



Inter-University Educational Blogging System

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Inter-University Educational Blogging System fills the gap of the disparities seen in the higher Institutions both in individual courses, self-development, social activities and the quality of researches. These disparities are due to differences in learning environment, learning tools and personnels involved; some Institutions are better situated than others but advances in technology today is a big leverage in filling this educational gap. This research developed an Education blogging platform which enables students of different/same universities to work on same page in learning and researching together by sharing their ideas from their different Universities perspectives which goes a long way to improve the quality of graduates pushed into the society. Educational system has been once challenged universally by the COVID-19 and with adoption of this educational platform, such challenge can be overcome now and in case of any future occurrence of such educational traits. Structured System Analysis and Design (SSAD) methodology was adopted in design and analysis of the system, GraphCMS was used for the database, Node JS for the backend and the frontend – React JS, Next JS, TailwindCSS and SCSS were used. The efficiency and effectiveness of this educational platform was tested using questionnaire. The result shows that the platform will sustain and stand the test of time in ensuring the stability in learning and research.

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ABSTRACT

Keywords: Inter-University Educational Blogging System; Higher Institutions; Educational Gap; Educational Blogging Platform; Structured System Analysis and Design (SSAD)



Introduction

Educators are using blogs in many ways including using it as an online portfolio for teachers and students for provision of course content, as a record of field notes, as discipline specific spaces for knowledge sharing, as a space for student dialogue and for class administration. As Akobundu et al. (2015) opined that Information and Communication Technology (ICT) has advanced to the extent that it has made life more comfortable and efficient which is evident even in our education sector.

Blogs can be used to facilitate group working and discussion forum between the lecturers and students, a number of commentators argue that blogs encourage reflective learning (Chen, et al 2015); they can be used as a diary to keep a record of achievement and of interesting material. The way that blogs are typically organized allows the reader/viewer to re-contextualize posts according to categories and dates as well as allowing the user to use key words to search for posts on any topic. Blogs can decrease feelings of isolation for distance students and promote the shift from surface to deep learning (Baturay, et al. 2013). Dos and Demir (2013) argue that the immediacy and commentary-based systems of blogging lead to reflection and analysis and contextualization of learning via hyperlinks. They further contend that blogs are more successful in promoting interactivity that is conversational as opposed to other online discussion. Research also suggests that blogs allow a more creative response from students and that the open and interlinked nature of blogs connects learners to contexts beyond the classroom (Abedini et al, 2015). Technology is really changing the learning system (Akobundu et al., 2021), with the technology savvy, communities in our Institutions of learning are exploring technologically innovative to daily improve the standard of education.

Despite the global use of blogs to solve virtually every problem, Nigerian University students of the same discipline do not have a common platform that enables them share ideas, solve problems and update themselves on things believed they do together such as carrying out projects together (researches), discuss different courses taught in their different Universities by different lecturers and other innovative issue with regards to their courses of study and interest. Currently, a lot of effort has been made to make the process of learning as interactive as possible (OECD, 2020). This research work is about bridging this blogging gap amongst the students of same discipline but of diverse learning environment and tutor for greater coherent, experience and learning from different professionals.

Review of Related Literature

Blogging has existed for almost three decades, the history of blogging started with several precursors. In the early 1990s, websites were developed by web pioneers and the sites consisted of discussion forums and bulletin boards. People were attracted by different topics; then signed up for the corresponding list serves to receive emails about content they were interested in published by experts (Blood, 2002). The development of blogging is explained as follows: In January 1994, Justin Hall, a student at Swarthmore College, published the first blog, (links.net) which was a personal diary that shared his musings and favorite links with the world. In December 1997, Jorn Barger, the editor of the website Robert Wisdom, pioneered the term to describe a “log” of his internet activity (Any, 2023). He composed “logging the web” into the term “weblog.” In April 1999, a programmer called Peter Merholz introduced the phrase “we blog” unintentionally in the sidebar of his blog Peterme.com (Sunny, 2007). Shortly afterwards, Evan Williams, an internet entrepreneur, used “blog” as both a noun and verb and created the word “blogger,” which made the term well-known (Any, 2023).

Blogging grew rapidly in the early 2000s, as a few popular blogs got their start during this period, including Andrew Sullivan’s AndrewSullivan.com, Boing Boing, Gawker, and The Huffington Post. Blogging was promoted with general internet users (Alex, 2012). In February 2002, one highlighted event that magnified the influence of blogging was the firing of Heather Armstrong for discussing her job on her blog, Dooce. After that Dooce turned into a verb: getting fired for something you have written on your website. That same year in August, Nick Denton launched Gizmodo as the first broker of blog advertising (Amanda, 2020). In December 2002, Talking Points Memo, a political blog, posted the interview of senator Trent Lott that demonstrated his racism and connection to a paleo-conservative group. Thirteen days later, Lott resigned from his post as senate majority leader. For the blogosphere, the most remarkable part of this affair was being credited by the mainstream media for breaking the story (Hewitt, 2005).

