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Online Project Allocation System

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ABSTRACT

The purpose of this study was to examine the ways final year project topics are allocated to the students, and based on the findings, to develop an online project allocation system that will improve the process of allocating topics to students. The method used for the study is case study which is Department of Computer Science, Federal Polytechnic, Oko. The findings show that problems associated with project allocation includes more than one student working on the same topic in a session, and repeat of the same topic over different sessions. To prevent such occurrence, an online project allocation system was designed using Hypertext Markup Language (HTML), Cascading Style Sheet (CSS), and JavaScript at the front end with PHP and MySQL at the back end. It was implemented online and it ran effectively on Chrome, Google, and Internet Explorer search engines. It eliminated the problem of more than one student working on the same topic and a repeat of the same topic over the years. It also solved the problem of the project coordinator always being present for students to select topic and get it registered as everything is done online and students can make selection from anywhere and at any time. Also, there are many project topics from which a student can make selection from.
Keywords: Allocation, online, project, selection, system.

INTRODUCTION

At final year, every student is expected to engage in a project work. Project can be considered as a problem based learning (PBL) where students need to apply and integrate their knowledge and skills to solve an academic task [1]. [2] are of the opinion that final year project is a way of increasing the students maturity and preparing the student for future career. They see the final year project as having the following targets: synthesis of knowledge, demonstration of the aptitude of applying their own knowledge to solve a specific problem, and preparation for joining the working world. The purpose of final year project therefore include exposing the students to further knowledge, helping them have self-confidence on their subject area and enabling them get prepared to face real life realities. Research work will also enable the students to acquaint themselves with tools used in research with the formal knowledge of the procedures and processes that are involved in scientific research. Students will learn how to collect, organize, analyze, interpret, present data in forms that can be understood easily and carryout appropriate documentation. When research is well presented and documented, it can guide other researchers to make further investigation on the topic of study.

Computer science is a course that is applied to all disciplines. Computers can solve problems in science, engineering, healthcare and so many other areas. A computer scientist has the duty of figuring out how to design software that will solve a problem in the society [3]. Association for Computing Machinery (ACM) enumerated importance of computing to include solving complex challenging problems, creating opportunities for true creativity and innovativeness and having space for collaborative work and individual effort [4]. A final year student is a person getting prepared to become a computer scientist. Final year project in computer science helps to bridge the gap between theory-based learning and skills-based learning by synthesizing the knowledge acquired during the years and enabling the student to apply the knowledge. The student can be able to analyze the project at every stage of documentation, improve on the work and use relearn approach to further refine his work. Project work in computer science follows scientific method. The scientific method is an empirical method for acquiring knowledge that involve observation, making hypotheses, testing of hypotheses, experimentation and making

deduction based on result from the experiment. It is an iterative, cyclical process through which information is continually revised [5].

Purpose of study

The purpose of the study was to examine the ways students' project topics were allocated to the students, and based on the findings to develop an online project allocation system that will improve the process of allocating project topics to students.

Method

The method used for the study is case study which is Department of Computer Science, Federal Polytechnic, Oko. The department was established in 1991 with the admission of 51 students into National Diploma (ND) programme. In 1993, the students embarked on the first project writing exercise in the department. The process of selecting a topic involved each pair of student getting three topics of their choice and presenting it to their supervisor for approval. The supervisor will approve one topic from the three topics. Once a topic is approved, the student will commence writing the project. At the end of the second semester, the student will defend the project they wrote. In 1994, the first set of students was admitted into Higher National Diploma (HND) programme. In 1996, the HND students embarked on project writing. The process of getting research topic is the same, the only difference is that the HND students carryout their research individually whereas ND students are in pairs. Each final student will get three topics and submit to the supervisor for approval of one of the topics. Once the topic is approved, the student will start his project work, and at the end of the second semester, the student will defend it. This has been the procedure over the years.

