

Implementation of Information System Based on Website as Introduction to Sumbawa's Typical Sakeco Oral Literature

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Abstract— Indonesia is an archipelago that is very rich in traditional culture. Traditional culture plays an essential role in attracting tourists. Sakeco is a traditional culture of the Sumbawa tribe. If people do not know the existing culture, it will not be easy to preserve today's culture. Poto Village dance studio still uses books for practice and memorizing types of Sakeco Verse. The books in the studio are very limited because some are stored in the regional library. Information systems have been widely implemented to preserve culture. Hence this research carried out the implementation of information systems to introduce Sakeco oral literature. This research produced a website-based Sakeco oral-literary recognition system with admin features: Posts to add new posts, problem data by creating, recording, updating, deleting, and searching for quiz needs, users to view admin data, and settings to organize posts and website views. While users: do quizzes and see answers as a learning medium, see the History of Sakeco, Sakeco Verse, Sakeco Anorawi, and Sakeco Anosiup, and latest posts to see the latest posts and popular posts to see the most opened posts. Development methods using waterfall, designing methods using Unified Modeling Language, black-box testing get results as expected from various functionality tests. This information system is expected to help the Poto Village dance studio, Sumbawa people and tourists who want to get to know Sumbawa's typical oral literature (Sakeco) and become one of the ways to maintain and preserve the tradition of Sakeco Verse in the Sumbawa area.

Index Terms— Black-Box Testing; Information System; Sakeco Oral Literature; Waterfall; Website.

I. INTRODUCTION

Indonesia is an archipelago rich in traditional culture [1]. The culture embraced has the characteristics of each tribe spread across 34 provinces in Indonesia. Indonesian people still run and preserve traditional culture in everyday life, and this is because the existence and values are still held firmly by the people of Indonesia [2]. Traditional culture also plays an essential role as a source of regional income, especially to attract tourists [3]. This situation makes the government, institutions, or related elements must be able to optimize the preservation of existing culture.

Along with the development of information technology, it has become easy to share data and

information with the public, one of which is information about learning and cultural recognition [4]. learning and cultural recognition is the first step to maintain and preserve the existing culture. If the public does not know about the existing culture, it will be a difficult thing in the future for related parties to preserve the existing culture.

Sumbawa Regency is part of Indonesia with a distinctive poem that is chanted with oral known as Sakeco. Sakeco is a traditional art performance of the Sumbawa tribe, also known as Sufi music, because its content contains philosophical meanings [5]. The story illustrates the message of love to God and kindness in living life. In his performance, Sakeco involves two players who play storytellers who must also be able to play tambourine as accompaniment music. Sakeco usually performs at weddings or religious events such as maids, cultural festivals, and welcoming ceremonies. Based on the observations of the art activity community, namely Sanggar Tari (dance studio) Poto Village Moyo Hilir-Sumbawa Subdistrict, where this dance studio does exercises three times a week, but in practice, they still use books to memorize the types of Sakeco Verses. Works that traditional Sumbawa figures have preserved are still in the form of books, and the number is limited. Some books are stored manually in the Sumbawa Regional Library and the art studios of the Sumbawa area, which leads to inefficient processes in the current studio. Therefore, the purpose of this research is the implementation of the Sakeco oral-literary recognition information system to help Poto Village dance studio, indigenous and outside Sumbawa people who want to know and know Sumbawa's typical oral literature (Sakeco) and become one of the ways to maintain and preserve the Sakeco Verse tradition of the Sumbawa area.

Research has been done in the field of information systems, especially the application of cultural recognition aspects, where this information system can accelerate the flow of information received by users, the accuracy and novelty of information, and can be accessed by anyone because it is global [6]. Information systems are a form of software that can convert manual

processes into digital forms by providing time efficiency advantages and ease of solving problems [7]. Website-based information systems have been widely implemented to solve the problem of preserving traditional culture in Indonesia because they can be accessed online through the internet network and can be done anywhere and anytime [8]. A website is a set of domain pages linking web pages with related files and displaying information online. The basis of the website is widely implemented in the creation of information systems due to flexibility, shareability, and having an access policy [9]. Therefore, the information system in this research was built using a website base.