Serhiy et al (2018) opined that the digital practice known as blogging is sweeping the internet and the number of educational bloggers is growing exponentially. Hence, one of the major tasks of a teacher is, nowadays, believed to

be trying to improve digital competence of students so that they can use Information and Communication Technology in the modern community. Blogging is having a blog available on the internet and maintaining or adding new entries to a blog, which can serve pedagogical purposes well, via diverse and creative communication activities. Blogging system is an academic booster in this dispensation and it's use in the interuniversity level by both the students and the lecturers. In the digital age, state-of-the-art technology serves as a productive platform for academic purposes. Impressively, digitization has successfully revolutionized the learning process. Blogging is one of the newer tools used in education. Etymologically, 'blog' is a blended term for 'web' and 'log'. Simply put, 'blog' is a web page that contains multimedia, commentaries and hyperlinks (Adeola, 2018; Landani, et al, 2013).

Interuniversity Collaboration Pros

Advanced collaboration skills and media literacy are important for surviving in a globalized world today, Katzlinge et al (2024) carried out a sample of interuniversity collaboration between different universities in a subject matter over the internet and at the end found out that was a tremendous influence of the interregional group work for media competencies, hidden social aspects and conflict potential, scenario design and different media usage, teaching effort vs. learning outcome of such a scenario, learning impact for different student groups depending on online moderation.

Methodology

A methodology is a formalized approach to implementing the System Development Life Cycle (SDLC) that is, it's a list of steps and deliverable. There are many different systems development methodologies and each one is unique because of its emphasis on the process versus data and the order and focus it places on each SDLC phase. Waterfall methodology and information flow diagram was adopted as the methodology for the development of the interuniversity blogging system. The waterfall model is a breakdown of project activities into linear sequential phases, where each phase depends on the deliverables of the previous one and corresponds to a specialization of tasks. The approach is typical for certain areas of engineering design. In software development, it tends to be among the less iterative and flexible approaches, as progress flows in largely one direction ("downwards" like a waterfall) through the phases of conception, initiation, analysis, design, construction, testing, deployment and maintenance. In a waterfall Model, each phase must be completed before the next phase can begin and there is no overlapping in the phases. The Waterfall model is the earliest SDLC approach that was used for software development. The waterfall Model illustrates the software development process in a linear sequential flow. This means that any phase in the development process begins only if the previous phase is complete. In this waterfall model, the phases do not overlap, figure 1 shows the stages undertaken in the development of the new system.

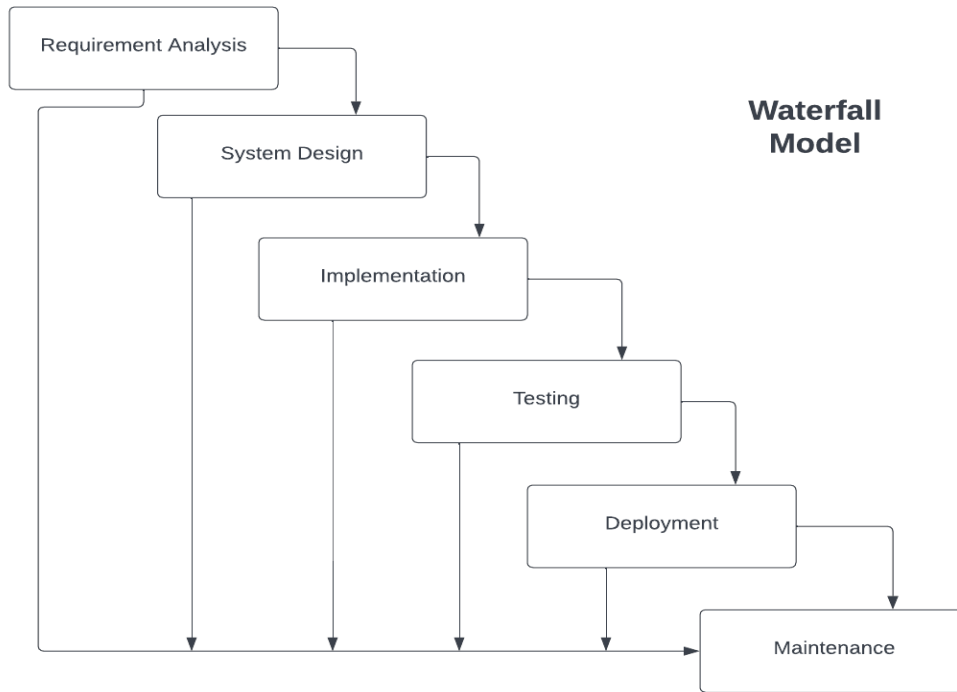


Figure I: Waterfall Model Undertaken in the Development of the Interuniversity Blogging System

