

**SIWES SUPERVISOR ALLOCATION SYSTEM**

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## **DECLARATION**

I, ABDULMALIK MOHAMMED, hereby declare that this project titled SIWES SUPERVISORS ALLOCATION SYSTEM A CASE STUDY OF COMPUTER SCIENCE DEPARTMENT MODIBBO ADAMA UNIVERSITY YOLA has been carried out by me under the supervision of (MR. UMAR UWAISSU). It has not been presented for award of any degree in any institution. All sources of information are specifically acknowledged by means of references.

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Signature

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Date

## APPROVAL PAGE

This project report entitled “SIWES SUPERVISOR ALLOCATION SYSTEM.” Meets the regulation governing the award of Bachelor of Technology (B. Tech) degree in computer science of the Modibbo Adama University, Yola and is approved for it’s contribution to knowledge and literary presentation.

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Date

## CERTIFICATION

This project entitled “SIWES SUPERVISORS ALLOCATION SYSTEM: A CASE STUDY OF DEPARTMENT OF COMPUTER SCIENCE DEPARTMENT MODDIBO ADAMA UNIVERSITY” YOLA by ABDULMALIK MOHAMMED meets the requirements governing the award of the degree of B-TECH in Computer Science and is approved for its contribution to knowledge and literary presentation.

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Date

## **DEDICATION**

This project work is dedicated to ALMIGHTY ALLAH for his guidance, kindness and protection upon my soul. He has showered upon my soul his bounties of blessings and gift of good health without which my academic pursuit would have been practically impossible, to my beloved parents ALH. Mohammed Buba and Malama Habiba Usman, my brothers and sisters and to all those who contributed immensely towards my quest of knowledge.

## **ACKNOWLEDGEMENT**

All praise and glory be to Allah S.W.T whose infinite generosity has given me the strength to complete this project work in time. Sailing through the academic career is not always a bed of roses let alone the course of study. One has met with people who contributed tremendously to one's success that is paramount to the knowledge seeking. First of all my sincere gratitude, thanks and most appreciation goes to my supervisor Mr. Umar Uwaisu his indefatigable assiduity given to me in the course of this project work. He is such a great person who has paved the way for me throughout this project work. My special thanks goes to Dr. Ej Garba (H.O.D), Dr. Malgwui.Mr. Ibrahim, Mr kadams, Mr. Atiku for the academic, moral and social influence on life. I would also like to express my grateful thanks to certain personalities; Arc Hussaini Adamu, to my beloved parents and family, who are always there for me whenever I need them and millions of thanks for all their supports, blessing, loves and encouragement. Special regards to my colleagues and friends Arc Abdulraheem (Ab-Gayya) Hafsath Hassan Algon, finally to the entire management and staff as well as students of Department of Computer Science Moddibo Adama University and to whom I failed to mention, who directly contributed to this project. Thank you very much.

## ABSTRACT

*This research encompasses the design and implementation of a cutting-edge Supervised Industrial Work Experience Scheme (SIWES) Supervisors Allocation System, with a focused exploration of the Computer Science Department as a case study. The primary objective is to streamline the allocation of supervisors to students engaged in the SIWES program. The system's realization involves the meticulous design and implementation of an information system tailored for efficient data storage, enabling seamless allocation processes between supervisors and students. The allocation algorithm incorporates key parameters, including geographical location, the supervisor's familiarity with the student's attachment city, the student's course of study, the supervisor's departmental unit, and the maximum number of students a lecturer can effectively supervise. The implementation involves the creation of a centralized MySQL database, serving as a robust foundation for efficient record-keeping for both students and supervisors. To enhance user interaction, the system's administrative interfaces were crafted using Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS). PHP emerged as the dynamic scripting language orchestrating requests between the client and the database. The system's performance is characterized by its commendable functionality, exhibiting high efficiency and a notable acceleration of the allocation process. This SIWES Supervisors Allocation System stands as a pivotal contribution to the optimization of supervisor allocation, thereby enriching the SIWES experience for students. Beyond its immediate application, the system also signifies an advancement in administrative processes within the Computer Science Department, reflecting a paradigm shift toward enhanced efficiency and effectiveness.*

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## **CHAPTER ONE**

### **1.0 INTRODUCTION**

The SIWES (Students Industrial Work Experience Scheme) Supervisor Allocation System is a computerized system designed to facilitate the allocation of supervisors for Students participating in the SIWES program. SIWES is a structured training program in various Disciplines that provides students with real-world work experience in their chosen fields. The SIWES Supervisor Allocation System aims to streamline the process of assigning supervisors to students, ensuring fair and efficient allocation while considering the students' areas of interest and the availability of qualified supervisors. The system automates the entire allocation process, replacing manual or paper-based methods.

### **1.1 Background of the Study**

Designed to expose students in the institution to the "world of work". Students in their 3rd or 4th The Student Industrial Work Experience (SIWES): this is a skill acquisition programme year compulsorily spend 6-12 months on the farm and in the relevant industry, to practice and utilize their knowledge. The students Industrial Work Experience scheme (SIWES) is a skill-training programme aimed at exposing students of higher institutions of learning to the work situation in the labour markets relevant to their field of study. The programme prepares students for industrial work they are likely to meet after graduation thus bridging the gap between their theoretical works in programme they are exposed, to machinery which are not usually available in the institution.. Acquiring practical skills is the antidote to real progress in any community, according to Akerejola (2008). The development of skills through the use of instruments or equipment to carry out tasks that are linked to a field of study constitutes practical knowledge, which is learning without which mastery of a subject matter may be too difficult to accomplish. at 1974, the Nigerian federal government implemented the SIWES Scheme at higher education institutions to guarantee that students obtain hands-on practical knowledge and skills prior to graduation. The Industrial Training Fund (ITF) created SIWES to address the issue of Nigerian postsecondary graduates' lack of sufficient practical skills to prepare them for industry jobs. The scheme exposes students to industry base skills that are necessary for smooth transition from the classroom to the world of work and it gives the

students opportunity to be part of real work situation outside the lecture room. Participation in SIWES is a necessary pre-condition for the award of Diploma and Degree certificates in specific disciplines in most institutions of higher learning in Nigeria. Akerejola (2008) also observed that SIWES commenced in 1974 with the aim of making education more relevant and to bridge the gap between the theory and practice of engineering, technology and science related disciplines in tertiary institutions in Nigeria. For students in polytechnics/mono-techniques and colleges of education, the SIWES duration is four months while the university undergraduates go for six months. Each institution is expected to have SIWES coordinator who is in charge of all activities that pertains to student industrial training in the institutions. Sequel to the above therefore, The siwes supervisor allocation system (SSAS); a case study of Computer Science Department, will help greatly to achieve one of the main objectives of programme, by assigning supervisors to students taking into consideration the allocation parameters used in the department such as distance, knowledge or familiarity of the city by the lecturers during allocation in conjunction with the consideration that the Department of Computer Science is dichotomous one.

## **1.2 Statement of the Problem**

The existing system of assigning SIWES Supervisors to Students in Computer Science Department has its own shortcomings, some of them are:

- i. It is inability to take into cognizance the familiarity of the supervisors to the student's place of attachment, this causes additional burden to the lecturers because they will be going from one place to another just for them to locate the student.
- ii. It fails to take into consideration that, the Department of Computer Science is a composite department which is made up of three sections namely: The Computer Science Section, the Mathematics Section and the Statistics Section and each of this section is a course of study on its own. Looking at this situation, let us take final year project and compare it with the SIWES program. It has been not that in final year project supervisors are being allocated to their student based on this three in addition to the area of specialization of the supervisors just to make sure academic standard is maintained. Similarly, looking at SIWES program in another perspective it has the same academic impact as credit load has been allocated to it. With the SIWES Supervisors Allocation

System (SISAS) supervisor allocation parameters like locations, knowledge of the student's places of attachment by supervisors and also taking into cognisance the units for both lecturers and students in the Department.

