Ann PUBLISHER Journal Engineering Sciences (Improsci)
e-ISSN 3031-7088
p-ISSN 3032-3452

Digitization Of The Pangeran Cakrabuana Museum: A Website-Based Cultural Asset Management Information System

Dian Novianti [1], Freddy Wicaksono [2]
[1] University of Muhammadiyah Cirebon, Cirebon, Indonesia dian.novianti@umc.ac.id
[2] University of Muhammadiyah Cirebon, Cirebon, Indonesia, Freddy.wicaksono@umc.ac.id
Corresponding Author Email: dian.novianti@umc.ac.id

Abstract:
Background. This research discusses the digitization of the Prince Cakrabuana Museum through the development of a website-based cultural asset management information system. The background of this research is that the accessibility and efficiency of museum information management remain limited in conventional ways, which affects the dissemination of information and public museum promotion.
Aims. This research aims to design and implement a website-based information system that supports the processes of cultural asset inventory, collection documentation, and digital museum information delivery.
Methods. The research method used is a qualitative descriptive case study, conducted at the Cirebon Regency Culture and Tourism Office. Data collection techniques are carried out through observation, interviews, and documentation during Field Work Practice (PKL) activities.
Result. The results of the study show that the developed system can manage cultural asset data more structurally, increase public access to information, and support the digital promotion of the Prince of Cakrabuana Museum.
Conclusion. The conclusion of this study shows that the application of a website-based information system can improve the efficiency of museum asset management and public interest in the preservation of cultural heritage.

Keywords: Digitalization, Museum, Information Systems, Cultural Assets, Website

INTRODUCTION

The rapid development of information and communication technology has brought significant changes in various sectors, including the cultural and tourism sectors. Digitalization is one of the important strategies for improving data management efficiency and expanding public access to information. Museums, as institutions of cultural heritage preservation, play a strategic role in providing historical information and education to the public.

The Cirebon Regency Culture and Tourism Office manages various regional cultural assets, including the Prince Cakrabuana Museum. Based on observations during the implementation of Field Work Practices (PKL), museum information management is still carried out conventionally and has not been integrated into a single official digital platform. This condition makes it difficult for the public to obtain information on collections, activities, and museum visit schedules.

Therefore, this research focuses on developing a website-based information system to digitize the management of the Prince Cakrabuana Museum's cultural assets. This system is expected to improve data management quality, facilitate public access to information, and serve as an effective digital promotional medium.

Research on museum digitization and information technology-based management of cultural assets has advanced rapidly over the past decade. Previous studies have shown that the application of web-based information systems can improve the efficiency of data collection and management, expand access to public information, and strengthen the promotion of cultural tourism. Digital museums are generally focused on digital cataloging, virtual galleries, and online visit information.

However, most previous research remains conceptual or focused on the development of general systems, without examining in depth the actual implementation in regional museums with limited resources that still use conventional systems. In addition, many museum digital systems have not been fully integrated to support the functions of cultural asset inventory, collection documentation, museum activities, and public interaction within a single unified platform.

In this context, this article situates itself at the intersection of museum digitization, cultural asset management information systems, and local e-government, with a case study approach to regional museums.

LITERATURE REVIEW

Digitalization usually refers to the process of using digital technology to transform business processes, human activities, and society as a whole into a digital or automated form. This includes the use of computer software, hardware, and networks to collect, store, manage, process, and share digital information.

Advances in information technology through digital products provide easy access to information for humans, which affects changes in business patterns in the tourism industry (Pria Atmaja & Edu, n.d.). In the context of tourism and museums, digitalization plays an important role in enhancing the visitor experience and disseminating cultural information (Fajarwati & Wulandari, 2023).

According to Sugma Priawan et al. (in Journal of Information Systems, Applied, Management, Accounting and Research, 2022), "A system can also be defined as a logical procedure for designing a set of components or elements to achieve a specific goal". According to Yasir (2020), information is processed data that provides benefits and decision-making material to the recipient.

