DESIGN AND IMPLEMENTATION OF AN AUTOMATED STUDENT GROUPING SYSTEM FOR EXAMINATION

BY

ONWUZURUIKE EMMANUEL ICT/2252070814
OKWUMANYI DOUGLAS ICT/225200417

A PROJECT WORK SUBMITTED TO THE
DEPARTMENT OF COMPUTER SCIENCE, SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY,
AUCHI POLYTECHNIC, AUCHI; EDO STATE

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF HIGHER NATIONAL DIPLOMA (HND) IN COMPUTER SCIENCE

NOVEMBER, 2022

CERTIFICATION

We, the undersigned hereby certify that this project work was carried out by **ONWUZURUIKE EMMANUEL**, with Matriculation Number: **ICT/2252070814 and OKWUMANYI DOUGLAS**, with Matriculation Number: **ICT/225200417** of the Department of Computer Science, School of Information and Communication Technology, Auchi Polytechnic, Auchi.

We also certify that the work is adequate in scope and quality in Partial Fulfillment of the Requirements for the Higher National Diploma in Computer Science.

_____ _____

MRS. CAMPBELL P. I **DATE**
(Project Supervisor)

_____ _____

MR. AKHETUAMEN O. SYLVESTER **DATE**
(Head, Department,
Computer Science)

DEDICATION

I dedicate this project work to ALMIGHTY GOD who has lead me through since the beginning of my year in this institution

ACKNOWLEDGEMENT

Our profound gratitude goes to Almighty God who made all things possible and kept us alive to see the completion of this work.

Our special thanks goes to our amiable supervisor **Mrs. Campbell P. I** who despite her light schedule of her duty still patiently took time to read and make necessary corrections. We want to say Ma, your useful suggestions and comments have been carefully considered and acted upon.

To our H.O.D **MR. Akhetuamen Sylvester** and staff of computer science department who contributed to our academic success, we say God bless you all.

Our profound gratitude goes to our lovely parents for their moral, spiritual and financial support throughout the course of our study. We also appreciate our beloved and wonderful siblings for their support and care, we love you all, and may God bless you.

ABSTRACT

Examination grouping is specially design for automation of exam system. This system deals with the seating arrangement process of exam automatically instead of manually. This application will be used for the automatic examination grouping system on the basis of number of students, number of classes and number of benches in a class. While an extensive body of research exists regarding the delivery of course knowledge and material, much less attention has been paid to the location of the hall within the school. This research work helps the school simplify the grouping system of student during examination. The project is designed using Visual Basic 6.0 as the front end and Microsoft Access as the Backend (Database).

TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

An Examination Grouping System is a computerized system that aids the processing of semester grouping of students for examination in Federal Polytechnic, Auchi. According to Añulika, et. al. (2014), many schools have their own system of grouping students to write exams. Common practice is by recording the student information and grouping the student by matriculation number or grouping the students through names, institutions are always writing examinations as it is a regular activity. The use of information and communication technology in examination processing is very vital as it speeds up the process, guarantees efficient and accurate computation of the groupings.

Consequently, the management of the institution will be able to meet up with the challenge of limited time and also, the students will be able to see their result on time. It is therefore imperative for the manual method of processing examination groupings to be replaced with the computerized system. This is possible with the implementation of a software system that will capture semester examination grouping details for final processing. With this system in place,

examination grouping jobs that took long period of time to be processed will be completed within a short period. This will in turn boost the corporate image of the institution and greatly reduce the number of errors that arise from the use of manual method. Applying ICT to process examination result is one of the ways ICT has been applied in the education sector (Aravinth, et. al., 2014).

Assessment is the systematic collection, review, and use of information about educational programs undertaken for the purpose of improving student learning and development. Assessment is an ongoing process aimed at understanding and improving student learning (Palomba & Banta, 2019). Past research (Kaffash, Kargiban1, & Kargiban, 2010) has shown that integrating information communication technologies (ICT) into teaching-learning process lead to improving education assessment. The use of ICT in education sector can bring changes to the way education assessments have been done.

The change have impact on assessment tasks, with new learning environments moving away from summative methods of assessment to formative approaches and open-ended products; such as reports and research papers created by groups of students. This implies that integrating ICT in education sector facilities student centered approach learning. In addition, ICT tools such as examination processing software also enables quick processing of students results

as opposed to the manual system. However, many institutions have not applied ICT to help them solve the problem of assessment. It is in view of the relevance of an automated system to process result that necessitated this study.

The major goal of this project work is to develop an automated student grouping system for Examination. This will be used to group student into various groups before the commencement of Examinations.

1.2 STATEMENT OF THE PROBLEM

A number of problems associated with student examinations grouping system include:

i. late release of students' grouping,

ii. inaccuracy due to manual and tedious calculation and retrieval difficulties/inefficiency.

iii. In addition, lecturers most times find the process of examination grouping to be time consuming especially in the case of a large class size.

iv. The problem is further compounded by the absence of a computerized system to aid in the computation and processing of the groupings of students.

It is in view of the above listed problems that motivated the researcher to conduct this study on examination grouping system.

1.3 AIM AND OBJECTIVES OF THE STUDY

The aim of the study is to develop an automated examination grouping system that will enable lecturers and examiners to easily group students for various examinations for easy future retrieval.

The following are the objectives of the study;

i. To develop a system that can be used to accurately process examination grouping for students.

ii. To develop of a user-friendly desktop application that is capable with enabling features for handling the tedious manual system of grouping student before Exam commence. In order to ease the process and for it to be done more conveniently and comfortably.

iii. To provide a system which will minimize the manual effort and time required for carrying out the process of students grouping and hall allocation.

iv. To provide a system which could handle large volumes of students within reasonable time limits.

v. To provide a flexible way of generating accurate and reliable list of groupings with little or no form of human-related errors.

1.4 SCOPE OF THE STUDY

The major area and region the automated examination grouping system will be implemented is Federal Polytechnic, Auchi. The automated examination grouping system can be deploy in all public and private tertiary institutions in all state of the federation. To ensure that various institutions have adequate system grouping system for students examination.

1.5 SIGNIFICANCE OF THE STUDY

The significance of this study is to develop a flexible system that will ease the rigorous process of grouping student into various groups before they sit for an Examination and this will create an order in which the writing of the Examination will go. The system will be a favor to the entire staff, students and Management of the Institution.

1.6 LIMITATION OF THE STUDY

The full realization of this study has been constrained in some way,

i. The system is not web based

ii. The system does not run over a network

iii. Availability of materials, and also

iv. This is done by limited time and resources coupled with the fact that this project is been done alongside with academic activities.

For full implementation of this system, it requires further evaluation and customization to meet the need of the critical situation that may arise in grouping student before they write Examinations in an academic environment charge as new technologies and challenges arise.

1.7 OPERATIONAL DEFINITION OF TERMS

Software: computer software is collection of computer program and related data that provide the instruction for telling a computer what to do and how to do it.

Window Operating System: this is an operating system developed by Microsoft that has icon, picture and button to enable flexible operation.

Operating System: an operating system (O.S) is a set of software that manage computer hardware resources and provide common services for computer program.

