

Course Design

**Report**

**Design Title**：School Management Search Engine

**Department：**Computer Science

**Class：** 2018 - BSC International Student

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**Instructor:**

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# 

## Forward

## 1.1 System development background

It is a struggle to get a good education in Liberia. The long-lasting effects of a 14-year civil war, compounded by the 2014 school closure due to the Ebola outbreak, had a huge impact on the education system. The conflict also destroyed or damaged close to 60 per cent of school buildings, including water and sanitarian facilities which are key to keeping children, especially girls, in school. Teachers fled the country or took up other forms of employment which broke down the entire education system of Liberia.

Since the end of the conflict, significant progress has taken place in the education sector. In 2015, close to 1.4 million children were registered in pre-primary, primary and high school. In addition, the Ministry of Education, UNICEF and other partners teamed up and continue to repair or build new classrooms, train teachers, revise curricula and develop policies and plans for the education sector.

In light of this, this project is gear toward developing and increasing the efficiency of Liberia education in promotion of academic transparency by providing academic necessary details and information that are necessary that fight against fraud.

Student Search Engine System is a project which is helpful for students as well as the school authorities. In the current system, all the activities are done manually, it is very time consuming and costly to discover academic fraud and check up students grades. Our student search engine provide the solution to this long age problem and help fight against academic fraud.

## 1.2 System development tools

**WeChat Mini IDE**:

One of the top characteristics of Mini Programs is how light they are. They are limited to 10MB in size. Moreover, the user doesn’t need to download it. This is because it is already integrated into the wechat system. As the hosted on Tencent’s server, Mini Programs are vast offering a great user experience.

These are critical factors for acquiring new users. The fact is that it does not need to be downloaded, invited or more people come to your Mini Program. Even if only one to have a look. Furthermore, the cost of developing a native app is usually higher than the cost to develop an average wechat mini program.

Moreover, Mini Programs are easy to share. Therefore, happy users can quickly become a useful marketing tools in your hand.[1]

**MySQL relational database management system.**

SQLYOG is a fast and concise tool for graphical management of MySQL database. It can effectively manage your database anywhere. It is produced by the famous webyog company in the industry. Using sqlyog, you can quickly and intuitively maintain the remote MySQL database from any corner of the world through the network. [1]

**Sublime Text Editor**

Sublime Text is a commercial source code editor. It natively supports many programming languages and markup languages. Users can expand its functionality with plugins, typically community-built and maintained under free-software licenses to facilities plugins, Sublime Text features a Python API.[1]

**HTML & CSS**

[CSS](https://www.w3.org/Style/CSS/) is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers. CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments.

[HTML](https://www.w3.org/html/) (the Hypertext Markup Language) and [CSS](https://www.w3.org/Style/CSS/) (Cascading Style Sheets) are two of the core technologies for building Web pages. HTML provides the structure of the page, CSS the (visual and aural) layout, for a variety of devices. Along with [graphics](https://www.w3.org/standards/webdesign/graphics) and [scripting](https://www.w3.org/standards/webdesign/script), HTML and CSS are the basis of building Web pages and Web Applications. Learn more below about: Sublime Text is a commercial source code editor. It naively supports many programming languages and markup languages. Users can expand its functionality with plugins, typically community-built and maintained under free-software licenses to facilities plugins, Sublime Text features a Python API.[1]

**PHP PROGRAMMING**

PHP is a general-purpose scripting language geared towards web development. It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1994. the PHP reference implementation is now produced by the PHP Group. PHP originally stood for Personal Home Page, but it now stands for the recursive initialism PHP. Hypertext Preprocessor.

PHP code is usually processed on a web server by a PHP interpreter implemented as a module, a daemon or as a Common Gateway Interface (CGI) executable. On a web serer, the result of the interpreted and executed PHP code - which may be any type of data, such as generated HTML or binary image data - would form the whole or part of an HTTP response. Various web template systems, web content management system, and web frameworks exist which can be employed to orchestrate or facilitate the generation of that response [1]