#### **1.4 Significant of the Study**

The significant of the study includes the following:

- i. Guidance and monitoring: The siwes supervisor allocation ensures that each participating student is assigned and supervisor who serve as a guide and mentor during the industrial work experience.
- ii. Quality assurance: Supervisor allocation helps maintain the quality and standard of the Siwes program.
- iii. Network and industrial connection: Siwes supervisors often have established networks within their respective industries.
- iv. Learning and development: Through supervisor allocation, student benefit from the wealth of experience and expertise of their assigned supervisors.

#### **1.4 Aim and Objectives**

The aim of the study is to designing and implementation of SIWES (Student industrial work experience scheme) supervisor Allocation system

The objectives are as follows:

- i. To determine every allocation parameter needed for the allocation of SIWES supervisors
- ii. To allocate supervisor who can provide effective guidance and supervision of students during the industrial work experience.
- iii. To develop system that will make students-supervisors allocation faster and accurate.
- iv. To enhance learning outcome.

#### **1.5 Methodology**

The following steps will be employed so as to meet the objectives of this work:

- i. Defining the criteria for allocating supervisor to the students.
- ii. Matching student with supervisor: Students are assigned to supervisor based on their field of study or specialization.
- iii. Allocation based on workload: The workload of supervisor is also take into consideration during allocation
- iv. Communication and confirmation: Once the allocation is made, students are informed about their assigned supervisor.
- v. Monitoring and evaluation: Throughout the SIWES program, the coordinating body or institution may monitor the progress of the students and supervisor.

## **1.6 Scope of the Study**

The scope of the SIWES supervisor allocation system refers to the boundaries and coverage of the system in assigning supervisors to students participating in the Students Industrial Work Experience Scheme (SIWES). It includes the specific aspects and functionalities of the allocation system and its impact on the overall SIWES program. The scope of the SIWES supervisor allocation system may encompass:

- i. Allocation Process: The system's mechanism for assigning supervisors to students, which may involve factors such as student preferences, supervisor availability, expertise match, and workload distribution.
- ii. Supervisor-Student Matching: The process of aligning students' academic disciplines or areas of study with appropriate supervisors who possess relevant expertise or industry experience.
- iii. Communication and Monitoring: The system's features and functionalities that facilitate effective communication and monitoring between supervisors and students during the SIWES program.
- iv. Feedback Mechanisms: The system's provisions for collecting feedback from students and supervisors regarding their allocation experience and overall satisfaction with the process.

- v. Administrative Support: The system's integration with administrative functions, such as tracking supervisor availability, managing student preferences, and generating allocation schedules.

## **1.7 Organization of the Work**

There are five chapters in this project. Chapter one talks about the introduction which consists of the background of study, statement of problem, objectives of the study, methodology, and the organization of the work. Chapter two looks at the literature review which creates intellectual masturbation in a domain discipline in order to generate an added value to the topic at hand. Chapter Three looks at System analysis and design. The chapter four discusses the system implementation, documentation and testing. This chapter demonstrates the functionality of the system with screen shots of the interfaces of the proposed system to give a visual display of its appearances as the user navigates through different stages of the system. Chapter Five which covers summary, conclusion and recommendation. The system was implemented using HTML, CSS, PHP, MySQL and JavaScript by the help of some Integrated Development Environments (IDEs) like Nod pad ++.

## **CHAPTER TWO**

### **REVIEW OF LITERATURE**

#### **2.0 The Industrial Work Experience Program for Students and Its Significance in Literature Review**

The Industrial attachment has a vital role to play in the society at large. This is largely because; students are being prepared in so many fields of endeavours that can be of benefit to them and the community as whole. This was considered when we observed and notices the kind of orientation given to the student before going for SIWES. Apart from educational orientation given to the students, they are also prepared for the labour market. Students are allowed to submit their letters of attachment to both governmental or nongovernmental bodies and other parastatals all in part of their Industrial Attachments where they will work for the period of six months before they are released. Thus, in line with this, the students may have learnt a lot of things that can be ploughed back into practice to their various communities. The aim of this study is to provide a framework that will improve supervision exercise to standard level, better understanding of the processes or steps of the web programming and its effects by drawing an empirical data from implementation and procurement of an information technology system for SIWES program in the Computer Science Department. The objective this is to write a web base computer programming language which will be used it in the simplification, management of data as well as to ensure proper assignment of students to supervisors which will aid speedy and accuracy of monitoring both students and any information regarding the program in totality.

Whenever most people hear about industrial attachment in Nigeria, the first thing that comes to their mind is work experience. Yes, we cannot take away work experience from



industrial attachment since it is one of the major reasons why industrial attachment in Nigeria was instituted in the first place. So now you know that the importance of industrial attachment in Nigeria is to afford students the opportunity to gather some work experience relevant to their studies and career prospects. Work experience as little as it can be is very important for a fresh graduate in the following ways.

- i. It will give you a competitive edge over graduate with no working experience.
- ii. It will expose student to real life working environment and hands-on experience.
- iii. It will broaden student's understanding of many concepts.
- iv. Student will learn how to nature good communication skills in working environment.
- v. Students will also learn disciples and principles of working ethics.
- vi. Students will get to meet different people in his/her career path.

There are many other benefits that was not include but this list will only tell you what you stand to gain by being part of this programme. A research conducted by A. Nura (2009), Was review to help the researcher in finding available information to carrying out this research project.

## **2.1 The essence of supervision and supervisor allocation**

Effective supervision is a relative question rather than an absolute one. It requires a deeper comprehension of what supervision entails in order to fully comprehend. Regarding this, the term "supervision process" has multiple indicate that supervision is "a process used by those in schools who have responsibility for one or another aspect of the school goals and who depend upon others to help them achieve those goals." According to Acheson and Gall (2004), supervision is "The improvement of instruction by means of systematic cycles of planning, observation and intensive intellectual analysis of actual teaching performances in the interest of

rational modification. Makawa and Shumba (2001) shows that supervision is the function of leading, coordinating and directing the work of others to accomplish designated objectives. Makawa goes on to say that a supervisor should mentor subordinates to ensure they deliver the required amount and caliber of work in the allocated amount of time. Shumba concludes by demonstrating how supervision helps staff members—teachers, student teachers, and support personnel—maintain or modify school operations in ways that have a direct impact on the instructional strategies used to foster learning. The essence of supervision and supervisor allocation in educational or professional contexts is to provide guidance, support, and oversight to individuals or students engaging in practical experiences, such as internships, apprenticeships, or work placements. It ensures that the learning objectives are met, skills are developed, and the overall experience is productive and beneficial.

- i. Guidance and Support: Supervision involves providing guidance and support to individuals as they navigate their practical experiences. Supervisors serve as mentors, offering expertise, advice, and direction to help individuals make the most of their learning opportunities. They provide feedback, answer questions, and address concerns, ensuring that students or professionals feel supported throughout the process.
- ii. Skill Development: Supervision plays a crucial role in facilitating skill development. Supervisors identify areas for improvement and provide opportunities for individuals to practice and refine their skills. Through observation, feedback, and constructive criticism, supervisors guide learners in acquiring and enhancing specific competencies relevant to their field of study or profession.

- iii. **Quality Assurance:** Supervisors ensure that individuals' work meets the required standards and aligns with the objectives of the practical experience. They review and evaluate the progress and performance of students or professionals, identifying strengths and areas for improvement. Through regular assessment, supervisors help maintain the quality of work and ensure that learning outcomes are achieved.
- iv. **Monitoring and Accountability:** Supervision involves monitoring individuals' progress, ensuring that they are fulfilling their responsibilities and meeting their obligations. Supervisors set expectations, establish timelines, and monitor the execution of tasks to ensure that individuals are accountable for their work. They help identify potential challenges or barriers and provide guidance to overcome them.
- v. **Personal and Professional Development:** Supervision supports individuals' personal and professional growth. Supervisors provide opportunities for reflection, self-assessment, and self-improvement. They encourage individuals to set goals, develop action plans, and engage in continuous learning. Supervisors also offer insights into the industry or professional field, sharing their experiences and expertise to broaden learners' perspectives.