Previous studies conducted by other researchers related to those studied today are as follows: D. Puspita and Y. I. Mukti (2019) Designing and creating a Basemah literary recognition information system using Unified Modeling Language (UML) as a modeling method and Rapid Application Development (RAD) as a development method. Information systems are built to convey cultural recognition to the broader community [10]. This previous article did not use testing methods, and there is no quiz feature as a learning medium. In comparison, the article in this study uses the black box testing method for system testing and has a quiz feature as a learning medium. M. H. Waliyuddin, A. S. Sukanto, and H. Anra (2019) Researching the design of cultural and tourism recognition applications that aim to make it easier for tourists and the wider community to see the beauty of tourists attractions located in Pontianak City. Research in this previous article uses a website base for information systems built by black-box testing methods [11]. This previous research did not describe modeling and did not have quiz features as a learning medium. While in this study uses the Unified Modeling Language (UML) method for modeling and has a quiz feature as a learning medium. A. Maulana, A. Fauzi, U. Radiah, and F. O. Reynaldi (2020), I. I. Wahyudi, S. Bahri, and P. Handayani (2019) utilize android-based information system technology for the introduction of traditional culture so that it becomes a forum for cultural preservation [12], [13]. The difference with this article is the object being studied and the research site and the basis used. Based on previous research that has been studied related to current research, the strength of this research is the Unified Modeling Language (UML) technique as a designing method, the black-box method for system testing, and information systems will have a quiz feature as a learning medium for visitors.

II. THEORETICAL FRAMEWORK

A. Oral Literature

Oral literature or folklore is part of a culture that grows and develops in society and is passed down through generations orally as a common property [14]. Oral literature mirrors the situation, conditions, and manners of its supporting society.

B. Sakeco

Sakeco is one of the art forms sourced from old or typical verse tau Samawa (Sumbawa community) [5]. Sakeco is a very flexible and dynamic art. Sakeco can be loaded by Lawas Saran, Lawas Tau Loka, Lawas Muda-Mudi, Lawas tode made in the form of speech (narrative stories)

C. Information System

An information system is a collection of interconnected components in collecting, processing, storing, and distributing information to support decision-making and control [15].

D. Website

A website is the entire web page contained in a domain that contains information. A website is usually built on many related web pages [16].

E. Model System Development Life Cycle (SDLC) waterfall

The waterfall is a sequential or sequential software development approach starting from analysis, design, coding, and testing [17].

- The analysis stage is used to document the needs of the software specifications to be used by the user.
- The design stage translates software needs from the needs analysis stage to the design representation.
- The coding stage of implementing the computer program follows the design that has been made at the design stage.
- The test stage is carried out to minimize errors (errors) and ensure the output produced is following the desired.

F. Unified Modeling Language (UML)

UML is a methodology for modeling object-oriented systems development using diagrams and supporting texts [18].

G. Black Box Testing

Testing that focuses on the functional specifications of the software, the tester can define a set of input conditions and test the functional specifications of the program [19].

H. HyperText Markup Language (HTML)

HTML is the markup language of a text document. Markup symbols used by HTML are marked with more minor marks (<) and more significant marks (>) [20].

I. Hypertext Preprocessor (PHP)

PHP is a server-side language that blends with HTML to create dynamic web pages [21].

III. RESEARCH METHOD

The development of information systems using the SDLC waterfall model development method because the user's needs at the beginning are known so that the development process can be structured [22]. The object used as a research place is Sanggar Tari (Studio Dance), located on Jl. Balai Pertemuan RT 002/004 Bekat Poto Village Moyohilir District Sumbawa Regency, West Nusa Tenggara. The problems and manual processes in the dance studio are solved with an information system to be digitized. Lisa Sakeco's literary recognition information system was built on an HTML website with a bootstrap framework and PHP as a programming language for modeling using Unified Modeling Language (UML). The stages of the waterfall development method can be seen in Fig. 1.

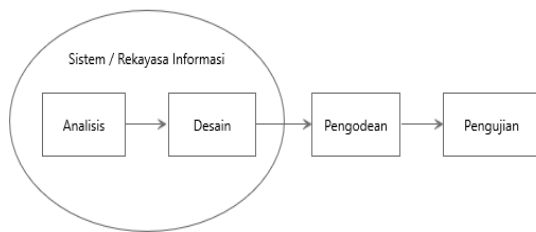


Fig. 1. Waterfall Development Method

A. Analysis

The Analysis stage is carried out to determine the needs of the entire system to be built by collecting data or related information. The data collection method used is qualitative because it uses some of the data obtained and utilizes previous theories [23]. As for the process carried out: (1) Observation, after directly observing the ongoing process, found a problem of preserving culture and passing it on to the next generation. So it is proposed to build an information system to solve the problem. (2) Interview directly with Mr. Ariffianto, part of the chairman of the studio dance, he revealed: "Sakeco oral literature must be known by the wider community" because the basis used is a website to make it easier for the public to know information. (3) Literature Study is by collecting papers and books through Google Scholar to support research.

