**WEB-BASED STUDENT-TO-SUPERVISOR ALLOCATION AND ASSESSMENT SYSTEM**

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**CHAPTER TWO**

**Literature Review**

**2.1 Introduction**

This chapter aims to explain how the topic under research relates to prior research, current practice, or other areas of knowledge by mentioning relevant works by other scholars that have dealt with a related issue. Furthermore, this chapter will present a synthesis of the current research on the issue, highlighting areas of agreement, disagreement, and gaps in the literature, to show the relevance of the project topic in the field and to recommend opportunities for future study.

**2.2 Literature Review**

Ojo et al. (2022). Design and implementation of student project management and allocation system.

The use of a manual system (pen and paper registering) in the administration and assignment of projects to students causes several issues such as duplication of approved topics, inappropriate recording of assigned project topics, and so on. These issues spurred the researcher's creation of a student project management and allocation system to address them.

Interviews were done to acquire more information to aid in the creation and design of the system. The proposed concept is a two-tier architecture with a backend and a front end. The development technologies employed in the development of this research include HTML, CSS, JavaScript, PHP, MySQL, and XAMPP server are the programming languages and tools used. This language was ideal for constructing internet applications due to its object-oriented capabilities and class buries.

This proposed web-based system handles the activities of the “student project management and allocation”, it handles the database and keeps track of all students or groups of students who have registered as finalists on the site, as well as those students who have been shortlisted and met the eligibility requirements provided by the lecturer/supervisor. The downside of the system is that finalists have to register on the site themselves which implies that anyone can register on the site and the allocation process is not automated.

Amadi et al. (2021). Design and Implementation of Students’ projects allocation system.

The use of a manual method (pen and paper register) in project administration and delivery to students presents several problems, such as project supervisors not knowing whether a given topic has previously been authorized for a student, inefficiency in entering, updating, and retrieving project records, difficulty obtaining softcopies of previous projects, duplication of authorized themes, improper documentation of allocated project topics and so on.

In the construction of this system, the researcher used the widely recognized software engineering paradigm - Model View Controller (MVC). This research technique involves the procedure for data gathering and analysis required to identify or address the topic for which the study is being conducted. The data acquired for this study project allowed the researcher to gain an understanding of how the present system operates and also aided in the design of the new system. Data was gathered using both primary and secondary sources which include interviews with students and faculty, observations, and document study. MySQL was utilized as the database, PHP was used for the backend development, and HTML, CSS, and, JavaScript were employed for the frontend development.

The research resulted in the development of a project allocation system that successfully allows Imo State Polytechnic Umuagwo final-year students to apply for projects online, which the supervisors will mark, and the system will allocate a project to the student based on the highest score awarded by the supervisor to the student's proposals. The adoption of a web-based technique has several advantages, including the ability to access information from anywhere and at any time of day and it will close the communication gap between students and their supervisors, resulting in improved service delivery. Due to the developmental technologies used, the system might lack scalability if there is a high influx of users.

Adamu A. (2020). Final Year Student Project Allocation Archiving and Management System.

The study described numerous ways for allocating, archiving, and managing projects, emphasizing that the approaches are time-consuming, stressful, inconvenient, and incur large costs for typing and printing documents that will be presented to the supervisor. Another important issue is student duplication of project subjects, which occurs when two supervisors accept the same topic for two or more students in the same department as well as the mishandling of writeup. As a result, a user-friendly, effective, efficient, and convenient solution is required to address the aforementioned challenges.

Data collection was made in form of a questionnaire which is a primary source of data collection. The system is built utilizing the PHP programming language, ASP.NET to provide the Graphical User Interface (GUI), and MySQL paired with XAMPP for the database. The system is intended to work with the Windows operating system.

A well-structured questionnaire was administered to assess the usability and convenience features of the manual method and the proposed system. According to usability findings, 89% of respondents believed that the designed system is easier to use than the old technique. The results of convenience evaluations indicated that 95% of respondents agreed that the created system provides a more convenient service to both students and supervisors than the old way.

The system's functionality demonstrates that it functions properly. The technology may be used to replace the manual approach of overseeing final-year students at any higher education institution. It will lessen the difficulties, energy, and time needed to monitor and manage the final-year student project. The study tackles the above-stated problem by establishing a final-year student project allocation, archiving, and management system in which the supervisor and student may engage in real-time checkmate for project approval and submission. The downside of the system is that it poses a security threat as users’ information is stored in its session as long as possible unless they manually log out.

Huda et al. (2020). E-Assessment in Higher Education: Student’s Perspective.

There are various traditional assessment methodologies used in higher education institutions to measure academic progress, such as paper-pencil tests, presentations, assignments, and many more. The study attempts to examine the benefits that students receive from e-assessment as well as the challenges that they face when institutions adopt e-assessment and move from conventional evaluation.

The data was gathered from both primary and secondary sources. The core data was gathered through a survey of 200 Bangladeshi undergraduate and postgraduate students drawn at random from Dhaka's institutions. The survey instrument was made up of 27 statements on a Likert scale that were created using information from the literature. Secondary data sources included journals, research papers, and websites.