Supervisor allocation is the process of matching individuals with appropriate supervisors based on their needs, interests, and the expertise of the supervisors. It aims to optimize the learning experience by ensuring a good fit between the learner and the supervisor. Effective supervisor allocation considers factors such as the learner's goals and preferences, the supervisor's expertise, availability, and compatibility, and the objectives of the practical experience. By allocating

supervisors thoughtfully, individuals can benefit from working with professionals who possess the necessary knowledge and skills to guide them effectively. It maximizes the potential for a positive and productive learning experience, leading to enhanced skill development, increased confidence, and improved overall outcomes. Supervisor allocation is an essential aspect of educational and professional programs, ensuring that learners receive the guidance and support they need to succeed in their practical endeavours. For supervision to be effective, supervisees must value a variety of issues that are extremely important to them. According to a study by Hagger and Stephens (1996), supervisees considered assistance in the following areas from those who supervised them i.e. classroom control, different ways of dealing with disruption, tried and tested strategies for handling different situations, knowing how to turn academic knowledge into lesson content that makes sense to pupils, timing of a lesson, marking, assessing and pitching work appropriately for different abilities.

Makawa and Shumba (2011) also found out that supervisees expressed the view that they benefited most from supervisors in areas such as constructive criticism in the form of non-threatening evaluative feedback and structured opportunities for learning. Stephens (2004) also suggested that supervisors, when supervising their subordinates should provide solution-focused routines that can be copied in the classroom. Additionally, they recommended that in order for supervision to be effective, supervisors should allow supervisees to develop into independent professionals who shoulder greater accountability for their work.

## **2.2 Review of the existing techniques of supervisor allocation**

The allocation system that is currently used in Computer Science Department, MAU is manual system. Students are verified and the lists of eligible ones among them for the program are given an introduction letter from the Head of Department containing their names and Matriculation number written boldly on it, which will be taken to the places of their choice. Afterward they will come back to the Department and submit letter of acceptance which contain details information about the organization or their place of attachment. The supervisors are then given to the student's department-wise.

The creation of a SIWES supervisor allocation system for the Computer Science Department is the goal of this project. This system uses information from lecturers and students as input, assigning supervisors to students in a way that provides students with the benefit of having two crucial variables tracked: the location and course study of both lecturers and students. The new system lets academic administrators (SIWES Coordinator) control supervisor allocation by applying the same optimization techniques in a broader context.

## **2.3 The use of this system in (SIWES) Supervision Allocation.**

SIWES (Students Industrial Work Experience Scheme) is a program in many educational institutions that provides students with practical work experience related to their field of study. During SIWES, students are typically assigned supervisors who guide and monitor their activities in the workplace. The allocation of SIWES supervisors involves assigning each student a supervisor who will oversee their work during the program. The allocation process usually depends on the specific guidelines and procedures set by the educational institution. Here are some common steps involved in the allocation of SIWES supervisors:

Registration: Students typically register for the SIWES program by submitting their personal information and preferences regarding their field of study and industry of interest.

Evaluation of Available Opportunities: The educational institution or SIWES coordinator assesses the available work placement opportunities in various organizations. These opportunities may be based on the student's field of study or the institution's network of industry partners.

Matching Process: Based on the students' preferences and the available opportunities, the institution matches each student with a suitable supervisor and work placement. Factors considered may include the student's area of interest, academic performance, and the availability of supervisors in the chosen industry.

Allocation Notification: Once the matching process is completed, students are informed about their assigned supervisors, the organization they will be working with, and any additional details or requirements.

Introduction and Orientation: Students typically go through an introduction and orientation process, where they meet their assigned supervisors, learn about the organization's policies and procedures, and discuss the goals and expectations of the SIWES program.

Supervision and Monitoring: Throughout the SIWES program, supervisors play a crucial role in guiding and monitoring the students' work. They provide support, advice, and feedback, ensuring that the students gain valuable practical experience and meet the objectives of the program. It's important to note that the specific allocation process may vary between institutions. Therefore, it's recommended to consult the SIWES guidelines and coordinators at your respective educational institution for detailed information on supervisor allocation.

Although the supervising agencies have made attempts to evolve minimum standards in respect of SIWES and to develop, monitor and review job specifications to guide the training of students on SIWES, not all SIWES-approved programmes are covered by these efforts. There is, therefore, a need by the supervising agents to collaborate more with the institutions in evolving minimum standards and job specifications for all SIWES-approved programmes.

Regardless of the user's location or equipment, secure computer-based allocation is made possible by the Supervisor Allocation System for the Student Industrial Working Experience Scheme, which is a standalone application. Because of the security features of the application, sensitive data can only be viewed and allocated by those who are authorized. The front-end allows administrators to modify the configuration of the system to accommodate evolving regulations and assignment requirements. Reports on the specifics of the Student Industrial Work Experience Scheme, including allocations, can also be generated by the system.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 Introduction**

This section indicates the precautions, records, and analytical procedures as well as how the ( SIWES SUPERVISOR ALLOCATION SYSTEM) will be executed.

#### **3.1 Method of SIWES supervisor allocation**

This chapter seeks to detail the methods to be used and procedures to be followed in the designing of siwes supervisor allocation system to provide a means of a fair assessment of the outcome and possible duplications of the project by some other workers and/or researchers.

#### **3.2 System Description**

The SIWES Supervisors Allocation System is software developed to use allocation parameters such as location, knowledge of the area by the supervisors and sections which students and his supervisor belongs in the department. The system works as follows:

- i. The System has two categories of users namely; the students and the coordinator.
- ii. The system has a logging interface through which legitimate users can access it. The student is only able to do that following register.
- iii. The student user can register his/her detail placement information after which he can only view his supervisor and then logout.
- iv. The SIWES Coordinator serves as an Admin who has the overall power on the system.
- v. The SIWES Coordinator create profile for the lecturers.
- vi. Afterwards, SIWES coordinator assigns a set of students to a supervisor.