Interface: an interface in software is a place where various object and component are joined together for instructions between the unit and the component system.

Examinations: this is an academic process whereby students are being tested based on what they have being taught within a period of time.

Examination officer: an academic staff in an institute responsible for all examination and result issues in a specific department.

Automated: this involved the process or transforming a manual system of process that was done manually before to computerized or computer- based or using computer applications design for the purpose.

Grouping: this is the process of splitting number of people into different groups which they will belong for an event.

CHAPTER TWO

2.0 LITERATURE REVIEW

According to Adetona, et. al. (2020) an examination is an assessment to measure student knowledge, fundamental ability, life skill, aptitude, physical fitness, or experience attain in some other topic. It is a set of questions mostly used to determine students' knowledge of examinations and discouraging collaborator malpractice has been a significant concern for most higher learning institutions. Also, the management of course examinations in higher education institutes such as university departments, colleges is an effort-consuming process. Given the continually increasing number of students, this process's complexity is also increasing in terms of both time and effort required for an efficient outcome.

During examination periods, it is often the case that large groups of students massively enter exam halls struggling for a seat. However, such an approach usually brings about nervousness and intensity, which disturb the examination procedure's smoothness. An alternative approach is that students individually select seats in lack of a general plan. However, this could also result in an inappropriate examination process and, probably, in unfair examination outcomes, especially in cases where specific ethical conditions/rules are not fully respected (Aravinth et al 2014).

Gokila and Anthony (2018): The developed solution addresses allocating students to the examination hall and developing an online application to manage both the examination room assignments and the examination proctor assignments in each room using randomized. Examination grouping is specially design for automation of exam system. This system deals with the seating arrangement process of exam online instead of manually. This application will be used for the automatic grouping of students on the basis of number of students, number of classes and number of benches in a class. While an extensive body of research exists regarding the delivery of course knowledge and material, much less attention has been paid to the performance effect of seating location within a classroom. This study examines the effects of seating location and seating type on student performance.

In the existing way of grouping for examination, a dedicated person is required. At first this person have to collect the information about students such as names, which students appeared for exam. This person should also have knowledge about all classrooms all benches in the classroom. Then a person should allot each seat to each student manually and this process is indeed very lengthy and tame taking also he would have to stick this paperwork to notice board where students can see. Students have to come before about an hour of examination to see

their grouping, this also time consuming as well as lengthy (Muhammad and Sherin, 2018).

To overcome this, we have developed a website which will update the details and display location of seat, where a dedicated person is required to fill in information, upload the data to the server where a real-time server updates all the data and students can know their location automatically by entering their matriculation no. We are using database to save student information. The environment of the school building and the classrooms play a very important role in a student's day. The following review of literature reveals some of the research that has been done to show which areas in the school and classroom environments are the most beneficial towards the behavior and education of the students. To better understand this topic, the review of literature will check the impact of seating during examination on student performance.

Every institution has examinations held at particular intervals. Placing the students for appearing in the exams is an important of the procedure. If we manually allocate each student to a specified seat, it is a mammoth task. Institutions have various databases and software designed to perform this task. The paper is attributed to design an Automated Examination Grouping System which automatically places students in their respective seats according to their allotted

roll numbers. The students are seated serially roll number wise in numeric order. Each student has a specific seat as allotted by the server and no two students from the same course structure can be seated next to each other.

This project focuses on improving the efficiency of the seat allotment system and the tedious task of manually allocating seats to each individual. The Examination Grouping System depends upon the number of vacant rooms and seating capacity of each room. The rooms are considered as a multi-dimensional array with specified number of rows and columns. The students are placed in each seat one behind the other according to last digits of their enrollment number. This software can be greatly used in every institution for any kind of exam or sometimes even event managements. It decreases our time and makes the procedure very systematic. The software can be extended to various other ways to seat people in a hall for any event or function.

Bougie, (2012) defines space allocation as a process of allocating rooms or areas of space for specific functionality. Thus, since it is limited, it must be well managed by the faculties towards availability and suitable with the user-required. The existing manual system has flaws and loopholes that are yet to be corrected, such as disorderliness and chaos, which also barred the system from being a typical recommendation for public or general use. Furthermore, an individual or candidate that has been scheduled for an examination, whom eventually found himself/

herself in such state of chaos and confusion, may end up wasting precious time while trying to locate the examination hall and also the seat number that been allocated to him or her, this problem in particular is a very common problem that has been observed in the current system.

In addition to this, redundancy is very much inevitable in the existing system, there have been cases or scenarios where seats are left vacant without any individual or candidate occupying the space, the occurrence of these redundancies has been as a result of circumstances that are considered unforeseen. This is also a major problem in the system that needs to be tackled in order to make the system absolutely suitable for use.

According to Aashti, (2016) Automatic examination grouping system for examinations in universities/colleges was dedicated to simplifying the task of manually seating students in an examination hall. The tool provides an effective measure to dynamically place students in an examination hall just by providing the number of rooms available.

Alvarez-Valdes, et al., (2017) used a set of heuristic algorithms in a program for solving course timetabling related problems. The objectives of this research is to develop a system that assist students of the institution to locate their Examination Hall through grouping and seat at any point effectively without wasting their precious time, and eliminate occurrence of seat redundancy.

Werra (2015) employed two-execution phase in the attempt to minimize searching difficulties. Problems are broken into sub problems of weekly and daily. In the first phase, subjects will be predetermined for its days and the second phase will allocate time for the selected days. If the situation cannot be resolved, the first phase will be repeated and a different day will be selected. Priority is given to a time and selection of time slotting activity for allocating a reasonable time slot.

Thompson and Dowsland (2016), Hertz (2011) proposed the scope of the project is targeted to the designing of a web interface and database that will store or keep records of students and automatically allocate each student to seat and it will be given to the Institution for immediate or future use. Producing a computerized system that addresses the issues of examination seating arrangement for student, as well as documentation of all their records in tertiary institution will provide easy allocation of exam seat/hall for student during their exam period and also reduces examination center tension in the sense that each student need to come down to school/ departmental notice board before they will be able to know their real examination hall and until they got there before they will also know the seat(s) they fall into. This system will aid the management in improving on the examination system and also ease and improve the entire operations of the institution.

2.1 IMPACT OF SEATING DURING EXAMINATION ON STUDENT'S PERFORMANCE

Student seating has been studied from a variety of perspectives. One area of emphasis is seating preference, which focuses on why students choose certain seats and how it affects their performance. Burda and Brooks (2016) found that students who sit near the front of the classroom have high achievement motivation and that they tend to feel positive about their ability to perform well in a course.

Totusek and Staton-Spicer (2018) also found that students who sit toward the front and center of the classroom in "action seats" see themselves as practical and imaginative. According to Pederson et al. (2017], classmates view front-row students favorably, describing them as leaders and academic achievers. The descriptions associated with students who sit in the back row are not as positive. Back-row students have been labeled as low in self-esteem, disinterested, introverted, and rebellious.

Another factor related to student seating in the classroom is student engagement based on seat location. Students farther away from the instructor tend to disengage without being detected. Because attention spans can be limited and because students are often overloaded and tired, the back row of a classroom

provides a better opportunity for students to appear attentive when, in fact, they may not be listening (Kalinowski and Taper, 2017).

