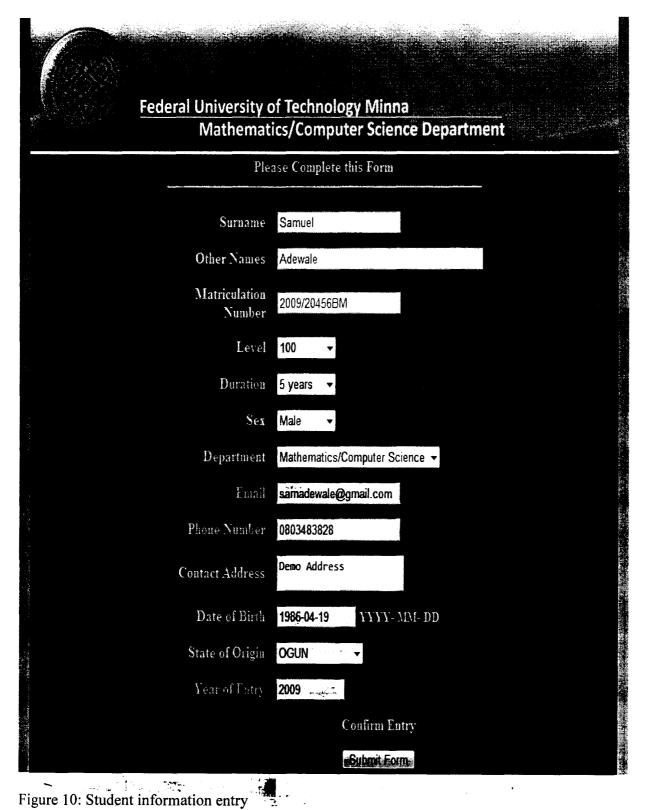


Figure 9: Student information





Federal University of Technology Minna Mathematics/Computer Science Department Continus Assessment Entry (Second Semester) Level 100 ▼ Semester Second Semester Matriculation Number (e.g 2009/25234BM) Name of Student Course Code Course Name Course Unit Course Score NONE ▼ NONE ▼ 0 🕶 NONE Course Name Course Course Code Course Unit Score NONE • NONE • NONE 0 🕶 0 🔻 Course Name Course Course Unit Course Code Score NONE + NONE 0 🕶 0 • NONE + Course Name Course Code Course Unit Course Score NONE + NONE + NONE 0 🕶 0 🔻 Course Code Course Name Course Unit Course Score NONE ▼ NONE ▼ NONE 0 🔻 Course Unit Course Name Course Course Code Score NONE ▼ NONE • NONE 0 🔻 Course Code Course Name Course Course Unit Score NONE -NONE * NONE Confirm Your Entries

