

PUO DIGITAL LIBRARY SYSTEM

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Abstract:

The main idea of creating PUO Digital Library System (PDL) is to provide students, faculty, and staff with seamless access to a wealth of educational resources, including e-books, journals, research papers, lecture notes, and multimedia content. By centralizing these resources in a digital platform, the project aims to streamline the process of knowledge acquisition and research, empowering users to explore diverse topics and deepen their understanding of their respective fields of study. In today's digital age, access to information has undergone a profound transformation, with traditional libraries expanding their reach beyond physical walls into the boundless realm of cyberspace. By adapting Agile as the methodology to develop PDL, this web-based system reflects positively with users testing module which ensures the reliability and functionality of essential features within the system function are fulfilled. The result also shown that PDL are provides librarians, students and faculty with convenient access to educational materials anytime and anywhere, facilitating learning and research activities.

Key words: library, digital, PUO, system, web-based, services.

Introduction

In this technology era, digital technology has revolutionized the way we live, work, and interact with the world around us. In today's rapidly evolving landscape, digital technology encompasses a wide range of electronic devices, systems, and platforms that utilize binary code to process, store, and transmit information. From smartphones and computers to the internet and artificial intelligence, digital technology has become deeply ingrained in almost every aspect of modern life. Nowadays all has been done with the help of digital. The objectives of this project are to enable students to borrow restricted books without any problem in this PDL system, to make students easy to borrow just by clicking a button without worrying about the weather, to enhance flexibility for students PUO Digital Library System could offer 24/7 access to resources and to avoid fear of the librarians and to protect the safety of the books.

Research Methodology

This project adopts Agile methodology (Bergmann & Karwowski, 2019) and adapts it in the steps taken to complete it (Figure 1). Here the explanation of the steps:

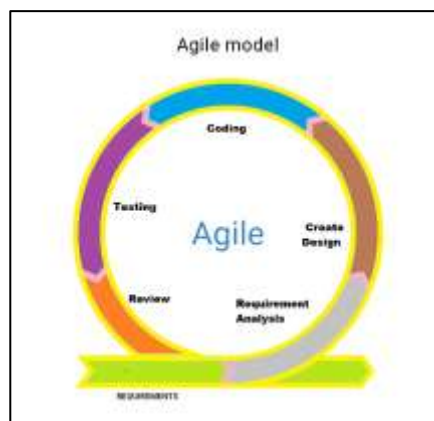


Figure 1: Agile Methodology

Agile methodology provides flexibility, enabling developer to adjust to evolving needs and integrate user feedback all the way through the process. It also will reduce rework because Agile ensure continuous feedback and collaboration with stakeholders throughout the development process. This helps identify issues and changes early, reducing the need for extensive rework later. Here the explanation of the steps:

- i. Requirements - Engage with librarian team to understand their specific needs and expectations. Identify the lack in the current service request system and understand their expectations
- ii. Design - Design the user interface with a focus on user-friendliness and a seamless requesting system data recording and incorporate feedback from librarian and users, refining the design to align with their preferences.
- iii. Develop - Develop web-based system with functionalities for each level user (admin, user). Create a real-time data recording for the librarian to add digital material (e-books etc.).
- iv. Test - Conduct thorough testing of the system on its functionality, ensuring accurate data transferring. Test the user interface for ease of use and effectiveness in real-time environment.
- v. Deploy - Deploy the completed system for the use of the library in real time.

Table 1 shows the differentiation among the existing system which discovered through literature review. From the features, PUO Digital Library will develop to increase the features that already offered by other system previously.

Table 1: Comparison study Comparison Study Among the Existing System

Digital Library System	<p>The mission of the <i>International Journal of Library and Information Services (IJLIS)</i> is to disseminate emerging research in library service innovation, and provide a venue for librarians, researchers, professionals, vendors, and academics to interact and exchange ideas. The journal addresses a variety of technologies, scholarly perspectives, and applications in the field.</p> <p>Manika Lamba (2017)</p>
The Digital Library Management System	<p>The purpose of this study is to design and implement an integrated Library Management System (LMS) to improve the efficiency of library operations and enhance the user experience for patrons. The system comprises several modules, including cataloging, circulation, acquisition, and reporting, and is built on a robust database management system. The LMS is designed to automate routine library tasks, such as cataloging and circulation, and provide real-time access to library resources, including books, journals, and other materials.</p> <p>Author : Glavin Gaga (2021)</p>
LIBRARY MANAGEMENT SYSTEM	<p>Library management system is a project which aims in developing a computerized system to maintain all the daily work of library. This project has many features which are generally not available in normal library management systems like facility of user login and a facility of teachers login. The librarian after logging into his account that is admin account can generate various reports such as student report, issue report, teacher report and book report. Overall this project of ours is being developed to help the students as well as staff of library to maintain the library in the best way possible and also reduce the human efforts.</p> <p>Author : KAMAL ACHARYA</p>

Analysis and Discussion

PUO Digital library allow students access the digital library from anywhere with an internet connection, whether they're on campus, at home, or on the go. This flexibility accommodates diverse learning styles and schedules. Advanced search functionalities enable students to quickly find relevant resources, saving time compared to browsing through physical shelves. PUO verified students have access to the platform, enhancing security and trust in the resources available. The context diagram of the system depicts Figure 1.

