**PROJECT PROPOSAL ON:**

**DESIGN OF A WEB-BASED EXAMINATION RESULTS SYSTEM**

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**1.1** **BACKGROUND OF THE STUDY**

In many organizations, including tertiary educational communities, information management is one of the most substantial investments. Properly creating, maintaining, and retrieving information is crucial, particularly when it comes to students' records and examination data. Flawed student information management can lead to a plethora of errors in various educational processes. Virtually every facet of the educational system relies heavily on information processing. Introducing computer-based information processing capabilities can revolutionize these processes. With the aid of computers, educational institutions can achieve instant access to students' personal and course details, seamless updates of student information, automated computation of grades, efficient generation of graduating student lists, real-time monitoring of course performance, and the maintenance of an up-to-date student database that includes course information like subjects, descriptions, and grades for computation. Unfortunately, many educational institutions in the developing world, including universities, colleges of education, and polytechnics in Nigeria, continue to rely on manual methods for record-keeping and grade computation. Mhaiskey et al. (2021)

In light of these challenges and the increasing demands for accuracy, efficiency, and accessibility in educational institutions, there is a pressing need to transition from outdated manual processes to automated systems. This transition not only addresses the persistent errors associated with manual record-keeping but also streamlines various administrative tasks and empowers both students and educational institutions with reliable, up-to-date information. This research endeavors to bridge this gap by designing and implementing an automated web-based examination result system tailored to the specific needs of educational institutions, with a focus on for the computer science department of Kaduna Polytechnic as a case study. This system aims to revolutionize how student information is managed, courses are graded, and results are processed, ultimately enhancing the overall efficiency and effectiveness of the educational process. Akaiso et al. (2019)

**1.2 STATEMENT OF THE PROBLEM**

At Talbelu Secondary School, the current manual system for processing and managing student records poses significant challenges. Students often experience delays in accessing their results, leading to issues with assessing their academic performance promptly. Furthermore, this manual approach introduces errors, including missing results, inaccuracies in grade calculations, and the risk of data loss due to potential disasters. These issues result in time wastage and data security concerns. An automated web-based examination system is urgently needed to address these challenges and provide accurate, efficient, and secure access to student information and academic records.

**1.3 AIM AND OBJECTIVE OF THE STUDY**

The project is aimed at developing an online examination results system for the computer science department of Kaduna Polytechnic.

**OBJECTIVES**

In other to achieve the aim of this project the following objectives are set and considered relevant for the achievement. This includes:

1. Present a single platform that will be used to manage the processing of all examination records within the school.
2. Design a web-based software with a simple and user-friendly interface that will be easy to use by ‘anybody’ with little computer knowledge.
3. Provide an effective, efficient, and error-free results processing system for the Polytechnic.

**2.1 LITERATURE REVIEW**

Article Title: Result Processing System for Academic Institutions. Authors: Akaiso, L. E., & Mkpandiok, M. A. (2019).

**Summary of the work**

This study addresses the fundamental issue of students' result processing and academic achievement information management in educational institutions. The existing system for handling academic results and transcripts was identified as tedious, time-consuming, and error-prone, particularly for a large number of students. To address these challenges, the research aimed to design a result-processing system for academic institutions. Data for system testing were collected from the semesters' results of ND and HND cadets in the departments of Nautical Science and Marine Engineering at the Maritime Academy of Nigeria, Oron, Akwa Ibom State. The system successfully computed the Grade Point Average (GPA) and Cumulative Grade Point Average (CGPA) for each cadet, providing easy access to all users at any time.

**Methodology**

The research employed Object-Oriented Analysis and Design Methodology (OOADM) as the chosen approach for the system design. OOADM is a widely recognized technique for analyzing and designing applications, systems, or businesses, emphasizing object-oriented programming principles and visual modeling to enhance communication with stakeholders and overall product quality. The system design process followed the stages and principles of OOADM. For software implementation, the front-end interface was developed using hypertext markup language (HTML), cascading style sheet (CSS), and JavaScript, while the backend functionalities were implemented using hypertext pre-processor (PHP) and the MySQL database.