# Functional requirements analysis

**EXISTING SYSTEM:**

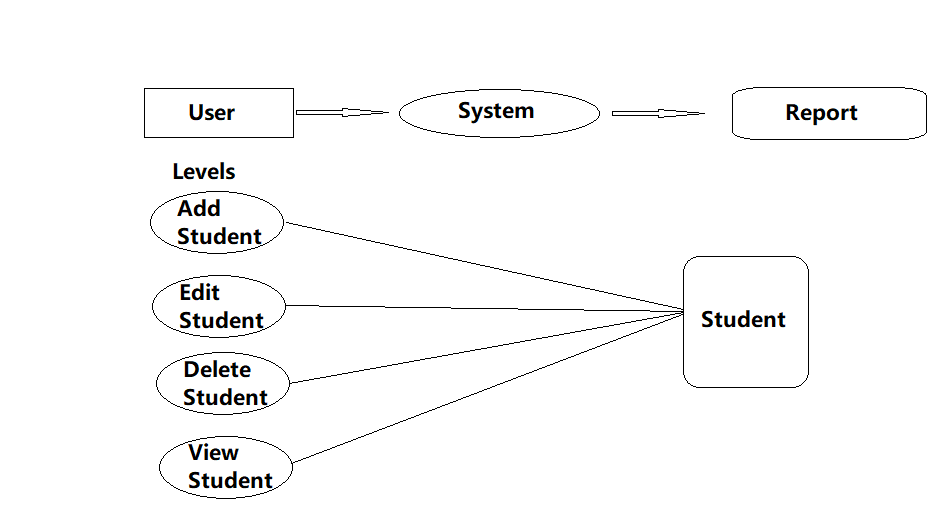
System Analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system. Here the key question is- what all problems exist in the present system? What must be done to solve the problem? Analysis begins when a user or manager begins a study of the program using existing system.

During analysis, data collected on the various files, decision points and transactions handled by the present system.

This project is design to collect student information from schools for efficient control against academic fraud. The project comprises of the admin, the school and the end users. The admin register new schools and enable the school to register their students and upload their grades to the student’s ID numbers. The End user than use the student ID to check the student grades online.

In the current system we need to keep a number of records related to the student and want to enter the details of the student and the marks manually. In this system only, the school authority add mark of the student and they want to enter the details of the student.

**Figure 1: System Function Diagram**



**Figure 1: System Function Diagram**

The system is managed by the system administrator and only the student have the opportunity to access the database. The admin login into the system and input into the database the basic student information. The system store these information into the database and and display the results in the front end of the project. The system interact directly with the database in order to fetch data from the back-end and display to the front end of the project. The admin submit student information into the database through the student table and display it into the front end.

## 2.1 Main functions of the system

The system is based on student management search engine and provides student records and effective management mode. The main function design of the system includes three parts: administrator information management, student information management and school authorities information management.

## **2.2 System roles and functions**

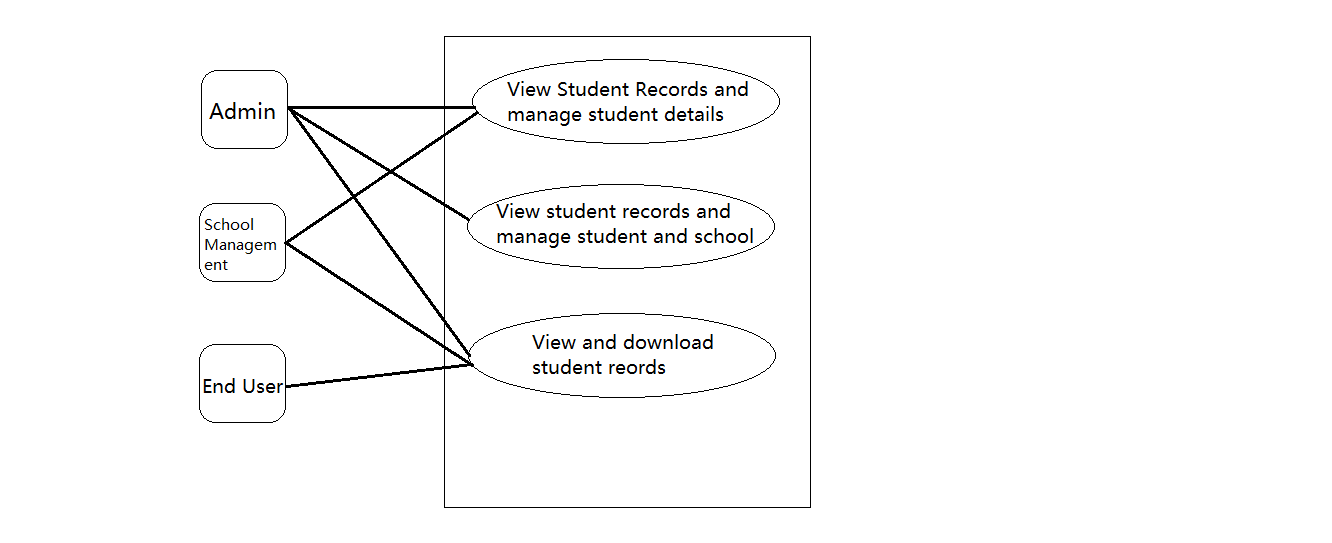
**System administrator:** the system administrator can add, query and delete other information after successfully logging in to the system.