B. Design

The design stage is carried out to project the results of the analysis stage. Unified Modeling Language (UML) is applied at the design stage because it supports the development of information systems with the Object-Oriented Programming (OOP) paradigm [24]. UML modeling provides ease of system design so as to minimize errors in making applications [25]. UML can describe the structure of the actors involved, the activities of each actor, the processes and mechanisms of information systems to introduce Sakeco oral literature. In designing the information system in this study, the Use Case Diagram can be seen in Fig. 2.

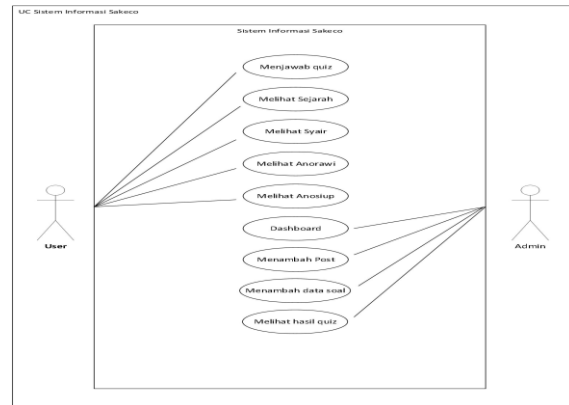


Fig. 2. Use Case Diagram Sakeco Introduction Information System

Fig. 2 above is a use case diagram for accessing the oral literary recognition information system typical of Sumbawa based on a website describing two actors involved with each other on the information side, namely users and admins. The user's role can see the content of Sakeco Anosiup, Aakeco Anorawi, Sakeco Verse, and answer quizzes on the information system provided by the admin. While the role of the actor admin is to login through the dashboard, add posts, add data questions, and see quiz data that users have filled in.

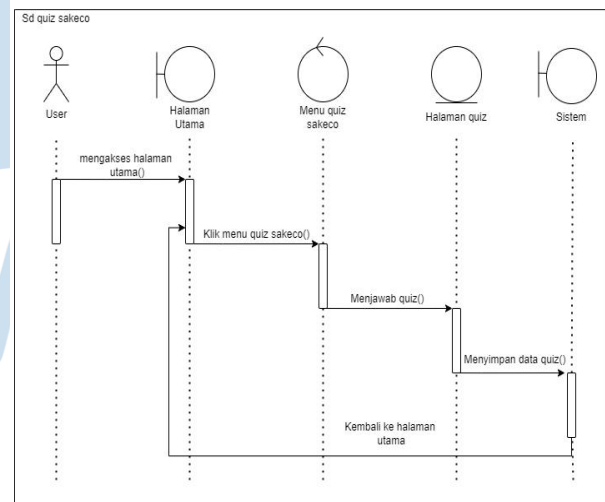


Fig. 3. Sequence Diagram Quiz

Fig. 3 describes the Sakeco quiz diagram sequence. The process begins when the user opens the information system, and the first one that appears is the main page. After that, users can click on the Sakeco quiz menu on the main page. When the quiz menu is clicked, the view is information about Sakeco quiz questions. If the quiz has been done, the system will save the quiz data, and the user can return to the main menu. the quiz results that have been done by the user can only be seen by the admin through the quiz data menu in the admin dashboard. Admin can send the results directly to the user via an email that has been filled in by the user.