An information system *(Information System)* is a collection of components that are interconnected and work together to collect, process, store, and disseminate information (Nitami et al., 2021).

Based on the review of the article and related research, several research gaps have been successfully identified:

1. Limitations of Implementative Studies in Regional Museums. There is still a lack of research on the implementation of web-based museum information systems in a practical manner in regional museums with conventional management structures.
2. Lack of Integration of Cultural Asset Management Systems. Previous research has tended to separate the functions of collection documentation, public information, and promotion, without integrating them into one unified management system.
3. Lack of Evaluation of the Impact on Management and Public Interest. Many studies have not clearly highlighted how digital systems affect the efficiency of museum managers' work and increase public access and interest.
4. Limitations of Real Needs-Based Development Models. Some studies still focus on theoretical system design, without a case-study approach grounded in users' direct needs in the field.

METHODS

This study uses a qualitative descriptive method with a case study approach. The research will be conducted at the Cirebon Regency Culture and Tourism Office and will take place from October to November 2025. The study's subjects include museum staff and managers involved in the management of cultural assets.

Data collection is carried out through direct observation of the running system, interviews with relevant parties, and document analysis. The stages of system development follow the *System Development Life Cycle* (SDLC), which includes needs analysis, system design, implementation, and testing. The software used includes PHP with the Laravel framework, MySQL as a database, and Visual Studio Code as a code editor.

DISCUSSION

The main novelty of this research lies in the following aspects:

1. Local Implementation Context. This research specifically examines the digitization of the Prince of Cakrabuana Museum, managed by the regional Culture and Tourism Office, to make an empirical contribution to the development of museum information systems at the local government level.
2. Web-Based Cultural Asset Management Integration. The developed system functions not only as an information medium but also as a cultural asset management system, encompassing collection inventory, digital documentation, activity management, and public feedback services, all integrated into one platform.
3. Practical approach based on field needs. The system's development is based on observations, interviews, and documentation of street vendor activities, ensuring the system's design truly reflects the real needs of museum managers.
4. Contribution to the Digital Promotion of Regional Museums. This research emphasizes the role of information systems in promoting museums that were previously underperforming, especially to increase visitor interest and awareness of cultural preservation.

The developed information system consists of two main parts: the administrator interface (backend) and the public user interface *(frontend).* Administrators have access rights to manage category data, museum collections, activities, visit data, and public complaints through a secure login system. Meanwhile, public users can access museum information without authentication.

The implementation of this system improves the management of cultural asset data that was previously scattered and poorly documented. The system also makes it easier for the public to obtain accurate and up-to-date information about the Prince of Cakrabuana Museum. This aligns with previous research indicating that web-based information systems can improve the efficiency and quality of information services.

Table 1. Features of the Information System of the Prince of Cakrabuana Museum

Yes	System Features	Description
1	Collection Management	Manage museum collection data, including collection names, categories, descriptions, and photo documentation.
2	Digital Gallery	Presenting information on museum collections in the form of visual displays that the public can access
3	Activity Management	Managing data on activities and agendas organized by the Cakrabuana Prince Museum
4	Visit Information	Provide information on operational schedules and procedures for museum visits.
5	Community Comments	Facilitate the public to submit criticism and suggestions online

Source: Research Data

Image

In system design, UML (Unified Modeling Language) is used to facilitate understanding in describing system design (Informatics & Information, 2023).