Figure 11: Continuous Assessment

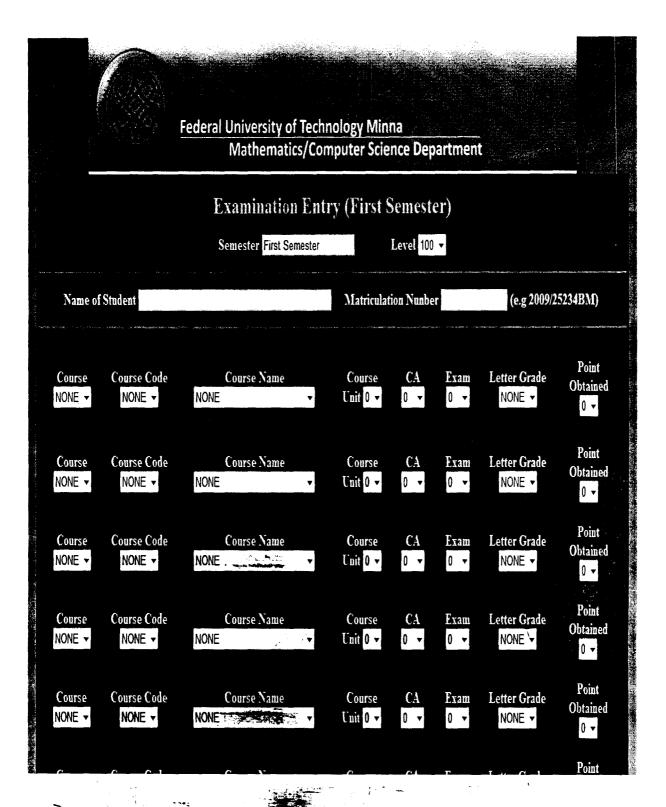


Figure 12: Examination Entry

CHAPTER FIVE

SUMMARY, RECOMMENDATION AND CONCLUSION

5.0 Summary

The main purpose and objective of this project work is to incorporate the use of the web as part of the operational activities in the Computer Science Department of the Federal University of Technology, by developing a web application that allows different staffs in the department to enter contents in the web portal. The study comprises of five chapters which begins with the general introduction of the application such as what the project is expected to do. It also contains the scope and limitations, aim and objectives of the study, which were explained in detail. Next, the project looks at the literature review of a Content Management System as it applies to the study. It deals with the science behind a CMS as well as the need for the study. The project also emphasizes the analysis of the existing system as well as the design of the new system which is the development of a web portal as a Web- Content Management System for the Department of Computer Science Federal University of Technology. The issues of the implementation, testing and documentation of the new system is also covered in chapter four.

or reflect the application such by what

5.1 Recommendation

The project which is a Web-Content Management System, it is the latest technology in web development for easy and efficient updates of the web portal contents. However, having successfully completed the research and produced a result that conform with reality, it is

important to make recommendations based on the experiences acquired in the course of seeking information materials and writing the project. These include:

1) The department should test and implement the new system. if the new system is implemented into the department, the department will have a proper way of allowing every lecturer to enter student grades for his or her course offered by students without exposure of the result to a second party who might alter some student grades.

2) In the department before any lecturer will have access to enter student course grades, the administrator will create a username and password access for the lecturer to login.

3) The students and staff should be informed about the existence and function of the new system.

5.2 Conclusion

Web-content Management systems offer organization a powerful way with which to control their web portal content. They give access to those responsible for maintenance of the contents, and are valuable in any dynamic business environment that does business online. A CMS can be a great tool for either personal or business use. A CMS allows multiple authors to update a portal, as it grows, taking responsibility for different sections. They have the potential to dramatically simplify the maintenance of a web portal.

was a same ystems offer or a same

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 Indianapolis, Indiana, Wiley Publishing, Inc.
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- 14 Zeidman, P. (2004). Creating a PHP-Based Content Management
 System. Retrieved from www.intranetjournal.com/articles/200408/ij070
 6 04a. htmi