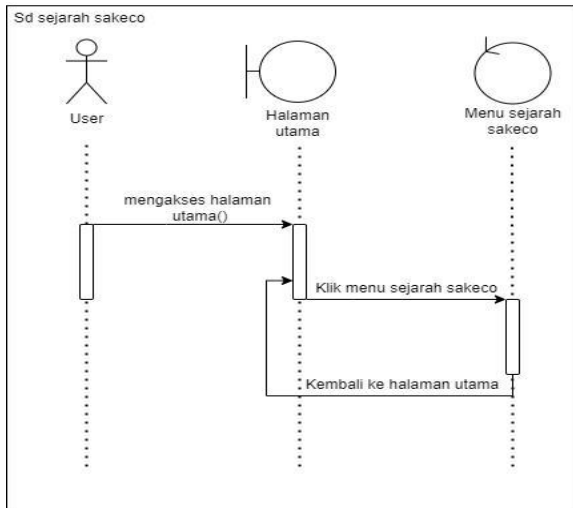


Fig. 4. Sequence Diagram History of Sakeco

Fig. 4 describes the sequence diagram of Sakeco history. The process starts when the user opens the information system, and the first one that appears is the main page. The user can click on the Sakeco history menu on the main page. The look that appears when the Sakeco history menu is clicked is information about the origin of Sumbawa Sakeco. Suppose the information has been obtained. Users can return to the main page.

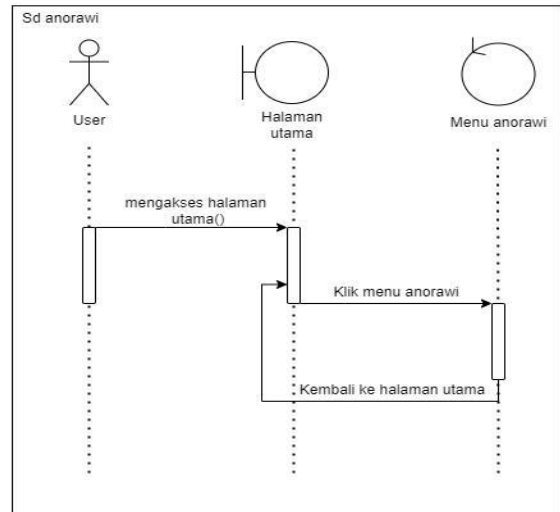


Fig. 6. Sequence Diagram Anorawi

Fig. 6 describes the sequence of Anorawi diagrams. The process starts when the user opens the application, and the first one that appears is the main page, and the user can click on the Anorawi menu on the main page. When the Anorawi menu is clicked, the view is information about anorawi. If the information has been obtained, the user can return to the main page.

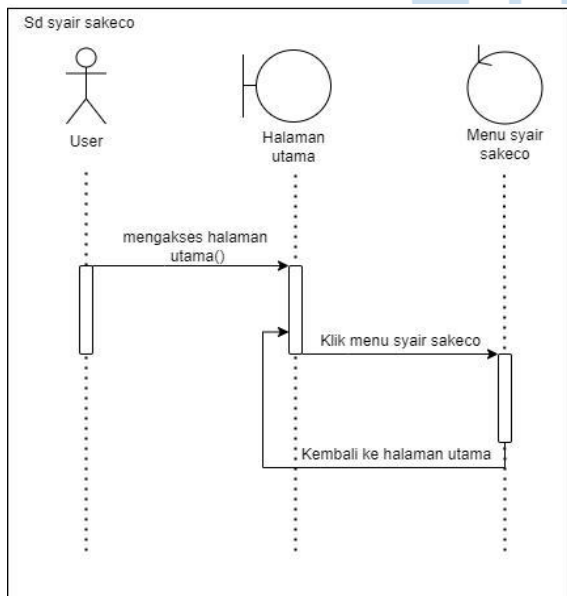


Fig. 5. Sequence Diagram Verse

Fig. 5 describes the Sakeco Verse diagram sequence. The process starts when the user opens the application, and the first one that appears is the main page. The user can click on the Sakeco Verse menu on the main page. When the Sakeco Verse menu is clicked, the look that appears is information about Sakeco Verses. If the information has been obtained, the user can return to the main page.