Perkins and Weiman (2015) argued that front row seats promote more interaction with the instructor and encourage participation in the class, which leads to higher performance. Sitting closer to the instructor also makes it easier for students to see and hear the instructor. Both Holliman and Anderson (2016) and Becker et al. (2013) found that as the distance from the instructor to the student seat increased, student performance decreased.

According to Vander Schee (2011), seat selection had no significant correlation with student GPA; however, students who sat in the front row did outperform others in the class in terms of overall course grade. The average students, those representing the middle third in terms of cumulative GPA, benefited the most from sitting in the front of the classroom. Other research by Benedict and Hoag (2004) showed that students who preferred to sit toward the front of the class had a higher chance of getting an A than students who preferred to sit near the back. In fact, sitting in the back of the classroom increased a student's probability of receiving a D or F by almost 25 percent. Seat selection in the classroom can also affect group interaction.

In a study of psychology students by Michelini et al. (2016), centrality and visibility led to greater group participation in social settings. In other words, students who were positioned in the center and opposite of two other group members communicated more in group discussions. The students reported that it was easier for them to see and speak with everyone in the group. The effect of randomly assigned seating on student performance is unclear. One study by Kalinowski and Taper (2017) found no relationship between random seat assignments and student outcomes.

However, other research by Perkins and Weiman (2015) reported significantly higher performance levels for students sitting near the front of the room when seats were assigned. In a comparison study of self-selection and assigned seating, Stires (2019) found no grade differences between students who chose to sit at the front of the class versus students assigned to sit up close. Earlier work by Wulf (2017) showed that while students who chose their seats in the front of the classroom outperformed others in the class, randomly assigned seats yielded no significant difference in performance relative to seat location.

2.2 AUTOMATED EXAMINATION GROUPING SYSTEM

The conventional examination hall seat allotment is a mammoth task of manually allocating the seats for conducting the examination. There is a general

grievance that government offices have surplus work load but the speed of efficiency in completing the tasks is very low. A software application is necessary to decrease our manual work time. The system must be user-friendly for the fast retrieval and storing of data. It has to be maintained efficiently with the graphical user interface and effective database design. The Image Processing can be done by using camera which recognizes the face of the students. The comparison is done once the face of the student is recognized for security.

All the data required for generating the hall plan has to be entered into the computer and reports can be generated automatically so that work will be very easy because there is no need to keep data more on papers. User can generate the report and printed if necessary, at the time of conducting the exams. Examination hall seating arrangement application is developed for the colleges to simplify the work of allocating exam halls and issuing hall tickets to the students during exams. It also facilitates to access the examination details of a particular student in a particular department.

The information is sorted alphabetically and will be given by the exam cell to the teachers for conducting the exams. This system helps in finding the examination hall details of a student belonging to a particular department. The android and web-based application are available to manage and handle the

operations in an educational institute during the time examinations. It is an application that can be used by all the students and staff in an educational institute in order to facilitate the communication between them. The application is easily adaptable as it is used on a desktop systems and mobile device. Reports like seating arrangements can be easily generated so that user can generate the report as per the requirement and their wish for the duration of month or the day but not in the middle of the session. Even though the existing literatures reported on various automatic exam hall seating arrangement systems, there are still various issues exist in terms of efficiency and security. Therefore, an enhanced examination hall seating arrangement system is proposed that would automatically generate the exam seat arrangement for the students using an efficient classification algorithm for exam hall scheduling. This system works much better and is efficient than the existing systems by enhancing the security by implementing Advanced Encryption Standard (AES) algorithm for registered users' password verification and secured storage in database which is one of the novelty integrated in the proposed work to ensure high level security of the system. It also aims to help the students to know about the exam hall and seating arrangement before the exam begins through their email. The proposed system requires very less paper work. The system mainly focuses on the minimum use of the chair, staying away from students to prevent fraud (copy from others) in

the exam by avoiding the overlap of nearby chairs and finally the seat for the students.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.1 ANALYSIS OF THE EXISTING SYSTEM

The existing system is very slow and inefficient, report generation is also not an easy task in the current situation. Also, if the report is generated then calculations are done manually that leads to more errors. There is a lot of manual work involved in current system and mistake in one detail can lead to wrong generation of page. No proper collection of requirements leads a huge problem for this system. This system is to enhance manual work and also more energy is wasted to allocate the seating arrangement.

3.1.1 Drawbacks of the Existing System

The drawbacks that are present in the existing system are listed below

- Current system is manual so all the records are maintained manually. So the grouping of students cannot be determined if updating is not done.
- Time Consuming
- Less Efficient
- More manual Work Required
- Less Accurate
- Not User Friendly

- ❖ Difficult in hall ticket generation

3.2 ANALYSIS OF THE PROPOSED SYSTEM

Examination grouping system is developed for the institution to simplify the allocation of halls and grouping to students during exams. It facilitates to access the examination information of a particular student in a particular department. The information is sorted alphabetically, which will be provided by the teacher for a respective department. This system is also help in finding the examination eligibility criteria of a student of the particular department.

The proposed system is a web-based application that is designed to manage and handle the operations in an educational institute during the time of examinations. It is an application that can be used by all the students and staff in an educational institute in order to facilitate the communication among them. The application is easily adaptable as it is used on a desktop systems and laptops. Since the developed application is used on computer systems, it improves connectivity between the students and systems, thus helping the institution to provide a more transparent system altogether. The Automation of Examination Grouping System was developed for the educational institute to simplify the allocation of halls, seating arrangement of students. It is more efficient than existing system, reports like seating arrangements can be easily generated in this proposed system.

3.2.1 Advantages of Proposed System

Some of the advantages of the proposed system are as follows

- Develop software such that everybody working in exam hall allocation system can handle easily.
- Trainer can store & retrieve data easily. And hence, keeping these major target segments in focus, the system was developed.
- Report can also provide through print outs.
- Provide a simpler method to store and access information related to exam hall and students.
- Provide a simple interface which will be easily used without much training.
- Reduce paperwork and make all related information accessible easily.

