International Journal of Advances in Data and Information Systems
Vol. 3, No. 2, October 2022, pp. 58~65
ISSN: 2721-3056, DOI: 10.25008/ijadis.v3i2.1235

Design of Web-Based Hajj Manasik Supervision Certification Information System

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Article Info

Article history:

Received Sep 10, 2022
Revised Oct 19, 2022
Accepted Oct 30, 2022

Keywords:

Information System
Certification
Manasik Advisor
SDLC
Waterfall

ABSTRACT

In the discussion of this research, the motivation to design a certification information system at the Regional Office (Kanwil) of the West Java Ministry of Religion seeks to resolve, and reduce the problem of the certification system which is not yet effective and far from efficient. The activities of implementing certification for offline (face-to-face) Hajj ritual supervisors, and processing certification data traditionally affect the results of recording certification and implementing the assessment process. Thus, the proposed system is generated through a website-based platform and is run online. The research method uses the System Development Life Cycle (SDLC) with the Waterfall model approach which consists of 5 stages, namely, a) Analysis b) Design c) Implementation d) Maintenance e) Planning. The programming language used is (PHP), and the database application uses a data processor (Mysql) as the database (RDBMS). In addition, to support this system design tool, it uses the UML (Unifed Modeling Language) method by using two diagrams according to design needs, namely Use Case Diagrams and Activity Diagrams. This research produces a Web-Based Certification Information System design that can simplify the certification implementation process, as well as simplify the presentation of certification data and its processing. The system of certification of Manasik Hajj supervisor have been test with a method. Black box testing is the most method to ensure the application is suitable scenario test. This Web-Based Hajj Manasik Supervisor Certification Information System at the West Java Ministry of Religion Regional Office makes it easier to improve the implementation of certification. The design of this system can reduce in addition to overcoming the obstacles of implementing certification to be more accurate.

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1. INTRODUCTION

The development of technology today has experienced rapid progress. Not only on development but on the side of needs in the community. Trends in the use of technology such as the development of smartphones and so on that are mobile are very supportive, especially for participants to apply the online Hajj rituals supervisor certification method, in order to facilitate the assessment process for participants [1]. The West Java Regional Office is one of the Ministry of Religion which to implement Certification for manasik Hajj supervisor. In the mid October 2020 is the first time

when certification system was conducted with online system. During the certification, the Ministry relligion provides the task with adress to Islamic Education Institution and to have the role as commite. Hence, the West Java Regional office has involved the people as manasik supervisor about 100 participant and monitoring independent to ensure the certification was secured. The are two of mode in the process assesment, and selection both online was conducted with supporting application and face-to-face assesment. The assesment certification is complex, therefore, the Islamic Education Institution to be the most important. In contrast, the implementation manajik supervisor certification was considered not effective because the progress capability remains tradisionaly.

The Hajj rituals supervisor certification system or SPMH is a form of activity to assess everyone who has the qualifications of a pilgrim supervisor on the pilgrimage. The most important requirement is that the supervisor must have carried out the certification stage in addition to being intellectually equipped and experienced during the pilgrimage. The main requirement to become a mentor is for those who have performed the pilgrimage. Another requirement is educational qualifications regarding science and so on. Currently, the process of implementing the certification of Hajj rituals supervisors is carried out face-to-face or offline. When the pandemic comes, the certification implementation is temporarily suspended considering the high risk of virus transmission. In the next period, the implementation of certification activities is carried out online. The use of the zoom meeting application is an important requirement when it becomes a medium between participants and the committee and Admin [2]. The initial obstacle faced was how to carry out the assessment process if data and information were not available in an integrated container. However, participants are offered to only use the email facility for sending assignments or completing tasks related to the implementation of certification [3].

Participants who take part in the activity can send data and files via email, but the problem is that once the assignments have been submitted, their progress cannot be tracked. Participants cannot be sure whether the tasks in the training have been tested by the examiner or not. The addition is when the final exam takes place where participants only answer questions on paper and are sent directly to the committee so that it is not effective and not safe in terms of privacy [4].

The main reason and also a consideration for the conventional certification system is related to information security for participants and committee [5]. The main reason is that there are no protective features plus there is no awareness among participants about security [6]. The challenge in implementing the development of information systems is the people or users who are involved in the development of information systems. namely agents as developers and support and management as leaders who define goals to be achieved [3].