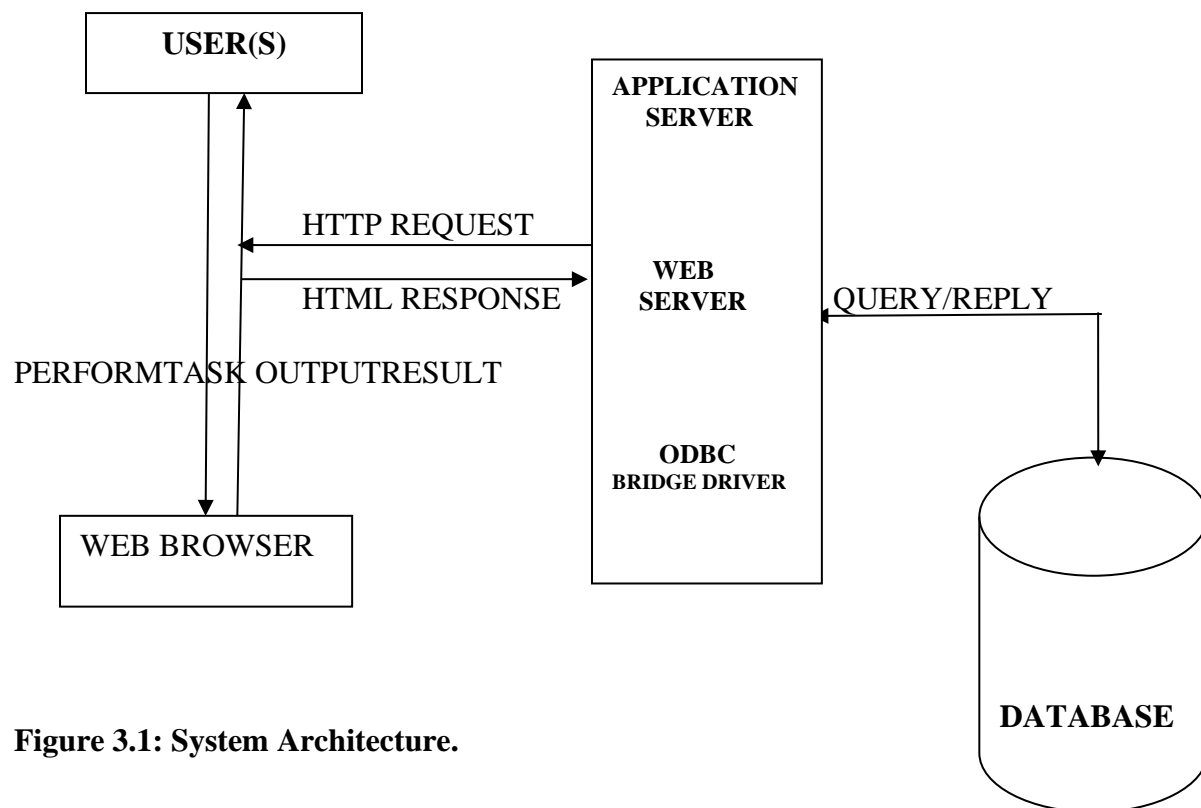
vii. The coordinator can search by using lecturer's personnel id and view students under his supervision for a given session.

viii. He can view the list of all students and their supervisors.

### 3.2.1 System Design

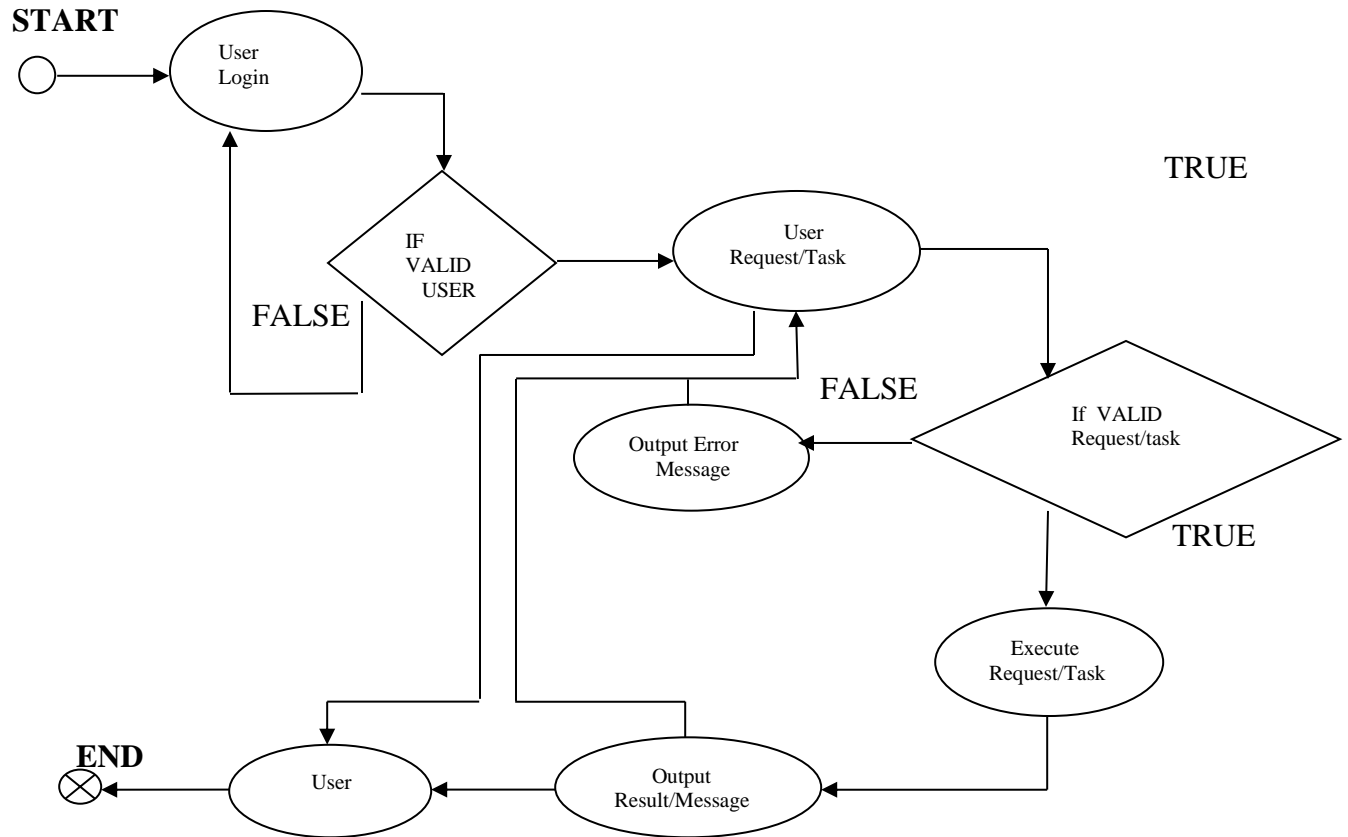
Determining a system's architecture, parts, functions, interfaces, and data in order to meet predetermined functional requirements is known as system design. This section provides the system architecture, the activity diagram, and the dataflow diagram as shown below (Wieggers, karl E., 2003).

### 3.2.2 System Architecture



**Figure 3.1: System Architecture.**

### 3.3 Activity Diagram



**Fig 3.2: Activity Diagram**

#### 3.3.1 Tools

- i. A database will be designed capable of storing student's and lecturer's data.
- ii. The database platform for the system's implementation will be MySQL
- iii. PHP will also be used as the server site scripting language..
- iv. The system design's graphical user interface will be created using HTML and CSS..
- v. IDEs such as Node pad++ will be used as text editor.

### **3.3.2 Database Design**

The process of creating an intricate data model for a database is known as database design. All of the logical and physical storage parameters required to produce a design definition in a DDL (Data Definition Language) and subsequently build a database are contained in this logical data model. Below are the relational schema and the E-R diagram of the database design for the proposed system (Donald, Y. and Tony W. (2004).

One of the main concerns of the work is to determine an appropriate file structure and organization for the reduction of data redundancy thereby maintaining its integrity and ensure simplest retrieval of data from the system.