3.3 SYSTEM ARCHITECTURAL DESIGN

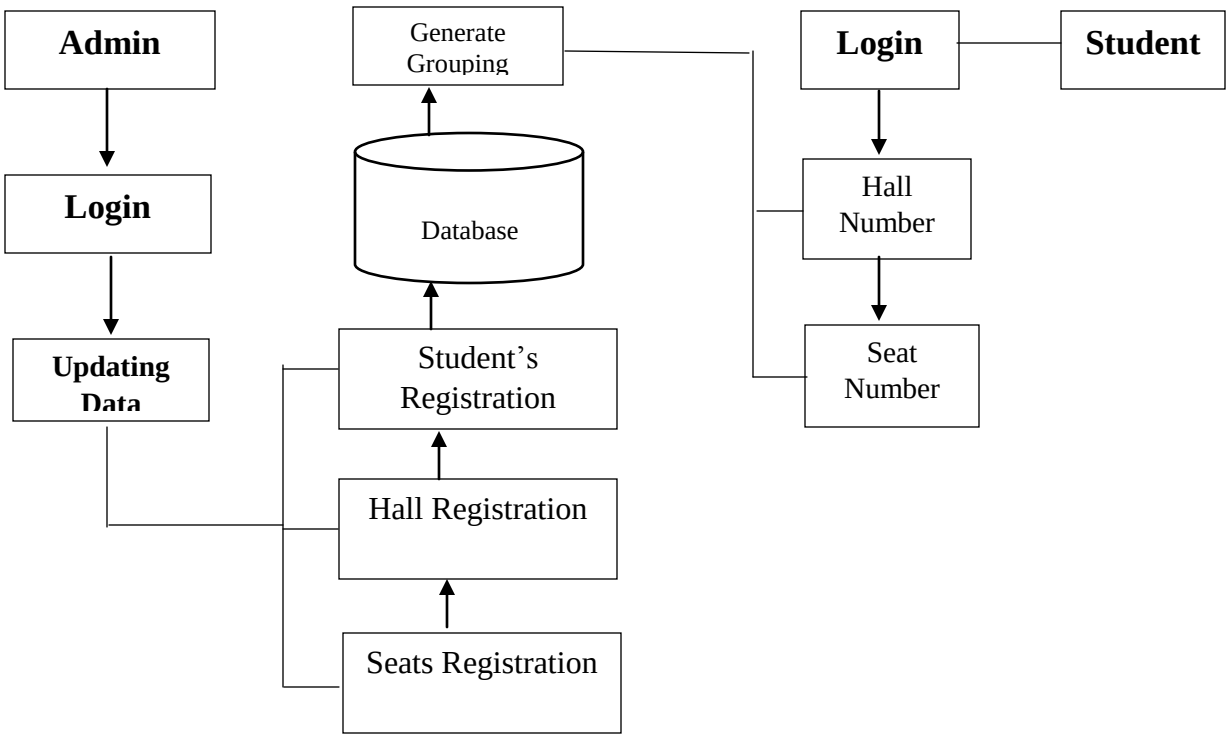


Fig 1: Architecture Diagram

3.4 RESEARCH METHODOLOGY

Research methodology has many research dimensions and methods. The scope of research methodology is wider than research method. This is mainly adopted by the researcher in undertaking this research. Methodology is the underlying principles and rules that govern a system method; on the other hand it is a systematic procedure for a set of activities. Thus, from these definitions a methodology encompasses the methods used within a study.

A waterfall model under the software development life cycle (SDLC) is the methodology used to simplify and determine examination grouping system of the students. It is used by system developers to produce or alter information systems or software. It divides the development process into several stages or processes. After the completion of one stage, it will logically move to another stage. Sometimes moving back to the previous stage is necessary due to failure that occurs in current stage.

System design methods are a discipline within the software development industry which seeks to provide a framework for activity and the capture, storage, transformation and dissemination of information so as to enable the economic development of computer systems that are fit for purpose.

3.5 METHODS OF DATA COLLECTION

Although there are various methods of data collection, the researcher chose the two main sources of data collection in carrying out their study.

They are:

1. Primary source
2. Secondary source

The primary source refers to the sources of collecting original data in which the researcher made use of empirical approach such as personal interview. The secondary sources of data for this kind of project cannot be over emphasized. The secondary data were obtained by the researcher from magazines, journals, newspapers and library source.

3.5.1 Oral Interview

The interview method of data collection can be defined as a systematic way of collecting data or information from a respondent through asking questions directly from the respondent and also collecting information with the aim of facilitating understanding. Reliable facts were gotten based on the questions posed to the staffs of the institutions by the researcher which help in starting the work and in the area of solution presentation of the new design.

3.5.2 Study of Manuals

Report based on examination grouping were obtained and studied and a lot of information concerning the system to be produced was obtained.

3.5.3 Evaluation of Forms

Some forms that are necessary and available were accessed. This then helped in the design of the new system.

3.6 INPUT, DATABASE AND OUTPUT SPECIFICATION

Table 3.1: Student Registration

COLUMN	TYPE	NULL	DEFAULT	COMMENTS
Id	Int(11)	No		
First Name	Varchar(255)	No		
Surname	VarChar(255)	No		
Matric No.	Text	No		

Table 3.2: Hall Registration

COLUMN	TYPE	NULL	DEFAULT	COMMENTS
Id	Int(11)	No		
Hall No	Varchar(255)	No		
No. of Seats	Int (6)	No		
Hall Location	Varchar(255)	No		

Table 3.3: Seat Registration

COLUMN	TYPE	NULL	DEFAULT	COMMENTS
Id	Int(11)	No		
Seat No	Varchar(255)	No		

CHAPTER FOUR

SYSTEM IMPLEMENTATION AND TESTING

4.1 SYSTEM IMPLEMENTATION

This chapter takes into account the way the new system is designed and its process description. It embraces also the way new system files are designed, their data flow diagram, the database structure of the entire parameters, or input variables to be used in the new system. To be able to effectively implement this system; Automated Examination Grouping System, detailed and thorough study was carried out on the operations of the grouping during exams in ICT.

4.2 CHOICE OF PROGRAMMING LANGUAGE

This project software was designed with Microsoft Visual Basic 6.0, this making it a user friendly, easy to navigate and user oriented package.

Reasons for Choosing the Programming Language

i. Visual basic programming language is done in a graphical environment compared to other programming language that you have to write text-based procedure to design the interface.

ii. Visual basic is a fairly easy programming language.

iii. Visual basic programming language enable you to design the interface by dragging and resizing the objects as well as changing their colors, just like any windows-based programs.

iv. Visual basic 6.0 is user friendly, easy to navigate and user oriented package.

4.3 SYSTEM REQUIREMENTS

4.3.1 Hardware Requirement

Hardware requirement captures the complete hardware requirement for the system, or a portion of the system. Due to the nature of the programming language and the software features it support, it requires certain amount of hardware resources. Typically, of these requirements includes:

1. 250G hard disk drive
2. A processor/CPU (Pentium 4, speed 3.2 GHZ)
3. An IBM compatible VGA or other graphic card compatible with MS Access.
4. A standard keyboard.
5. A mouse or other pointing device.

4.3.2 Software Requirements

These include the software that would be used in achieving the desired output for the project work. These software requirements include:

1. Operating System: Windows (Vista/7 or above)
2. Microsoft Visual Basic 6.0.

4.4 SYSTEM/PROGRAM TESTING

The following are how the software modules is made:

a) **The Home Page:** This enables the users of the system (Admin and Sudents) to have access to other sub menu/systems.

b) **Admin Login Page**: When clicked on Login, a form appeared where the admin login with his/her username and password to gain access to the program.

c) **Admin Menu:** After the Admin Login, the Admin menu is loaded, where the admin could select, different options for the operation of the app.

d) **Student Registration**: The Student Registers for the access to the application.

e) **Student Login**: After registering, the student can login to the application.

f) **Student Menu**: The student menu when displayed allows the student to check his/her grouping status and update record.

4.5 CHANGE OVER PROCEDURES

This is the method of changing from the manual system of operation to a computerized system of operation or vice versa. The changeover procedure that will be used or employed is the parallel change over.

