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Research

Impact of Internet and its Influence on Students Reading Habit: A Study of Eastern Polytechnic, Port Harcourt

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Abstract: This study aimed to design and implement an effective Automated Clearance Scheduling System for Eastern Polytechnic, Port Harcourt, to enhance the efficiency, accuracy, and user satisfaction of the clearance process. Anchored on the Technology Acceptance Model (TAM) which emphasizes perceived usefulness and ease of use as determinants of system acceptance, the research utilized the Object-Oriented Analysis and Design (OOAD) methodology to develop a modular and user-friendly web-based platform. The system was developed using PHP, MySQL, HTML, CSS, and JavaScript, enabling students to schedule clearance appointments and track their status in real time, while allowing administrative staff to manage and monitor clearance activities efficiently. Major findings indicate that the automated system significantly reduced delays, minimized human errors, and improved communication between students and staff. It also enhanced data accuracy and transparency in clearance operations. The result of this research is a system that automates the course registration and examination result processing for the Department of Computer Science, which can be used in any department of most universities in Nigeria and beyond.The study concludes that automation of clearance processes is crucial for improving institutional administrative efficiency and user experience. It recommends that higher institutions adopt automated clearance systems, provide regular training for users, integrate clearance platforms with other institutional systems, maintain robust security protocols, and develop mobile-friendly versions to increase accessibility and scalability.

Keywords: Automated Clearance Scheduling System, Course Registration System, Software Development, Technology Acceptance Model, Object-Oriented Analysis and Design

BACKGROUND OF THE STUDY

The process of course registration is a fundamental and recurring activity in every tertiary institution, serving as the gateway through which students formally enroll in the

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academic courses they intend to pursue in a given semester or academic session. Traditionally, this process has been manual, involving physical forms, long queues, and extensive paperwork, which often result in delays, errors, and dissatisfaction among students and administrative staff alike (Adeoye & Popoola, 2011). The manual method is not only time-consuming but also prone to inaccuracies, such as duplicated entries, data loss, and difficulties in tracking student records. Such challenges have motivated educational institutions worldwide to explore and adopt automated systems that streamline the course registration process.

In recent years, the advent of information technology has revolutionized the way academic institutions manage their administrative functions, including course registration. The adoption of computerized systems enhances accuracy, efficiency, and convenience for both students and academic staff. Automated course registration systems allow students to select, add, drop, or change courses online, access course availability in real-time, and instantly receive registration confirmation. This shift towards digitalization aligns with the global trend of e-governance and e-learning, which aims to leverage technology to improve service delivery in education (Kumar & Bhatia, 2014).

Eastern Polytechnic Port Harcourt, like many other higher institutions in Nigeria, has relied heavily on traditional manual registration methods. This has often resulted in various logistical challenges, including overcrowded registration halls, prolonged waiting times, administrative bottlenecks, and increased chances of errors during the registration process (Obinna & Okeke, 2018). Furthermore, with the growing student population and the increasing complexity of academic programs, the inefficiencies inherent in manual registration become more pronounced, adversely affecting academic planning and student satisfaction. Therefore, there is an urgent need for a robust, reliable, and user-friendly course registration system tailored to the specific needs of Eastern Polytechnic.

The design and implementation of an automated course registration system offer multiple advantages. It not only expedites the registration process but also improves the accuracy and integrity of student academic records. Such systems can incorporate validation checks to prevent registration conflicts, such as course prerequisites and timetable clashes, thus enhancing the overall academic experience (Muhammad et al., 2020). Moreover, it provides the management with timely access to enrollment data for effective decision-making and resource allocation. By integrating various modules such as student profiles, course catalogs, and academic calendars, the system ensures seamless

communication between students, lecturers, and administrative staff.

Despite the recognized benefits of automated course registration systems, many Nigerian polytechnics and universities still face challenges in adopting and implementing these technologies. These challenges include inadequate infrastructure, limited funding, resistance to change from staff and students, and insufficient technical expertise (Nwafor & Eze, 2016). At Eastern Polytechnic Port Harcourt, these factors have contributed to the continued reliance on manual processes, underscoring the necessity for a carefully designed and context-specific solution that addresses local realities while leveraging modern technologies.