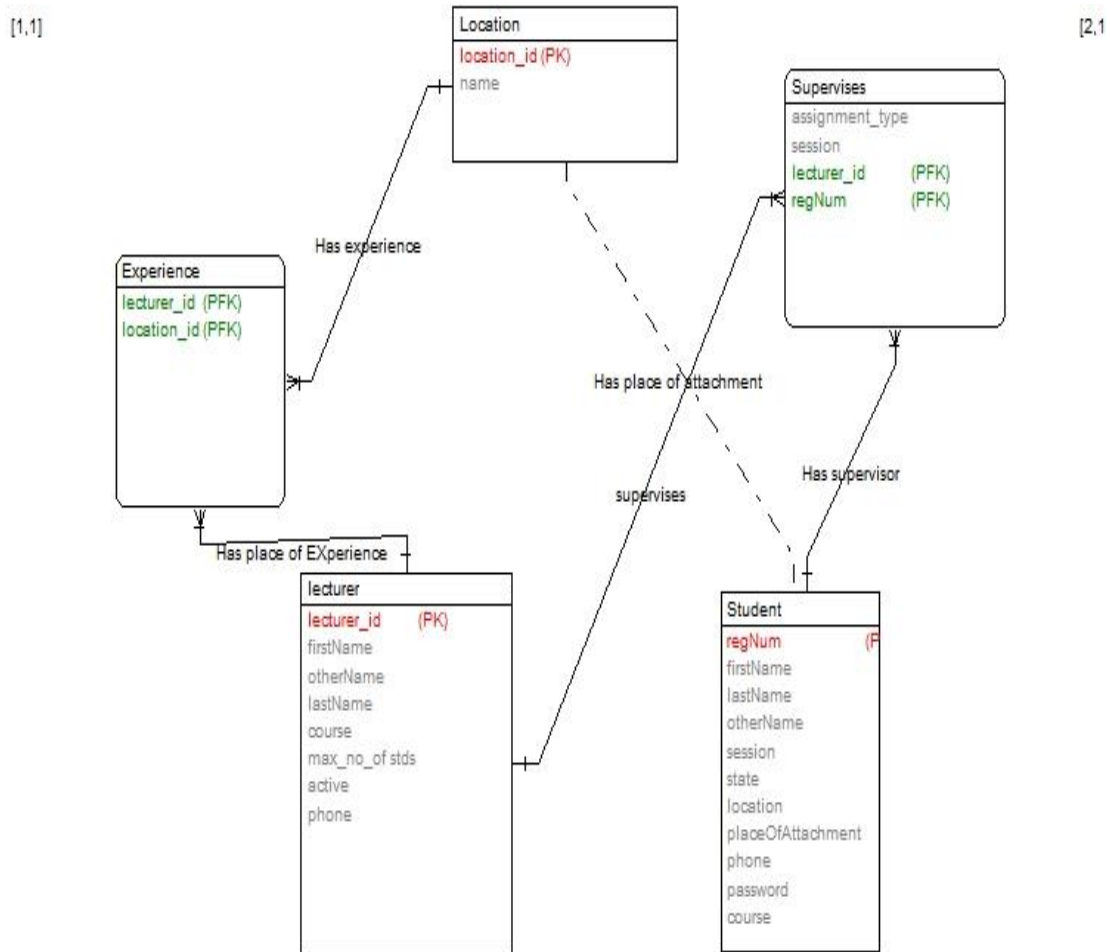
Database design here, spell out all the files used for the system and their structures. The database is designed using MYSQL. For the purpose of this project work, a database called “SIWES ASSIGNMENT SYSTEM”, with five (5) tables was created. The five (5) tables on it are (Location, students, lecturer, experience, supervises) which are loaded in the root local folders created by the system designer using programs like Apache, MYSQL and PHP using the local host as the server. The table name, number of fields, field names, data type and character length, attributes, null, default value, extra action and other descriptions used in the tables are categorically spelt out.

### **3.3.3 Entity Relation Model**

This illustrates the entity relational model of the database, entities with their entire attributes and how they are related to one other in the database. The entities include the following:

- i. Experience (location\_id, lecturer\_id).
- ii. Lecturer (lecturer\_id, firstName, otherName, lastName, course, max\_no, active, phone).

- iii. Students (regNum, firstName, lastName, otherNme, course, session, state, location, placeOfAttachment, phone, password).
- iv. Location (location\_id,name) .
- v. Supervises (lecturer\_id, regNum, assignment\_type,session).



**Figure. 3.4 Entity Relation Model**

### 3.4. Database Tables

The following are the lists of tables and their descriptions as they appear in the database and how they perform their functions while using the system. The tables are designed in such a way that

they contain information of similar group being linked together by foreign keys and their respective identities.

**Table 1: Student Table**

FIELDS	DATA TYPE	LENGTH	VALUES
Regnum	VARCHARACTER	45	NOT NULL
FirstName	VARCHARACTER	45	NOT NULL
OtherName	VARCHARACTER	34	NOT NULL
LastName	VARCHARACTER	45	NOT NULL
Course	VARCHARACTER	45	NOT NULL
Session	VARCHARACTER	45	NOT NULL
Location	VARCHARACTER	45	NOT NULL
State	VARCHARACTER	45	NOT NULL
Place Of Attachment	VARCHARACTER	45	NOT NULL
Phone	VARCHARACTER	45	NOT NULL
Password	VARCHARACTER	45	NOT NULL

**Table2: Experience Table**

FIELDS	DATA TYPE	LENGTH	VALUES
Location _id	VARCHARACTER	45	NOT NULL
Lecturer_id	VARCHARACTER	45	NOT NULL

**Table 3: Lecturer Table**

<b>FIELD</b>	<b>DATA TYPE</b>	<b>LENGTH</b>	<b>VALUE</b>
Lecturer id	VARCHARACTER	45	NOT NULL
Fisrt name	VARCHARACTER	45	<b>NOT NUT</b>
Other name	VARCHARACTER	45	NOT NULL
Last name	VARCHARACTER	45	NOT NULL
Course	VARCHARACTER	45	NOT NULL
Max no of student	VARCHARACTER	45	NOT NULL
Location	VARCHARACTER	45	NOT NULL
Active	VARCHARACTER	45	NOT NULL
Phone	VARCHARACTER	45	NOT NULL
Password	VARCHARACTER	45	NOT NULL

**Table 4: Supervises Table**

<b>FIELDS</b>	<b>DATA TYPE</b>	<b>LENGTH</b>	<b>VALUES</b>
RegNum	VARCHARACTER	45	NOT NULL
Lecturer_id	VARCHARACTER	45	NOT NULL
Assignment	VARCHARACTER	34	NOT NULL
Session	VARCHARACTER	45	NOT NULL

**Table 5: Location Table**

FIELDS	DATA TYPE	LENGTH	VALUES
Name	VARCHARACTER	45	NOT NULL
Lecturer_id	VARCHARACTER	45	NOT NULL

## **CHAPTER FOUR**

### **SYSTEM IMPLEMENTATION**

#### **4.0 SOFTWARE IMPLEMENTATION**

Software implementation is the actualization of the specification of the proposed system which is achieved by converting the specification into executable files. The implementations of tools used were analysed. The software is designed for allocation of students to their SIWES supervisors a case study of Department of Computer Science MAU YOLA. Therefore, simple user interfaces were developed. For security reasons, login parameters are required before a user can access the system. With that only an authorize user can have access.

#### **4.1 The choice of Programing Tools**

A program or application used by software or computer-based system developers to create, debug, maintain, or provide other support for other programs and applications is known as a programming tool or software development tool. As previously mentioned, the following programming tools were used to implement the project's proposed system:

#### **4.2 PHP (PHP: HYPERTEXT PREPROCESSOR)**

The server-side scripting language PHP was created with web development in mind. It operates on the server and is typically unable to operate independently unless triggered by an event.. It is designed for use with HTML such that when invoked, it returns HTML to the browser. It provides more flexibility than HTLM alone. It is platform independent, powerful, robust and scalable, web development specific. It can be object oriented, it has great documentation in different languages, and it has large active developer community.

##### **4.2.1 HTML (HYPER-TEXT MARKUP LANGUAGE)**



A markup language called HTML is used to create webpages and other content that is visible in a web browser. HTML has undergone several versions since its introduction, with version 5 being the most recent to include a number of new features. Although these new features are included specifically for better programming, most of them are yet to be supported by most popular browsers. MySQL is a relational database management system (RDBMS) used to manipulate or manage data contained in a database. (Christopher 2004).

#### **4.2.2 CSS (CASCADING STYLE SHEET)**

A document written in a markup language can have its presentation semantics described using CSS, a language for style sheets. Enabling the separation of document content from presentation—including layout, color, and font choices—is its most popular use. This division can offer greater control, flexibility, and accessibility for the content. Additionally, CSS can enable the presentation of the same markup pages using various rendering techniques. It is designed with a priority scheme to determine which rules apply if more than one rules matches against a particular element (Christopher, 2004).