Information/Data Flow Model

An information flow model distinguishes the discrete processing stages within the process, describes how information flows through that system, characterizes the kinds of data items that flow through the process, and captures the type or method of data access, figure II shows the information/data flow diagram of the interuniversity blogging system where there are different sublets that interact to form the system and produce the required result.

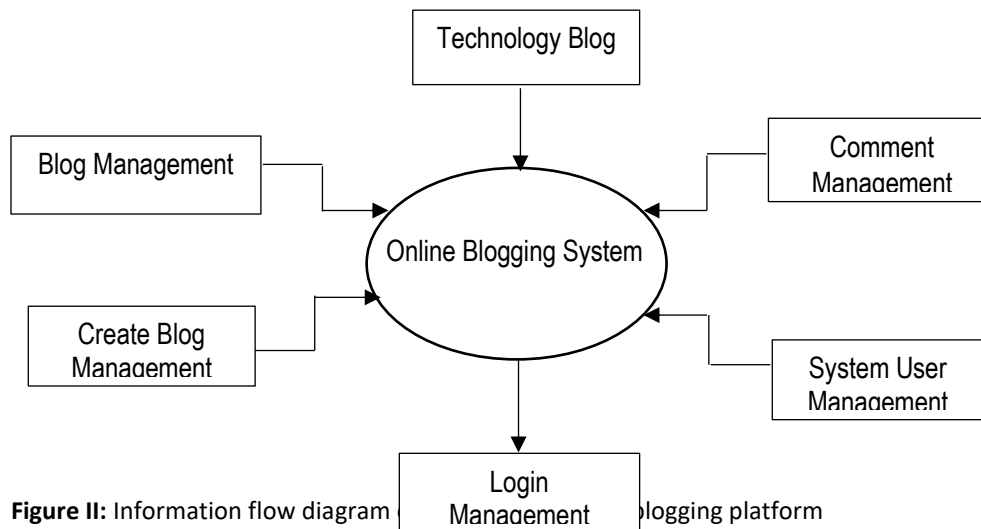


Figure II: Information flow diagram of the interuniversity blogging platform

Interuniversity Blogging System Flowchart

The system flowchart depicts the sequential flow of the program from the login of the system to the posting, approving and deleting of comments. Figure III shows the system flowchart as the information flows sequentially.