Parallel Change Over: In parallel change over, the new system runs simultaneously with the old for a given period of time, of all the techniques this tends to be the most popular, mainly because it carries the lowest risk. It is time consuming and of higher costs.

4.6 MAINTENANCE OF SYSTEM

Preventive maintenance: The care, servicing, and maintaining of equipment and facilities in satisfactory operating condition by providing systematic inspection of the hardware component. This type of maintenance technique helps in protection of equipment from damage

Corrective maintenance: This type of maintenance is performed to identify and rectify a fault so that the failed equipment, machine can be restored or changed for immediate use and operational condition. Corrective maintenance is accomplished in removing bugs from software, hardware and the network.

Adaptive maintenance: this type of maintenance is the one that adapts to program that is already installed in the computer to easily adapt to any new system update without any problem.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMNEDATIONS

5.1 SUMMARY

Presently, the grouping arrangement for the examinations is done manually. Initially the examination section has to collect all student examination registration details, the administrator need to count the total number students registered. Then he needs to select the halls and divide the students among those halls. After dividing the halls, he need to prepare students list for each based on the exam. He also needs to prepare the grouping arrangement list for each hall based upon the count. All this work need to be done for each exam and for each year. This is very tedious work and there are many chances for mistakes to occur due to manual work. The "Automated Examination Grouping System" atomizes the existing system of assigning grouping arrangement. When a student registers for an examination, this system stores student examination registration details in the database depending on the branch, year & semester. These details can be efficiently used whenever required. The system takes the details as input from the database depending on the selected branch. The system asks for course of the exam to be conducted, hall details (hall no., size) and allocates halls.

This also generates grouping and seating arrangement and students list for each hall.

5.2 CONCLUSION

Examination grouping system is developed successfully for the purpose of reducing manual tasks for preparing the hall plan during examinations. This research work present the efficient grouping plan, the software application will notify the students and staff about the respective exam hall. Thus, it reduces the searching time of the examination hall not only for the students but also for the staff members.

5.3 RECOMMENDATIONS

The following recommendations have been put forward towards the further development and improvement of the automated examination grouping system.

- There should be a system that will be generated conducting an exam groups will be allocated dynamically so that only administrator must have to fill the data.
- Further work, could employ the help of 3D graphics, it will show the hall architecture more effectively.
- The new system should be created as an android application.
- That the new system should be adopted by various colleges, institutes, school and university level also.

REFERENCES

Aashti, F. A, (2016) “Seating arrangement Tools for examinations. Technology. (1)4, Published Online

Adetona S., Hassan, E., Salawu R. and Omolola S., (2020): “The Development of a Web-based Application of Examination Seating Arrangement for Student”, ABUAD Journal of Engineering Research and Development.

Alvarez-valdes, R., Crespo, E. and Tamarit, J. M. (2017). "A Tabu Search algorithm to Schedule Examinations".

Añulika, Bala and Nyap (2014): “Seating Arrangemnet Tools for Examinations”, International Journal Of engineering Applied science and technology

Aravinth S, Pavithra G, Myvizhimalar M, Divya D and Rathinakrithika M, (2014): “Exam Hall Seating Arrangement System Using PHP”, International Journal of Innovative Research in Technology.

Becker, F.E.; Sommer, R.; Bee, J.; Oxley, B. College classroom ecology. Sociometry 2013, 36, 14–25.

Benedict, M.E.; Hoag, J. Seating location in large lectures: Are seating preferences or location related to course performance? J. Econ. Educ. 2004, 35, 215–231.

Bougie, P. (2012). Homepage. Retrieved from http://www.cs.uwlax.edu/index.php/graduate-program/capstone projects/223-a-web-based-classroom-allocation-system on May 2, 2019

Burda, J.M.; Brooks, C.I. College classroom seating position and changes in achievement motivation over a semester. Psychol. Rep. 1996,

Gokila, R. and Antony R. D. (2018) “Examination Hall and Seating Arrangement Application using PHP”, International Journal of Engineering Science and Computing.

Hertz, A. (2011) “Tabu Search for Large Scale Timetabling Problems”, European Journal of Operational Research Published Online; pp. 39-47.

Holliman, W.B.; Anderson, H.N. Proximity and student density as ecological variables in a college classroom. Teach. Psychol. 2016, 13, 200–203.

Kaffash, K.; Kargiban, P. (2010): Algorithm for efficient seating plan for centralized exam system; International Conference on Computational Techniques in Information and Communication Technologies (ICCTICT)

Kalinowski, S.; Taper, M.L. The effect of seat location on exam grades and student perceptions in an introductory biology class. J. Coll. Sci. Teach. 2017, 36, 54–57

Michelini, R.L.; Passalacqua, R.; Cusimano, J. Effects of seating arrangement on group participation. J. Soc. Psychol. 2016, 99, 176–186.

Muhammad R. C. and Sherin E. K, (2018): "Efficient Seat Allocation Process in College Exam System", International Journal for Research in Applied Science & Engineering Technology, 6(5) (2018), 693-697.

Palomba, C. & Banta, D. (2019): Automatic Exam Seating & Teacher Duty Allocation System Second International Conference on Inventive Communication and Computational Technologies (ICICCT)

Pederson, D.M.; Polson, D.M.; Hintze, W.J. Perceived personality traits associated with classroom seat selection. Percept. Motor Skill. 2017

Perkins, K.K.; Weiman, C.E. The surprising impact of seat location on student performance. Phys. Teach. 2015.'

Stires, L. Classroom seating location, student grades, and attitudes: Environment or self- selection? Environ. Behav. 2019

Thompson J. and Dowsland, K. (2016) "Variants of simulated annealing for the examination timetabling problem". Annals of Operations Research, vol. 63, pp. 105-128

Totusek, P.; Staton-Spicer, A. Classroom seating preference as a function of student personality. J. Exp. Educ. 2018.

