# CHAPTER FOUR

4.1 DESIGN AND IMPLEMENTATION OF THE SYSTEM.

This chapter is concern about how the system was designed and how it will be implemented. System design is the process of defining the architecture, modules, interfaces, and data for a system to satisfy specified requirements. This could be seen as the theory behind the system to be built. System implementation (i.e. physical system building) on the other hand is the process of building the system and making sure the system is operational and meets quality standards as specified.

## 4.2 SPECIFICATION ANALYSIS.

This is a critical step to ensure the success of the development of the system. Here we take into consideration the system on which the final project will be run and the system to use in the development of the project.

This project is built to run on systems with the following specification:

### 4.2.1 HARDWARE REQUIREMENTS.

* 512MB of minimum RAM
* 10GB of minimum Hard Disk Capacity

### 4.2.2 SOFTWARE REQUIREMENT.

* Windows operating system (Win2000, WinXP, WinVista or above)
* PHP server. Eg (XAMPP SERVER Setup)
* MySQL setup eg (XAMPP SERVER Setup)
* Web browser (Google Chrome, Mozilla Firefox, Opera, Microsoft Edge, etc )

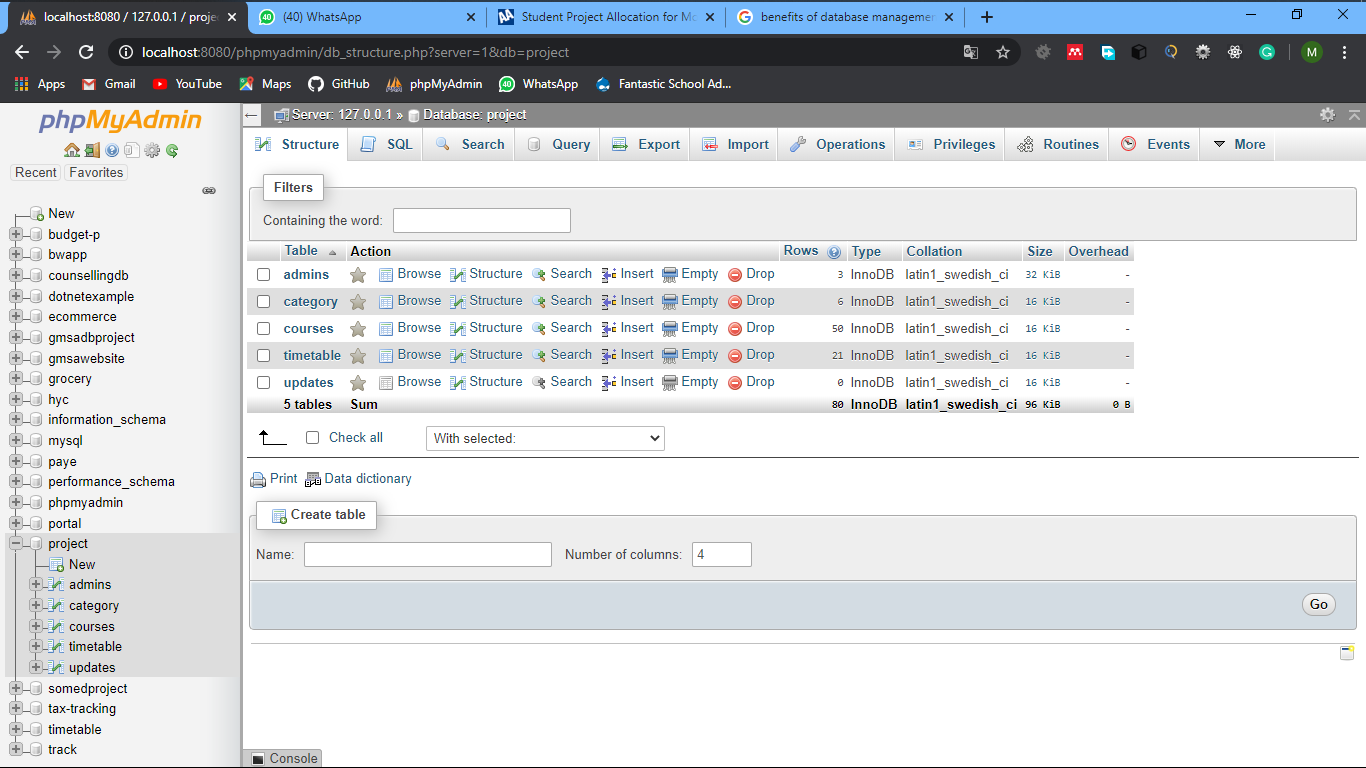
## 4.3 DATABASE DESIGN.