In light of the above, this study aims to design and implement a course registration system for Eastern Polytechnic Port Harcourt that is efficient, reliable, and user-friendly. The system will automate key aspects of the registration process, reducing the administrative workload, minimizing errors, and improving the overall satisfaction of stakeholders. By doing so, the study will contribute to the growing body of knowledge on information systems in educational administration and provide a practical tool to enhance academic management within the institution.

LITERATURE REVIEW

The literature review provides an in-depth examination of existing knowledge, theories, and empirical studies related to the design and implementation of course registration systems, with particular emphasis on automated solutions in educational institutions. This chapter aims to establish a comprehensive conceptual framework that supports the study by exploring the nature, features, and benefits of course registration systems. It also reviews relevant technologies, challenges in implementation, and the impact of automation on academic administration. By critically assessing previous works, the study identifies gaps and opportunities that the current project intends to address. The review is divided into conceptual and empirical sections to provide both theoretical and practical perspectives necessary for the successful design and deployment of an automated course registration system at Eastern Polytechnic Port Harcourt.

CONCEPTUAL REVIEW

COURSE REGISTRATION SYSTEM

Course registration systems are specialized software platforms designed to manage the process by which students enroll in courses within an academic institution. These systems form a critical component of the academic administration infrastructure, serving as

the interface between students, academic departments, and administrative staff (Sahu & Behera, 2019). Fundamentally, the course registration system automates the collection, verification, and processing of student course selections, thereby replacing cumbersome manual processes traditionally reliant on physical forms and face-to-face interactions (Kumar & Bhatia, 2014). A well-designed course registration system typically provides functionalities such as user authentication, course catalog browsing, real-time seat availability checks, prerequisite

enforcement, conflict resolution for scheduling, and confirmation of enrollment (Muhammad et al., 2020). These features not only streamline the registration workflow but also reduce errors like overbooking or registration for courses without meeting prerequisites, which are common in manual systems. The automation enables students to register remotely through web-based portals or mobile applications, thus increasing convenience and accessibility (Sharma & Bhardwaj, 2018).

The core purpose of a course registration system is to ensure a seamless, transparent, and efficient registration process that supports institutional goals for academic planning and resource management. For institutions with growing student populations, like many Nigerian polytechnics, the implementation of such systems is essential to handle the volume of registrations efficiently (Obinna & Okeke, 2018). Moreover, automated systems provide academic staff with tools to monitor enrollment patterns, manage course capacities, and generate reports for decision-making purposes, thereby facilitating better academic governance (Nwafor & Eze, 2016).

In terms of architecture, most modern course registration systems employ client-server or cloud-based models that allow centralized management of data and easy scalability (Sahu & Behera, 2019). Security is a key concern, as these systems handle sensitive student data, requiring robust authentication mechanisms and data encryption to protect privacy and maintain data integrity (Muhammad et al., 2020). Integration with other institutional systems such as student information systems, billing, and learning management systems further enhances the utility and effectiveness of course registration platforms.

A course registration system is not merely a convenience tool but a strategic asset that enhances academic operational efficiency, improves user experience, and supports institutional planning and accountability. The transition from manual to automated systems is critical in contemporary education management, particularly in developing countries where

infrastructural challenges often complicate administrative processes (Adeoye & Popoola, 2011). The design and implementation of such a system must therefore consider local context, technical feasibility, and user requirements to deliver sustainable benefits.

SYSTEM DESIGN AND IMPLEMENTATION

System design and implementation form the backbone of any successful software development project, particularly in the context of developing a course registration system. System design refers to the detailed planning and structuring of a software solution to meet the specified requirements, translating abstract needs into a concrete architecture that can be constructed and deployed effectively (Pressman, 2014). This phase involves decisions on the system's components, modules, interfaces, data structures, and workflows to ensure functionality, scalability, reliability, and maintainability.