**Recommendation**

The application described in this study presents significant potential benefits for tertiary institutions in terms of efficiently processing and managing students' academic records. It has the capacity to reduce costs associated with traditional result-processing methods. However, to further enhance the system's effectiveness, it is recommended that future research focuses on continuous improvement, updates, and adaptation to evolving technologies and educational needs. Additionally, research can explore the integration of advanced data analytics and security features to ensure data integrity and privacy.

**Research Gap**

One research gap worth addressing is the investigation of user experience and user interface design aspects of the system. A more in-depth analysis of how students, faculty, and administrative staff interact with the application and their feedback could lead to user-centric improvements. Moreover, exploring the scalability of the system for larger institutions and its compatibility with various educational management systems could be an area of future research interest.

Article Title: Modelling and Implementation of a Result Processing SystemAuthors: Ojo, O., & Akhigbe, B. (2020).

**Summary of the work**

The study addresses the need for automating the manual result processing system in secondary schools, emphasizing efficiency and effectiveness. Utilizing the UML object-oriented methodology, the existing manual processes were analyzed, revealing inefficiencies. The system developed using technologies like PHP and MySQL offers a centralized repository for storing, managing, and distributing result information. It generates various reports in PDF format, including result summaries and broadsheets, making it adaptable for use in different public secondary schools.

**Methodology**

The study employed the incremental development methodology for designing an e-result processing system for secondary schools in Ekiti state, Nigeria. Interviews with secondary schools informed requirement engineering. The chosen development model was incremental, well-suited for clear and understood requirements. The design phase used Unified Modeling Language (UML) tools, and implementation involved HTML, JavaScript, CSS, PHP, and MySQLi for front-end and back-end development. Beta testing was conducted. The system follows a three-tier client/server architecture using JavaScript, CSS, HTML, and PHP as core technologies.

**Recommendation**

The software application developed in this paper offers significant benefits for processing and managing students' results in public secondary schools. It is recommended for adoption in Ekiti State's public secondary schools to address the challenges associated with manual result processing. Moreover, the software can be valuable for public secondary schools in other states of Nigeria, and its implementation should be considered.

**Research Gap**

While this research addresses the specific context of public secondary schools in Ekiti State, there is a potential research gap in exploring the adaptability and effectiveness of this software in a broader range of educational institutions, including private schools and schools in other Nigerian states. Additionally, further research could focus on the scalability and long-term sustainability of this software in handling increased data volumes as schools expand and evolve.

Article Title: Android APP for Online Examination and Results SystemsAuthors: Mhaiskey, M. P., Thombare, M. R., Patle, N. M., Gujarkar, K. S., & Rewatkar, A. (2021).

**Summary of the work**

The Online Examination System described in this paper offers a convenient and efficient solution for institutes and organizations to conduct and manage examinations over the internet, either through the web or a local area network (LAN). This system addresses common challenges encountered in traditional physical examination processes, such as result processing delays and record-keeping issues. It emphasizes the importance of online testing, highlighting its well-organized and resource-saving nature. The paper provides insights into the system's principles, primary functions, and security measures, making it a valuable tool for modern education and assessment.

**Methodology**

The online examination system employs a client/server architecture, facilitating connections via web browsers from clients, either through the internet or a local host. On the server side, PHP and MySQL are utilized to manage various examination processes, including exam preparation, data storage, retrieval, and database management. This methodology ensures efficient and secure handling of exams, offering a seamless experience for users connecting through web browsers.

**Recommendation**

The study recommends the implementation of the proposed Online Examination System (OES) in educational institutions, particularly universities and colleges, as it offers significant advantages in terms of exam security and flexibility. However, careful planning and user training should accompany the adoption process to ensure a smooth transition.s

**Research Gap**

research gaps exist in relation to user experience and system optimization that need further exploration. Understanding user satisfaction, usability issues, and potential challenges during system implementation is crucial. Additionally, investigating the scalability of OES for accommodating various users and exam types is important. Research on user training and support mechanisms is also needed to ensure a smooth transition to the system and address any arising issues.