#### **4.2.3 Features of the System**

The login page, the input page, the assignment page, and the output page are the four main interfaces that make up this. An input page will appear if the user is legitimate. After entering the required information on the input page, the user moves on to the assignment page. At the assignment page, there are two types of assignment, the Automatic (Bulk) whereby many students can assign to their supervisors by selecting only the session that (One-to-many) and the Manual (Single/individual) whereby only one student will be assign to his supervisor that is (one-to-one) assignment and only students who has not been assigned for a given session could be display here.. The system's primary output is a report that lists the students assigned to each of

their supervisors and can be viewed based on the kind of assignment. Access to the following interface is granted by each interface.

### **4.3 System Moodle**

The following modules comprise the project as a whole.:

#### **4.3.1 *Login page***

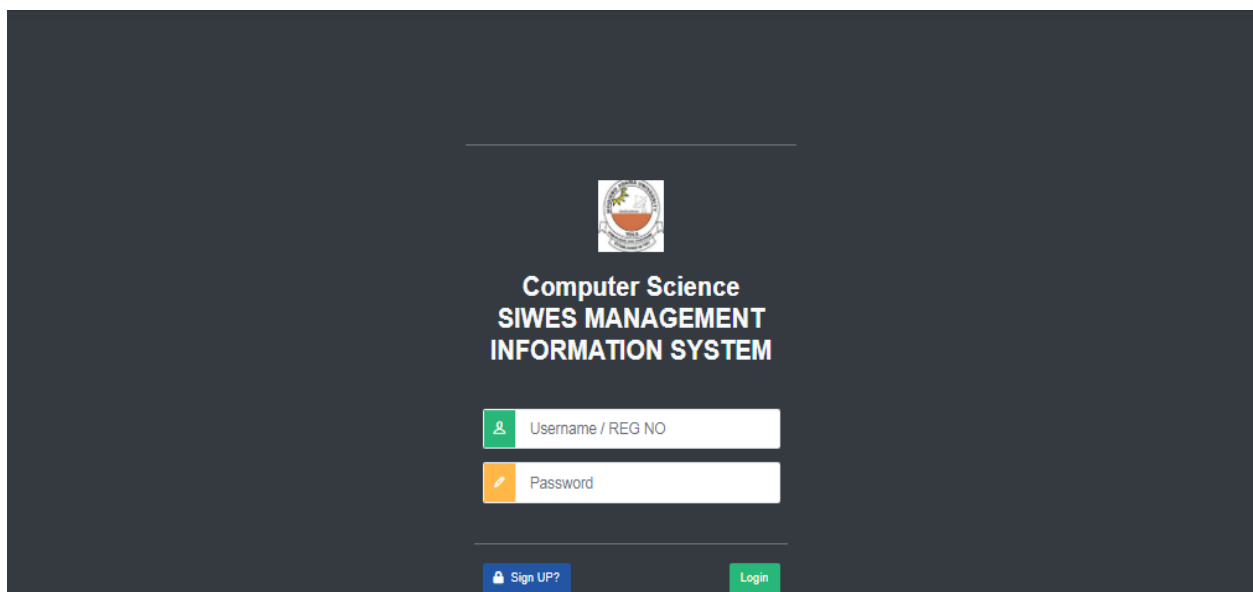
The login page is a pivotal component of any software system, functioning as the primary gateway for authorized users to gain access to the software's features and resources. Its fundamental purpose is to authenticate users by validating their credentials, typically a combination of a username and password. Upon submission of these credentials, the system undertakes a verification process to ensure that the supplied information matches the stored records.

In the event that invalid parameters are provided, such as an incorrect username or password, the system responds by generating an error message. This error feedback mechanism serves to enhance security and ensures that only authorized individuals can proceed beyond the login page. Furthermore, the login page often incorporates additional functionalities, such as password recovery options or multi-factor authentication methods, to fortify security measures. It acts as a crucial layer of defence against unauthorized access and protects sensitive information from potential threats.

In educational contexts, like the one described, the login page may extend its utility to facilitate student registration for accessing specific features or information within the system. For instance, students might need to input placement details before gaining full access, ensuring that only eligible individuals can utilize certain functionalities.

The graphical representation of the login page, as depicted in the provided screen snapshot, visually guides users through the authentication process. It typically includes user-friendly elements like input fields, buttons, and error messages to streamline the user experience.

In summary, the login page is not merely a gateway; it is a critical security checkpoint and an interface that can be tailored to accommodate additional functionalities, such as user registration for specific purposes, ensuring a seamless and secure user experience within the software system.:

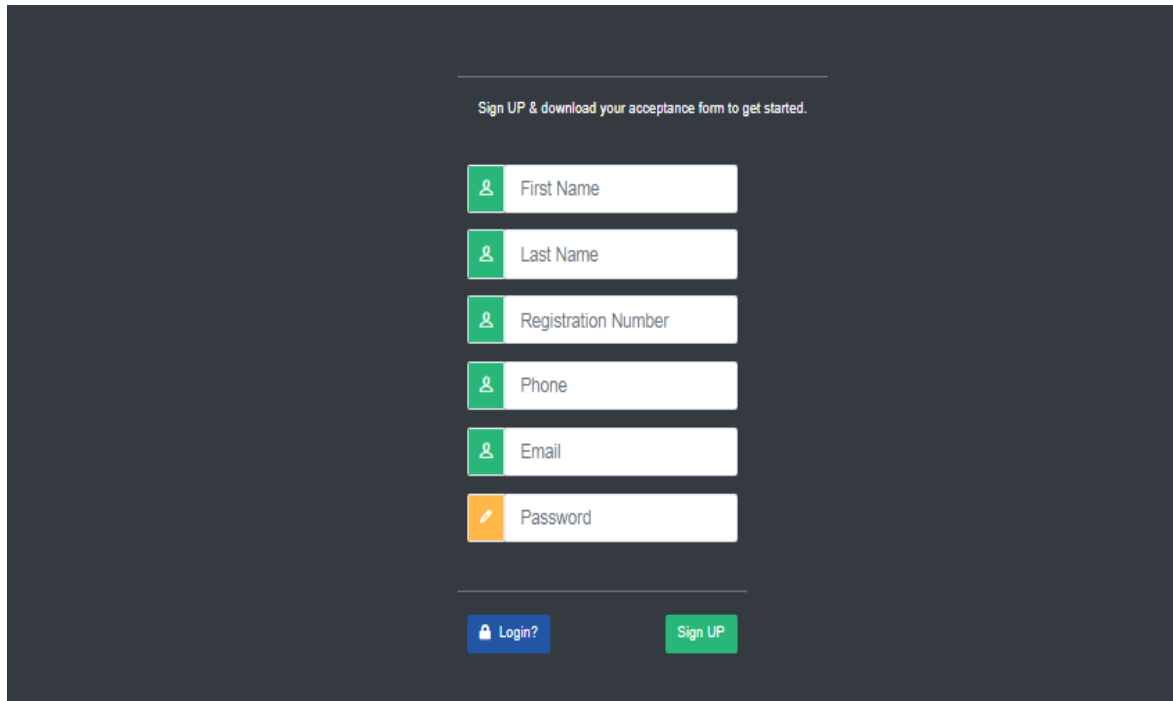


**Figure. 4.1 login page.**

#### **4.3.2 *Student's registration page***

The Student's Registration Page serves as a dedicated platform for students to input and register their detailed information within a software system. This comprehensive registration process typically involves the submission of essential details such as personal information, contact details, academic records, and any other pertinent data required by the educational institution or software application. Upon the successful completion of the registration process, students are

provided with the credentials necessary to log into the system. These credentials, often consisting of a unique username and password, serve as the key to access the associated features and functionalities of the software. The registration page acts as a crucial on boarding mechanism, ensuring that the system possesses accurate and up-to-date information about each student. This information can be used for various purposes, including academic record-keeping, communication, and personalized user experiences. Additionally, the registration page may incorporate validation checks to ensure the accuracy and completeness of the provided information, enhancing data integrity. It might also include features such as error prompts or guidance to assist students in completing the registration process successfully. The screen snapshot accompanying the registration page visually guides students through the data entry process, typically featuring intuitive form fields, checkboxes, and buttons to facilitate a user-friendly experience. The design often prioritizes clarity and simplicity to minimize any potential confusion during the registration procedure. In summary, the Student's Registration Page is a vital component of the software system, acting as the bridge between students and the functionalities they seek to access. It not only captures essential information but also plays a pivotal role in establishing the user credentials necessary for subsequent logins, thereby enabling students to engage with the system seamlessly and securely.