**School authority:** the school authority are responsible for providing the information required for system registration and input. The school authority manages the basic information of students, including the addition, modification and deletion of student information.

**Student Information:** the school author ties manages the students information, including the query of student marks and other details, the addition of new student records, and the deletion of students records.

## 2.3 System Use Case

**Figure 2: Overall use case diagram**



**Figure 2: Overall use case diagram**

The student management search engine has two roles: administrator and the end users. Only the administrator of the whole system has the authority to operate the information of the system. However, the precondition is that the administrator can log in successfully, that is, only the system administrator can simply add, delete, modify and query the system.

## 2.4 System Operating Process

The system administrator enters the correct account and password to enter the home page of the student management search engine. After entering the home page, there can be two functional roles, namely student information management and school authorities information management. The administrator has the right to select one of the two functions for addition, deletion, modification and query. When the execution is completed, it will judge whether the execution is successful. After the execution is successful, you can return to the admin page.

**Figure: 2 Overall system flow chart**

**start**

**Enter Admin Login Details**

**Verify Login Details**

**Enter Admin Page**

**School Management System**

**Student Information Management**

**Edit Records**

**Delete Records**

**Add Records**

**Manage Student**

**Edit Student**

**Delete Student**

**Add Student**

**Operation Success**

**Manage Records**

**Admin Dashboard**

**END**

**Login of administrator information:**

**1. Module description**

Admin must log in before entering the student search engine admin page to realize the legal distribution of admin rights.

**2. Function**

The admin login module can enter two items: admin name and password. When the two items are consistent with those in the database, you can enter the system according to the authority of the entered admin name.

**3. Performance**

**Security and confidentiality**

Admin login are designed. Login protection is designed. If the admin enters the wrong password, the system will give a prompt of password error.The rest are visual interfaces, and admin can select functions according to the system prompt.

**4. Input**

(1) Admin name: the type is character type and the length is 20 bytes;

(2) Password: the type is character type, with a length of at least 6 bytes and a maximum of 20 bytes;

**5. Output item**

If the admin name and password is correct, you will be prompted that the password is true

If the admin name and password are incorrect, you will be prompted that the admin name or password is incorrect. Please re-enter

**6. Design method**

The module is a page that submits the admin name and password through the button. Then connect to the database for verification. To determine whether the admin name and password are true and whether they can enter the system.

**7. Interface**

Click login and enter the system interface if the password is correct. If the password is wrong, you will be prompted that the admin name or password is wrong. Please re-enter

**8. Test design**

Administrator login function:

Requirement Description: the administrator logs in to the account through this part

Performer: Administrator

Precondition: the administrator information is valid and legal, and can only be operated by the administrator. Other roles do not have permission.

Post condition: prompt: login succeeded

Normal process:

1. The administrator enters the correct admin name.

2. The administrator enters the correct password.

3. The system calls the administrator information in the database

4. The system displays that the user has logged in successfully

**Abnormal process:**

1. If the admin does not exist, login is refused and the use case ends.

2. The user name is correct and the password is wrong. End of use case.

Student information update function:

Requirement Description: the school authority logs in to the student management search engine to update and delete

Performer: Administrator

Precondition: the administrator information is valid and legal, and can only be operated by the administrator. Other roles do not have permission.

Post condition: student information updated successfully

Normal process:

1. The system administrator logs into the student management search engine by entering the correct account and password to enter the main interface of the system.

2. The administrator selects the school information management function module

3. The school authority selects the operation to add student information,

4. Users provide their own correct certification information,

5. User information added successfully

6. The school authority selects the operation to delete the student information

7. student information deleted successfully

8. The school authority selects the operation to modify the student information

9. Student information modified successfully

10. The school authority selects the query operation for student information

11. The student information is successfully displayed on the page

12. When the operation is completed, return to the main page.

Abnormal process:

1. The administrator information does not exist and cannot log in to the system. The use case ends.

2. The network is abnormal, unable to log in to the system, and the use case ends.

3. The admin provided wrong information and failed to add student information.

Business rules: administrators can only select one operation type at a time

Function of adding and deleting student information

Requirement Description: the administrator can add and delete school information through this module.