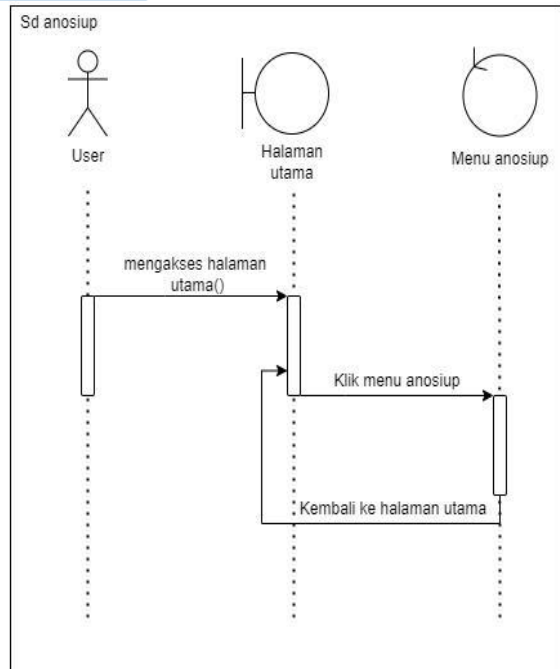


Fig. 7. Sequence Diagram Anosiup

Fig. 7 describes the sequence of Anosiup diagrams. The process starts when the user opens the application, and the first one that appears is the main page. The user can click on the Anosiup menu on the main page. When the Anosiup menu is clicked, the view is information about Anosiup. If the information has been obtained, the user can return to the main page.

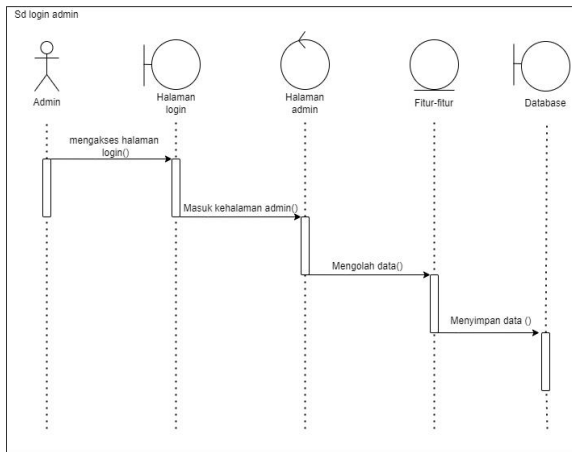


Fig. 8. Sequence login Admin

Fig. 8 describes the admin login diagram sequence. The process starts when the admin opens the application, and the first one that appears is the login page. After the admin goes to the login page, the admin can go to the features page to process the data. After the admin has finished processing the data, the admin can enter the database to save the data.

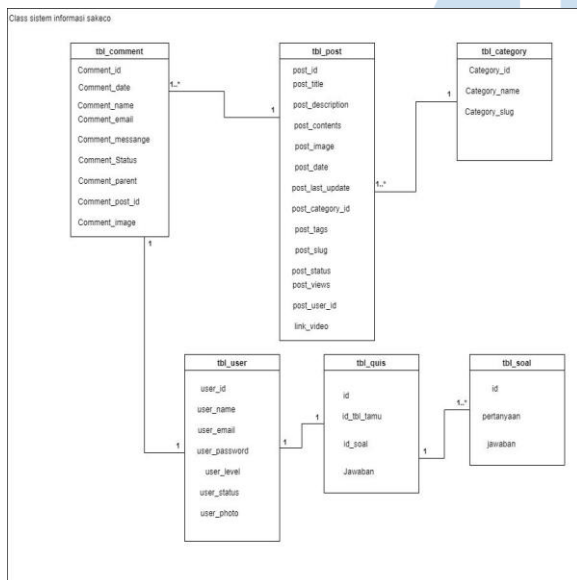


Fig. 9. Class Diagram Sakeco Introduction Information System

Fig. 9 is a class diagram in accessing the information system of oral literary recognition of Sakeco typical of Sumbawa based on a website that describes each class can be seen and related between class one and another class.

C. Coding and Testing

The coding stage uses HTML with bootstrap framework and PHP as a programming language [20], [26]. Text editor creates information systems using visual studio code. The black box testing method is used for the system testing stage because it highlights functionality based on user needs specifications [19]. MySQL was chosen as a database system because it is free and widely used [27].

IV. RESULT

Based on the analysis and design stage, the next step is the implementation of information systems with code. The results of implementation of the information system for the introduction of oral literature Sakeco typical of Sumbawa based on the website include several parts, namely as follows:

A. Admin Login Page Implementation

This page grants admins access rights to use the information system. The admin login page consists of an email textbox, a password textbox, and a login button. The login button serves to process the email, and the password is appropriate or not to proceed to the next page. The admin login page can be viewed in Fig. 10.