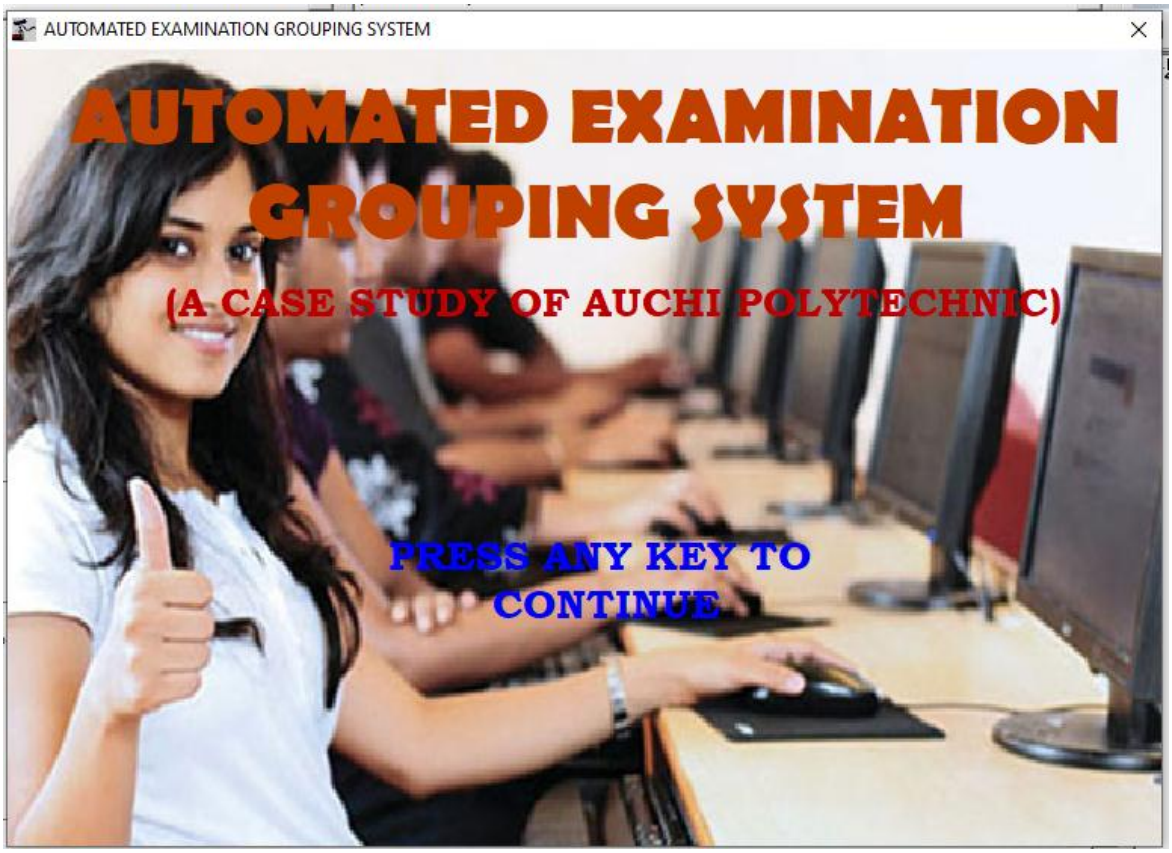
Vander Schee, B.A. Marketing classroom spaces: Is it really better at the front? Manag. Educ. Rev. 2011, 21, 201–210.

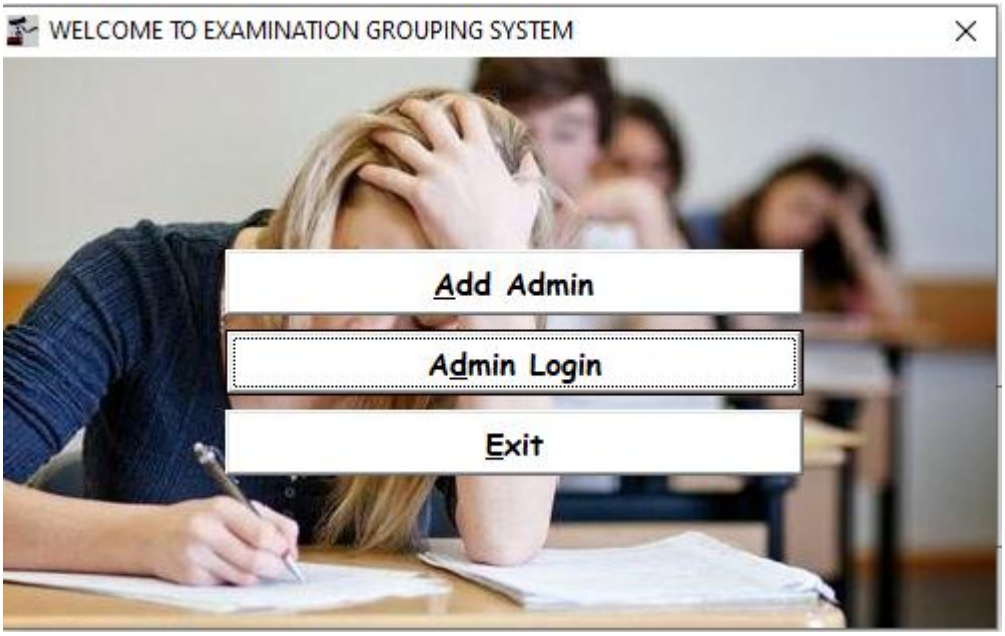
Werra, D. (2015) "The Combinatory of Timetabling," European Journal of Operational Research (96) 3, pp. 504-513

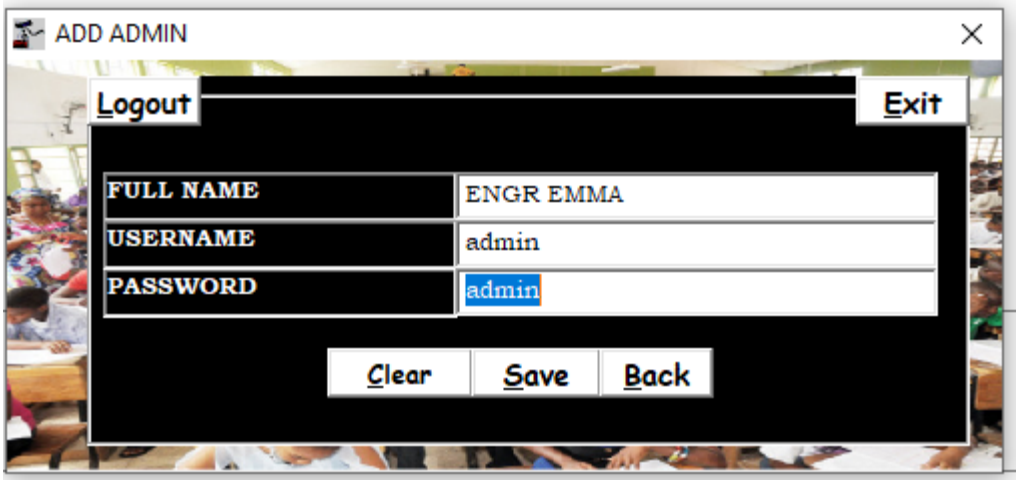
Wulf, K. Relationship of assigned classroom seating area to achievement variables. Educ. Res. Quart. 2017