This study explores the usefulness of e-assessment in higher education from the perspective of students, as well as the student’s attitude to this technique. The new assessment method helps both institutions and students. The report is based on the opinions of a small sample of university students picked at random, who had varied reactions to e-assessment. Although students recognize the value of e-assessment, they are concerned about technology-based exams since not all of them have the same degree of IT ability. More studies should be conducted to investigate additional issues of e-assessment in higher education.

Martin and Fanus (2018). E-Assessment in Higher Education: A Review.

Most universities that use conventional assessment in the form of high-stakes examinations encounter a variety of malpractices, such as professors accepting payments to leak questions or invigilators favouring certain students. Other issues confronting traditional assessments include the burden placed on lecturers in terms of marking, organizing, and recording student scripts, the costs associated with printing examination papers or assessments, security concerns, and, as student numbers in higher education institutions increase is also an issue.

The advancement of technology and e-learning systems has resulted in an increased demand for methods and means of assessing students in such a system. Assessment is an essential component of every higher education institution's teaching and learning process. The purpose of this research is to give a discussion on e-assessment that focuses on ideas such as e-assessment definitions, e-assessment delivery platforms, tasks that may be obtained through e-assessment, benefits and problems of e-assessment, and e-assessment principles.

It is concluded that e-assessment can be beneficial provided the assessment is credible and lecturers work together to develop authentic, consistent, transparent, and practicable assessments. E-assessment can also be used to assess higher-order assessment tasks.

Supianto and Khaerudin. (2020). Web-based project assessment.

This is a library research project that aims to explore the literature linked to research difficulties by selecting, reading, studying, and researching research relevant to the topic of this project. The researcher briefly defines web-based assessment and then maps the benefits of web-based evaluation.

Data was gathered from literature reviews on emotional evaluations and research on the use of social media in learning and assessment. Editing, categorization, and interpretation were used to analyse the data.

According to the findings of this study, web-based assessment refers to assessment models such as e-tests, e-assessments, computer-based tests, and internet-based tests. Web-based assessment is more flexible, reduces paper consumption, data collecting, and analysis quickly gives immediate feedback, simplifies instructor assignments, and encourages e-learning. However, there are other roadblocks, including the aesthetic style of the online interface, which may cause issues for consumers. Users lose too much time due to ineffective menu layout and bad navigation. It is also vital to guarantee that students can efficiently use the online learning system. In reality, web-based project appraisal can modify current assessment methodologies such as peer evaluation, self-evaluation, and group evaluation. These are alternate exams that educators might use to evaluate student efforts on the web.

Arumugam et al. (2021). Academic Project Information Management System.

Many universities now manage final year project data in an offline fashion, which includes spreadsheet entries for all groups, manual group formation and supervisor assignments, and retaining paper copies of the materials given by students. When there are more groups, there is a greater chance of errors occurring during the updating process.

The article describes how a web-based automated system would resolve all faults and mistakes while remaining operational offline. The goal of this research is to offer a system for managing groups, automatic guide allocation, document sharing, smoothing the process of communication between guides and students, keeping a log of all actions, and monitoring student project progress.

Hassan (2016). A preemptive goal programming for allocating students into academic departments of faculty.

A goal programming model is created to maximize the placement of students in a faculty's academic departments. The goal programming approach considers space capacity, budget allocation, the number of teachers, and affirmative action quotas as goal constraints that must be met. Each constraint has a priority level and a weight associated with it. This goal programming paradigm is then applied to the University Kebangsaan Malaysia's Faculty of Science and Technology.

The researchers were able to conduct an in-depth discussion on the deviation variables based on the supplied priorities and link the findings to the weights and priority levels allocated to these variables based on the results acquired. They check that the outcomes of the models comply with the criteria of meeting the highest priority goals in line with the corresponding weights of the five departments in the Faculty of Science and Technology by discussing these deviational variables.

As a result, they believed that the preemptive goal programming model can be utilized for policy-making in the process of allocating students to academic departments or faculties in the future. The weighted mean absolute percentage error is then used to compare the outcomes of the preemptive goal programming model to those of the existing allocation. The successful implementation indicates the goal programming model's capacity to meet the academic departments' student intake requirements and goal limitations.