The implementation phase follows design and involves actual coding, testing, and deployment of the system. Here, the choice of programming languages, frameworks, and development tools significantly impacts the system's performance and user experience. For example, web-based course registration systems often utilize languages like PHP, JavaScript, or Python for frontend and backend development, coupled with database management systems such as MySQL or

PostgreSQL to handle the large volumes of student and course data (Muhammad et al., 2020). Implementation also encompasses integration with existing institutional information systems to enable seamless data exchange and synchronization.Crucial to implementation is rigorous testing, including unit testing, integration testing, and user acceptance testing (UAT), to identify and fix bugs before the system goes live. User involvement during testing helps ensure the system aligns with actual operational needs and usability standards (Pressman, 2014). Post-implementation, continuous monitoring and maintenance are vital to address emerging issues, optimize system performance, and incorporate feedback from users.

In educational institutions, the implementation of course registration systems can face challenges such as limited technical expertise, infrastructural constraints, and resistance to change among staff and students (Nwafor & Eze, 2016). Addressing these requires comprehensive training, stakeholder engagement, and phased rollout strategies to build trust and ensure smooth adoption. Ultimately, a well-designed and implemented course registration system improves registration efficiency, reduces administrative workload, and enhances the overall academic experience.

SOFTWARE DEVELOPMENT LIFE CYCLE (SDLC)

The Software Development Life Cycle (SDLC) is a structured process framework that guides software development from inception to deployment and maintenance. It provides systematic steps to ensure software quality, project management, and alignment with user requirements (Sommerville, 2016). SDLC is indispensable in the development of course registration systems as it mitigates risks, controls project costs, and enhances collaboration among developers, stakeholders, and end-users.The SDLC typically consists of several phases: requirement analysis, system design, implementation (coding), testing, deployment, and maintenance. During requirement analysis,the needs and expectations of the users , in this case, students, academic staff, and administrators , are gathered and documented. This step is critical for defining the functional and non-functional requirements that will shape the system's features and constraints (Pressman, 2014).Following requirement analysis is system design, where architects create detailed blueprints including data flow diagrams, entity-relationship diagrams, and user interface mockups. The design must account for usability, security, and scalability considerations to meet the dynamic demands of educational institutions (Bass et al., 2012). Implementation involves translating these designs into executable code using appropriate programming languages and technologies. Testing is a cornerstone of SDLC, encompassing multiple levels to verify that the system performs as intended under various scenarios.

Several SDLC models exist, including Waterfall, Agile, Spiral, and Incremental models. The Waterfall model follows a linear, sequential approach suitable for projects with well-defined requirements. Agile, by contrast, emphasizes iterative development and continuous stakeholder collaboration, allowing flexibility and faster response to changes (Highsmith, 2009). For course registration systems, Agile methods are increasingly preferred due to the dynamic nature of academic environments and the need for iterative improvements.

The SDLC provides a disciplined framework that enhances the likelihood of delivering a high- quality, user-centered course registration system. By adhering to SDLC principles, developers can systematically manage complexities, reduce errors, and foster successful project outcomes aligned with institutional goals.

DATABASE MANAGEMENT SYSTEMS

Database Management Systems (DBMS) are integral to the design and operation of modern course registration systems. A DBMS is software that enables the creation,

organization, storage, retrieval, and management of data in databases, providing a systematic and efficient way to handle large volumes of information (Elmasri & Navathe, 2015). In the context of course registration, the DBMS manages student records, course catalogs, registration statuses, and transactional data, ensuring data consistency, integrity, and security throughout the registration lifecycle.

The choice of an appropriate DBMS impacts the system's performance, scalability, and reliability. Relational Database Management Systems (RDBMS) such as MySQL, PostgreSQL, and Oracle are widely used due to their robustness, support for Structured Query Language (SQL), and ability to model complex relationships through tables, keys, and constraints (Coronel & Morris, 2016). These features allow efficient handling of data like student enrollment in multiple courses, prerequisite tracking, and schedule conflicts, which require precise relational mappings.