Findings

a. More than one student working on the same topic

The present system at times leads to approval of the same topic by different supervisors. This is because the era of the Internet has made it possible for students to source for topics from the Internet. There are websites which are devoted to assembling project topics from different fields. They have assorted project topics from which students can make a selection from. More than one student can select the same topic and submit to different supervisors for approval. It is on the day of defense that such incidents are noticed.

Having the same topic is not only the issue, but at the day of defense, it is most often discovered that the students that have the same topic have almost the same contents in their project work. This is possible because the students interact among themselves. Student A for instance, will present his work to his supervisor who will read his work and make corrections. After the supervisor of student A has finished making corrections, student A will give his work to student B who will present it to his own supervisor as a new work. When student B supervisor finished, both student A and student B will affect the necessary corrections and present same on the day of defense. So there is collaboration among the students involved without the knowledge of the supervisors.

b. Repeat of the same topic over the years

Because students are encouraged to consult the library for previous projects on a topic they are interested in, to be able to come with appropriate topics, most often, they repeat topics from old projects. Not only that they repeat topics, they copy works done by previous students and present them as their own work.

DISCUSSION

A). A student writing exactly the same thing on the same topic is not appropriate for the following reasons:

i. It will not facilitate student's exposure to diverse knowledge acquisition.

One of the benefits of students engaging in final year project is that students will be exposed to various forms of knowledge, for example, a student will be exposed to how to consult previous works on the project topic that he is researching upon. With such consultation, the student will know the ideas of those who have worked on similar project, where they stopped, the achievements they made and the challenges they faced. With such knowledge, they will know how to start and the direction they will focus on the research. A student will also be exposed to conceptual framework and existing theories on the topic he is researching upon. Such knowledge will assist and guide the student on how to comprehend the subject. A student who did not undertake such research can never be exposed to such knowledge.

ii. Students cannot be exposed to practical that are obtainable in the industrial sector.

The industrial sector produces items that are used by the society to solve specific problems. Most computer based project topics are centered on industries. When students visit the industries, they are exposed to many practical that are outside the school laboratory. This will help the student to understand real life situations and know how to face such challenges. A student who did not partake in such project will lack such practical knowledge.

iii. Students cannot be involved in creative ideas as they simply copy what another person has written.

Writing a project enables a student to be creative. He will write the introduction, the literature review from the various materials that he collected, carry-out system analysis, develop the system design, state how to implement

his work, and write the summary, conclusion and recommendation. These processes involve thinking. By the time a student partake in all the activities involved in the project writing, he will be creative. But, a student who never got involved in these processes will find it difficult to be involved in creative writing outside the school except if the student undertakes further training on writing. The final year project is the first instance that introduces a student to writing, at the national diploma level.

B). Need for new projects in the dynamic computer science field

Computer science is a dynamic and rapidly growing area that has become an integral part of the world with new technologies emerging on daily basis. Therefore, not only should students be abreast of the changing technologies, they should be involved in the technological changes. They can achieve this by participating in carrying out projects that are topical, current and aims at solving societal problems in their final year in the polytechnic. The Department of Computer Science should aid in this development by identifying the current societal needs and listing out the project topics that will help to solve the societal problems. When the topics are listed out, students can make selection from the topics that were presented by the department.

The advantages of this process are:

i. The topics are current and tailored to solving problems in the society.
ii. Students will have multiple topics to select from, and
iii. Old topics which the department feels have not been explored enough with adequate literature can be included.

C. Need for online based project allocation system

When the Department of Computer Science lists out the project topics that are current and relevant, in which the students can make selection from, the process of making the selection becomes an issue. It will require that the project coordinator will be physically present to register the topic selected by a student to avoid more than one student writing on the same topic. Most often, students are engaged in lectures and practical activities within the week. The project coordinator is also involved in lecture activities within the week. These lecture engagements make it difficult for the project coordinator and the students to have ample time for project selection and registration.

The best alternative therefore is to have an online project allocation system where a student can select a topic from the list of available topics from any location and at any time. This will solve the problem of the project coordinator and students not being able to see physically.