Performer: administrator.

Precondition: the admin information is valid and legal, and only the administrator has the authority to query and update the information in the system.

Post condition: the student information is added or deleted successfully.

Normal process:

1. The administrator logs in to the system with the assigned account, and the computer displays the main interface of the system.

2. The administrator enters the admin information and enters the user login interface.

3. The administrator adds student information and uploads school information to the server.

4. The administrator deletes the student information and uploads the school information to the server.

5. Refresh the school information interface to display the added (deleted) student information.

6. The computer executes the post condition and the use case ends.

Abnormal process:

1. School information does not exist, login is refused, and the use case ends.

2. The network is abnormal, the server does not respond, and the use case ends.

Business rules:

1. The administrator can only add one school information at a time.

2. The administrator can only delete one school information at a time.

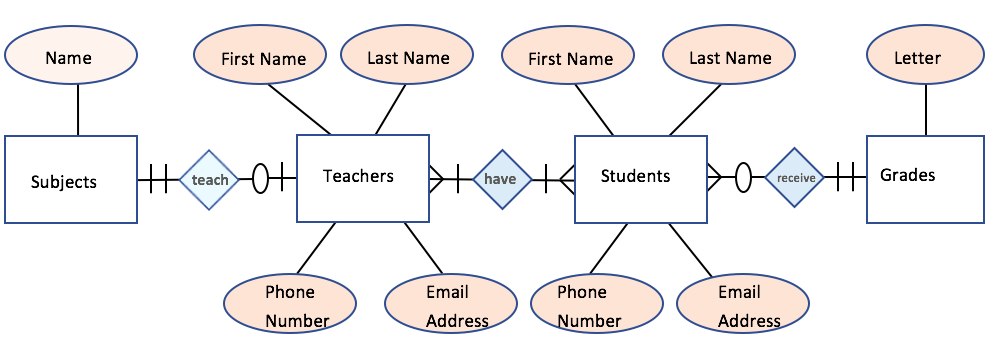
# 3 . System Overall Design

## 3.1 Database Design

Relational model is the most widely used and technologically mature database model at present. It is characterized by simple and clear concept, easy to be mastered and accepted by users, strict mathematical basis and relational data theory, which can greatly simplify database development and maintenance, and is deeply welcomed by a wide range of users, It is the foundation and core of modern computer information system and computer application system.

The school management search engine adopts B / S architecture. Connect the database with the browser. Through the processing of the foreground page, the server operates the target data in the background database through HTTP protocol. After triggering the operation update in the database, it responds the data to the front page, so that the manager can operate and manage the system conveniently. When the administrator updates the information, he submits the information to the background database, and the database saves the data.

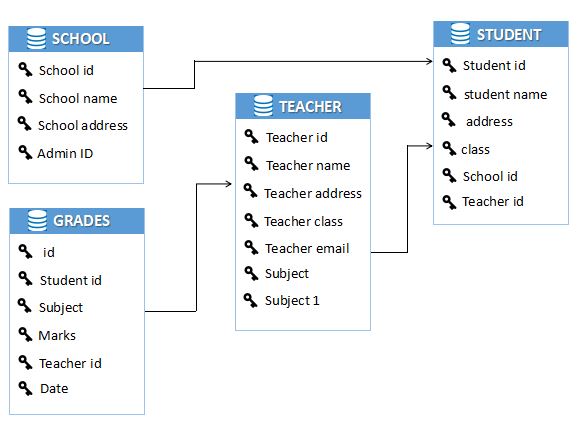
**Figure 3: Subject, Student and Teacher Relation Diagram**



**Figure 3: Subject, Student and Teacher Relation Diagram.**

The teacher name and ID is register into the database, the student receive marks from the teacher via the student ID and review grades from the grades table using the grade ID and the teacher ID in order to know the teacher that input the grade into the system.