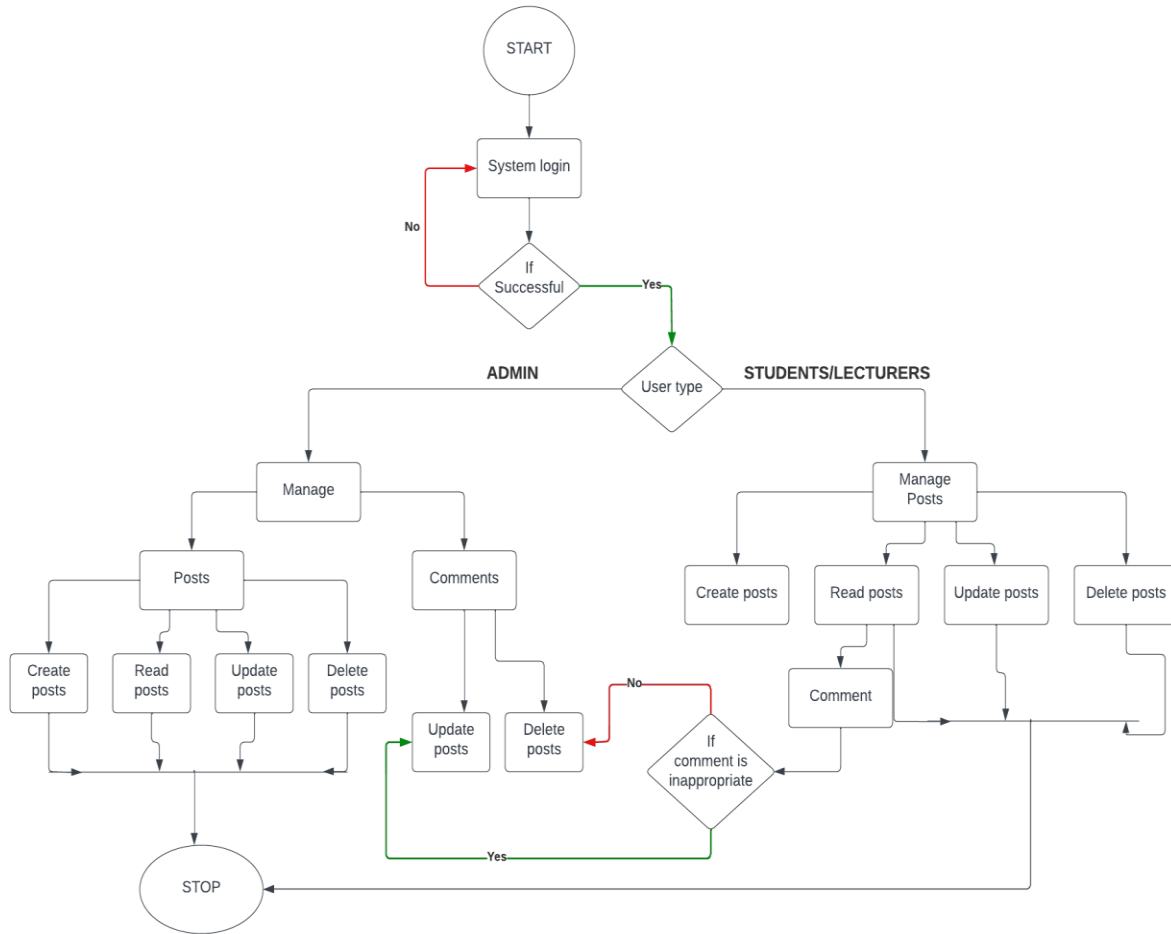


Figure III: Interuniversity blogging system information flowchart

Use Case Diagram of the Interuniversity Blogging System

A use-case diagram is made up of actors, use cases boundaries and a relationship between them. It is used to describe the function of a system. A use-case diagram model the functionality of a system using actors and use cases. Use cases are a set of actions, services, and functions that the system needs to perform. It presents some participants, some use cases, and their relationships, which are mainly used to model the function and behavior of the system, subsystem or class. In UML modeling, entities that interact with the system are called roles. The role can send the system information, receive message from the system and exchange information. Evaluating the use case diagram in figure IV in respect to Inter University blogging, there are majorly two actors, the users and the administrator being the main operator will add or delete student/lecturers in the editing dashboard.