A database is an organized collection of data, generally stored and accessed electronically from a computer system. To create and use databases in the project, a Relational Database management system was used. A Database management system, therefore, is the tool that helps in creating and managing data stored in the database. Some of the basic operations provided by database management systems are created (inserting data to the database), read ( retrieving data from the database), update ( updating data in the database), and delete (deleting unwanted data from the database).

Some of the benefits derived from using a database management system to the project are as follows;

* Improved data sharing
* Improved data security
* Better data integration
* Better data storage
* Better data management
* Minimized data inconsistency
* Improved ease of data access
* Improved decision making

Sample database;



The above figure is the database structure of the project. It consists of 5 tables.

* The admin table stores the data of the administrator(s) of the project
* the category table stores information about the various department,
* the courses offered and the levels associated with each program offered,
* the course table store data about the courses offered in University for development studies
* the timetable table stores data about the current trimester timetable
* updates table store information about changes that have happened on the timetable and when it happens

## 4.4 SYSTEM SCOPE.

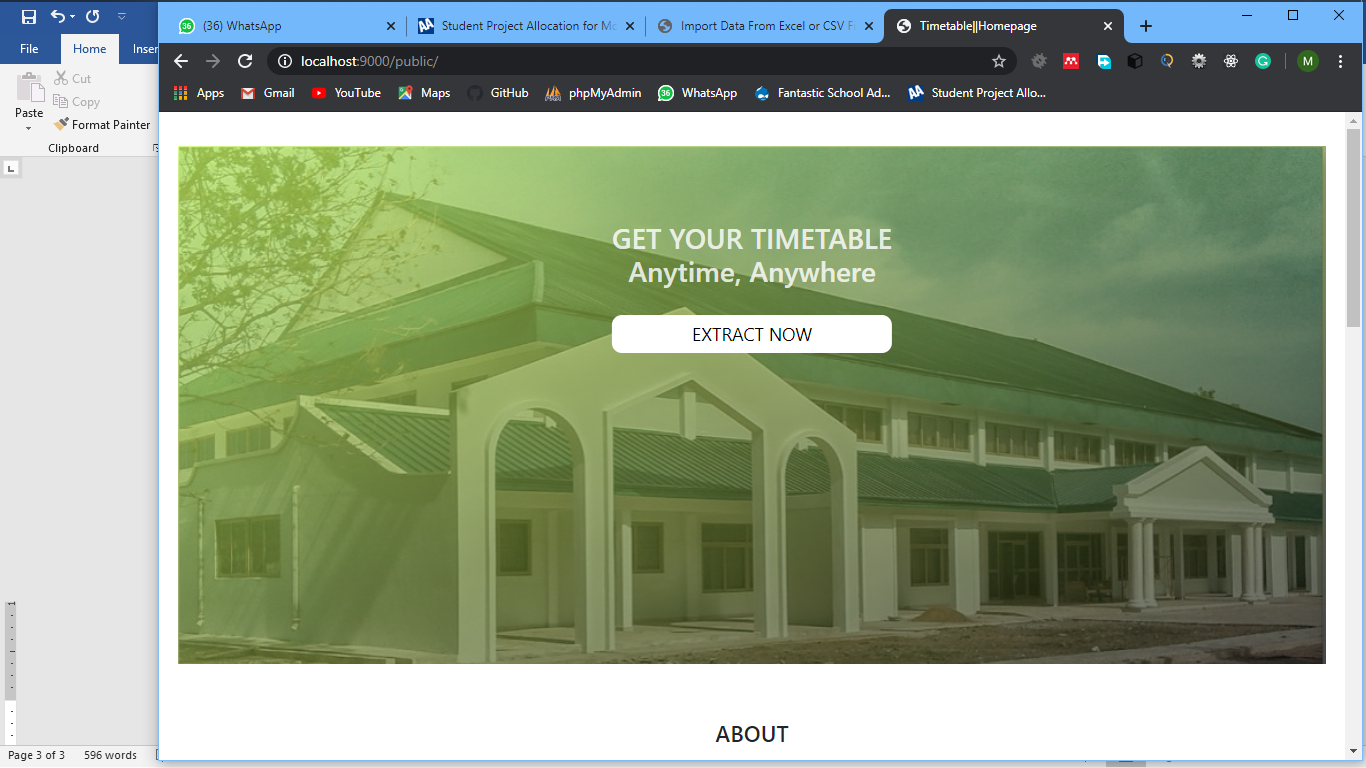
This timetable extraction and management system are designed purposely for the UDS Navrongo campus. It is aimed at simplifying the general timetable for the student body. The simplicity of the project was considered whilst building it. Its usage is so simple that all that you need is a working device (mobile phone or computer) with an active internet connection. The user just has to log on to the system specify what faculty, department, program offered, courses they have registered and they will have a well-formatted and extracted timetable without any problem.