The implementation of certification or SPMH has taken place almost every year, but due to the pandemic, the implementation must change the old method. It was emphasized, data and information on the SPMH system must be recorded, managed and organized when implementing and facilitating the assessment [7]. Recording is done on participants' personal data, training subjects, final exams and other supporting tasks. According to the analysis above, it is a concern that there is a need for the development and development of an integrated SPMH system. Involving multiple users and ongoing activities along with monitoring the activities of participants in the proposed system [8]. Therefore, in this study, a system will be proposed that can accommodate all the needs of the certification system for the participants in the regional office of the Ministry of Religion of West Java [9].

2. RESEARCH METHOD

The design of this certification information system is carried out at the Regional Office of the Ministry of Religion of West Java, which is located in Bandung. The number of participants who took part was 100 people (male and female). The implementation of the Hajj rituals supervisor certification involves tertiary institutions selected as the implementing committee. The method of implementing the Hajj rituals supervisor certification uses two combined methods called Blended Learning. The Blended Learning method collaborates the Online (Online) and Offline (Offline) methods. Participants can take online certification from home with symmetrical techniques. The use of this symmetric technique is implemented with the Zoom Meeting application [10]. Participants who carry out certification online are carried out for 10 days and the next 7 days are carried out face-

to-face or offline. The implementation of online certification only uses the Zoom meeting application or Google Meet so that there is no platform that provides an integrated platform for participants in the certification implementation stage [11]. Locations based on google map are presented in Figure 1 below:

Figure 1. Location of West Java Ministry of Religion Regional Office

Data collection includes the observation phase, conducting interviews and literature study. (1) Observation where the researcher collects data containing information regarding the certification of the Hajj ritual guide by making direct observations to the object of research, namely at the regional office of the Ministry of Religion of West Java. (2) Interview Researchers carry out communication or dialogue accompanied by questions and answers to the participants of the Hajj rituals supervisor certification. Researchers collect information on the implementation process and ongoing certification assessment at the West Java Ministry of Religion regional office. (3) Literature Study, describing designing an information system for the certification of pilgrimage guides, researchers collect various relevant references from literature publications in the last 5 years. In addition, researchers also collect information on technology trends from various online news sites, journals, and other sources that publish scientific writings. Some other literature, such as the author's book, is used as a reference in designing the Certification Information System for Hajj guides.

The concept of an information system for the certification of Hajj pilgrimage supervisors is designed through object-oriented and waterfall methods [12]. The tools used in designing and designing geographic information systems are by using the Unified Modeling Language (UML). UML is a set of structures and techniques for modeling object-oriented program design (OOP) [13] and its applications [14]. UML is a family of graphical notations supported by single models, which help describe and design software systems [15], especially systems built using object-oriented programming [16].

The research method applied in this study is the development of the waterfall method [17]. The waterfall method is a systematic and sequential information system development model [18]. The Waterfall method has the following stages [19]:

1. Definition and analysis of needs
   In the initial phase, the requirement of system related to the assesment and selection. There is the main activity in this case which included initial test, resume for learning and final test. According to the result of interview, the certification activity traditionaly was conducted that to spend of time yet the effectiveness is too difficult.
2. Software and System Design [20]
   Perancangan sistem sertifikasi pembimbing manasik haji mengadopsi dengan pemodelan UML (Unified Modeling Language). The system design stage allocates the main system requirements such as hardware and software to form an integrated system architecture. Software design involves identifying and delineating the basic system abstractions of the software and their relationships.

3. Implementation and Unit Test [21]
   The design of the certification information system is realized as a series of programs or program units. Testing involves verifying that each unit meets its specifications.
4. System Integration and Test
   The individual units of the program are tested as a complete system to ensure that they meet the requirements of the information system software
5. Operation and Maintenance
   This stage is the stage that has the longest time span. The system is installed and used for real. Maintenance involves fixing errors that were not found in the previous stage, improving the implementation of the system unit, and improving system services as new requirements [22].

Case studies of the implementation of online certification are carried out using activity diagrams. Activity diagrams describe activities carried out by users including participants, committees and admins. According to the picture below, participants open a web-based application with a login displayed. Account checking and validation will determine which user is logged in to the dashboard. There are two menu options that are accessed by participants, the first is participant profile and assessment.