1) Use Case Diagram

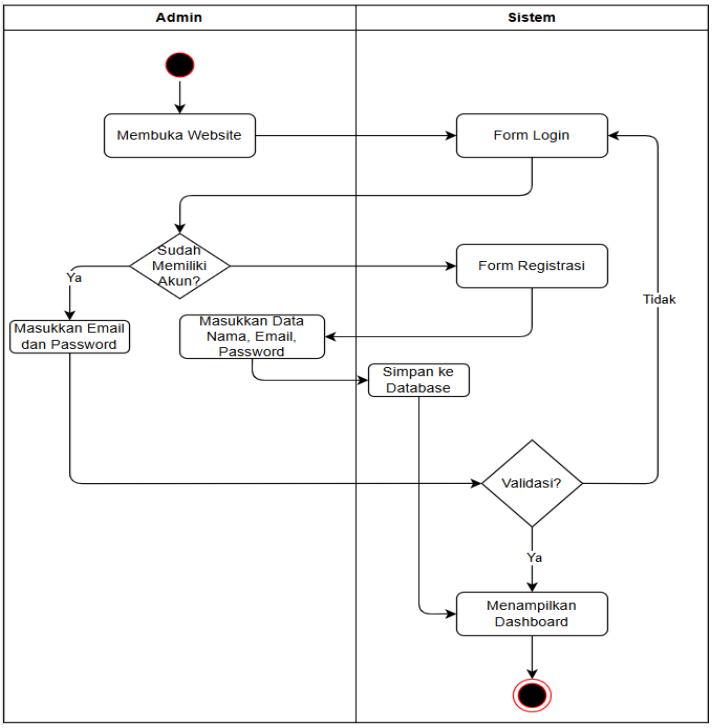
   The *Use Case diagram* in Figure 2 depicts the functional interactions between users (actors) and the Prince of Cakrabuwana Museum's information system. There are two leading actors in this system: Administrators and Visitors. Administrators have administrative access rights that require the authentication process (*login*) to perform system data management and updates. On the other hand, the Visitor actor can access public information on the *website* without a *login*. The main functionalities available to the Visitor include searching the website and sending criticism and suggestions. The Administrator can also view the public interface *of the website* as seen by the Visitor.

Source: Planning Results

Figure 1. Use Case Diagram Museum Information System

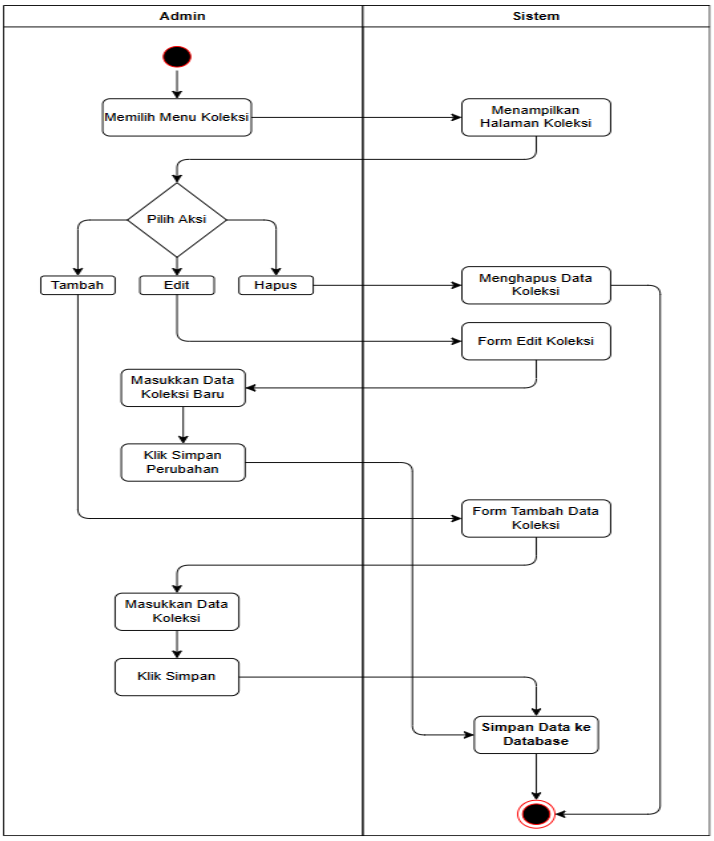
2) Activity Diagram Data Management Administrator

Activity diagram modeling the administrator's workflow in managing the content of the Prince Cakrabuwana Museum's website. The process begins with the authentication stage, where the system validates the credentials (*username* and *password*) entered by the administrator. If authentication is successful, the system will grant access to the main page (*dashboard*) of the management. Next, administrators can select specific data management menus (such as the News, Gallery, or Collections menu). The system then displays the data input form. After the administrator fills out the form and submits it, the system executes a save query to the database and displays a notification of the process's success status.