## 4.5 SYSTEM INTERFACE DESIGN AND USAGE.

The system consists of several components that work together to bring about rich and easy to use user experience. The system is so user friendly that users do not need any special training before they can use the system. The system anyway, requires an administrator to coordinate the data entries and data management processes. Thus the administrator(s) has to make sure courses are uploaded and updated whenever there is a change in data on the timetable and courses.

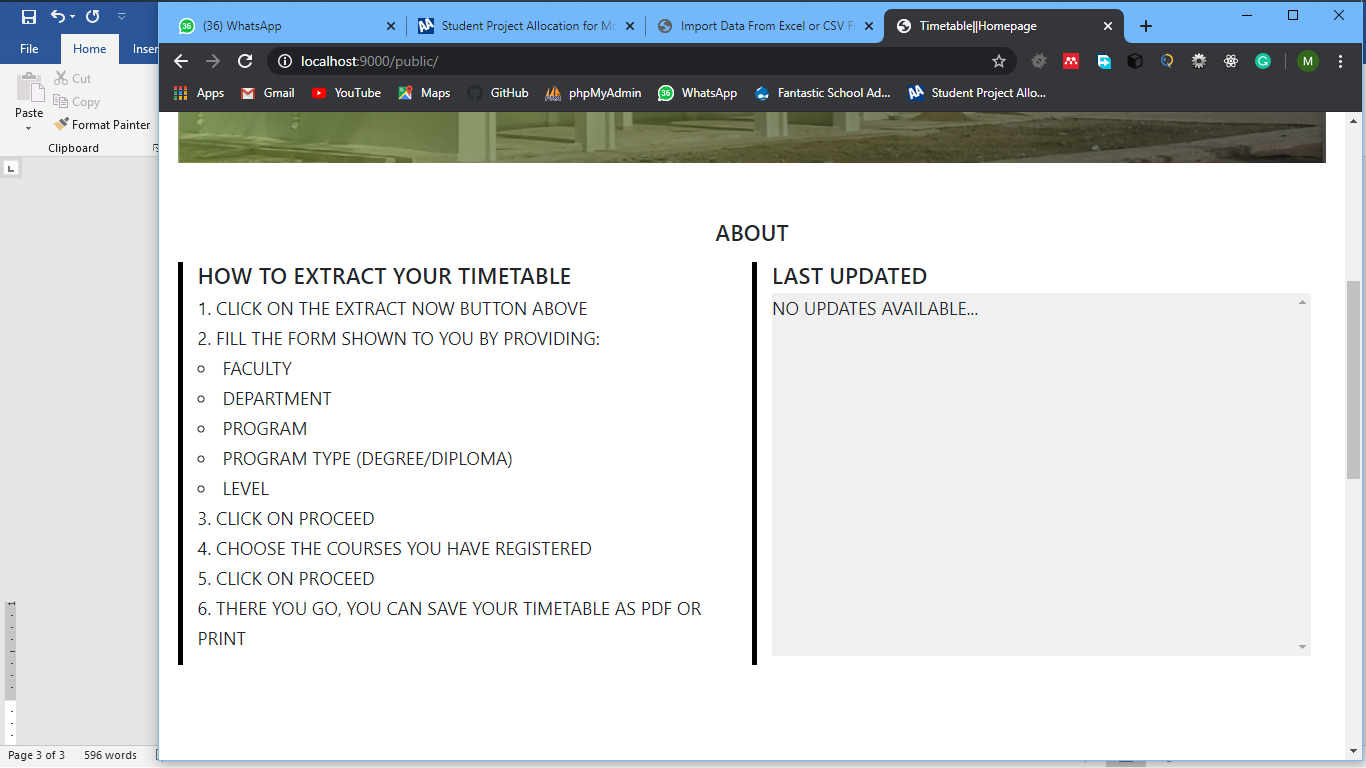
### 4.5.1 THE LANDING PAGE.

Below is the first thing you will see when you log onto the system. A little intro message describing the system and an extract now button. When users are not sure of how to proceed with their timetable extraction process, they just click the button and they will be redirected to a form where they will provide their details and their timetable will be ready for them to download.



