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Design of Monitoring System For Hajj Departure Schedule At Medan City Ministry Of Religion Office

Perancangan Sistem Pemantauan Jadwal Keberangkatan Haji pada Kantor Kementerian Agama Kota Medan

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A B S T R A C T

This research aims to track the departure time of prospective Hajj pilgrims from the Medan City Ministry of Religion's online platform. The research method used involved building a system using the PHP and MySQL programming languages to collect data from the previous three years to estimate the departure schedule for prospective Hajj pilgrims from Medan City. The research results show that the Hajj departure schedule monitoring system that was built was effectively used by the Medan City Ministry of Religion, able to provide more accurate departure schedule estimates based on previous historical data. Thus, this system can help prospective Hajj pilgrims to monitor departure schedules without having to come to the office. The core conclusion of this research is that the implementation of an online monitoring system can increase efficiency and convenience in planning the Hajj pilgrimage for prospective pilgrims, as well as provide significant benefits for the Medan City Ministry of Religion in managing and tracking the departure time of prospective Hajj pilgrims.

Keyword: scheduling, php, mysql

A B S T R A K

Penelitian ini bertujuan untuk melacak waktu keberangkatan calon jemaah haji melalui platform online milik Kantor Kementerian Agama Kota Medan. Metode penelitian yang digunakan melibatkan pembangunan sistem dengan menggunakan bahasa pemrograman PHP dan MySQL, serta mengumpulkan data dari tiga tahun sebelumnya untuk memperkirakan jadwal keberangkatan calon jemaah haji asal Kota Medan. Hasil penelitian menunjukkan bahwa sistem pemantauan jadwal keberangkatan haji yang dibangun telah digunakan secara efektif oleh Kantor Kementerian Agama Kota Medan, dan mampu memberikan estimasi jadwal keberangkatan yang lebih akurat berdasarkan data historis sebelumnya. Dengan demikian, sistem ini dapat membantu calon jemaah haji dalam memantau jadwal keberangkatan tanpa harus datang langsung ke kantor. Kesimpulan utama dari penelitian ini adalah bahwa penerapan sistem pemantauan secara online dapat meningkatkan efisiensi dan kemudahan dalam perencanaan ibadah haji bagi calon jemaah, serta memberikan manfaat yang signifikan bagi Kantor Kementerian Agama Kota Medan dalam mengelola dan melacak waktu keberangkatan jemaah.

Kata kunci: penjadwalan, PHP, MySQL

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1. INTRODUCTION

This Hajj departure schedule information system was developed to speed up and be accessible to Hajj pilgrims[1], [2]. This system is expected to increase efficiency. Apart from increasing efficiency or saving time. This system makes things easier for Hajj pilgrims[3], [4]. This system can check Hajj departures[5]. It can also manage data efficiently. This can also provide appropriate information to prospective Hajj pilgrims[6], [7]. The use of the Hajj departure schedule checking website at the Ministry of Religion helps monitor the Hajj departure schedule. All Hajj pilgrims do not need to come to the office[8], [9]. Hajj pilgrims are divided into several groups. This aims to facilitate supervision during the Hajj pilgrimage. However, some congregations still experience difficulties. Therefore, a system for monitoring the Hajj departure schedule was designed[10].

From previous research, PT. Sianok Indah Holiday has problems in data processing[11], [12]. There is still research that uses book recording[13], [14]. This is considered less efficient. This means it takes a long time to search for data. The thing that is felt to be the most inefficient is when we are looking for data on prospective Hajj pilgrims[15], [16]. So a computerized system was created[17], [18]. This system uses the PHP programming language, the waterfall model for software development[19], [20].

Based on the explanation above that has been given regarding the Hajj information system, this is to make it easier for pilgrims to access information[21], [22]. Information systems are also very necessary for staff at Hajj travel service providers. So processing and monitoring congregation data is very easy[23], [24]. Apart from that, a system is also needed that can minimize complicated processes if done manually. This way the quality of service increases. Therefore, to improve the quality of service at the Ministry of Religion of Medan City, a web-based Hajj pilgrim departure system is needed. In order to make it easier for pilgrims to check or monitor the Hajj departure schedule[25].