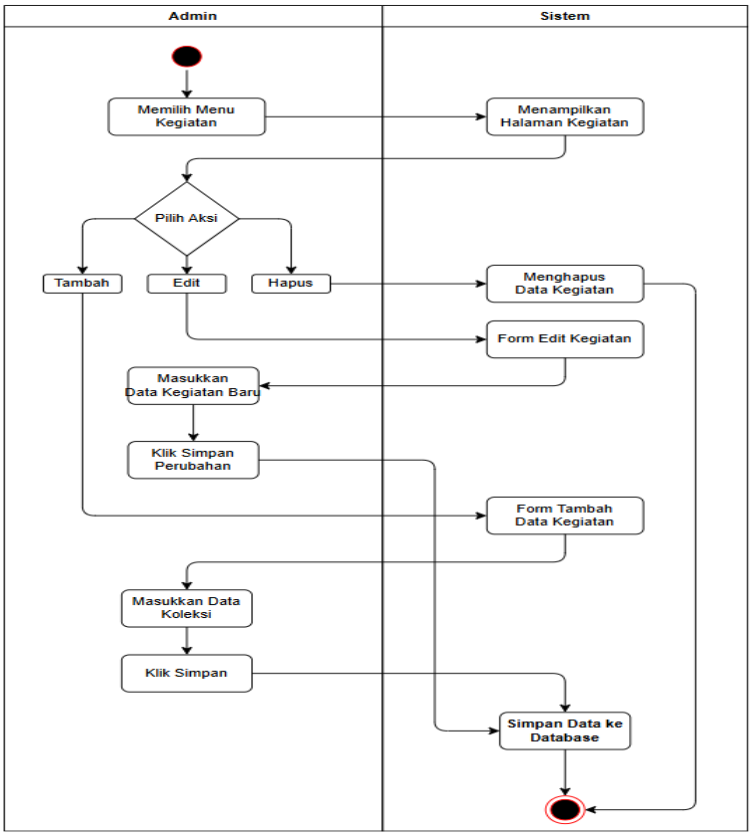
Source: Planning Results

Figure 2. Diagram Activity Login



Source: Planning Results

Figure 3. Collection Activity Diagram



Source: Planning Results

Figure 4. Diagram Activity Kegiatan

Here are some *screenshots* of the *finished website*, shown in the following image:

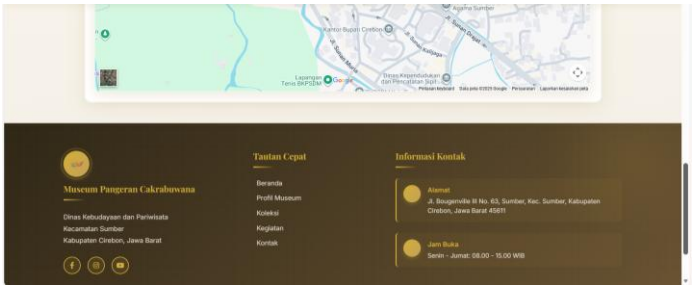
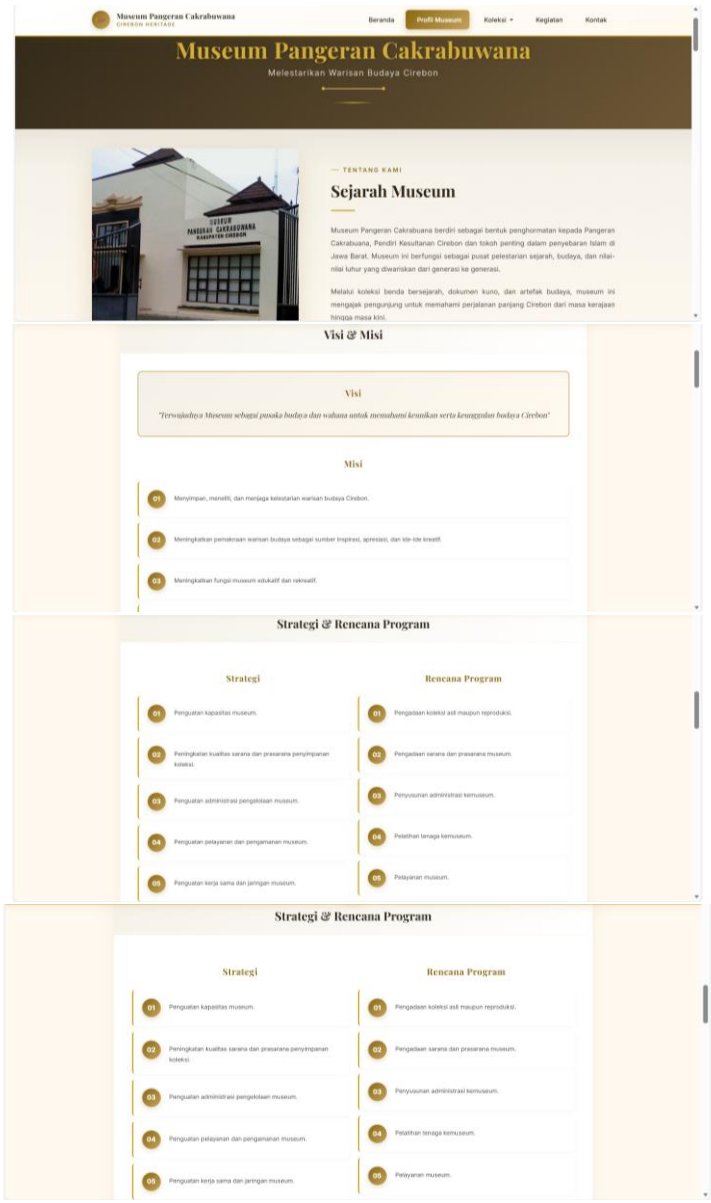