In addition to relational databases, some course registration systems increasingly leverage NoSQL databases like MongoDB for flexibility and scalability, particularly when handling unstructured or semi-structured data, such as logs, usage statistics, or integration with other web services (Sadalage & Fowler, 2012). However, the transactional consistency and integrity requirements in academic registration generally favor relational models.

Critical functionalities provided by DBMS include concurrency control, which ensures multiple users can register for courses simultaneously without conflicts or data corruption, and backup and recovery mechanisms that protect against data loss due to hardware failures or human errors (Elmasri & Navathe, 2015). Security features, such as access control, authentication, and encryption, safeguard sensitive student information from unauthorized access or breaches, a significant concern given the privacy implications in educational data management (Mohammed & Hossain, 2020).

Moreover, DBMS facilitates reporting and analytics by supporting complex queries and generating enrollment statistics, which aid academic planning and resource allocation (Kumar & Bhatia, 2014). With proper database normalization, redundancy is minimized, and data anomalies are reduced, improving the efficiency of data retrieval and updates (Coronel & Morris, 2016).

The integration of DBMS with other components of the course registration system ensures seamless data flow between the user interface, business logic, and storage layers. Therefore, database design, which includes schema definition, indexing strategies, and optimization, is a critical stage in system development (Sahu & Behera, 2019). Overall, a

robust DBMS architecture is indispensable for building reliable, scalable, and secure course registration platforms that can support the dynamic needs of educational institutions.

USER INTERFACE DESIGN

User Interface (UI) design is a vital aspect of the course registration system, focusing on the interaction between users , primarily students and administrative staff , and the software application. The UI acts as the gateway through which users input data, navigate system functions, and receive feedback, making its design crucial for usability, accessibility, and user satisfaction (Shneiderman, Plaisant, Cohen, Jacobs, & Elmqvist, 2016).

A well-designed UI simplifies the complexity of the registration process by presenting intuitive layouts, clear navigation paths, and user-friendly controls such as dropdowns, calendars, and search filters. This reduces cognitive load and minimizes errors during course selection, leading to a more efficient registration experience (Nielsen, 2012). Accessibility considerations, including support for users with disabilities through screen readers, keyboard navigation, and contrast settings, ensure inclusivity and compliance with legal standards like the Web Content Accessibility Guidelines (WCAG) (Caldwell et al., 2008).

The choice between graphical user interfaces (GUI) for web or mobile platforms and command-line interfaces depends on user needs and institutional resources. Given the widespread availability of smartphones, responsive web design that adapts to different screen sizes has become essential in course registration systems to allow students to register conveniently anytime and anywhere (Budiu & Nielsen, 2012). This flexibility enhances user engagement and reduces bottlenecks typically experienced in manual or desktop-only systems. UI design processes often follow user-centered design (UCD) principles, which involve continuous user feedback and iterative testing to refine interfaces based on real user interactions (Norman, 2013). Prototyping tools and wireframes enable designers and developers to visualize workflows and identify usability issues early in the development cycle (Tidwell, 2010). Incorporating features such as real-time validation alerts, confirmation messages, and progress indicators further improves interaction quality by guiding users and reducing frustration (Shneiderman et al., 2016).

Additionally, UI design must align with institutional branding and visual identity, which contributes to user trust and system acceptance (Marcus, 2002). Performance optimization is also critical; slow or unresponsive interfaces can deter users and create

administrative challenges during peak registration periods (Nielsen, 2012).

The user interface is the focal point of user engagement in course registration systems. Effective UI design not only enhances usability and accessibility but also drives adoption, satisfaction, and operational efficiency, ultimately supporting the institution's educational mission.