**Figure 4: Database Relation Diagram**



**Figure 4: Database Relation Diagram**

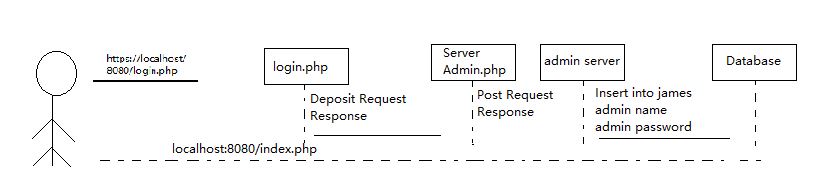
The tables is a relational database module. All the tables fields are related by the primary and foreign key. The relationship of the tables enable the system to query the results and display to the front end.

## 4.2 Module detailed design

The administrator successfully logs into the login page of the school management search engine by entering the correct website in the browser. After logging in, the administrator jumps to the index.php admin page, where the front end sends a request. The system calls the adminiinfo class to connect the database, load the driver, execute the SQL statement of the query administrator, and then transfer the operation results of the database to the front page, Enter the index.php page.

Sequence diagram of administrator information query:

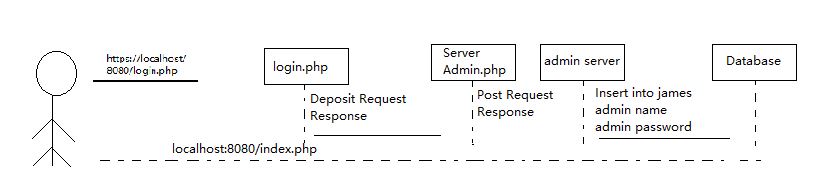
**Figure 5: Sequence Diagram of Administrator Information Query**



**Figure 6 sequence diagram of administrator information query**

Administrator information registration sequence diagram:

The administrator successfully logs in to the login page of the school management search engine by entering the correct website in the browser. After logging in, the administrator jumps to the index.php admin page, where the front end sends a request and executes the SQL statement. Then transfer the database operation results to the foreground page and enter the index.php page.

**Figure 6: Sequence Diagram of Administrator Information**

**Figure 6: Sequence diagram of administrator information**

Administrator information deletion sequence diagram:

The administrator successfully logs in to the login page of the Student Search engine system by entering the correct website in the browser. After logging in, the administrator jumps to the index.php admin page, where the front end sends a request. The system connects to the background database, loads the driver, executes the SQL statement to update medicine information.

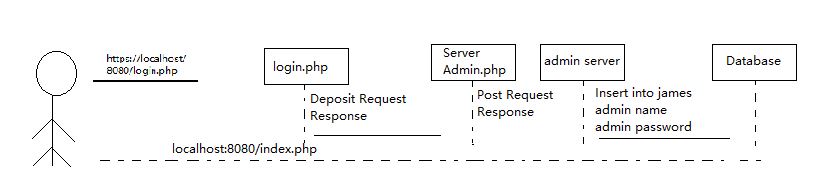
# 4 . Detailed Design

## 4.1 Module detailed design

The system displays the login interface. The administrator enters his account and password, and the system verifies the admin information. If the information is wrong, the system displays the wrong information, please re-enter the admin name or password. The administrator successfully logs in to the login of the student management search engine admin page by entering the correct website in the browser, enters his own account and password, sends a request to the front end of this page, connects to the database, loads the driver, executes the administrator login program, and then transmits the operation results of the database to the front page to enter the main page.

## 4.2 Module detailed design

The administrator successfully logs into the login page of the student management search engine by entering the correct website in the browser. After logging in, the administrator move to the admin main page, where the front end sends a request. The system calls the admin info class to connect the database, load the driver, execute the SQL statement of the query administrator, and then transfer the operation results of the database to the front page, Enter the admin info page.

**Figure 7: Sequence diagram of administrator information query:**

Run sql insert query to input into database

**Figure 7: Sequence Diagram of administrator information Query:**

**Figure 7: Sequence diagram of administrator information query:**

As shown in figure 7, the admin log into the system and query input into the database. After the query is submitted, the end user view the information from the database.

# **5 . Running Result**

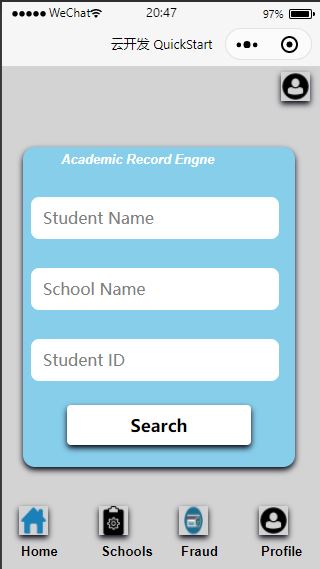
The administrator enters the login page of the student management search engine system. The administrator enters the correct account and password, but there is no administrator registration function in the login home page. Therefore, only administrators in the system database can log in.