Figure 5. Home page view



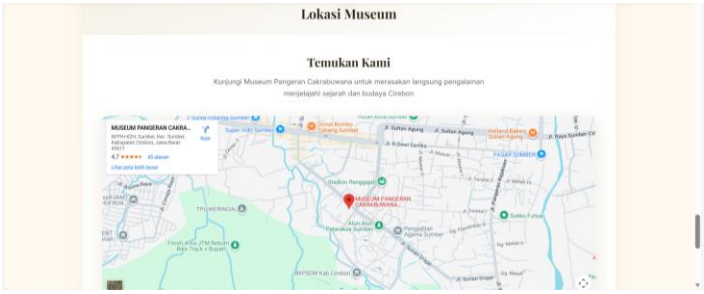


Figure 6. Profile Museum page view

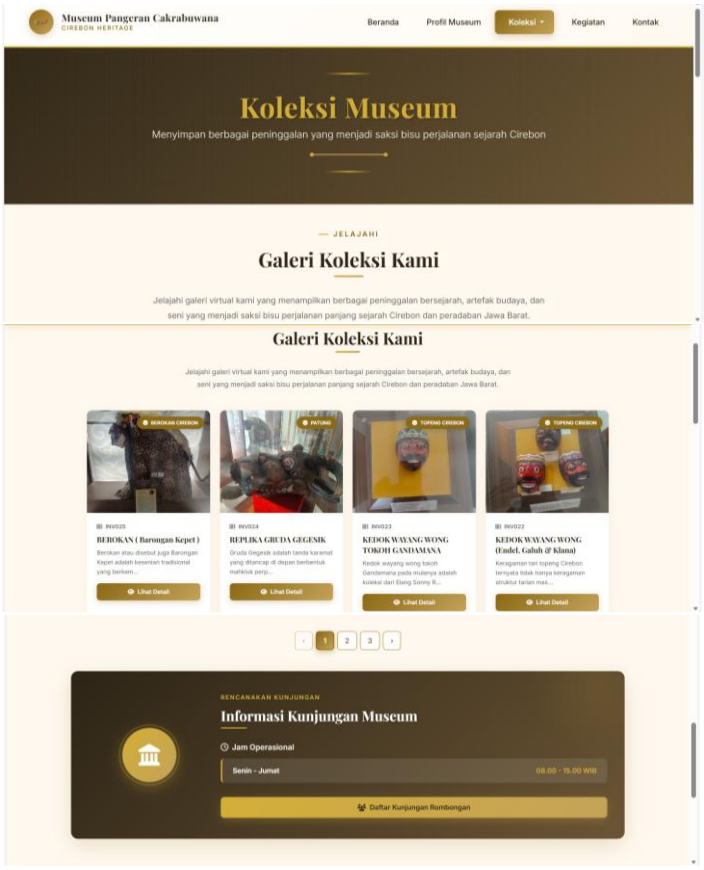


Figure 7. Collections page view

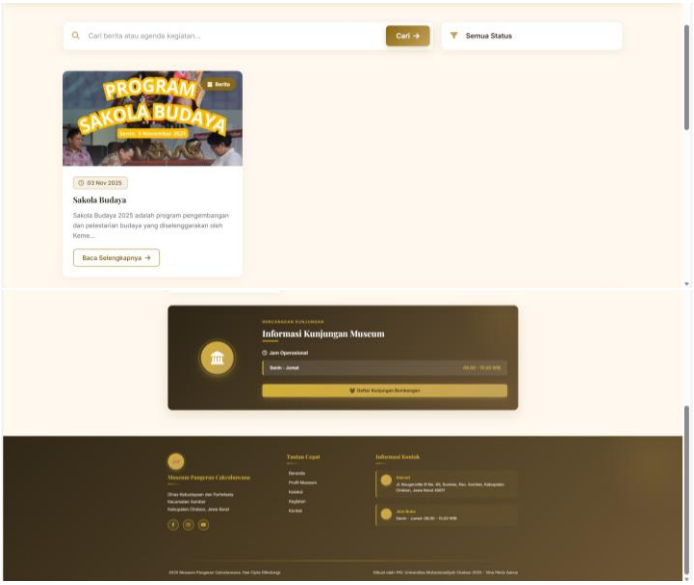


Figure 8. Activity page view

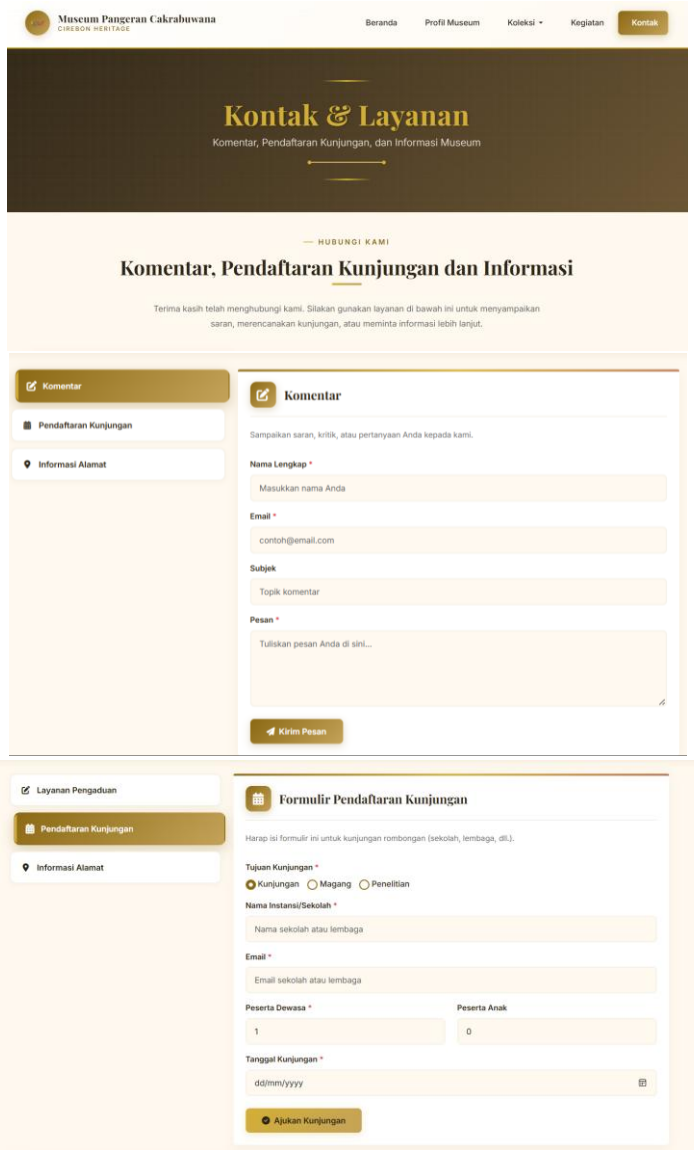


Figure 9. Contact page view

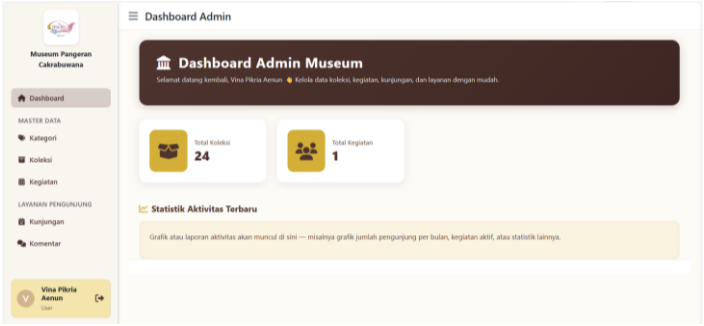


Figure 10. Dashboard page view

CONCLUSION

Based on the research results, it can be concluded that the digitization of the Prince of Cakrabuana Museum through the implementation of a website-based cultural asset management information system can improve data management efficiency and the quality of information services to the community. This system supports a structured inventory of cultural assets, improves access to information, and strengthens the museum's digital promotion. Thus, the research objectives have been achieved, and the developed system is feasible to implement.

This research fills the research gap by presenting a case study of the implementation of regional museum digitization through an integrated web-based information system, as well as offering a practical model of cultural asset management that can be replicated in other regional museums.

Implications

This research provides implications for the academic world as a reference for the development of information systems in the field of culture. For government agencies and the public, this system supports transparency in information, cultural preservation, and increased