THEORETICAL FRAMEWORK

TECHNOLOGY ACCEPTANCE MODEL (TAM)

The Technology Acceptance Model (TAM), proposed by Davis in 1986, is one of the most influential theories used to understand user acceptance of information systems. The core premise of TAM is that the acceptance and actual usage of a technological system are primarily determined by two critical factors: *perceived usefulness (PU)* and *perceived ease of use (PEOU)*. Perceived usefulness refers to the degree to which a person believes that using a particular system would enhance their job performance, while perceived ease of use denotes the degree to which an individual believes that using the system would be free of effort (Davis, 1989). These two constructs influence the user's attitude toward using the system, which in turn affects their behavioral intention to use and ultimately leads to actual system usage.

In the context of course registration systems, TAM provides a suitable framework to understand how students and administrative staff decide to accept and use the automated system. If students perceive that the system simplifies the registration process and makes it more efficient compared to manual methods, they are more likely to adopt it. Similarly, when the system is user-friendly and intuitive, users are less likely to resist its implementation. This model also helps explain the various factors that might influence technology adoption in academic settings, including system design, user training, and institutional support (Venkatesh & Davis, 2000). Therefore, TAM is appropriate for anchoring this study as it explains the determinants of user acceptance of the automated course registration system at Eastern Polytechnic, Port Harcourt.

EMPIRICAL STUDIES

Several empirical studies have explored the design, implementation, and effectiveness of automated course registration systems in higher education institutions. These studies provide relevant insights that support the current investigation.

A study by Omoniyi and Olayemi (2016) examined the effectiveness of a web-based course registration system implemented in a Nigerian university. The findings

revealed that students experienced improved speed and accuracy in the registration process, compared to manual methods. The study also found that system downtime and lack of training were major hindrances to full adoption.

Adebayo and Oluwatosin (2018) designed and evaluated an online course registration system for the University of Ibadan. The study adopted a user-centered design methodology and found that the automated system significantly reduced congestion during registration periods and enhanced data integrity. The researchers concluded that institutional readiness and ICT infrastructure are critical to system success.

In a study conducted by Yusuff and Abdulrahman (2019), the implementation of a course management system in a Nigerian polytechnic was analyzed. The results indicated that students favored the new system due to its flexibility and 24-hour accessibility. However, issues such as internet costs and unreliable connectivity in rural areas remained significant barriers.

Another empirical study by Nwankwo et al. (2020) assessed the deployment of a cloud-based registration platform in a private university. The study noted that the system improved administrative efficiency and enabled real-time reporting and analytics. The research emphasized the importance of data security and recommended integrating biometric verification to improve system authenticity.

Agbaje and Akinyemi (2022) focused on student attitudes toward electronic registration systems in public universities. The findings showed that perceived ease of use and institutional

support were strong predictors of system acceptance. The study concluded that investing in user training and system maintenance boosts usage satisfaction and compliance.

These empirical studies provide foundational knowledge and support for the present research by highlighting both the potential and limitations of automated course registration systems in various Nigerian institutions.

DESIGN METHODOLOGY

The design methodology section provides a structured approach to the design of the automated clearance scheduling system for Eastern Polytechnic, Port Harcourt. It outlines the process of system analysis, design, and implementation. The goal is to address the inefficiencies in the existing manual clearance scheduling process and propose a more effective solution through automation.This chapter emphasizes Object-Oriented Analysis

and Design (OOAD) methodology, which allows for modular, flexible, and scalable solutions. OOAD methodology focuses on representing the system in terms of objects that encapsulate both data and the operations that manipulate that data, promoting reuse and maintainability of the system.

SYSTEM ANALYSIS

ANALYSIS OF THE EXISTING SYSTEM

The current clearance scheduling system at Eastern Polytechnic is a manual process, where students must physically visit various departments, such as the library, finance, and academic

offices, to complete their clearance. This process is both time-consuming and inefficient, often leading to long queues, delays, and administrative errors. Furthermore, tracking the progress of individual students through the clearance process is cumbersome, as there is no centralized system to manage and monitor the status of each student. This fragmented approach results in delays, confusion, and frustration for both students and staff. Additionally, the existing system lacks a method for notifying students of their clearance status or deadlines, which contributes to missed deadlines and further inefficiency.