**Figure 8: Login Design**



**As shown in Figure 8:** after the administrator successfully logs in the system, enter the system home page. This page mainly displays the basic information of the logged in administrator functional modules.

**Figure 9: Student Search Engine Query Design**



**Figure 9: Student Search Engine Query Design**

After the above steps are completed, the user selects the user enter the student details the figure below. When this is successful, the student entry information is displayed. After the operation is completed, you can return to the home page.

## **5.2 Test Case**

Administrator login test process:

Enter admin name: alex@admin.com, enter password: 12345678

The system outputs after verification. The user password is incorrect. Please re-enter it;

Re enter the password: 12345678. After entering the system, the system will give the system administrator and user interface;

Enter admin name: alex@admin.com, password: 12345678,

After verification, the system gives the administrator user interface and checks the administrator permissions;

Enter admin name: alex@admin.com, password: 12345678 ,After verification, the system outputs: the user name is wrong, please re-enter;

**Table 1: Administrator login test case:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| coding | operate | Checkpoint | expected outcome | actual results |
| Test\_1 | Don't enter any information  Click to Login | 1. Confirmation function  2. Confirmation prompt  3. Result display | Unable to log in to the system  Show warning message | Can not log in  Show account password error |
| Test\_2 | Enter the user name that exists, the password that does not exist | 1. Confirmation function  2. Confirmation prompt  3. Result display | Unable to log in to the system  "Please enter the correct password" is displayed | Can not log in  Show account password error |
| Test\_3 | Enter a user name that does not exist, a password that exists | 1. Confirmation function  2. Confirmation prompt  3. Result display | Unable to log in to the system  The system displays "Username does not exist" | Can not log in  Show account password error |
| Test\_4 | Enter the existing user name, the existing password | 1. Confirmation function  2. Confirmation prompt  3. Result display | Successful login, display the login success interface | Successful login, display the login success interface |

The administrator enters the admin name and password through the existing account to log in to the student management search engine system. After successful login, select the student information function module on the main page to view, add, modify and delete student information.

**Table 2: Test case of student information update module:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test steps | Operation description | Enter | Expected output | Actual output | Pass or not |
| Test-\_1 | 1. Log in to the system first | 1. Account number: | Jump to the main interface of the system J | Jump to the main interface of the system | yes |
| Test-\_2 | 2. Click on student information |  | Jump to the student check-in interface | Jump to the student check-in interface | yes |
| Test-\_3 | 3. Click to add student information and submit | 1. Name  2. Gender  3. Departments  4. Telephone | Jump to student information page | Jump to student information page | no |

**6 . Summary and Experience**

In this project, I have developed an academic search engine for schools to fight against fraud. The system developed in this project is consist of WeChat Mini IDE and all its applications connected to a database. The application takes most of the activities and records from students and their student ID and use it to fight against fraud by providing detail of the student records and their transcript. It also gives record about the student and allow the end user to verify the student details. The system uses the database to fetch data of the student and submit it to the end user by means of the student ID.The school authorities also help provide the student information into the system and promote the student behaviour. In the end, both the school and the students and the end user are able to access data on the student via the student ID.The solution provided in this project enable the education system of Liberia to be more great and promote transparency in the educational system across Liberia.

The design of this course design has enable me to fully understand programming concepts and help me build and ready myself for more and greater challenges. This project have helped me gain confidence and I am grateful to find myself learning everyday. For the textbook management system, its program is relatively simple, mainly to solve the problems in program design, and program design is a very flexible thing. It reflects your logical thinking and innovation ability to solve problems, and it is the soul of a design. Therefore, most of the time is spent on the program in the whole design process. Through this course design, I also found my own shortcomings and I have been able to work on these shortcoming for the greater good.

This has also stimulated my interest in studying hard in the future. I think it will have a positive impact on my future study.

Therefore, this course design is of great help to me. The process of learning, cooperation and efforts with other students is also very pleasant. In addition, we should also thank the teacher for his good intentions.

**7 . Reference**

1. Google: [www.google.com](http://www.google.com)
2. Ministry of Education - Republic of Liberia: [www.moeliberia.com](http://www.moeliberia.com)
3. The Guardian Paper: [www.theguardian.com](http://www.theguardian.com)