5. Online project allocation system

The online project allocation system is a new system that was designed to solve problems associated with the manual process of project allocation. Online simply means connected and usable [6]. With the introduction of the Internet, activities that are performed via the Internet are also online because the client – server connection is established before online project allocation system can be used.

The new online project allocation system has four modules; these are the administrator module, the lecturer module, the student module and the project topic module.

Administrator module

The administrator is the project coordinator. The administrator shall add lecturers and students, and create username and password for the lecturers and students. The administrator will also add project topics.

The diagrammatic view of administrator module is as shown below:

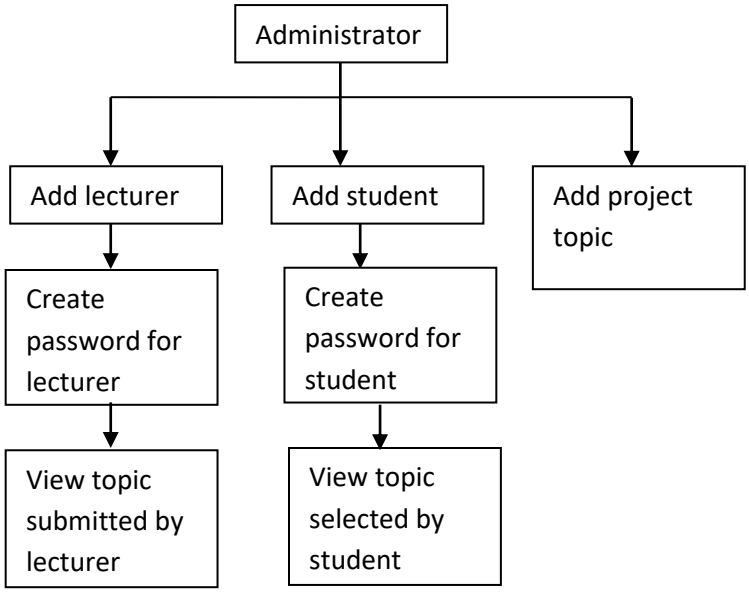

Fig. 1: Administrator module

Lecturer module

The lecturer will submit project copies to the system. The lecturer will also view the project topic and those selecting by students.

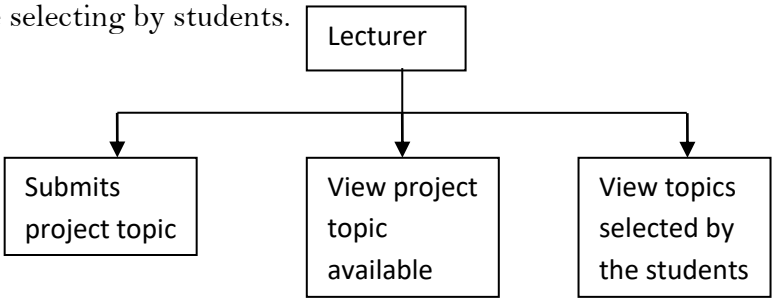

Fig. 2 Lecturer module

Student module

The student will select project topic from the cost of available topic they will also view the available topics.

