**DEVELOPMENT OF A WEB-BASED JOURNAL MANAGEMENT SYSTEM FOR**

**COLLEGE OF PURE AND APPLIED SCIENCES, CALEB UNIVERSITY.**

**BY**

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**1. Summary of Project**

This project proposes to design and implement “**Web-based journal management system for college of pure and applied sciences, caleb university**” aimed at enhancing the management and dissemination of academic research. The system addresses existing challenges such as limited access to scholarly work, inefficient manual processes, and lack of visibility for institutional research. By leveraging modern web technologies—including HTML5, CSS3, JavaScript, PHP, and MySQL—the proposed platform will provide a secure, responsive, and user-friendly environment where students, faculty, and researchers can submit, review, and access academic journal articles. The system supports role-based access control, real-time feedback, and performance optimization tools, thereby fostering a culture of digital scholarship and improving the global reach of Caleb University’s academic output.

**Introduction**

The way academic research is published and shared has changed a lot over the years, especially with the rise of digital technology. Instead of relying only on printed journals that are expensive to produce and hard to access, many institutions now prefer web-based platforms that make it easier to publish, review, and read research from anywhere. These platforms help universities share knowledge faster and reach a wider audience, while also reducing the cost and time involved in traditional publishing (Suber, 2012).

At Caleb University, particularly within the College of Pure and Applied Sciences, there is a growing need for a digital solution that can support academic publishing in a more organized and accessible way. Currently, there’s no single system in place for managing journal submissions or making published research easily available. This makes it difficult for students and staff to access past work, collaborate across departments, or showcase their research to the outside world.

This project focuses on the development of a web-based journal management system for the College of Pure and Applied Sciences. The aim is to create a user-friendly, secure, and responsive platform where students, lecturers, and researchers can submit articles, carry out peer reviews, and access journals from one central place. The system is designed using widely used technologies like HTML5, CSS3, PHP, and MySQL, and it follows best practices for user experience and digital security (Creswell, 2018; Public Knowledge Project, 2023). Overall, it supports the university’s goal to improve research visibility and encourage digital learning

**3. Justification of the Study**

The motivation behind this project stems from the pressing need to improve research dissemination, accessibility, and security within Caleb University. Despite a growing emphasis on academic research, the institution currently lacks a structured, digital platform for publishing and archiving scholarly journals. This has led to a number of challenges:

1. **Limited Access to Research Output**: Without an organized digital repository, many students and faculty members struggle to access past theses, journals, or ongoing research, thus hindering academic referencing and continuity.
2. **Lack of Visibility and Recognition**: Research from Caleb University rarely reaches broader academic platforms or is indexed in global databases like CrossRef or Google Scholar. This limits the institution's academic footprint and potential collaborations.
3. **Manual and Inefficient Processes**: The current workflow for submitting and reviewing academic papers involves manual steps, leading to inefficiencies, delays, and a lack of transparency in the peer review process.
4. **Preservation and Security Concerns**: Paper-based archives are vulnerable to damage, loss, and unauthorized alterations. The absence of secure digital backups increases the risk of data loss and academic dishonesty.
5. **Technological Gap**: As the global academic community continues to embrace open access and digital publishing, Caleb University must adapt to remain competitive and relevant.

Developing a dedicated online journal system addresses these issues by offering a **cost-effective, scalable, and secure** solution tailored to the needs of the university. The platform will not only improve academic visibility but also enhance operational efficiency, support data preservation, and encourage a culture of digital scholarship. This project stands to benefit faculty, students, and the institution as a whole by creating a robust infrastructure for scholarly communication and long-term knowledge management.

**3. Statement of the Problem**

In many Nigerian universities, including Caleb University, the process of managing and publishing academic research is still largely manual and uncoordinated. Within the College of Pure and Applied Sciences, there is currently no dedicated digital platform for handling journal submissions, editorial reviews, and open access to published work. As a result, valuable academic research often remains locked away, difficult to access, or even forgotten over time.

Students who need to reference past projects or academic journals for their work face difficulties locating them due to the lack of a centralized repository. Similarly, lecturers and researchers who wish to share their findings are limited by inefficient publishing workflows and a lack of visibility beyond their immediate departments. This hinders not only the development of research culture on campus but also the institution’s ability to contribute meaningfully to the national and global academic space.

According to Anunobi and Mbagwu (2009), the absence of proper digital preservation and structured journal management systems in Nigerian universities continues to limit knowledge sharing and research impact. Furthermore, Jegede (2021) highlights how digital journal platforms can improve scholarly communication, speed up the publication process, and promote accessibility, especially within the context of Nigerian higher education.

This project, therefore, proposes the development of a web-based journal management system for the College of Pure and Applied Sciences, Caleb University, to solve these challenges and encourage wider engagement with academic publishing.