APPENDIX A

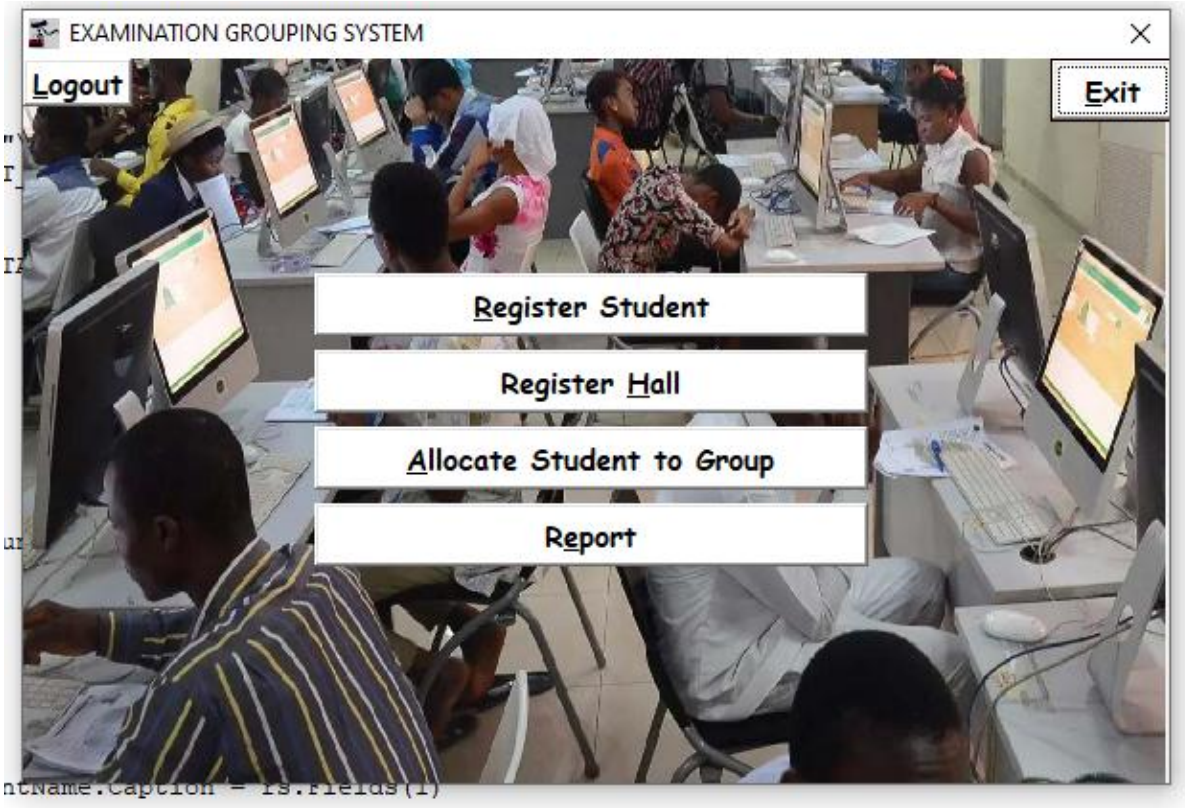
PROGRAM INTERFACE

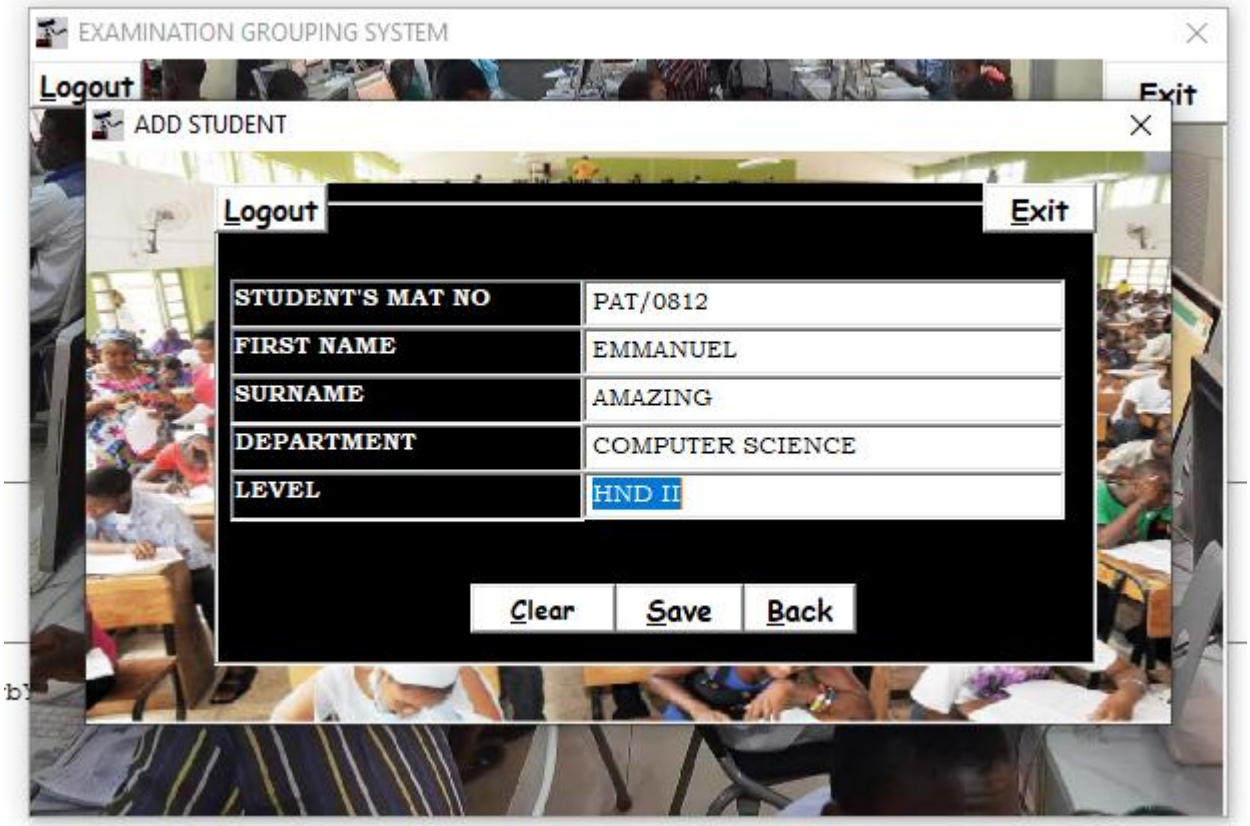


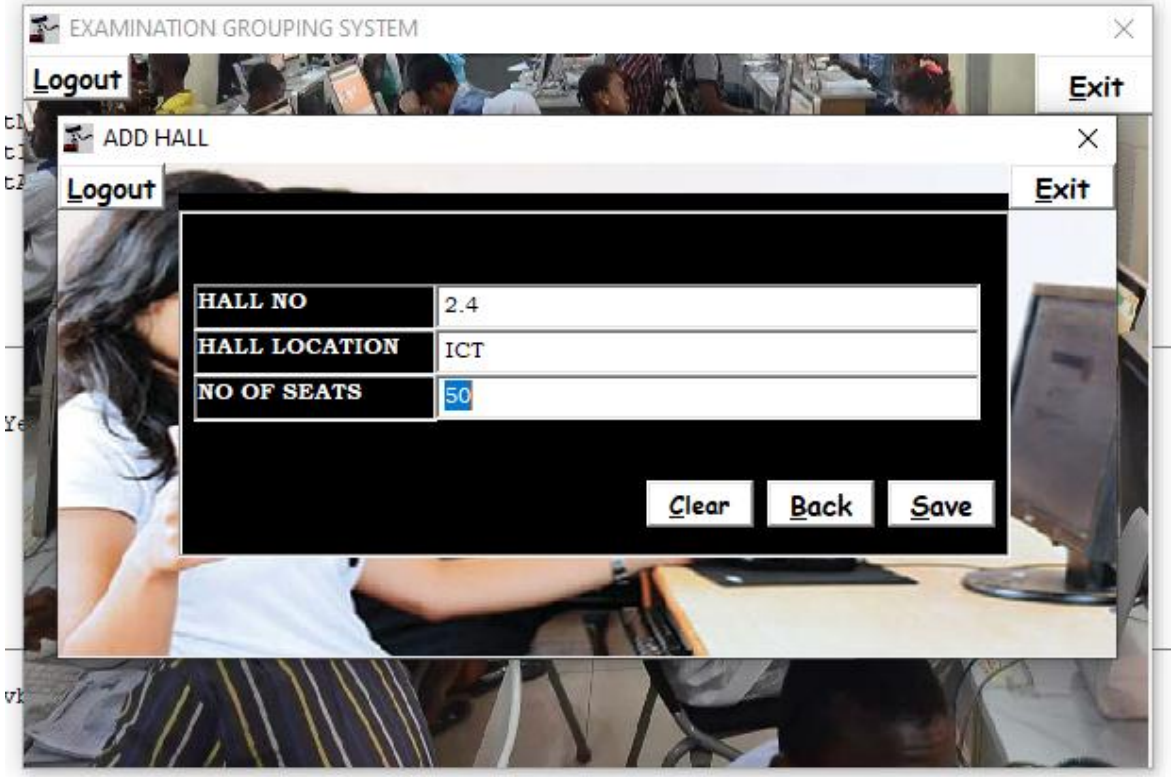



ADD ADMIN
Logout
Exit
FULL NAME
ENGR EMMA
USERNAME
admin
PASSWORD
admin
Clear
Save
Back


LOGIN PAGE
Username
admin
Password
*****
Log-in
Cancel


EXAMINATION GROUPING SYSTEM
Logout
Exit
Register Student
Register Hall
Allocate Student to Group
Report


EXAMINATION GROUPING SYSTEM
Logout
Exit
ADD STUDENT
Logout
Exit
STUDENT'S MAT NO
PAT/0812
FIRST NAME
EMMANUEL
SURNAME
AMAZING
DEPARTMENT
COMPUTER SCIENCE
LEVEL
HND II
Clear
Save
Back


EXAMINATION GROUPING SYSTEM
Logout
Exit
ADD HALL
Logout
Exit
HALL NO
2.4
HALL LOCATION
ICT
NO OF SEATS
50
Clear
Back
Save

APPENDIX B

PROGRAM SOURCE CODE

```
Option Explicit

Dim db As Database
Dim rs As Recordset

Dim dw As Database
Dim rw As Recordset

Dim i As Integer
Dim j As Integer

Dim str As String
Dim confirm As String

Dim Today As Variant
Dim TodaysDate As Variant
Dim Day As Variant
Dim month As Variant
Dim year As Variant
Dim number As Variant
Sub clear()
For i = 0 To 10
regDisease(i).Text = ""
Next i
End Sub
Private Sub cmdExit_Click()
confirm = MsgBox("Do You want to Exit", vbYesNo + vbCritical, "Confirmation")
If confirm = vbYes Then
End
Else
Load frmAddDiagnosis
frmAddDiagnosis.Show
End If
End Sub
Private Sub cmdHome_Click()
Unload Me
frmMainMenu.Enabled = True
Load frmMainMenu
frmMainMenu.Show
End Sub
Private Sub cmdLogout_Click()
confirm = MsgBox("Do You want to Logout", vbYesNo + vbCritical, "Confirmation")
If confirm = vbYes Then
Unload Me
frmMenu.Enabled = True
Load frmMenu
frmMenu.Show
Else
Load frmAddDiagnosis
frmAddDiagnosis.Show
End If
End Sub
Private Sub cmdRefresh_Click()
clear
End Sub
```

```
Private Sub cmdSave_Click()

   For i = 0 To 2
      If Trim(regDisease(i).Text) = "" Then
         MsgBox "Empty Field Found!", vbExclamation, "Save"
         Me.Show
         regDisease(i).SetFocus
         Exit Sub
      End If
   Next i

      Set db = OpenDatabase(App.Path + "\MDS.mdb")
      Set rs = db.OpenRecordset("ADD_DIAGNOSIS")

   With rs
      .Index = "NAME OF DISEASE"
      If .BOF Then
         .AddNew
            For i = 0 To 2
               rs.Fields(i) = Trim(regDisease(i).Text)
            Next i
         .Update
      Else
         .MoveFirst