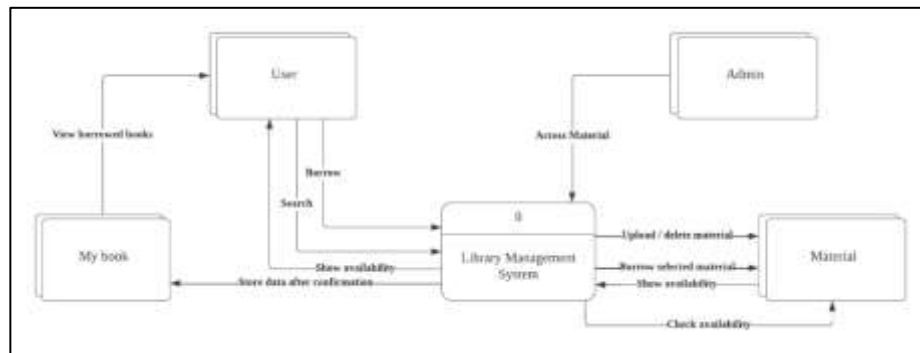


Figure 1: Context Diagram

Functional Requirement

- i. User
 - a) Users need to login by using user id and password that has been registered by admin.
 - b) Users will be able to click the edit profile and change password to edit their Gmail, phone number and the password.
 - c) PDL provides a user-friendly interface with a simple interface design. Users can search for the categories or materials to borrow and only can view the borrowed materials.
- ii. Admin
 - a) Admin should enter the id and password that has been registered to login.
 - b) Admin can be able to edit their information and change the default password.
 - c) PDL provides an interactive interface. Admin can upload or delete the materials, can manage the users.

Non-Functional Requirement

- i. Performance

The system stipulates that the platform exhibits fast response times, with pages loading within seconds even under peak usage conditions, ensuring an efficient and smooth user experience.
- ii. Reliability

Users can consistently access the platform without disruptions, ensuring uninterrupted availability of educational materials. This reliability is upheld through robust infrastructure and continuous monitoring, assuring users that the system will be accessible whenever they require it, thus enhancing their confidence in utilizing the digital library for their academic needs.
- iii. Security

Our system implements robust security measures, including strong password policies, secure encryption protocols, and mechanisms for requesting password resets via registered email addresses, to safeguard user data and prevent unauthorized access.
- iv. Compatibility

Compatible with a wide range of devices and operating systems, ensuring seamless navigation and optimal performance with minimal CPU and memory usage across various platforms.
- v. User Interface

Features an intuitive and user-friendly interface, enabling users to easily navigate, access system, and utilize features, thereby facilitating efficient usage and minimizing the learning curve for users.

Test description and result

The admin unit testing plan ensures the reliability and functionality of key features within the system. This includes validating the login process, ensuring both ID and password fields are filled before access is granted. Admins must be able to successfully edit their profiles, view materials, students, categories, authors, and borrowers, with each action thoroughly tested for accuracy and functionality. By meticulously testing each component, the plan aims to guarantee the smooth operation of the admin module, enhancing overall system performance and user experience.

The unit testing plan for the user module ensures the reliability and functionality of essential features within the system. Users must successfully fill in the username and password fields to access the system, and they should be able to edit their profiles, view materials, and borrow items with ease. The plan also verifies that users can effectively filter and search for specific materials, as well as view their borrowed items through the "My Books" section. By rigorously testing each functionality, the user module aims to provide a seamless and user-friendly experience, enhancing overall satisfaction and usability.



Conclusion and Recommendation

Digital libraries employ advanced technologies and innovative techniques to organize and index vast collections of digital content, making it easily searchable and navigable. Through powerful search algorithms, users can swiftly locate relevant materials, saving time and effort compared to traditional library research methods.

The system exhibits notable strengths, including robust security features with strong password requirements, ensuring heightened protection of user accounts. Operating within a secure domain further bolsters data confidentiality and integrity. Moreover, the system facilitates swift data entry processes, enhancing user productivity. However, a significant weakness arises in the form of misalignment when accessed on mobile devices, potentially leading to a compromised user experience.

In conclusion, the PUO Digital Library project significantly advances educational resource management by leveraging digital technologies to overcome traditional library limitations. It provides seamless multi-user access, convenient material availability, and controlled access to restricted books, enhancing the learning experience for PUO students and faculty. Overall, this initiative revolutionizes resource access and management at PUO, promoting inclusivity, efficiency, and sustainability, and paving the way for future digital library innovations.

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