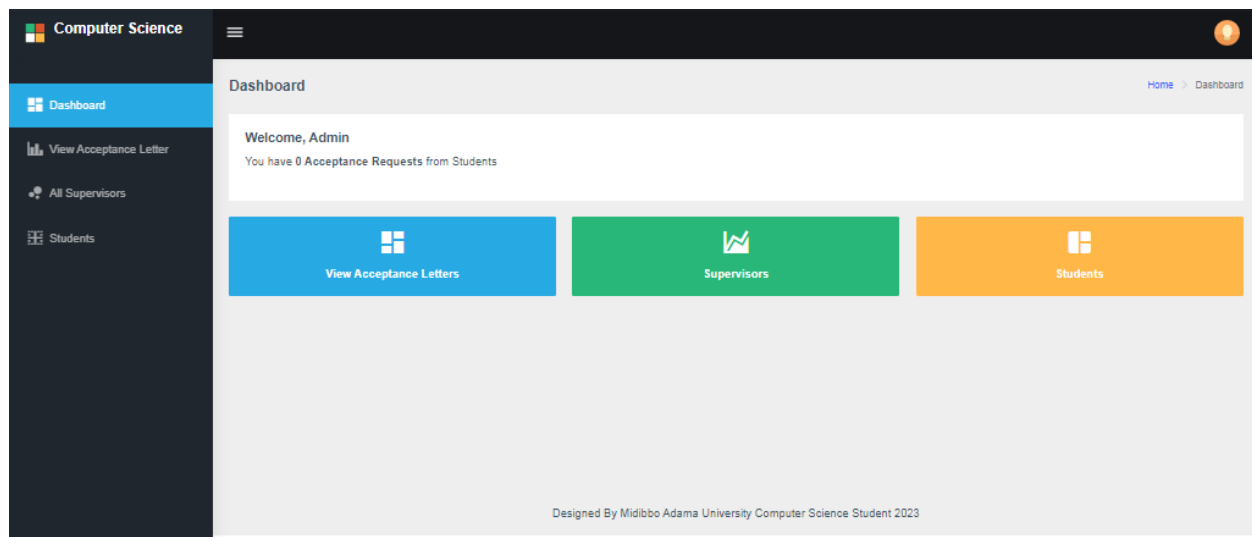
The image shows a student registration form on a dark grey background. At the top, a thin horizontal line is followed by the text "Sign UP & download your acceptance form to get started." in a small, light green font. Below this, there are six input fields stacked vertically. Each field has a small icon on its left: a person icon for "First Name", "Last Name", "Registration Number", "Phone", and "Email"; and a pencil icon for "Password". The "First Name" field is highlighted with a green border. At the bottom of the form, there are two buttons: a blue button with a lock icon and the text "Login?", and a green button with the text "Sign UP".

**Figure.4.2 Student's Registration page**

### **4.3.3 The Admin page**

The Admin Page, in the context of the SIWES (Students Industrial Work Experience Scheme) Departmental Coordinator, serves as a centralized hub for overseeing and managing various administrative tasks within the educational system. Specifically designated for the SIWES Departmental Coordinator, this page empowers them with the authority to perform essential functions critical to the successful operation of the program. One of the primary responsibilities of the SIWES Departmental Coordinator on the Admin Page is the ability to add lecturers to the system. This involves inputting and managing lecturer details, ensuring that the academic staff associated with the program are accurately represented in the system. Furthermore, the Admin Page facilitates the allocation of supervisors to students participating in the SIWES program. The Departmental Coordinator can use this platform to match students with suitable supervisors, considering factors such as expertise, availability, and alignment with the students' industrial

work experience. Beyond these responsibilities, the Admin Page may encompass a range of other functions, such as generating reports, monitoring student progress, and managing program logistics. It acts as a command center for administrative tasks, streamlining processes and ensuring efficient coordination of resources. The interface of the Admin Page is designed to provide the SIWES Departmental Coordinator with a user-friendly environment for carrying out these diverse functions. It typically includes intuitive controls, form fields, and navigation options, allowing the Coordinator to navigate through the various administrative tasks seamlessly. In essence, the Admin Page tailored for the SIWES Departmental Coordinator is a critical tool for maintaining the integrity and effectiveness of the program. It empowers the Coordinator to efficiently add and manage lecturers, allocate supervisors, and perform other administrative functions, contributing to the smooth operation of the SIWES program within the educational institution.



**Figure 4.3 admin page**

The Supervisor Addition Module within the Admin Page provides the SIWES Coordinator with a dedicated interface to input and manage supervisor details. This module plays a pivotal role in the effective administration of the Students Industrial Work Experience Scheme (SIWES)

program. To add a supervisor, the SIWES Coordinator typically accesses a form or interface within the module. This form would include fields for essential information such as the supervisor's name, contact details, academic qualifications, and any other pertinent details necessary for the coordination of the SIWES program. The Coordinator begins the process by entering the supervisor's information into the respective fields. This ensures that accurate and up-to-date details are recorded in the system, facilitating effective communication and coordination between supervisors and students. The module may incorporate validation mechanisms to verify the completeness and accuracy of the entered information, ensuring data integrity. Additionally, it might include features like dropdown menus or checkboxes to streamline the selection of specific parameters, such as the academic department or specialization of the supervisor. Once all required details are entered, the SIWES Coordinator typically submits the information through a designated button or action within the interface. This triggers a process where the system stores the supervisor's details securely, making them accessible for subsequent allocation to students participating in the SIWES program. The screen snapshot accompanying this module visually guides the SIWES Coordinator through the supervisor addition process, featuring an intuitive layout with clear prompts and fields. This design aims to enhance user experience and reduce the likelihood of errors during data entry. In summary, the Supervisor Addition Module empowers the SIWES Coordinator to efficiently add and manage supervisor details, ensuring a seamless workflow in the allocation of supervisors to students within the SIWES program. It represents a crucial component of the administrative tools available to the Coordinator for effective oversight and coordination of the program's activities.

The screenshot shows a web application interface for the 'Computer Science' department. On the left is a dark sidebar with navigation links: 'Dashboard', 'View Acceptance Letter', 'All Supervisors', and 'Students'. The main content area is titled 'Supervisors' and contains a form titled 'ADD SUPERVISOR'. The form has five input fields: 'Full Name', 'Email Address', 'Password', 'Phone Number', and 'States to Assign Supervisor'. A blue 'Submit' button is located at the bottom of the form. The top right of the interface shows a breadcrumb trail: 'Home > Supervisors'.