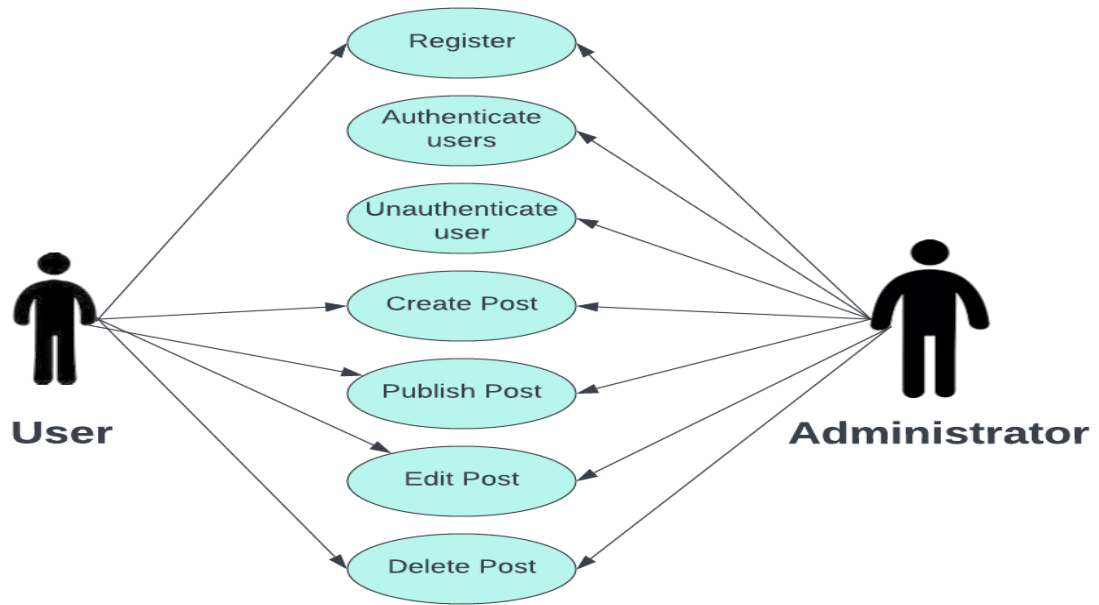


Figure IV: Use case diagram of the interuniversity blogging system

System Design and Implementation

System Design

System design is the process of designing the elements of a system such as the architecture, modules and components, the different interfaces of those components and the data that goes through that system. The purpose of the System Design process is to provide sufficient detailed data and information about the system and its system elements to enable the implementation consistent with architectural entities as defined in models and views of the system architecture. Figure V shows the architecture of the Interuniversity blogging system.

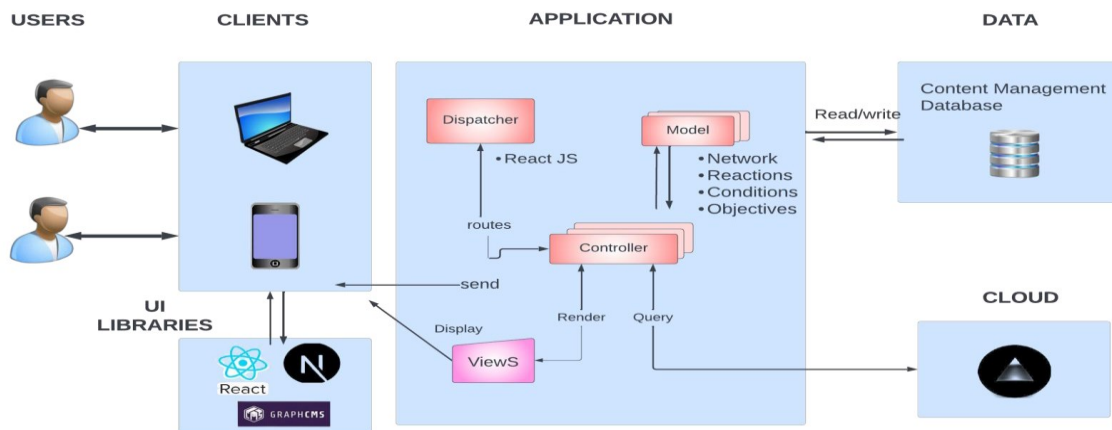


Figure V: Architecture of the Interuniversity blogging system

System Implementation

The web application is named Blogeve. A system that facilitates Inter-university that will allow all universities in Nigeria and partially other countries. In the implementation of the database design, GraphCMS was used. GraphCMS is a modern content management platform that helps teams bring content to any channel. High-traffic publishing

and marketing websites, multi-language e-commerce platforms, interactive mobile apps, voice apps – GraphCMS is the solid content infrastructure used by organizations like Discovery, Tchibo, and Shure. GraphCMS served as the middleman where data/information is sent and received by the system. Before the building of the system, it was prompted to build a schemer. Figure VI shows the implementation of the database home page.