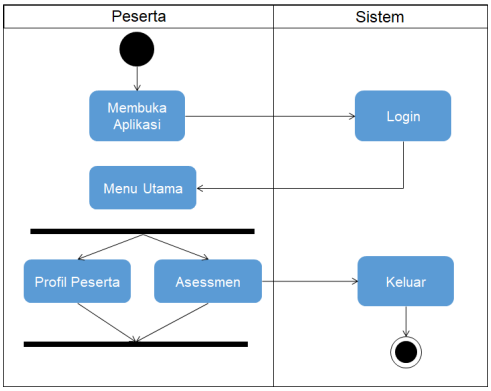

Figure 2. Activity Diagram of the Manasik Hajj Supervisor Certification System

Participants' profiles contain content to make changes to personal data, upload profile photos, and view personal data independently. The assessment menu option is the access provided to participants to take the exam with 2 stages, namely the initial exam and the final exam in determining the graduation of certification participants [23]. Creation and design of case studies on certification using use case diagrams. Unified Modeling Language has a graphical model, namely use case diagrams. There are four actors including participants, committee, Admin and Co-admin. Thus, these four entities have activities that are described with case notation.

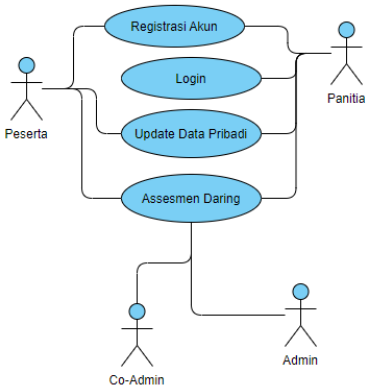

Figure 3. Use Case Diagram of the Manasik Hajj Supervisor Certification System

The main reason for using use case diagrams is to have a role in presenting the process of activities in sequence in the system, especially in certification. Next, be able to describe business processes, and even display the sequence of activities in a certification process for the Hajj ritual guide. Furthermore, the use case diagram as a bridge between the maker and the consumer to describe a system.

3. RESULTS AND DISCUSSION

Implementation of the results of the certification information system for the Hajj rituals supervisor using a database that will be used to record data and information. The role of the database is not only as a recording medium but also makes it easier to track and investigate data. Database creation and design is applied to My SQL on the PHP MyAdmin device. The database on the Hajj rituals supervisor certification system has 17 tables but there are 10 main tables. The concept of relational database is used in this system. Relational database tools present data in the form of columns and rows containing rows of records. The following is an image of a collection of tables in a relational database in PHP MyAdmin.

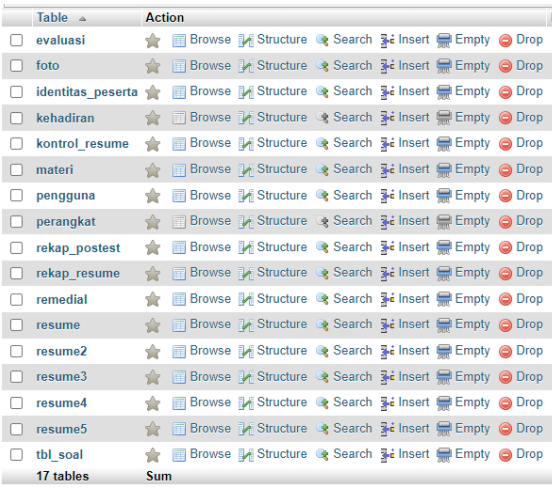

Figure 4. Presentation of a collection of tables of the Hajj Manasik Advisory Information System

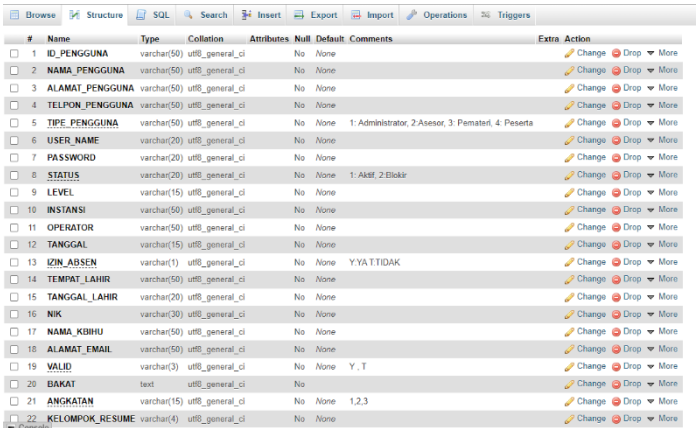

Figure 5. User table design for Hajj Manasik Advisory Information System

The existing table design in the SPMH system, one of which is the user table. User table is very important which contains user information in addition to authentication data. There are 22 attributes or columns used including username, password, user name and so on.