**2.3 Summary of Related Literature Reviews**

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| **Author & Year** | **Title & Description** | **Merit and Demerits** |
| Ojo et al. (2022) | Design and implementation of student project management and allocation system.  This project aims to create a web-based system that handles the activities of "student Project Management and Allocation." | An ideal set of programming languages was used in implementing the system.  Final-year students have to register on the site themselves which implies that anyone can register on the site and the allocation process is not automated. |
| Amadi et al. (2021). | Design and Implementation of Students’ projects allocation system.  This study focuses on building and implementing a software system for allocating student projects (dissertations) | The system allocates a project to the student based on the highest score awarded by the supervisor to the student's proposals and duplication of the thesis was mitigated.  The system might lack scalability,  high influx of users (students) might make the site slow. |
| Adamu A., (2020). | Final Year Student Project Allocation Archiving and Management System.  This study tackles its stated problems by establishing a final-year student project allocation, archiving, and management system in which the supervisor and student may engage in real-time checkmate for project approval and submission. | Real-time project approval and submission.  Security threat as users’ information is stored in its session as long as possible unless they are manually logout. |
| Huda et al. (2020). | E-Assessment in Higher Education: Student’s Perspective.  This study investigates the use of e-assessment in higher education from the standpoint of students, as well as the students' attitudes toward this approach. | The study is based on the thoughts of a small sample of university students chosen at random, each of whom had a different reaction to e-assessment.  Some students acknowledge the need for e-assessment, but they are anxious about technology-based tests since not all of them have the same level of IT proficiency. |
| Martin and Fanus (2018) | E-Assessment in Higher Education: A Review.  The purpose of this research is to give a discussion on e-assessment that focuses on ideas such as tasks that may be obtained through e-assessment, benefits and problems of e-assessment, and e-assessment principles. | E-assessment can be beneficial provided the assessment is credible and lecturers work together to develop authentic, consistent, transparent, and practicable assessments. |
| Supianto and Khaerudin. (2020). | Web-based project assessment.  The goal of this research is to perform a review of the literature on project-based learning and assessment. | The research showed that web-based assessment is more flexible, reduces paper consumption, and data collecting, and encourages e-learning  Other hurdles revealed by the research include the visual style of the internet interface, which may pose problems for its users. |
| Arumugam et al. (2021) | Academic Project Information Management System.  This article describes an automated approach for managing final-year projects and also how a web-based automated system would resolve all faults and mistakes while remaining operational offline | As an automated system, it reduces the chances of errors that occur when records are been updated.  The implemented system is a local host platform, which is not ideal for any project unless under development. |
| Hassan (2016). | A preemptive goal programming for allocating students into academic departments of faculty.  The study focuses on creating a goal programming model to maximize the placement of students in a faculty's academic departments | A major strength of goal programming is its simplicity and ease of use  A debated weakness is the ability of goal programming to produce solutions that are not Pareto efficient |

**2.4 Analysis of the Current System**

In the current system which is the manual process of allocating students to supervisors, the project coordinator responsible for the allocation would typically follow a set of steps to ensure that the process is fair and efficient. First, the project coordinator would gather all of the necessary information about the students and the supervisors. For the supervisors, the information might include, their availability and workload. Next, the project coordinator would begin the process of allocating students with supervisors. The project coordinator implements the allocation manually using the Microsoft Excel application package. Once assigning students to supervisors is completed project coordinator would need to communicate the allocation decisions to the students and supervisors, and provide any necessary support or resources to help the students get started with their research projects. Assessment of student records is paper-based where students will make copies of the assessment sheet and present them to the assessor during the seminar and project defense, and the sheets have to be kept so that they can be recorded for all students. Overall, the current system of allocating students to supervisors and assessing student seminar and project defense is the manual method which can be time-consuming and complex, but it can also provide a more personalized and tailored approach to allocating students and supervisors.

**2.4.1 Problem Inherent in** **the Current System**

There are several problems inherent in the current system of allocating students to supervisors and assessing student defense the paper-based method:

1. **Inefficiency**: Manual allocation of students to supervisors and student assessment can be time-consuming and labour-intensive. It may also be prone to errors and omissions.
2. **Lack of fairness**: It can be difficult to ensure that the allocation process is fair and unbiased when it is done manually. There may be a risk of favouritism or discrimination.
3. **Limited transparency**: The manual process may lack transparency, making it difficult for students and supervisors to understand how decisions were made and why certain students were matched with certain supervisors.

**2.5 Analysis of the Proposed System**

Keeping in mind the aforementioned shortcoming, the suggested approach efficiently addresses the aforementioned issues. The proposed system is an automated web-based system, that automatically generates an unbiased student-to-supervisor allocation record. In the proposed system the students or supervisors don’t register on the site as accounts are automatically created with the dataset acquired from the department, the approach was taken to ensure that random people just don’t sign up and to reduce the delay of getting the student details. The project coordinator can easily interact with a form and students will be allocated to their respective supervisors; the system is flexible in the sense that allocation details can be modified. The module that takes care of the assessment of the student seminar and project defense ensures that student is allocated to various halls and the specific day of their defense is attached to the allocation details, as well as allocating assessor to their various halls. Each hall has a chief assessor which can only grade students in their specific hall, not forgetting UI/UX; the system took the user interface and experience as one of its most important criteria. With the proposed system student can log in to view their supervisors and supervisors can log in to view the student under their supervision.

**2.5.1 Advantages of the New Proposed System**

1. Efficient organization of student information and allocation records.
2. Information look-up is easy, fast, and efficient.
3. Substantially decreases the time in which critical information is passed on.

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