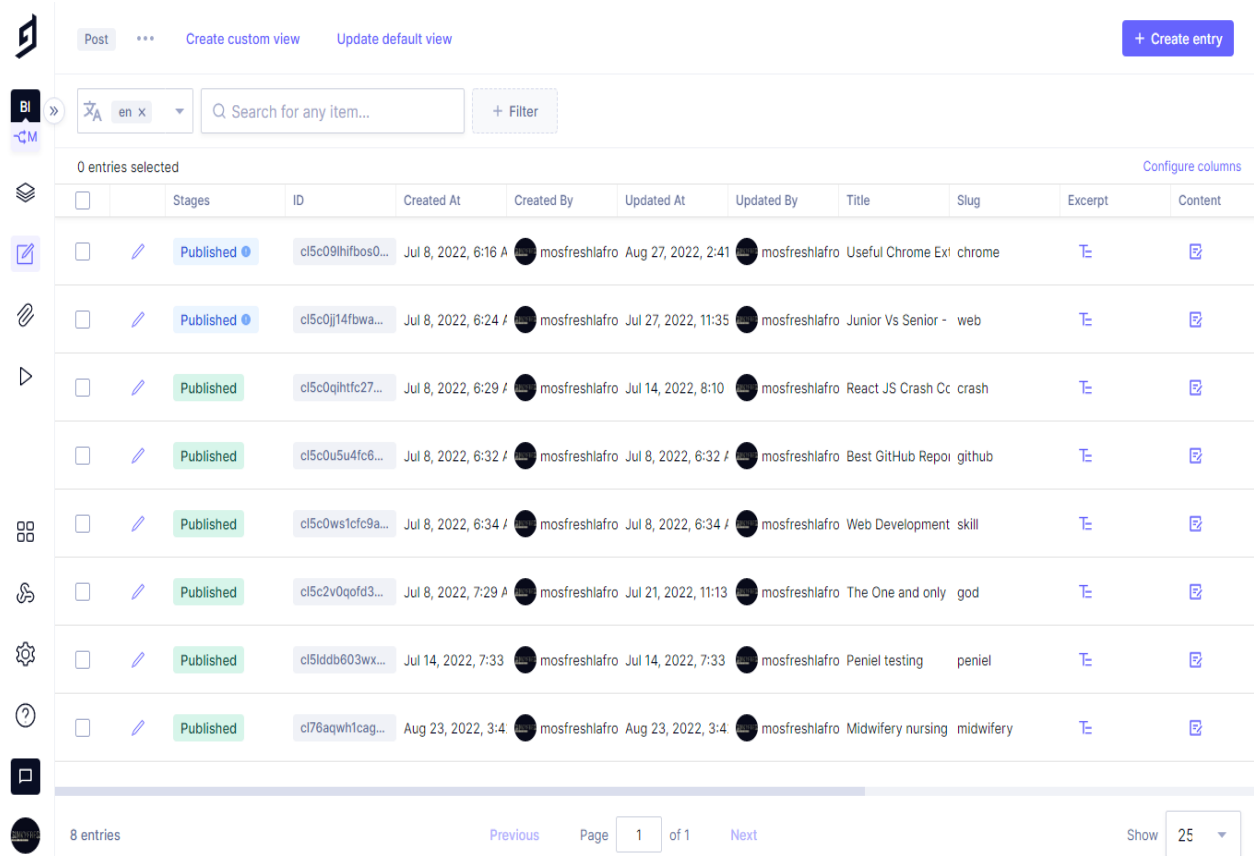


Figure VI: Implementation database home page

User Interface Implementation

The interface was built using React JS, and CSS preprocessor called SCSS and another CSS framework called TailwindCSS. It is the greatest CSS framework on the planet and it is highly customizable, low-level CSS framework that gives you the building block you need to build designs without annoying opinionated styles that you have to fight to override. The user interfaces is implemented in a way; Authorized user can CRUD using the graphCMS database that is then fetch through the API of the web-system and both authorized and unauthorized users can comment on the post of other authors/Users. Figure VII, VIII, IX and X show the user implementation interfaces. This is the application interface the user interacts with. It is built with React JS, TailwindCSS, and SCSS. The interactivity is been handled using React JS.

Register

Name Email

Password

Save my name, email and in this browser for the next time I comment.

[Register](#)