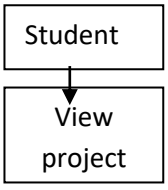

Fig.3 Student module

Data Flow Diagram of Online Project Allocation System

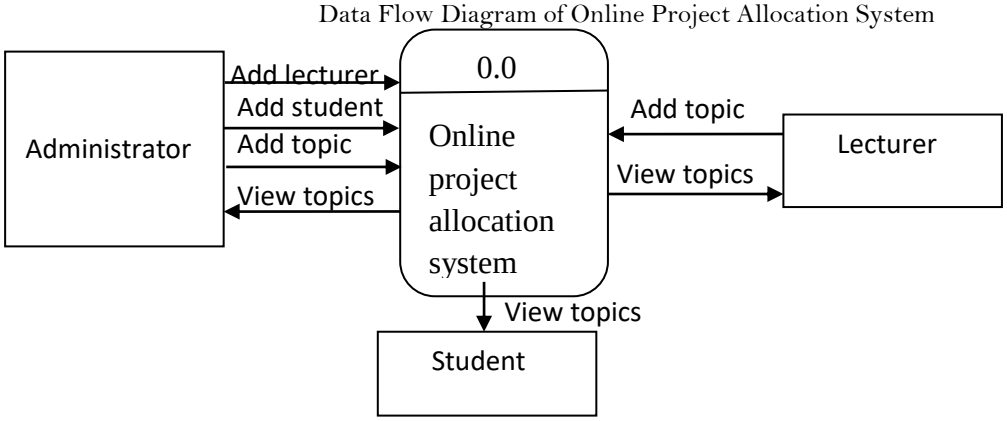

Fig. 4 Context level diagram of online project allocation system

Level 1 expanded data flow diagram of online project allocation system

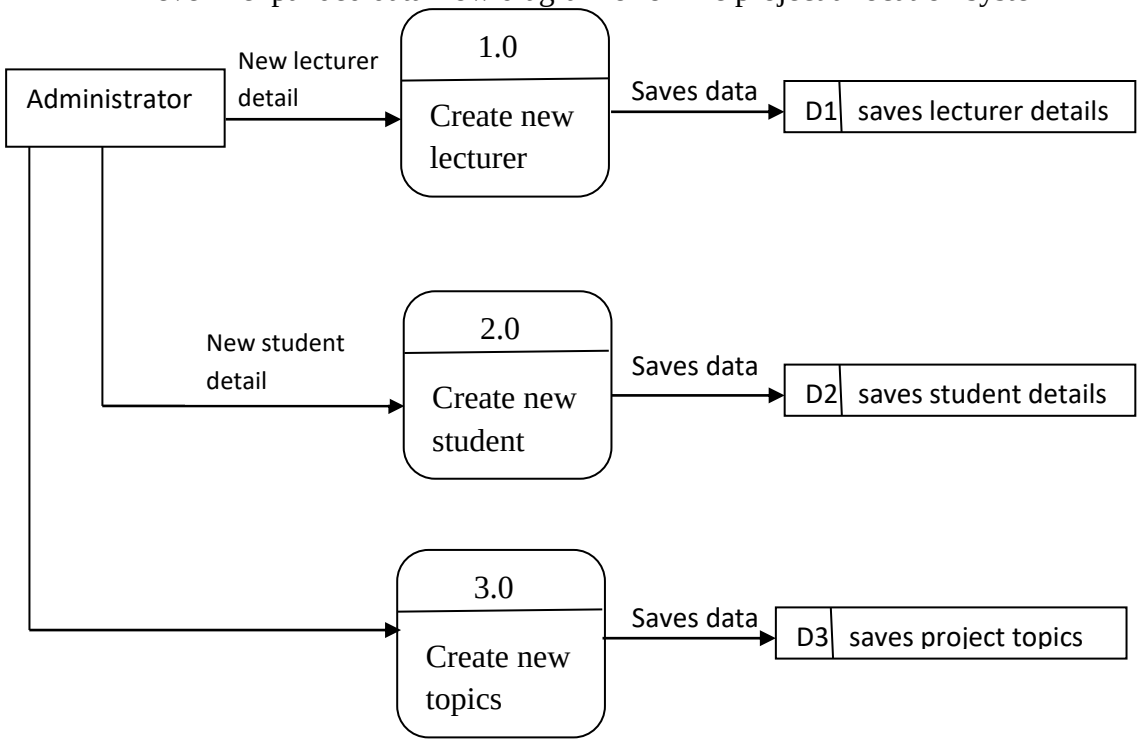

Fig. 5. Level 1 expanded data flow diagram of online project allocation system

Level 2 expanded data flow diagram of online project allocation system

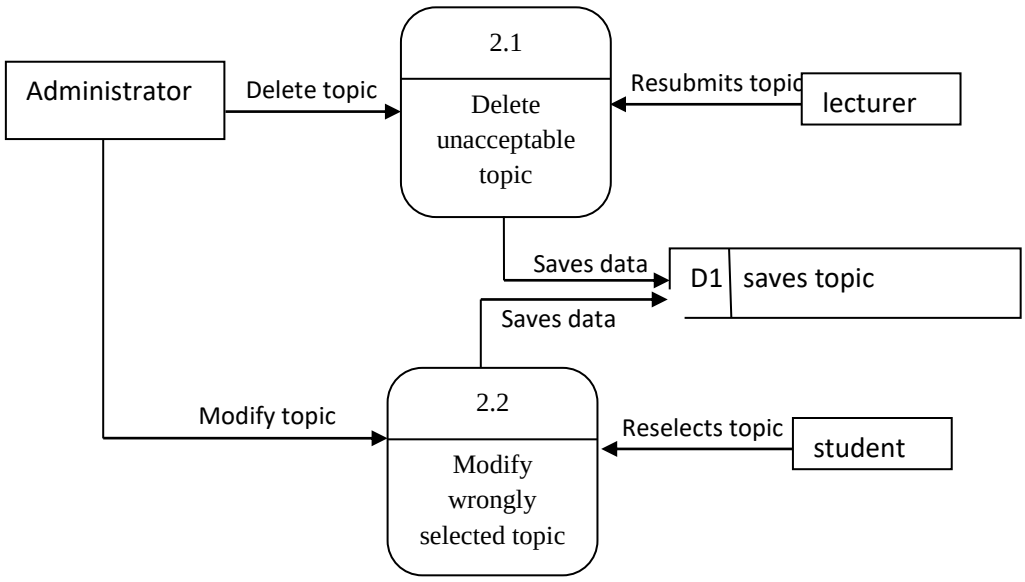

Fig. 6. Level 2 expanded data flow diagram of online project allocation system