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APPENDIX: SOURCE CODES

```
Home codes
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"</p>
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<a href="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
<title>Mathmethics/Computer Science Department - Home page</title>
<style type="text/css">
<!--
body {
       background-color:#FFFFFF;
      margin-top:0px;
       background-image: url(bg.jpg);
       background-repeat: repeat-x;
       font-family: Verdana, Arial, Helvetica, sans-serif;
       font-size:9pt;
.style1 {color: #FFFFFF}
.style5 {color: #0D161E;
}
                                  · 311.
.style6 {
                                    1.).
      color: #C2CACF
}
ul{
      list-style:none;
       font-size:8pt;
ĺi{
      color:#EEE;
      border-bottom:1px dotted #eee; veta-
      margin-left:-40px;
      padding:5px;
li:hover{
      color:#FF9900;
      background:#000;
li a{color:#eee; text-decoration:none;}
li a:hover{color:#FF9900; text-decoration:none;}
```

```
.style7 {color: #FF9900}
-->
</style>
<script src="Scripts/AC RunActiveContent.js" type="text/javascript"></script>
</head>
<body>
 
scope="row">Welcome
  
cellpadding="5" cellspacing="5">
  <script type="text/javascript">
                        ter th
AC FL RunContent(
'codebase', 'http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=7,0
,19,0','width','200','height','303','src','motion','quality','high','pluginspage','http://www.macromedi
a.com/go/getflashplayer', 'movie', 'motion'); //end AC code
</script><noscript><object classid="clsid:D27CDB6E-AE6D-11cf-96B8-444553540000"</pre>
codebase="http://download.macromedia.com/pub/shockwave/cabs/flash/swflash.cab#version=7,
0.19,0" width="200" height="303">
   <param name="movie" value="motion.swf" />
   <param name="quality" value="high" />
   <embed src="motion.swf" quality="high"</pre>
pluginspage="http://www.macromedia.com/go/getflashplayer" type="application/x-shockwave-
flash" width="200" height="303"></embed>
   </object></noscript>
   <span class="style7" style="border-bottom:1px solid #FF9900;">Browse</span>
    <u1>
         <a href="history.html">History</a>
     <a href="lecturers.html">Staff Directory</a>
     <a href="courses.html">Courses</a>
     <a href="courseschedule.html">Course Grading</a>
      <a href="coursegrade.html">Class of Degree</a>
```

```
<form id="form1" name="form1" method="post" action="login confirm.php">
     <fieldset>
     <legend><span class="style1">Admin Only</span></legend>
     <span class="style1">Username</span>
   <label for="textfield"></label>
     <input name="username" type="text" id="textfield" />
   Password
   <input name="password" type="password" id="textfield2"</p>
/>
    
   <label for="Submit"></label>
     <input type="submit" name="Submit" value="Login" id="Submit" />
   </fieldset>
    </form>
    <div align="right" class="style5">All Rights Reserved. Designed by Samsideen Oluokun
© 2010 </div>
A ...
</body>
</html>
                      111
History codes
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"</p>
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<a href="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Mathmethics/Computer Science Department - History</title>
```

```
<style type="text/css">
<!--
body {
       background-color:#F9FBFA;
       margin-top:0px;
       background-image: url(bg.jpg);
       background-repeat: repeat-x;
       font-family: Verdana, Arial, Helvetica, sans-serif;
       font-size:9pt;
       color:#fff;
}
a{
       color:#FF9900;
       background:#33444D;
       text-decoration:none;
       border-top:1px solid #eee;
       border-bottom:1px solid #eee;
       padding:5px;
}
              amil a micho jpo):
a:hover{
       color:#FFf;
       background:#33444D;
       text-decoration:none;
       border-top:1px solid #eee;
       border-bottom:1px solid #eee;
       padding:5px;
}
.style1 {color: #FFFFFF}}
.style5 {color: #0D161E;
}
.style6 {
       color: #C2CACF
}
ul{
       list-style:none;
       font-size:8pt;
ji{
       color:#EEE;
       border-bottom:1px dotted #eee;
       margin-left:-40px;
       padding:5px;
}
```

```
li:hover{
    color:#FF9900;
    background:#000;
li a{color:#eee; text-decoration:none;}
li a:hover{color:#FF9900; text-decoration:none;}
.style7 {color: #FF9900}
-->
</style>
</head>
<body>
 
  <a href="./">Home</a> <a href="history.html">History</a> <a
href="lecturers.html">Staff Directory</a> <a href="courses.html">Courses</a> <a
href="#">Course Grading</a> <a href="coursegrade.html">Class of Degree</a>
   <div
style="color:#FFFFF; padding:10px;">
     <h3 style="border-bottom:1px solid #eee;">History of the
Department</h3>
      Federal University of Technology Minna was established 1st February 1983, its
objectives is to effect the nations adrive for self-reliance in science engineering and especially,
technology. The institution consists of five school; these are: <br/> <br/> <br/> />
    1.
       Post Graduate School <br/> />
    2.
       School of Agricultural and Agricultural Technology <br/> />
```

School of Environmental Technology

Street probable 10px."

School of Science and Science Education.

3.

4.

Under the School of Science and Science Education, comes Mathematics and Computer Science Department. The department started with late Prof. Eleduanya as the pioneer head in 1983, with an initial student's population of 45 and academic staff strength of 8.

Mathematics/Computer science department was established in 1984 to offer B.Tech. Degree in applied mathematics with computer science option. The department also services all other departments in the university with foundation mathematics, statistics and computer science courses from the then pre-degree level to foundation studies one and two since these courses are the bedrock of all other programmes in the university. Such servicing courses include MAT 111, MAT 112, STA 11 7, STA 127, STA 21 7, CRT 111, CRT 121 etc. The department also runs post graduate programmes as Masters and Ph.D. degrees in applied mathematics and diploma in computer science.

At the onset, a committee was set up comprising of Prof. . B. Muhammed, Prof. Iyahan, and Dr. L. N. Ezeako. this committee among others recommended the structure of 3 components for the department. These are: Mathematics, Statistics, and Computer Science.

The first ever first-class graduate produce by Federal University of Technology Minna came from this department (Mrs. Aisha Yuisuf).

From inception, the department has been heade by late Prof. S. A.N Eleduanya,
/>

Mr Bamkefa, Prof. K.R. Adeboye, Dr. S. A. Reju, Dr. L. N. Ezeako and Associate Professor, Dr.N.I Akinwande.

The department has continue to attract a very good number of Nigeria students as well as student from Niger Republic and Ghana. The first set of five students graduated in 1988. Nine (9) students have thus far graduated in the first class division since the programme stated. Many of the graduates of the programme over the period from 1988 are employed in almost all the Banks in Nigeria as well |as in some Petro-chemical industries.