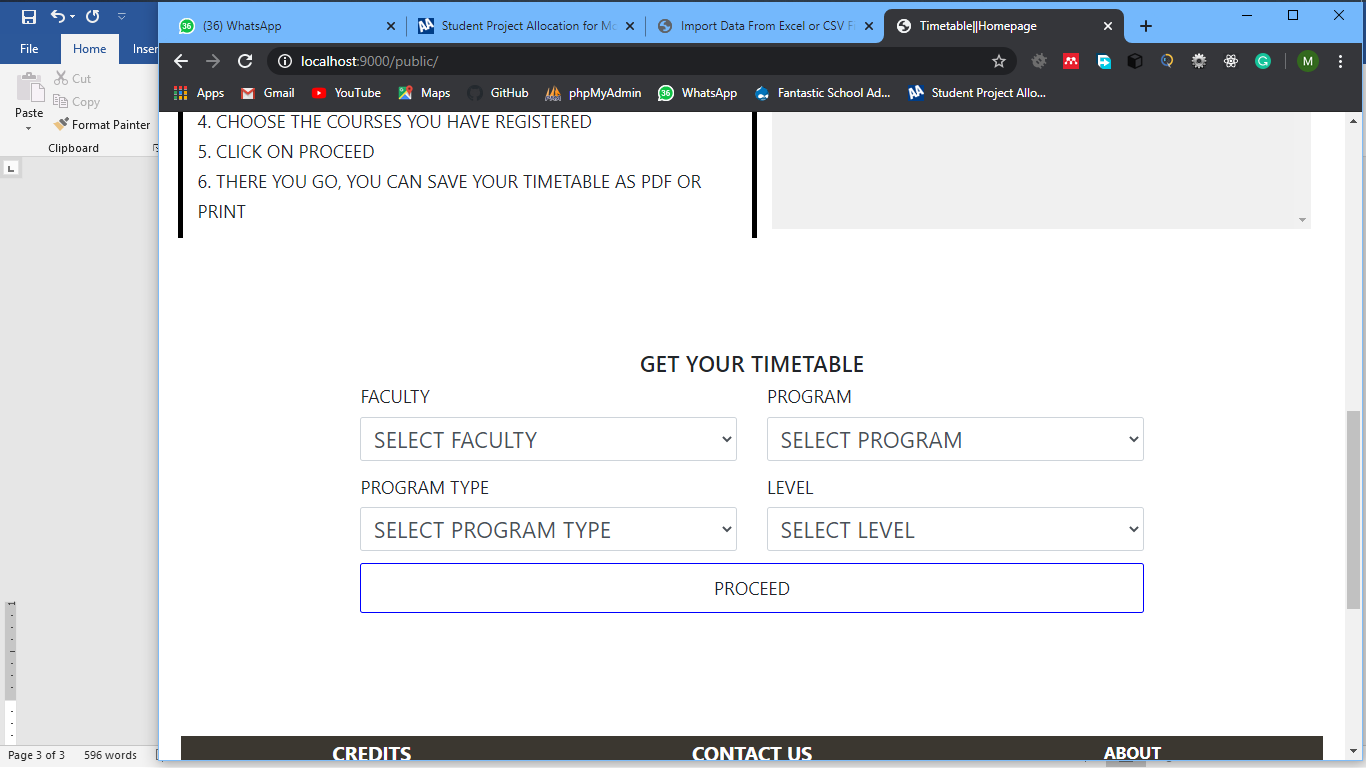
### 4.5.2 ABOUT SECTION.

This section of the home page consists of two sections. Firstly, it has instructions about how to go about and extract your timetable. The user is walked through about what data they need to get their timetable ready and also where to fill that data. the second section of the about section is the updates section. Here, whenever there is an update on the timetable, the updates appear. When there is an update on the time table and the user logs onto the system they will check here to see if the changes have affected any course they do. If it does, the go about extracting a new one else the logout.



### 4.5.3 USER DETAILS FORM.

In this section, the user provides all the necessary details needed by the system to be able to provide a personalized timetable for the user with ease. The user provides data like faculty, program, program type, and level. With these data, the system will be able to prepare for the user a customized timetable without any problem. All the fields are required and the user will have to provide all the information before they can continue. After the user is done, they will have to click on the proceed button to continue.



### 4.5.3 THE ADMIN SECTION

The admin section consists of a navigation bar at the top which contains 4 navigation menus, a drop-down list, a search box, and the current user username. First of the navigation menu is a ‘add trimester course’ menu; with this, the administrator can upload the trimester courses one by one. The second navigation menu is the ‘add timetable courses’ from which the administrator can upload the time table courses one by one. Uploading courses one after the other would be a tedious task to do by the administrator and to counter this problem, menu three and four are import options. From

References.

(“Requirements analysis - Wikipedia,” n.d.)

(“Advantages of Database Management System,” n.d.)

(“Systems design - Wikipedia,” n.d.)

options three and four, the administrator can upload courses and timetable data from either a CSV or Excell files.

Another feature of the administrator page is the search field. The administrator type in the course they want and it appears in the search area below and the administrator can now choose to either update that course or delete it.