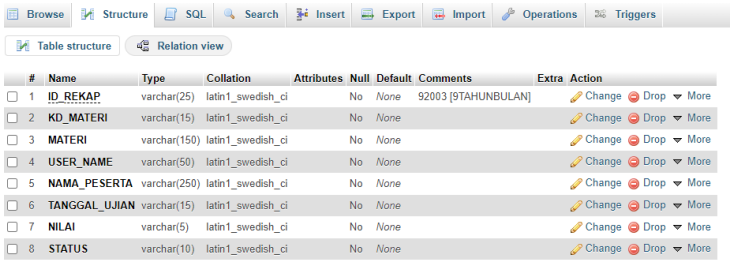

Figure 6. Resume table design for Hajj Manasik Advisor Certification participants

The implementation of the interface describes the appearance of the resulting software and the usability of the functions of each page. The web page can be seen in the image below.

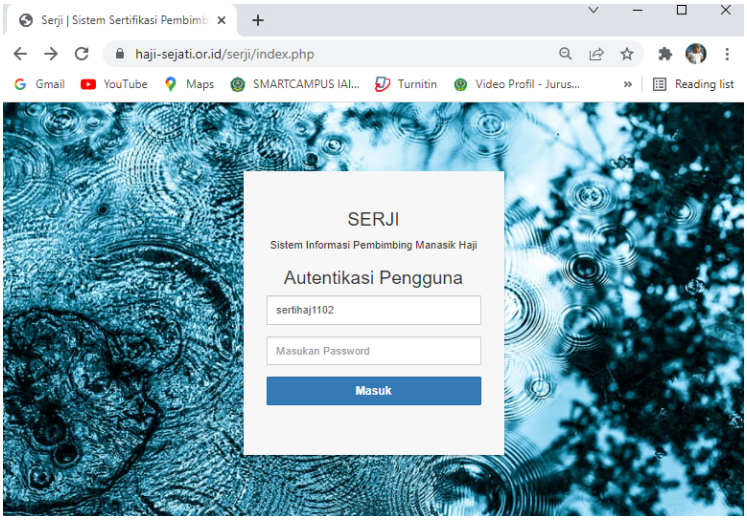

Fig.7. Login page for Manasik Hajj Advisor Certification Participants

Login is successful, participants will be directed to the dashboard or main page. SPMH participants will be presented with access to the SPMH system. The menu in the SPMH system will determine access to data and information starting from participant profiles, assessments, authentication configurations and so on. The participant profile page consists of participant biodata, change profile, and upload photos. Profile biodata contains participant's personal information including participant's name, place of birth date, agency or institution, number, email and others. The participant's bio page will display the participant's photo that was previously uploaded on the upload photo tab.

4. CONCLUSION

According to the results of the overall design process starting from analyzing the current system to the design process, it can be concluded that the Design of Information Systems for the Certification of Hajj Supervisors for the Regional Office of Kemenang West Java can produce and present accurate information. Designing a Web-based Hajj certification information system that effectively shapes the assessment process to be more effective and efficient in the midst of the Covid19 pandemic. If the newly generated system and application can run effectively, it can be given consideration. Based on the analysis of the conclusions above, there are several suggestions that can be taken into consideration, namely the Design of an online Hajj guide certification information system, applied with a description of the database system and system architecture so that it can describe the pattern of system interactions involving many users other than SPMH certification participants.

Based on the discussion that has been explained, there are advantages of system development when using object-oriented. This method provides convenience in system development. There is no separation between the design and analysis phases, thereby improving communication between users and system developers from start to finish of system development. However, object-oriented systems

and using waterfalls have weaknesses, including the system design being very simple, it is difficult to define classes related to the entities required by the system. This method uses the concept of reuse besides being an advantage of using object-oriented analysis and design. Thus, without the use of reuse, it will be difficult to develop a complex system

ACKNOWLEDGEMENTS

The author would like to thank the West Java Regional Ministry of Religion Office for assisting or providing support related to the research carried out such as facility assistance, providing data and information.

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