System flowchart of the new system

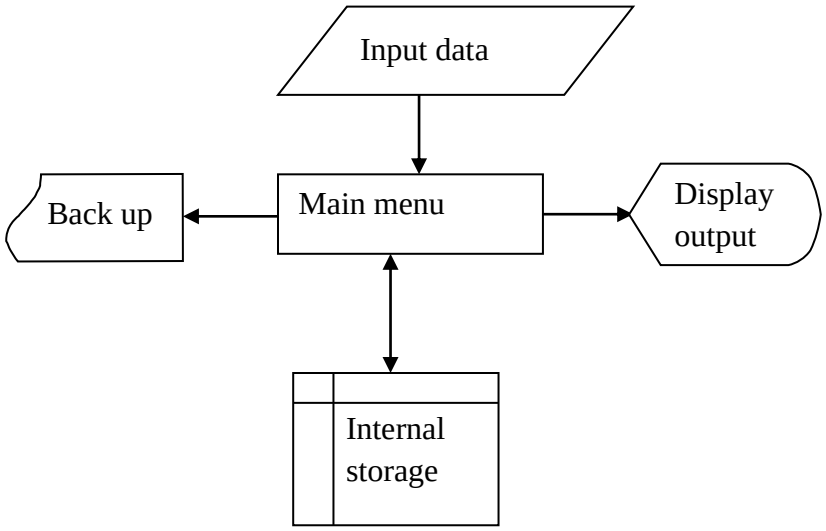

Fig. 7 System flowchart of the new system

Database Structure

Table 1: lecturer database structure

Field name	Field type	Size
Name	Character	30
Department	Character	30

Table 2: student database structure

Field name	Field type	Size
Name	Character	30
Department	Character	30
Level	Character	5
Supervisor	Character	30
Topic	Character	60

Output Format

Table3: Output format of project selection

Name	Department	Level	Supervisor	Topic
Xxxxxxxxxx	Xxxxxxxxxxx	Xxxxxxxxxxxx	Xxxxxxxxxxxx	Xxxxxxxxxxxx
xxxxxxxxx	Xxxxxxxxxxx	Xxxxxxxxxxxx	Xxxxxxxxxxxx	Xxxxxxxxxxxx