         .Seek "=", (Trim(regDisease(0).Text))
         If .NoMatch Then
            .AddNew
               For i = 0 To 2
                  rs.Fields(i) = Trim(regDisease(i).Text)
               Next i
            .Update
         Else
         MsgBox "DISEASE RECORD HAS ALREADY BEEN REGISTERED!", vbInformation, "Save"
               Me.Show
               Exit Sub
            End If
         End If
         MsgBox "DISEASE DATA ADDED SUCCESSFULLY!", vbInformation, "Saved"
         .Close
End With
db.Close
Call clear
End Sub

Private Sub Form_Unload(Cancel As Integer)
Unload Me
frmMainMenu.Enabled = True
Load frmMainMenu
frmMainMenu.Show
End Sub

Private Sub cmdAddDiagnosis_Click()
Me.Enabled = False
Load frmAddDiagnosis
frmAddDiagnosis.Show
End Sub

Private Sub cmdAddPatient_Click()
Me.Enabled = False
Load frmAddPatient
frmAddPatient.Show
```

```
End Sub

Private Sub cmdDiagonizePatient_Click()

Dim strPatientID As String
strPatientID = UCase$(Trim(InputBox("ENTER PATIENT ID NO BELOW:", "Search")))
If strPatientID = "" Then
Exit Sub
End If


      Set db = OpenDatabase(App.Path + "\MDS.mdb")
      Set rs = db.OpenRecordset("PATIENT_DATA")

      If rs.BOF Then
         MsgBox "NO RECORD FOUND IN DATABASE TABLE!", vbExclamation, "Empty Table"
         Me.Show
         Exit Sub
      End If
With rs
      .Index = "PATIENT ID"
      .MoveFirst
      .Seek "=", (Trim(strPatientID))
      If .NoMatch Then
         MsgBox "Patient Record Not Found in Database!", vbExclamation, "Failed"
         Me.Show
         Exit Sub
      End If

         Me.Enabled = False
         Load frmPatientDiagnosize
         frmPatientDiagnosize.Show
         frmPatientDiagnosize.lblPatientName.Caption = rs.Fields(1)
         frmPatientDiagnosize.lblPatientID.Caption = rs.Fields(0)
         frmPatientDiagnosize.lblPatientAge.Caption = rs.Fields(2)

      .Close
   End With
db.Close
End Sub

Private Sub cmdExit_Click()
confirm = MsgBox("Do You want to Exit", vbYesNo + vbCritical, "Confirmation")
If confirm = vbYes Then
End
Else
Load frmMainMenu
frmMainMenu.Show
End If
End Sub
Private Sub cmdLogout_Click()
confirm = MsgBox("Do You want to Logout", vbYesNo + vbCritical, "Confirmation")
If confirm = vbYes Then
Unload Me
frmMenu.Enabled = True
Load frmMenu
frmMenu.Show
Else
Load frmMainMenu
frmMainMenu.Show
End If
```