ANALYSIS OF THE PROPOSED SYSTEM

The proposed system will automate the clearance process by integrating various functions into a single platform. It will feature a user-friendly interface that allows students to log in, view their clearance requirements, and track their progress through each department. The system will provide real-time updates on the status of clearance tasks and send notifications to students about upcoming deadlines. Each department, including the library, finance, and academic office, will have access to the system, allowing them to update students' statuses and upload necessary documents. The system will also store all clearance records in a centralized database, ensuring data security and accessibility. This integration will eliminate the need for manual tracking and reduce the administrative burden on staff, allowing them to focus on more strategic tasks.

SYSTEM DESIGN

SYSTEM ARCHITECTURE

The system architecture of the automated clearance scheduling system consists of three primary components: the client-side interface, the server-side logic, and the database

management system. The client-side interface allows users (students and staff) to interact with the system.

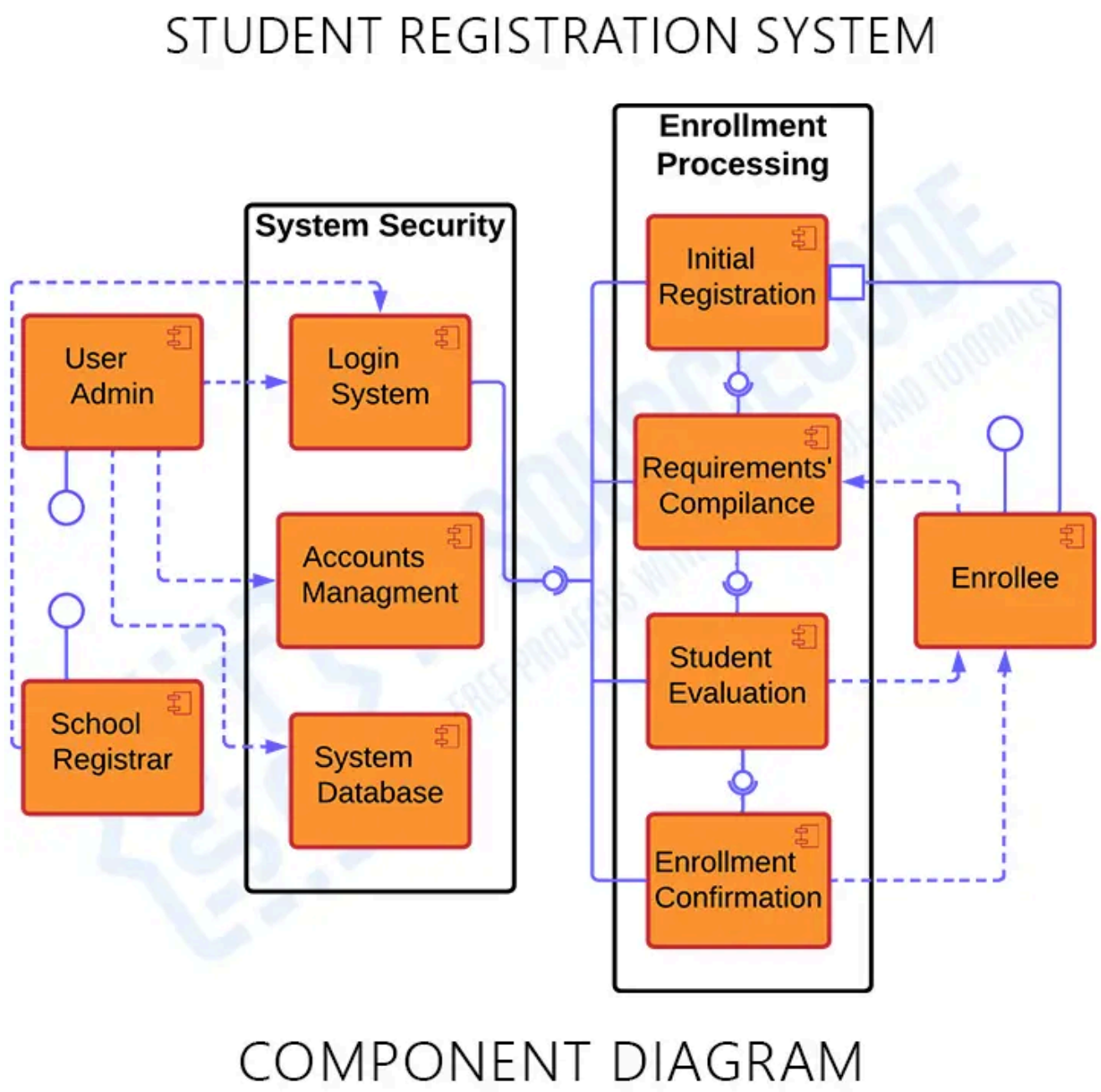
It is designed to be user-friendly and accessible through web browsers. The server-side logic handles the processing of user requests, the execution of business rules, and the communication with the database. The database management system stores all the relevant data, such as student clearance information, departmental records, and transaction histories.

