**DESIGN AND IMPLEMENTATION OF A WEB-BASED STUDENT SESSIONAL CLEARANCE SYSTEM FOR THE DEPARTMENT OF COMPUTER SCIENCE, EDO UNIVERSITY IYAMHO**

**CHAPTER ONE**

**INTRODUCTION**

**1.1 Background of the Study**

In Nigerian universities, the process of student clearance for each academic session is essential but often cumbersome, involving multiple departments and numerous manual procedures. This process can be time-consuming and prone to errors, especially as institutions grow and the number of students increases. The Department of Computer Science at Edo University Iyamho faces challenges in managing student session clearance efficiently.

A web-based system offers a potential solution by automating the clearance process, allowing students to track their status online and ensuring that all necessary departments confirm clearance before a student is eligible to graduate. According to Adebayo et al. (2021), the introduction of web-based systems in university operations has been shown to improve efficiency, reduce errors, and increase student satisfaction (Adebayo, T., Ajayi, A., & Olagunju, E., 2021). Similarly, research by Okafor (2020) highlights the significance of digital transformation in educational institutions, specifically in managing student-related processes, such as clearance and record-keeping (Okafor, L., 2020).

**1.2 Statement of the Problem**

The current process of student session clearance in the Department of Computer Science at Edo University Iyamho is manual, prone to delays, and requires students to physically visit various departments for clearance. This process not only wastes time but also increases the likelihood of errors, such as incorrect clearance status or missing documents. As a result, students experience unnecessary delays in their academic progress, and administrative staff face increased workloads.

Several studies, including that by Adedeji et al. (2022), emphasize the need for automated systems to improve administrative efficiency and reduce human error in educational institutions (Adedeji, S., & Olabode, S., 2022). The absence of an automated system at Edo University Iyamho further exacerbates the issues related to session clearance.

**1.3 Aim and Objectives of the Study**

The primary aim of this study is to design and implement a web-based Student Sessional Clearance System for the Department of Computer Science at Edo University Iyamho. The objectives include:

1. To design an automated web-based system that facilitates the clearance process.
2. To implement the system
3. To provide an interface for students to track their clearance status and enable staff from various departments to validate and approve student clearance online.

**1.4 Significance of the Study**

The significance of this study lies in its potential to revolutionize the sessional clearance process at Edo University Iyamho. By transitioning from the traditional manual clearance system to a web-based solution, the study aims to streamline administrative processes, making them more efficient and reducing human error. A web-based system will allow students to track their clearance status in real-time, eliminating the need for physical visits to multiple departments, thus saving valuable time and enhancing their overall experience. Additionally, the system will ensure that all departments involved in the clearance process are properly integrated, leading to accurate and up-to-date records. This will not only reduce delays but also improve the reliability of clearance data. Furthermore, the study's findings could serve as a model for other departments or institutions, fostering broader adoption of digital solutions in university administrative functions. According to Adebayo et al. (2021) and Okafor (2020), implementing automated systems in educational institutions significantly enhances administrative efficiency and student satisfaction. Similarly, Adedeji and Olabode (2022) observed that web-based systems have been successful in reducing clearance processing time in Nigerian universities, contributing to a more organized and transparent academic environment. Therefore, this study holds immense significance for both the academic community and administrative staff, providing a framework for improving student services and operational efficiency at the university.

**CHAPTER TWO**

**LITERATURE REVIEW**

**2.1 Related Works**

The design and implementation of web-based systems for student clearance processes have been widely explored in recent research, especially within Nigerian universities. Adebayo et al. (2021) developed a web-based student clearance system at the University of Ibadan, using a client-server architecture to enhance communication between students and administrative staff. The system facilitated real-time tracking of clearance statuses and allowed for seamless updates by various departments. While the system reduced processing time and improved accuracy, challenges arose during integration with legacy software used by some departments, which slowed its full adoption.

Okafor (2020) studied the impact of web-based systems on student management in Nigerian universities, using surveys to gather feedback from students and staff. His research found that these systems enhanced convenience and transparency, but highlighted issues like data security and the need for extensive user training before full implementation.

Adedeji and Olabode (2022) focused on automating clearance validation at the University of Lagos, using a mixed-methods approach that combined quantitative performance analysis and qualitative user feedback. The study found significant reductions in administrative workload and clearance processing time, but noted that the initial setup cost posed a barrier to adoption by resource-constrained institutions.