interest in museum visits. More broadly, this research encourages digital transformation in museum management to strengthen cultural identity and tourism competitiveness.

Acknowledgements:
The author would like to thank the Cirebon Regency Culture and Tourism Office and the University of Muhammadiyah Cirebon for their support and guidance during the implementation of the Field Work Practice and the preparation of this research.

BIBLIOGRAPHY

Pria Atmaja, J., & Edu, J. (n.d.). Journal of Tourism Destinations The Role of Information Technology in Increasing the Competitiveness of Tourism Destinations in Indonesia.

Fajarwati, A. A. S., & Wulandari, A. A. A. (2023). Overcoming challenges in the reconstruction of cultural heritage: the convergence of digital and physical museums in a hybrid space. JSRW Journal of Color Arts, 11(2), 107–120. https://doi.org/10.36806/jsrw.v11i2.192

Sugma Priawan, A., Aprian Nugraha, R., & Robiul Rochmawati, D. (2022). Design of a web-based new student registration information system at the Kalyana Learning Center using PHP Laravel. Journal of Information System, Applied, Management, Accounting and Research. (Printed), 6(2), 317–326. https://doi.org/10.52362/jisamar.v6i2.756\

Yasir, A. (2020). Web-based library information system at Dharmawangsa University Library. Djtechno: Journal of Information Technology Research, Vol.1, No.2, 2020.

Nitami, A., Munthe, A.A., Masrizal. (2021). Web-Based Rantauprapat Hotel Reservation Information System with Codeigniter Framework. Journal of Student Development Information System (JoSDIS). 1(1), 7–17.