**4. Study Objectives**

The objectives of this project include:

1. **Comprehensive Analysis of User Requirements:** Identify the academic and technical needs of students, lecturers, and administrators within the College of Pure and Applied Sciences to guide the system’s development.
2. **System Architecture and User Interface Design:** Structure how different components of the system will function and interact, ensuring the interface is intuitive, user-friendly, and accessible across various devices.
3. **Front-End and Back-End Development:** Build the system using appropriate web technologies to support both the visual interface (front-end) and server-side functionality (back-end) required for seamless user interaction and content management.
4. **Key System Features Implementation:** Create functionalities such as user authentication, role-based access control, journal submission, editorial review, and administrative oversight for managing users and content.
5. **Database Integration with Application Interface:** Design a back-end data storage system to securely handle user information, journal submissions, and system records, ensuring smooth retrieval and storage of content.
6. **System Testing for Functionality, Performance, and Security:** Carry out system testing to verify that all components work as intended, meet usability standards, and are secure against common system vulnerabilities.
7. **Deployment of Journal Management System:** Make the system accessible within the university after development and testing, allowing real-time use by staff, students, and administrators.
8. **System Evaluation Based on User Feedback and Performance:** Analyze user interaction with the platform to assess ease of use,s effectiveness, and reliability. Use feedback gathered to refine and improve the system.
9. **Long-Term Maintainability and Scalability**: Document the system to support future maintenance and upgrades, allowing it to evolve with user needs and technological advancements.

**5. Methods**

The project utilized a **developmental research approach**, involving the design, implementation, and evaluation of the journal management system in iterative cycles. Key methodologies included:

1. **Primary Data Collection**: Usability testing involving 15 participants (10 students and 5 faculty members) through direct observation and structured questionnaires.
2. **Secondary Data Collection**: Literature review of existing systems such as Open Journal Systems (OJS) and Hindawi to identify best practices and gaps.
3. **Development Tools**: HTML5, CSS3, JavaScript, PHP, MySQL, and Bootstrap for building the system.
4. **Performance Testing**: Conducted using Google Lighthouse and GTmetrix to monitor load times, accessibility, and page size optimization.
5. **System Evaluation**: Stress-tested with simulated concurrent users and optimized through feedback and benchmark analysis.

**6. Ethical Considerations**

Ethical integrity is central to the development and deployment of any academic digital platform. The proposed online journal system for Caleb University adheres to the following ethical guidelines:

1. **Data Privacy and Confidentiality:** All user data—including login credentials, submitted manuscripts, and personal information—will be securely encrypted and stored using best practices in data protection. The system ensures that sensitive data is only accessible to authorized personnel.
2. **Informed Consent and Voluntary Participation:** During usability testing, all participants were fully informed of the purpose of the research and voluntarily agreed to take part in evaluations. Consent forms were issued, and participants had the right to withdraw at any point without repercussions.
3. **Academic Integrity:** The system integrates features such as plagiarism detection tools and proper attribution mechanisms to uphold academic standards. This promotes originality and ensures that all published content meets scholarly expectations.
4. **Accessibility and Inclusion:** Following WCAG and ARIA guidelines, the platform is designed to be accessible to users with disabilities, promoting equity in access to academic resources.
5. **Transparency and Accountability:** Clear documentation and citation of sources have been maintained throughout the development process. The platform's peer-review process will be transparent, traceable, and fair to avoid bias or academic favoritism.

By embedding ethical practices into the system’s design and implementation, the project not only aligns with institutional standards but also upholds the broader principles of responsible research and digital inclusion.

**7. Potential Value of Results**

The project offers several potential benefits, including:

1. **Enhanced Research Accessibility**: Enables global access to scholarly articles, promoting wider dissemination.
2. **Improved Performance**: Faster page loading, mobile compatibility, and seamless navigation enhance user experience.
3. **User Engagement**: Positive feedback (93% satisfaction) from participants confirms the system’s relevance and ease of use.
4. **Cost Efficiency**: Eliminates the need for physical printing and manual operations, reducing administrative costs.
5. **Digital Archiving**: Provides secure and long-term storage of academic content.
6. **Academic Impact**: Increases visibility of Caleb University research in indexing databases and international scholarly networks.

**8. Time-Frame**

The project followed an **agile development methodology** with iterative cycles of design, testing, and refinement. Major milestones included:

1. System Planning and Requirement Analysis
2. Front-end and Back-end Development
3. Database Design and Integration
4. Usability Testing and Feedback Evaluation
5. Final Deployment and Performance Optimization

Development cycles were completed within the project’s academic timeline, with three rounds of refinement informed by user feedback.

**9. Funding**

There was no formal funding body or external sponsorship involved in the project. Development was conducted using **open-source tools and freely available resources**, allowing the project to remain cost-effective while meeting academic standards. Institutional support was provided through access to internal resources and participants.

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