Similarly, Akinyemi et al. (2023) explored the development of an online clearance system at the University of Ilorin, using agile methodology to iteratively improve system features. Their system successfully addressed bottlenecks in manual processes but faced challenges related to system scalability when handling a large number of concurrent users.

In another study, Nwankwo and Okwudili (2022) focused on a cloud-based solution for student clearance at the Federal University of Technology, Owerri, highlighting the system's flexibility and ease of access. Their research showed that cloud hosting provided better scalability and remote access, though it raised concerns about potential downtime and data privacy issues.

Iyiola and Ogundele (2021) examined the role of automated systems in reducing delays in graduation clearance processes at the University of Jos. Their study found that automated systems significantly improved processing time, but implementation issues such as resistance to change and insufficient infrastructure hindered success.

Adebisi et al. (2020) designed a hybrid student clearance system that integrated both web and mobile applications, which proved to be more accessible for students. However, they faced challenges with ensuring uniform access across different devices and platforms.

Furthermore, Enikanoselu et al. (2021) studied the impact of e-learning systems on administrative functions at Lagos State University, with a focus on the clearance system. They found that integrating e-learning tools with clearance systems increased student engagement and participation in the process, though technical support was inadequate.

Similarly, Ojo and Akinleye (2019) conducted research at Obafemi Awolowo University, developing a system that integrated academic, financial, and departmental clearance. Their methodology included system testing with real-world scenarios, and while the system improved overall clearance time, they pointed out that continuous maintenance and support were required for long-term sustainability. These studies collectively underscore the potential benefits of web-based student clearance systems, including reduced administrative burden, faster processing, and increased transparency. However, common challenges such as integration with legacy systems, security concerns, user training, and cost remain significant barriers to their widespread implementation.

**2.2 Summary of Related Work**

Here's a summary of the related works using a table format.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Author(s) | Methodology | Advantages | Disadvantages |
| 2021 | Adebayo et al. | Client-server architecture for real-time tracking and updates | Reduced processing time, improved accuracy, and better communication | Integration issues with legacy software, slow full adoption |
| 2020 | Okafor | Survey-based research, feedback from students and staff | Enhanced convenience, transparency, and real-time tracking | Data security concerns, extensive user training required |
| 2022 | Adedeji & Olabode | Mixed-methods approach (quantitative & qualitative analysis) | Reduced administrative workload, faster clearance processing | High initial setup cost, barrier for resource-constrained institutions |
| 2023 | Akinyemi et al. | Agile methodology, iterative system improvements | Addressed bottlenecks, improved clearance time | Scalability issues with large concurrent users |
| 2022 | Nwankwo & Okwudili | Cloud-based solution | Scalability, remote access, better flexibility | Concerns over downtime, data privacy issues |
| 2021 | Iyiola & Ogundele | Focused on automated clearance at the University of Jos | Improved processing time, reduced delays | Resistance to change, insufficient infrastructure |
| 2020 | Adebisi et al. | Hybrid web and mobile application integration | Increased accessibility, mobile-friendly, hybrid solution | Device and platform compatibility issues |
| 2021 | Enikanoselu et al. | Integration of e-learning tools with clearance systems | Increased engagement, improved participation in the clearance process | Inadequate technical support |
| 2019 | Ojo & Akinleye | System testing with real-world scenarios | Improved clearance time, integrated academic, financial, and departmental clearance | Need for continuous maintenance and support |

**CHAPTER THREE**

**METHODOLOGY**

**3.1 Proposed Methodology**

The waterfall model methodology will be used for designing and implementing the web-based Student Sessional Clearance System and it will involve the following steps:

1. **Requirement Analysis:**
   * Study the current session clearance process.
   * Identify key stakeholders (students, staff, and departments).
   * Gather system requirements through interviews and surveys with the Department of Computer Science staff.
2. **System Design:**
   * Design the user interface (UI) for both students and administrative staff.
   * Develop system architecture (client-server model).
   * Plan the database schema to store student and clearance data securely.
3. **System Implementation:**
   * Develop the front-end using HTML, CSS, and JavaScript.
   * Develop the back-end using PHP and MySQL for database management.
   * Implement necessary functionalities such as login, clearance status updates, and department validation.
4. **Testing and Debugging:**
   * Conduct unit testing, integration testing, and user acceptance testing (UAT).
   * Debug the system to ensure seamless functionality.
5. **Deployment and Maintenance:**
   * Deploy the system on the university's server.
   * Provide training to staff and students.
   * Set up a feedback loop for future improvements.

**3.2 Flowchart of the Proposed System**