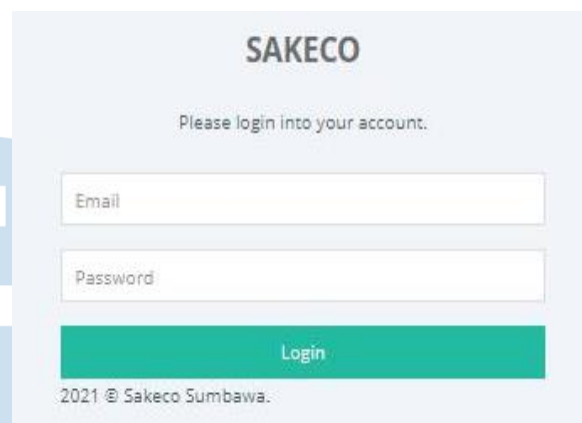


Fig. 10. Admin Login Page View

B. Admin Main Page Implementation

The main admin page is the initial view on the admin account after successfully logging in. This page has several menus, including posts, problem data, quiz data, users to view admin data, settings to set the website's appearance and log out to exit the information system. You can see fig. 11.

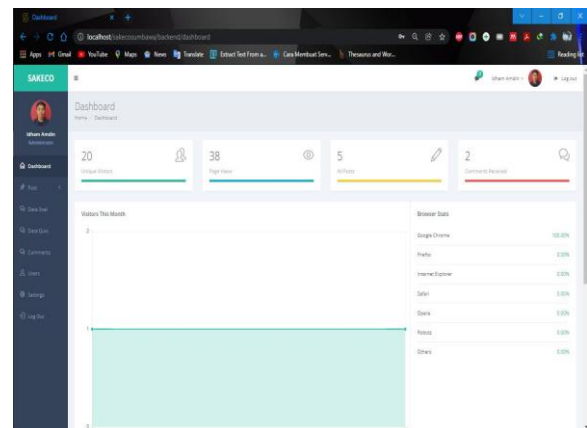


Fig. 11. Admin Main Page View

C. Admin Post Page Implementation

The posted menu has several sub-menus, including add new to add new posts, a post list to see the list of

posts posted, a category to see posts by category, Tags to see groups of posts. Can be seen in Fig. 12.

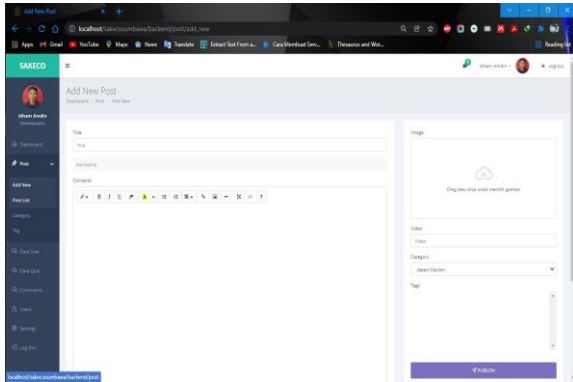


Fig. 12. Admin Post Page View

D. Admin Question Data Page Implementation

Admins use this page to see questions that have been inputted, answers to questions, perform livelihood actions, edit and delete questions, and admins can edit questions and answers, which can be seen in Fig. 13.

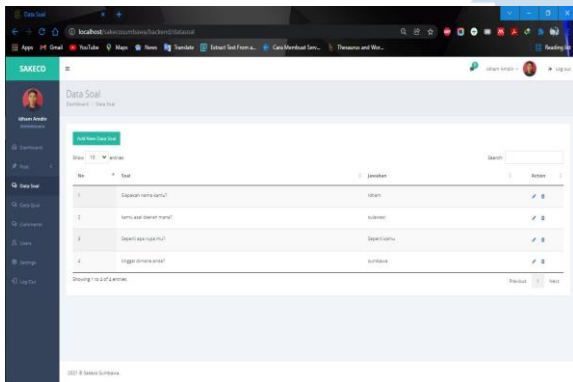


Fig. 13. Admin Question Data Page View

E. Admin add Question Data Page Implementation

Add new data questions can be seen in Fig. 14, where admins can enter questions, correct and false answers. The answers that users see in multiple choices will be random.