Input Format

Lecturer

Name	
Username	
Password	

Student

Name	
Reg. No.	
Level	
Username	
Password	

Project topic

Topic	
Supervisor	
Level	

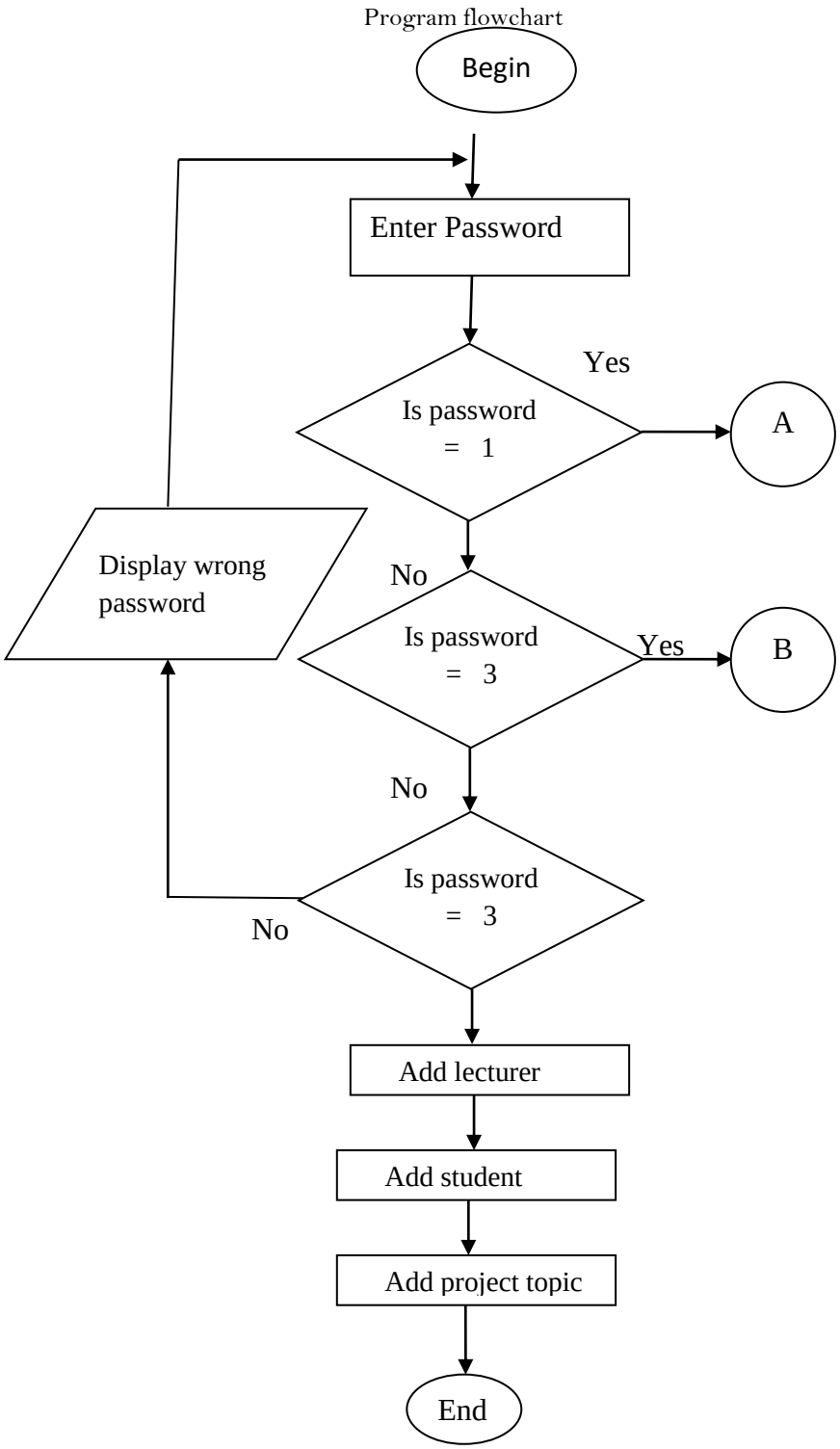

Fig. 6. Main Menu

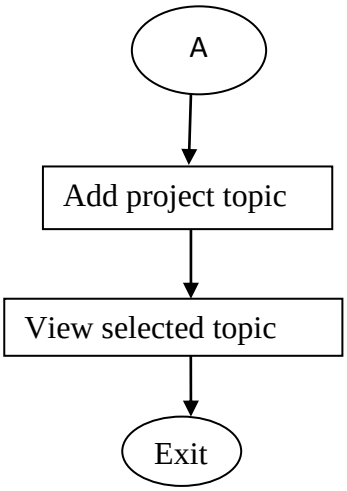

Fig. 7. Lecturer flowchart

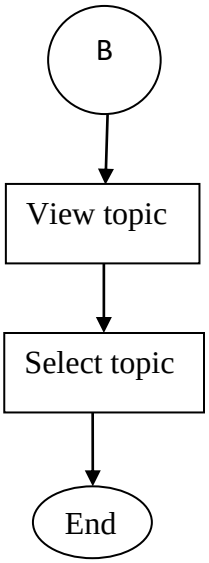

Fig. 8. Student program flowchart

Implementation

Implementation is a specific set of activities designed to put a program into practice [7]. The system was hosted and it ran effectively on Chrome, Google, Internet Explorer search engines. The output from the testing is added as annexure A.

CONCLUSION

Online project allocation system was designed to reduce the problem departments have during the process of allocating projects to students. It has the following achievements:

i. The problem of the project coordinator always being present for students to select topic and get it registered is eliminated. The project coordinator and students can use the time for other positive activities.
ii. There are many project topics from which a student can make selection from.

iii. The topics are identified by the department as being current, addressing areas of new discoveries and solving the problems of the society.
iv. Students can select any topic from anywhere at any time.

The online project allocation system is fast and has the removed the bottlenecks experienced during project allocation. It also exposes the students to current areas in computer discipline where they can focus their research.

RECOMMENDATION

The online project allocation system is recommended for departments which are experiencing problems during project allocation. Such problems include double allocation of project topics, repeat of the same project topic for so many years, etc.