Figure VII: User registration form

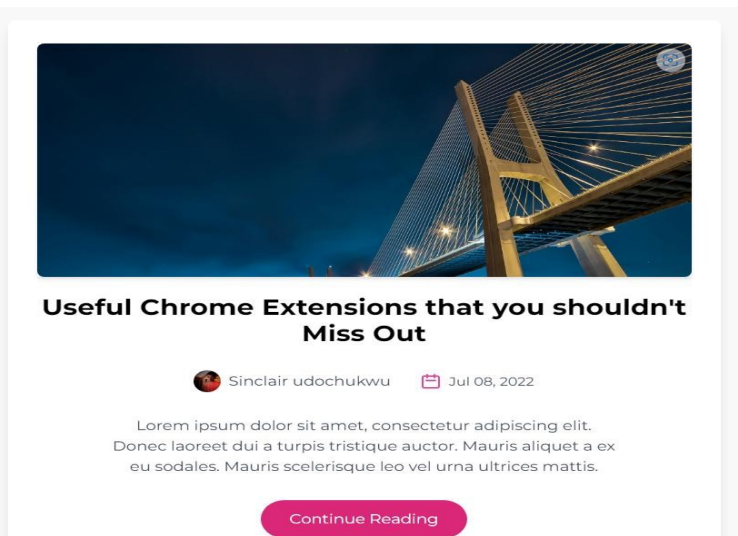


Figure VIII: Published post

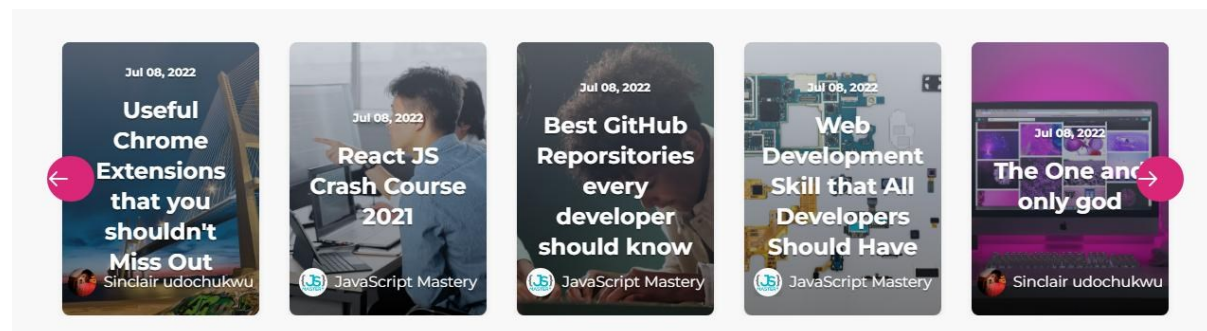


Figure IX: Featured posts on a carousel layout

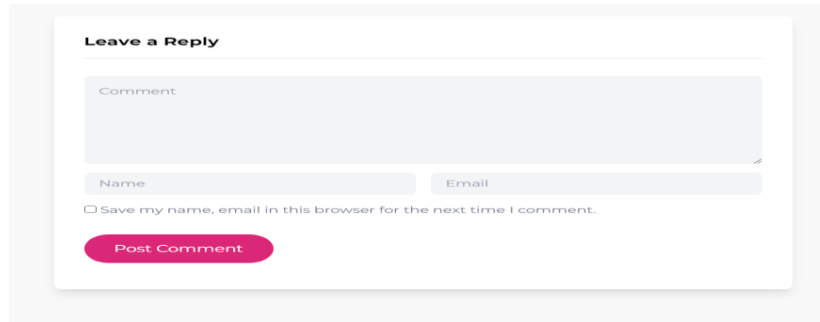


Figure X: Comment layout

System Testing, Deployment and Change-Over Procedure

System Testing

System Testing is carried out on the whole system in the context of either system requirement specifications or functional requirement specifications or in the context of both. System testing tests the design and behavior of the system and also the expectations of the user. The focus of the system testing is to evaluate the compliance of the entire system with respect to the specified requirements. System testing helps in approving and checking the business, functional, technical, and any non-functional requirement of the application concerning the architecture as a whole. The scope of the system testing is not only limited to the design of the system but also to the behavior and believed expectations of the business. Table I depicts the testing result of the system.

Table I: System testing result

<i>Test conducted</i>	<i>Expected result</i>	<i>Actual result</i>
<i>Admin login</i>	Authorized admins should be granted access to the software.	Authorized admins were granted access
<i>User login</i>	Authorized user should be granted access to the software	Authorized users were granted access
<i>Dashboard</i>	Should display login page	Displayed login page
<i>Publish post</i>	Should allow user/Admin upload posts to the system	Posts were published
<i>View posts</i>	Should allow students to view published posts	Lecturers/Students were able to view posts.

Deployment Technology and Procedure

Deployment technology is a holistic implementation plan that considers the people, processes and technology that need to be in place for the system to be successfully installed, adopted by the user community, and the benefits of the system to be realized. The deployment technologies used to deploy this system is as follows:

- i. **React JS:** React JS is JavaScript library used for building reusable UI components. React is a library for building composable user interfaces. It encourages the creation of reusable UI components, which present data that change over time. Lots of people use React as the V in MVC. React abstracts away the DOM from you, offering a simpler programming model and better performance. React can also render on the server using Node, and it can power native apps using React Native. React implements one-way reactive data flow, which reduces the boilerplate and is easier to reason about than traditional data binding.
- ii. **Next JS:** Next.js is a React framework that gives you building blocks to create web applications. By framework, we mean Next.js handles the tooling and configuration needed for React, and provides additional structure, features, and optimizations for your application.

- iii. **Tailwind CSS:** Tailwind CSS is a highly customizable, low-level CSS framework that gives you all of the building blocks you need to build bespoke designs without any annoying opinionated styles you have to fight to override.

Change-Over Procedure

The changeover process employed in this research work is the parallel changeover. Parallel changeover process is a strategy for system changeover where both the old and new system run side-by-side, using live data, so that project managers can compare the efficiency and reliability of the new system. Once they're satisfied, the old system is taken offline and the new system becomes fully active and utilize across the organization. This conversion takes place as the technology of the old system is outdated so a new system is needed to be installed to replace the old one. After a good period of time, when the system is proven to be working correctly, the old system will be removed completely and users will depend solely on the new system. The phrase parallel changeover can refer to the process of changing a fragment of business information technology operation to a new system or to the technique applied by the human resources department in which the existing staff stay on board during the transition to a new staff.