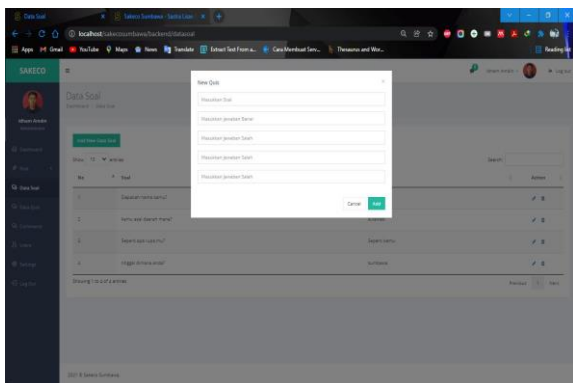


Fig. 14. Admin add Question Data Page View

F. Admin Quiz Data Page Implementation

Admins use this page to see the data and answers of users who have filled in quizzes. Seen in Fig. 15.

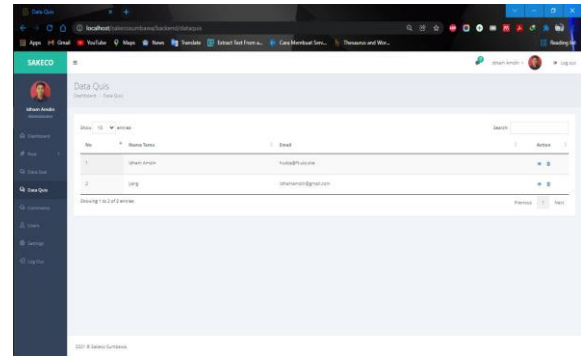


Fig. 15. Admin Quiz Data Page View

G. Admin View Quiz Data Implementation

Admins use the action of viewing quiz data to see details of the names and emails of users who have answered the quiz, as well as see the answers that have been selected and this feature is expected as a cultural learning media to maintain and preserve the current culture. Can be viewed in Fig. 16.

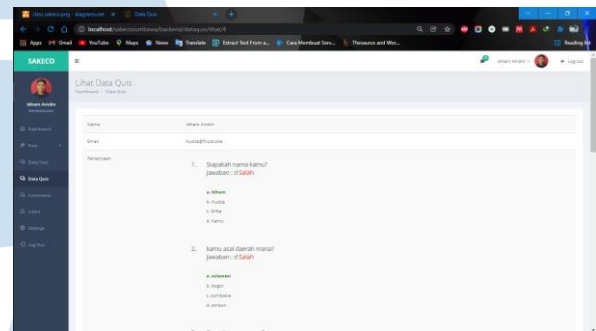


Fig. 16. Admin View Quiz Data

H. User Home Page Implementation

The user's main page is the initial display of the information system that will be seen by the user/visitor. This page has several menus, including quizzes, history, verses, Anorawi, Anosiup, and latest posts to see the latest posts and popular posts to see the most opened posts. You can see fig. 17.

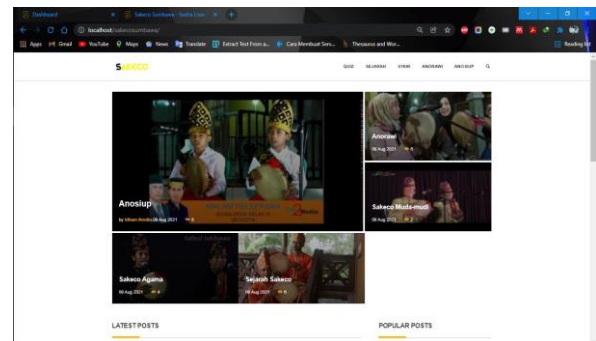


Fig. 17. User Home Page View

I. User Quiz Page Implementation

Users use this page as a learning medium to test their discussion of posts that have been read. The user must enter the name and email, answer the question, and then submit to see the correct answer. It can be seen in Fig. 18.

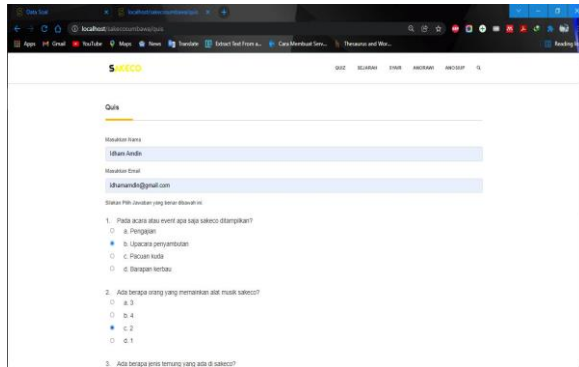


Fig. 18. Quiz User Quiz Page View

J. History, Verse, Anorawi and Anosiup Page for users Implementation

Users use this page to get the information they want. This page contains videos that have been embedded from Youtube, then equipped with captions. Anosiup pages that have been clicked or in cannot be seen in Fig. 19.