The architecture follows a client-server model, where clients (students and staff) interact with a central server that manages requests and communicates with the database. This centralized approach ensures that all data is stored and processed in one location, making it easier to manage and secure. The system will be built using a layered architecture, which separates the user interface, business logic, and data storage into distinct layers to promote modularity and maintainability.

ENTITY-RELATIONSHIP MODEL

The Entity-Relationship Model is used to model the data structure of the system. It represents the entities involved in the clearance scheduling process and the relationships between them. The key entities in this system include:

- Student (Student_ID, Name, Department, Level, Email)
- Department (Department_ID, Name, Staff_ID)
- ClearanceRequest (Request_ID, Student_ID, Department_ID, Status, DateSubmitted)
- Document (Document_ID, Student_ID, FileName, FilePath, UploadDate)
- Notification (Notification_ID, Student_ID, Message, DateSent, DateRead) Relationships:
- A Student can initiate multiple ClearanceRequests.
- Each ClearanceRequest is associated with one Department.
- A Student can upload multiple Documents.
- A Student can receive multiple Notifications



DATA PRESENTATION AND ANALYSIS

The purpose of data presentation and analysis is to provide a detailed explanation of the design and implementation of the Automated Clearance Scheduling System for Eastern Polytechnic, Port Harcourt. This analysis serves as a bridge between the theoretical foundations presented in earlier and the practical application of the proposed system. It outlines the system's design process, the program specifications, and the steps taken during its implementation. The design methodology encompasses various considerations, including hardware, software, and security requirements, as well as user interaction and data management. Furthermore, the implementation process is explained, covering the tools and technologies used, the challenges encountered, and the strategies for overcoming these challenges. The chapter also highlights the input/output specifications, the database design, and how the system was deployed and tested for final use.

PROGRAM DESIGN

The program design for the Automated Clearance Scheduling System focuses on creating a modular, maintainable, and efficient software solution. Each program module is designed to perform specific tasks such as handling user login, managing clearance records, processing scheduling requests, and generating notifications. The system is designed using object-oriented programming (OOP) principles, which facilitate the creation of reusable code and improve the system's scalability.One of the key design principles followed during the development of the system is modularity, which allows different components of the system to be developed, tested, and maintained independently. For example, the user authentication module is separate from the clearance scheduling module, and each can be updated or modified without affecting other components. Additionally, the system is designed with a clear separation of concerns, where each module has a specific role, and the overall functionality is broken down into manageable sections.The program is also designed to handle errors and exceptions gracefully, with proper error messages and logging to facilitate troubleshooting. The system will use both server-side and client-side validation to ensure that all data entered by users is accurate and conforms to the required formats. For example, students will only be able to submit valid student IDs and course information, ensuring that the data processed is reliable.

PROGRAM MODULES

The system is composed of several functional modules, each with a specific role that promotes modularity and ease of maintenance:

- **Login Module:** Handles authentication for students and staff, ensuring secure access

through encrypted credentials.