The Curriculum for programme- especially the computer science component has been progressively updated since the inception of the programme.

```
</div>
   width="776"><div align="right" class="style5">All Rights Reserved. Designed by
Samsideen Oluokun © 2010 </div>
are not be not
</body>
</html>
Staff Directory
Student login
                        3. d as 10
Student login
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"</pre>
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<a href="http://www.w3.org/1999/xhtml">
<head>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
<title>Untitled Document</title>
<script type="text/javascript">
<!--
var xmlHttp;
function showHint(str)
if (str.length==0)
 document.getElementById("txtHint").innerHTML="";
 return:
xmlHttp=GetXmlHttpObject();
if (xmlHttp==null)
 alert ("Your browser does not support AJAX!");
 return;
var url="search exam.php?id=" + str;
xmlHttp.onreadystatechange=stateChanged;
xmlHttp.open("GET",url,true);
xmlHttp.send(null);
function stateChanged(){
             if (xmlHttp.readyState==4){
                     document.getElementById("txtHint").innerHTML=xmlHttp.responseText;
              }
}
function GetXmlHttpObject()
var xmlHttp=null;
try
 // Firefox, Opera 8.0+, Safari
                                1904
 xmlHttp=new XMLHttpRequest();
catch (e)
 // Internet Explorer
 try
  xmlHttp=new ActiveXObject("Msxml2.XMLHTTP");
```

```
catch (e)
  xmlHttp=new ActiveXObject("Microsoft.XMLHTTP");
return xmlHttp;
function MM swapImgRestore() { //v3.0
 var i,x,a=document.MM sr; for(i=0;a&&i<a.length&&(x=a[i])&&x.oSrc;i++) x.src=x.oSrc;
}
function MM preloadImages() { //v3.0
 var d=document; if(d.images){ if(!d.MM p) d.MM p=new Array();
  var i,j=d.MM p.length,a=MM preloadImages.arguments; for(i=0; i<a.length; i++)
  if (a[i].indexOf("#")!=0){ d.MM p[j]=new Image; d.MM <math>p[j++].src=a[i];}}
}
function MM findObj(n, d) { //v4.01 | Solit
 var p,i,x; if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
  d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
 if(!(x=d[n])\&\&d.all) x=d.all[n]; for (i=0;!x\&\&i<d.forms.length;i++) x=d.forms[i][n];
 for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM findObj(n,d.layers[i].document);
 if(!x && d.getElementById) x=d.getElementById(n); return x;
function MM_swapImage() { //v3.0
 var i,j=0,x,a=MM swapImage.arguments; document.MM sr=new Array; for(i=0;i<(a.length-
2);i+=3)
 if ((x=MM findObj(a[i]))!=null){document.MM sr[i++]=x; if(!x.oSrc) x.oSrc=x.src;
x.src=a[i+2];
//-->
</script>
<style type="text/css">
<!--
                                    ind,
a:link {
      text-decoration: none;
      color: #FF6600;
a:visited {
      text-decoration: none;
      color: #FF6600;
                                    SHIP.
a:hover {
      text-decoration: underline; adoctor
      color: #99FFFF;
}
```

```
a:active {
     text-decoration: none;
     color: #FF6600;
}
.style1 {
      color: #FF6600;
      font-weight: bold;
body {
      background-color: #000000;
      margin-top:0px;
      background-image: url(bg.jpg);
      background-repeat: repeat-x;
      font-family: Verdana, Arial, Helvetica, sans-serif;
}
.style13 {color: #FF9900; font-weight: bold; font-size: 24px; }
.style5 {color: #CCCCCC;
      font-weight: bold;
      font-size: 12px;
}
.style14 {color: #C7CCD2}
.style15 {color: #C7CCD2; font-weight: bold; font-size: 24px; }
.style17 { font-size: 12px; font-weight: bold;}
.style7 {color: #0E1820;
      font-weight: bold; - Our and.
      font-size: 12px;
}
-->
</style></head>
<body>
 
 <h1 align="center" class="style15">Student Record: First Semester Examination </h1>
<hr align="center" width="300" />
<div align="center" class="style14"><strong>Enter The Correct Matriculation Number
</strong></div>
<form id="sform">
   <input name="text" type="text" class="style12" id="txt1" onkeyup="showHint(this.value)"</pre>
value="Enter Mat Num" size="30" />
```

```
</form>
<a href="search_exam.htm" class="style17"
onmouseover="MM_swapImage('reset',",'reset2.jpg',1)"
onmouseout="MM swapImgRestore()">Reset</a>
<div align="left"><span class="style13"><span
class="style1"> </span></div>
  
<br />
<hr width="800"/>
<div align="right" class="style7">All Rights Reserved. Designed by
Samsideen Oluokun © 2010 </div>
</body>
</html>
      a mean and valigh "top" and
```

Same Sparing Office diverse

CONTRACT