Conclusion

Interuniversity blogging system provides an online collaboration platform, support and benefit to students and lecturers from different universities to measure the curriculums and learning outcome in their departments/universities. It is also developed with the intention of serving as a plan B if there would be another highly contagious novel pandemic, which would prevent students to come together and learn from their lecturers. Its focus is on the use of computer systems with reference to inter-university blogging in all universities for greater achievements in learning which in turn would in no small way influence the academic performances of the students in different university, and distance, environment and availability of equipment would not affect the students again. The benefits of this research cannot be said to be perfect, but however, its benefits cannot be overemphasized.

References

- Abedini, H., & Heidarzadeh, K. F. (2015). The relationship between life style and Internet advertising avoidance. *Australasian Marketin Journal (AML)*, 23(1), 38-48.
- Adeola, A. E. (2018). *Participation in Nigeria Blogosphere: An Assessment of Blog Readers' Attitudes Towards Linda Ikeji's Blog*. Gazimagusa North Cyprus: Eastern Mediterranean University.
- Akobundu, C. I., Agu, M. N., & Nnakwuzie, D. (2015, June). Development of Mobile Payment System: An Implementation of Cashless Economy. *International Journal of Engineering and Computer Science*, 4(6), 12859-12876.
- Akobundu, C. I., Alo, U. R., Julius, M. S., Onu, F. U., & Okpanocha, O. S. (2021). StuDon App: An Integrated Web Based Blended Learning System for Higher Education Institutions. *The Journal of Computer Science and Its Application (JCSA)*, 28(2). Retrieved from <https://dx.doi.org/10.4314/jcsia.v28i2.6>
- Alex, G. (2012). *Blogging the hyperlocal. The disruption and renegotiation of hegemony in Malta. The University of Hull*. Retrieved from Academia.edu web site: https://www.academia.edu/43196483/Blogging_the_hyperlocal_The_disruption_and_renegotiation_of_hegemony_in_Malta
- Alsamadani, H. A. (2018). The Effectiveness of Using Online Blogging for Students' Individual and Group Writing. *International Education Studies*, 11(1), 1913-9039.
- Any, S. (2023). *The History of Blogging – A Complete Chronology*. Retrieved from Firstsiteguide web site: <https://www.firstsiteguide.com>
- Baturay, M. A. (2013). Responsive web design: a new type of design for web based instructional content. *Procedia - Social and Behavioral Sciences. ScienceDirect*, 2275-2279.

- Blood, R. (2002). *The weblog handbook: Practical advice on creating and maintaining your blog*. Cambridge: Perseus Publication.
- Boltivets, S., Acharya, S., & Santos, A. (2018). Educational blogging: Implications, benefits and challenges to pedagogical practice. *Psychreg Journal of Psychology*, 2(2).
- Chen, S., & Lin, C. P. (2015). The impact of customer experience and perceived value on sustainable social relationship in blogs: An empirical study. *Journal of Technological Forecasting & Social Change*, 40-50.
- Dos, B., & Demir, S. (2013). The Analysis of the Blogs Created in a Blended Course through the Reflective Thinking Perspective. *Education Science: Theory & Practical*, 13(2), 1335-1344. Retrieved from www.edam.com.tr/estp.
- Hewitt, H. (2005). *Blog: Understanding the Information Reformation That's Changing Your World*. Nashville: TN: Nelson Books.
- Katzlinger, E., & Herzog, M. A. (2024). Wiki Based Collaborative Learning in Interuniversity Scenarios. *Electronic Journal of e-Learning*, 12 (2).
- Landani, Z. M., & Hassan, S. S. (2013). Factors Affecting the Intention to Use Blog by Students at Secondary and Tertiary Educations. *International Journal of Asian Social Science*, 3(9), 1829-1837.
- Munna, A. S. (2021). Teaching and learning process to enhance teaching effectiveness: a literature review. *International Journal of Humanities and Innovation (IJHI)*, 4(1), 1-4.
- OECD. (2020). *OECD Strengthening online learning when schools are closed: The role of families and teachers in supporting students during the COVID-19 crisis*. Retrieved from oecd web site: http://www.oecd.org/coronavirus/en/?_ga=2.154522044.525007470.1690287630-1359847569.1690287629
- Sunny, W. (2007). The Blogosphere: Past, Present and Future. Preserving the Unfettered Development of Alternative Journalism. 44(2), 477 – 510.