- **Clearance Scheduling Module:** Allows students to book appointments by selecting available time slots. The system validates availability and updates the appointment log to prevent conflicts.
- **Clearance Approval Module:** Used by departmental officers and faculty to approve or decline clearance requests, while tracking reasons for decisions and maintaining audit trails. Other important modules include the Notification Module, which automatically sends email or SMS updates on clearance status and reminders, and the Data Management Module, which manages student records, clearance logs, and appointment histories while providing backup and restore features.

All modules work together through a centralized database, ensuring data consistency and efficient system performance.

DATABASE SPECIFICATION

The database is the backbone of the Automated Clearance Scheduling System, designed for efficient storage and retrieval of data. It includes several core tables:

- **Students Table:** Stores student information such as names, matriculation numbers, departments, and contact details.
- **ClearanceRequests Table:** Tracks each clearance request with details on the type and status.
- **Appointments Table:** Manages appointment schedules, linking students with clearance officers.
- **ClearanceOfficers Table:** Contains details about staff responsible for managing clearance processes.

These tables are linked through primary and foreign keys to maintain data integrity and avoid duplication. This relational design supports smooth system operations and reliable data management.

Data Dictionary Table

Student Table

COLUMN NAME	DATATYPE	DESCRIPTION
Id	Integer	Primary key of the table
student_id	Character varying(10)	Unique matriculation number of student
name	Character varying	Full name of student

email	Character varying	Email address of student
department	Character varying	Department name
level	Integer	Academic level of the student
phone	Character varying	Phone number of student
gender	Character varying	Gender of student

Clearance Request

COLUMN NAME	DATATYPE	DESCRIPTION
id	Integer	Primary key of the table
student_id	Integer	Foreign key from student table
status	Character varying	Status of clearance (e.g., Pending, Cleared)
submission_date	Timestamp	Date and time the request was made
clearance_type	Character varying	Type of clearance (e.g., Final, Probational)
remarks	Character varying	Remarks by clearance officer

Appointment Schedule

COLUMN NAME	DATATYPE	DESCRIPTION
Id	Integer	Primary key of the table
student_id	Integer	Foreign key from student table
appointment_time	Timestamp	Scheduled date and time
Location	Character varying	Venue for clearance appointment
Purpose	Character varying	Reason or type of clearance meeting
officer_id	Integer	Assigned clearance officer

Clearance Officer

COLUMN NAME	DATATYPE	DESCRIPTION
id	Integer	Primary key of the table
name	Character varying	Full name of the clearance officer
department	Character varying	Department name
email	Character varying	Officer’s email address

phone	Character varying	Contact phone number

DISCUSSION AND RESULT

The development and deployment of the Automated Clearance Scheduling System as successfully addressed the core objectives of this research. The system improves operational efficiency, eliminates manual bottlenecks, and enhances the user experience for both students and staff.The result of this research work is a system that automates the course registration and examination result processing for the Department of Computer Science, which can be used in any department of most universities in Nigeria and beyond.

CONCLUSION

Based on the results of this research, it can be concluded that automating the clearance scheduling process significantly improves the efficiency, accuracy, and convenience of clearance operations in educational institutions. The system enables students to engage with the clearance process from any location, thereby reducing the need for physical presence and minimizing congestion in clearance offices. Additionally, it empowers administrative staff by providing them with a structured platform to manage appointments, verify documents, and track clearance progress.The use of modern web technologies in the system's development ensured that it is scalable, secure, and accessible via different devices. The incorporation of real-time notifications and user feedback mechanisms further enhanced its effectiveness. From

the testing and implementation phases, it was evident that the system reduces human error, supports data integrity, and promotes transparency in clearance-related activities.The Automated Clearance Scheduling System presents a viable solution to the inefficiencies of traditional clearance methods. It fosters timely processing, enhances accountability, and ultimately contributes to a more organized academic environment.

CONFLICTS OF INTEREST

The author declares no conflict of interest.

AUTHOR CONTRIBUTION

Osiokor o.a:Conceptualization,methodology,validation,formal analysis,writing original draft preparation,writing- review and editing,visualization.I have read and agreed to the published version of the manuscript

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