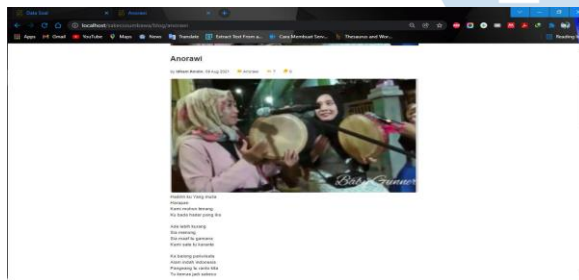


Fig. 19. User Anosiup Page View

K. Information Systems Testing

In testing information systems using the black box testing method. The test involved Mr. Ariffianto as a user and Mr. Herfandi, M. Kom as an IT experts. Black box test results as presented in Table I.

TABLE I. BLACK BOX TESTING RESULT

Test Scenarios	Expected results	Result
Login Page Testing		
Input email and password correctly	The system will go to the admin's main page	Appropriate
Admin Home Page Testing		
Click the add post button	The system will go to the add post page	Appropriate
Click the data button about	The system will go to the add data page about	Appropriate
Click the quiz data button	The system will go to the guest page that has answered the quiz	Appropriate

Click the log out button	The system will log out and return to the admin login page	Appropriate
Post Page Testing		
Fill in the data add posts, videos and images	The post will appear on the user's main page	Appropriate
Click the publish button	The post will appear on the user's main page	Appropriate
Question Data Page Testing		
Click the data button about	The matter will go to the view of the plus question	Appropriate
Question Data Add Testing		
Fill in the added data about	the post will appear on the user quiz page	Appropriate
Quiz Data Page Testing		
Click the quiz data button	Can see a list of users who have filled out the quiz	Appropriate
Quiz Results Page Testing		
Click on the results of quizzes that have been filled in by the user	quiz results that have been filled in by the user	Appropriate
User Page Testing		
Click the quiz button	Will go to the quiz page	Appropriate
Click the Sakeco history button	Going inside the Sakeco history page	Appropriate
Clicking the Sakeco Verse button	Going inside into the Sakeco Verse page	Appropriate
Clicking the Anorawi button	Will go into the Anorawi page	Appropriate
Clicking the Anosiup button	Will go inside the Anosiup page	Appropriate
Quiz Page Testing		
Fill in the name, email and answer quiz and click the save button	The data will be logged in and stored in the admin page	Appropriate
History Page Testing		
Click on the Sakeco history picture that is in the information system	Will be included in the historical display of Sakeco	Appropriate
History View Page Testing		
View Sakeco history pages	Can see the history of Sakeco	Appropriate
Verse Page Testing		
Clicking on the image of Sakeco Verse in the information system	Will be included in the Sakeco Verse display	Appropriate
Verse View Page Testing		
View Sakeco Verse pages	Can see Sakeco Verse	Appropriate
Anorawi Page Testing		
click the Anorawi image that is in the information system	Will enter in Anorawi view	Appropriate
Anorawi View Page Testing		
View the Anorawi verse page	Can see Anorawi	Appropriate
History Page Testing		
Click on an Anosiup image that is in the information system	Will be included in Anosiup view	Appropriate
History View Page Testing		
View Anosiup page	Can see Anosiup	Appropriate

V. CONCLUSION

Based on the research that has been done, conclusions can be drawn: (1) Development methods using waterfalls, research methods using qualitative and information system testing using black-box testing that gets results according to expectations from various functionality tests. (2) Information systems are built based on websites using HTML framework bootstrap and PHP as programming languages and designing methods using Unified Modeling Language (UML). (3) Sakeco's typical Sumbawa-based oral-literary recognition information system has the following admin features: Post to add new posts, problem data with creating, record, update, delete, and searching for quiz needs, users to view admin data, and settings to organize posts and website views. While users: doing quizzes and seeing answers as a learning medium, looking at the history of Sakeco, Sakeco Verse, Sakeco Anorawi, and Sakeco Anosup, and latest posts to see the latest posts and popular posts to see the most opened posts.

This research needs to be further developed in the future. Therefore, it is expected that in the future, it can add chat features for users and be made in its mobile version.

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