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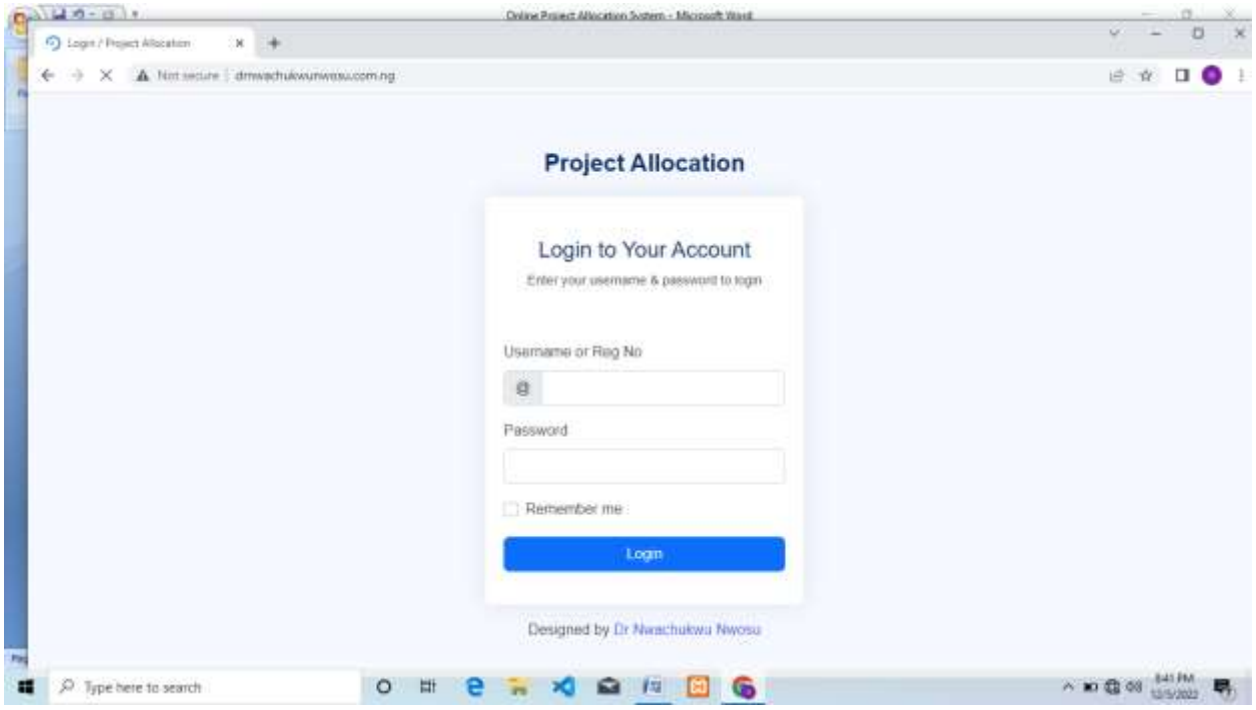
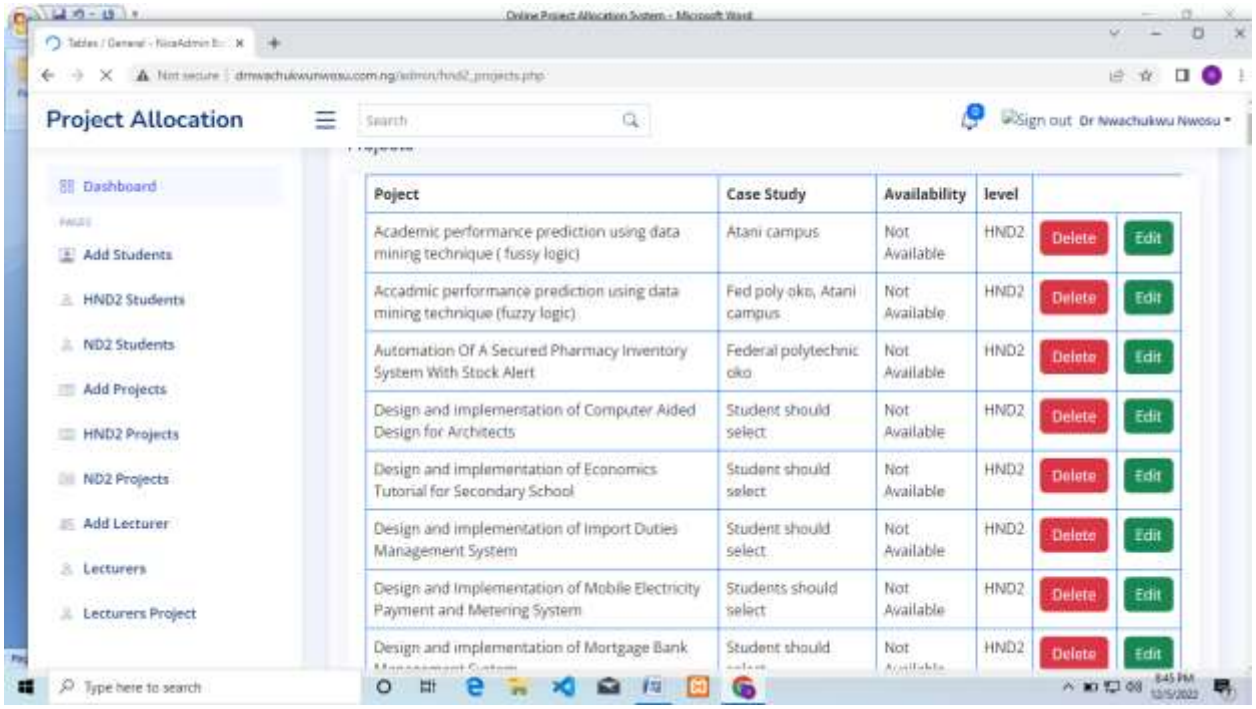
Annexure A



Annexure B



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