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**Methodology**

The system was developed using structured system analysis and design methodology on a web-based platform. The front-end interface utilized HTML5, CSS3, and JavaScript, while PHP served as the server-side scripting language, and MySQLi was employed as the relational database management system. PHP's flexibility and feature set made it the preferred choice for creating online and offline applications. System design focused on coordinating activities, procedures, and equipment to achieve research objectives, with a primary emphasis on output determination.

**Recommendation**

The research recommends implementing this automated information management system in tertiary institutions with similar grading systems. The system's efficiency, cost reduction, and speed in processing student results make it a valuable addition to the educational environment. It eliminates the need for manual processing, reducing human error and resource duplication.

**Research Gap**

The research gap in this context pertains to the limited focus on automated information management systems for result processing in tertiary institutions with similar grading systems. Further exploration is needed to assess the system's adaptability to various grading systems, scalability to accommodate larger student populations and its impact on reducing administrative burdens and resource consumption in diverse educational settings. Additionally, the potential challenges, user experiences, and long-term sustainability of such systems warrant more in-depth investigation to bridge this research gap effectively.

Article Title: An Enhanced Result Processing and Checking System for Public Universities using 2FA and TOTP.

Authors: Okechukwu O. Anyiam, Ugochi A. Okengwu, & Francisca N. Anyiam. (2020).

**Summary of the work**

This research addresses the prevalent challenges in result processing and checking faced by public universities in Nigeria and introduces an advanced online system to overcome these issues. It incorporates two-factor authentication for user identification, streamlining course registration, result collation, grading, publishing, and management decisions. Evaluation results demonstrate the system's significant advantages in terms of information quality, speed, security, user-friendliness, and time efficiency. Moreover, the financial analysis underscores its positive net present value (NPV) and impressive return on investment (ROI), emphasizing the potential for widespread adoption and enhancement of result processing systems in similar contexts.

**Methodology**

This study focused on two Nigerian universities, NOUN and FUTO, known for their academic excellence. NOUN had a computerized result system with challenges, while FUTO relied on manual processes. Data collection used questionnaires, interviews, electronic methods, and document examination, employing the Delphi method to gather expert opinions. Technologies like Microsoft ASP.Net, JavaScript, XML, Java, HTML, CSS, JSON, JQuery, Web-API, and Android were used to develop an enhanced online result system to address these challenges.

**Recommendation**

The proposed enhanced online system significantly outperforms the existing one based on these KPIs. Therefore, it is strongly recommended that public universities in developing countries, particularly Nigeria, adopt the proposed system to enhance the effectiveness and efficiency of their result processing and checking procedures.

**Research Gap**

While the study proposes an enhanced online system that significantly improves on these KPIs, there is a notable research gap in terms of the broader adoption of such systems across the educational landscape. Further research could explore the challenges and barriers hindering the implementation of advanced result processing and checking systems in public universities, potentially paving the way for comprehensive improvements in the education sector

**3.1 PROPOSED METHODOLOGY**

A comprehensive inquiry such as this is used in the research technique to unearth new facts or information about the current system. The research method used in this study is the primary and secondary source of data collection.

**Primary Source of Information**

This includes data gathered directly or indirectly from target users, with no edits or suggestions from other writers. This main source's material is considered more accurate and credible. As a result, the goal is to incorporate the knowledge gleaned from this source into the project in order to satisfy the criteria. Interviews and observations were used as primary source data collection strategies.

**Secondary Source of Information**

This essentially includes all of the information that someone can receive from existing sources such as books, the internet, case studies, articles, newsletters, and other relevant publications. The resources obtained from the internet in particular were quite relevant; various search engines, particularly Google, made it very easy to find information

**3.2 CHOICE OF PROGRAMING LANGUAGE**

HTML and CSS will be employed in designing the front-end, Python and JavaScript technology will be used as the scripting language; SQLite will be used as the database (backend), Django will be used as the backend. The combination of the above will help build a very robust platform that will be useful, fast, and handy.

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