**Figure: 4.4 Add supervisor**

#### **4.4.4 The output page**

The Output Page in the system serves as a crucial interface for generating comprehensive reports based on various allocation parameters within the department of Computer Science. This page acts as the endpoint where the allocated assignments are compiled and presented in a structured format for further analysis and decision-making. The primary allocating parameters include courses, location, and the place of experience for both lecturers and students. This implies that the system utilizes these parameters to strategically assign lecturers to specific courses, taking into consideration the expertise of the lecturers and the requirements of each course. Simultaneously, students are allocated to attachment places based on their academic needs and the available opportunities in the department. The generated reports offer insights into the distribution of lecturers across different courses, ensuring a balanced and efficient allocation of academic resources. Likewise, the allocation of students to attachment places is documented, providing a clear overview of the practical learning experiences offered within the Computer Science department. The Output Page is designed to present these reports in a visually accessible manner, often featuring tables, graphs, or charts to facilitate easy interpretation of the data. This



visual representation aids administrators, such as the SIWES Coordinator, in making informed decisions and adjustments to optimize resource allocation. Moreover, the Output Page may allow for customization of reports, enabling users to filter information based on specific criteria or timeframes. This flexibility enhances the adaptability of the system to the evolving needs of the department and ensures that the generated reports align with the overarching goals of the SIWES program. In summary, the Output Page is a pivotal component of the system, providing a consolidated view of the allocation outcomes based on courses, location, and place of experience. It empowers administrators to assess and refine the allocation strategy, fostering an efficient and tailored approach to the deployment of lecturers and students within the dynamic landscape of the Computer Science department.

#	Full Name	Password	Email	Phone	States assigned to	View Students
1	demo	demo	demo@demo.com	08077770006	Akwa Ibom, Bauchi, Bayelsa,	<a href="#">View Students assigned</a>
2	malik	12345	mhaleeqm@gmail.com	08037858574	FCT, Nasarawa, Niger, Adamawa,	<a href="#">View Students assigned</a>
3	umar atiku	12345	umar@gmail.com	09099999999	Bauchi, Gombe, Plateau, Bayelsa, Akwa Ibom,	<a href="#">View Students assigned</a>
4	sajo dahiru	12345	sajo@email.com	07035444444	Adamawa, Bauchi,	<a href="#">View Students assigned</a>
5	umar uwaisu	12345	uwais@gmail.com	08122222222	Bauchi,	<a href="#">View Students assigned</a>
6	kadas kefas	12345	kefas@gmail.com	0910989878	Adamawa,	<a href="#">View Students assigned</a>

figure 4.5 output

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.0 SUMMARY**

This research project is developing SIWES Supervisors Allocation System; A Case Study of Computer science Department using xamp server and web application framework. The objectives of this research are to identify all the requirement specification of SIWES Supervisor Allocation System (SISAS), to model the design of SIWES Supervisors Allocation System (SISAS) based on the requirement specification and to develop the prototype of the SIWES Supervisor Allocation System (SISAS) adopting web application framework that is xamp server. In the end of research project period, researcher found that the result is complying with the objectives and therefore all the objectives in this research project have been achieved.

#### **5.1 CONCLUSION**

The proposed system was successfully implemented. The aim of this research was achieved. The Student Industrial Working Experience Scheme Supervisors were allocated based on the itemized objectives; the activities of assigning SIWES Supervisor in the Department of Computer science were enhanced. But note that, with this system not all aspects of the manual system were automated that when all aspects of the existing system are fully automated, then, this system will totally replace the manual one.

#### **5.2 RECOMMENDATION**

The following suggestions should be considered in light of this work:

- i. The Department of Computer Science and other related composite departments ought to utilize this system to guarantee efficient oversight and appropriate cooperation from the viewpoint of the institution..

- ii. In order to make the required improvements and modifications, more research should be done on this work. Other researchers and developers should employ different technologies to design this system for performance analysis.
- iii. Students will undoubtedly be forced to closely adhere to their work during their Industrial Training if their supervisors are assigned to them based on the department's three sections.

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## APPENDIX

### Allocation page

```
<html>

<div class="container">
<?php
include("includes/db_conn.php");
include("includes/header_template.php");
include("functions.php");?>
<ul id="navigation">
<li><a href="adminpage.php">Home</a></li>
<li><a href="lecturerReg.php">Add Lecturer</a></li>
<li><a href="addExperience.php">Places of Experience</a></li>
<li><a href="manual.php">Single Allocation</a></li>
<li><a href="generateAutoList.php">Display Allcation</a></li>
<li><a href="logout.php">Logout</a></li>
</ul>
<table height='300' width="100%">
<tr><?php $msg=$_GET['msg'];echo $msg;?>
<td valign='top' style="width:58%;padding-left:10px;text-align:justify;font-size:16px">
<br>
<div id="fade" >
<imgsrc="images/01.jpg" height="" width="70%" />
<imgsrc="images/04.jpg" height="" width="73%" />
<imgsrc="images/05.jpg" height="" width="73%" />

</div>
</td>
<td valign='top' bgcolor="#efc" width="32%">
<div id="accordion" style="width:100%">
<div class="accordion-header"><span>Bulk Type of Assignment</span></div>
<ul class="accordion-content">
    <form method="POST" action="assignment_list.php">
        <?php
            $query='select distinct session from student order by
session';

            $result=mysql_query($query);
            ?><br>
            <span>Assign Students</span>:

            <select name="session" id="session">
            <option value="">Select Session </option>
            <?php
```

```

                $i=0;
                while($i<mysql_num_rows($result)){
                    $session=mysql_result($result,$i,'session');
                    echo"<option value='$session'>$session</option>";
                    $i++;
                }
            ?></select>

            <p><button type="submit" name="Assign" style="margin-left:124px; font-
weight:bold">Assign</button>
</form></ul>
<div class="accordion-header">
    The Department Comprises:
    </div>
    <ul>
    <li><a href='#'>Mathematics Section</a></li>
    <li><a href='#'>Computer Science Section</a></li>
    <li><a href='#'>Statistics Section</a></li>
    </ul>

<div class="accordion-header"><span></span></div>

</div>
</td></tr>
</table>
<?php include("includes/footer_template.php")?>
</div>
</html>

```

### The Allocation List Code

```

<html>

<div class="container">
<?php
include("includes/header_template.php");
include("includes/db_conn.php");
require_once("functions.php");
?>
<ul id="navigation">

<li><a href="adminpage.php">Home</a></li>
<li><a href="lecturerReg.php">Add Lecturer</a></li>
<li><a href="addExperience.php">Places of Experience</a></li>
<li><a href="assignment_page.php">Allocate Supervisors </a></li>

```

```

<li><a href="logout.php">Logout</a></li>
<form method="post" action="supervisorSearch.php" style="float:right;margin:-
2px;background:#0c0">
<input type="text" name="search" size="" placeholder="USE STAFF PERSONAL NO. ONLY"
style="border-radius:' />
<button type="submit">Search</button>
</form>
</ul>
<script type="text/javascript">
$(document).ready(function(){
$('tr:even').css('background','#dedede');
$('tr:odd').css('background','#ffffff');
$('th').css('background','#cc9');
});
</script>
<?php
$session=$_POST['session'];
$q2=mysql_query("select * from lecturer where active='1'");
$studentsId=fetchStudents($session);
$i=0;
while($i<mysql_num_rows($q2)){
    $lecturer_id=mysql_result($q2,$i,'lecturer_id');
    if(canSupervise($lecturer_id,$session)){
        for($j=0;$j<count($studentsId);$j++){
            $sn=rand(0,count($studentsId));
            $studentId=$studentsId[$sn];
            //call all fxns here
            //echo"$j,$lecturer_id || ($sn)$studentId<br/>";
            if(canBeSupervised($studentId,$session) &&sameField($lecturer_id,$studentId)
            &&hasPlaceExperience($lecturer_id,$studentId)){
                assignSupervision($lecturer_id,$studentId,$session,"Auto");
                //echo"$lecturer_id || ($sn)$studentId<br/>";
            //AT this level the students are fetched again to update the array so that only students without
            supervisors will be fetched
            }
            //checking if the supervisor reaches the maximum number of students    he can supervise
            if(!canSupervise($lecturer_id,$session)){
                break;
            }
            $studentsId=fetchStudents($session);
        }
    }
    $i++;
}

```



```
$q2=mysql_query("select * from supervises where session='$session' order by lecturer_idasc");  
$i=0;  
if(mysql_num_rows($q2)>0){
```