2. METHODOLOGY

This research will build a system that will be used to properly prioritize Hajj pilgrims who will go on Hajj according to the calculation of criteria for prospective Hajj registrants based on the weight scores obtained by Hajj registrants. This type of research is applied research where this applied research is research that is directed at obtaining information to obtain solutions to research problems that are functional in nature and can be used to overcome existing problems to produce a product that has other practical functions.

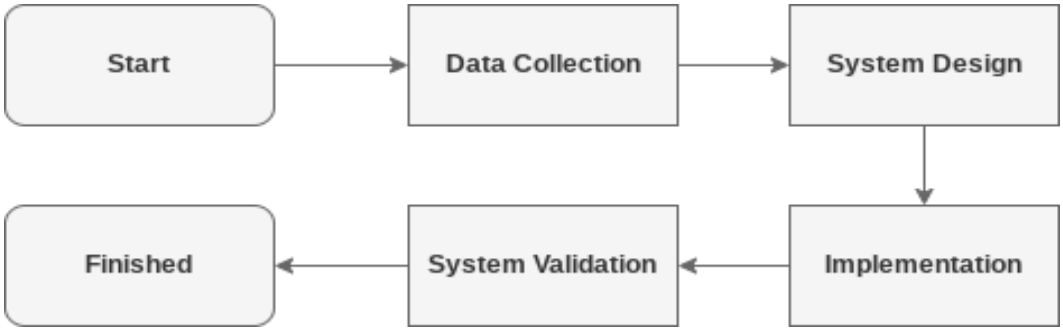

Figure. 1 Research Method

Based on the picture above, each process in the research is explained as follows:

1. Data Collection

   The data collection technique in this research is by conducting direct observations and interviews with the Ministry of Religion of Medan City. Interviews were conducted to find out the problems that occurred.

2. System Design

   At this stage, researchers design and design the interface and create a financial data management website. In this process, the system design is designed using UML diagrams.

3. Implementation

After carrying out the system design stage, the next step is implementation. When carrying out implementation, there are several things that must be considered, such as ensuring that the system being implemented is in accordance with the design that has been created, ensuring that the system can run well, and ensuring that the system can be accessed by users easily.

4. System Validation

System validation is the process of verifying and evaluating the entire system to ensure that the results produced are in accordance with the specified requirements. In the context of software or information systems development, system validation involves thorough testing of functionality, performance, security, and other quality aspects. The main goal is to ensure that the system can operate according to user requirements and predetermined specifications.

3. RESULTS AND DISCUSSION

A. Data Collection

This discussion will describe the findings of field data (field research) which originates from observations and interviews with informants who are competent in their fields, including the Head of the Hajj and Umrah organizing section, the data input section, the Administration section, and the Public Relations section. The results of these observations and interviews were reduced and categorized according to the relevance of the focus of the research problem which was divided into several discussion sub- sections, including the design of the Hajj departure monitoring system at the Medan City Ministry of Religion office, supporting and inhibiting factors for the information system in the design of the Hajj departure monitoring system at the office. Medan City Ministry of Religion.

Table 1. Interview Data

No	Source person	Position	Interview result
1.	Head of the Hajj and Umrah OrganizingSection	Section Chief	Data collection and scheduling of prospective Hajj pilgrims is still done manuallyso it is prone to errors.
2.	Data Input Section	Staff	Errors often occur in inputting prospective congregation data because it has to be done manually.
3.	Administration Section	Staff	It is difficult to track the status of congregation registration because it is not yet computerized properly.
4.	Public Relations Department	Staff	Information on the schedule and placement of Hajj pilgrims cannot be accessed in real-time by prospective pilgrims.

Based on Table 1 above, it is known that the main problems in organizing the Hajj pilgrimage at the Medan City Ministry of Religion include processes that are still manual, prone to errors, and lack of access to information for pilgrims. Therefore, a computerized information system is needed to overcome this problem.

B. System Design

1) Usecase Diagram

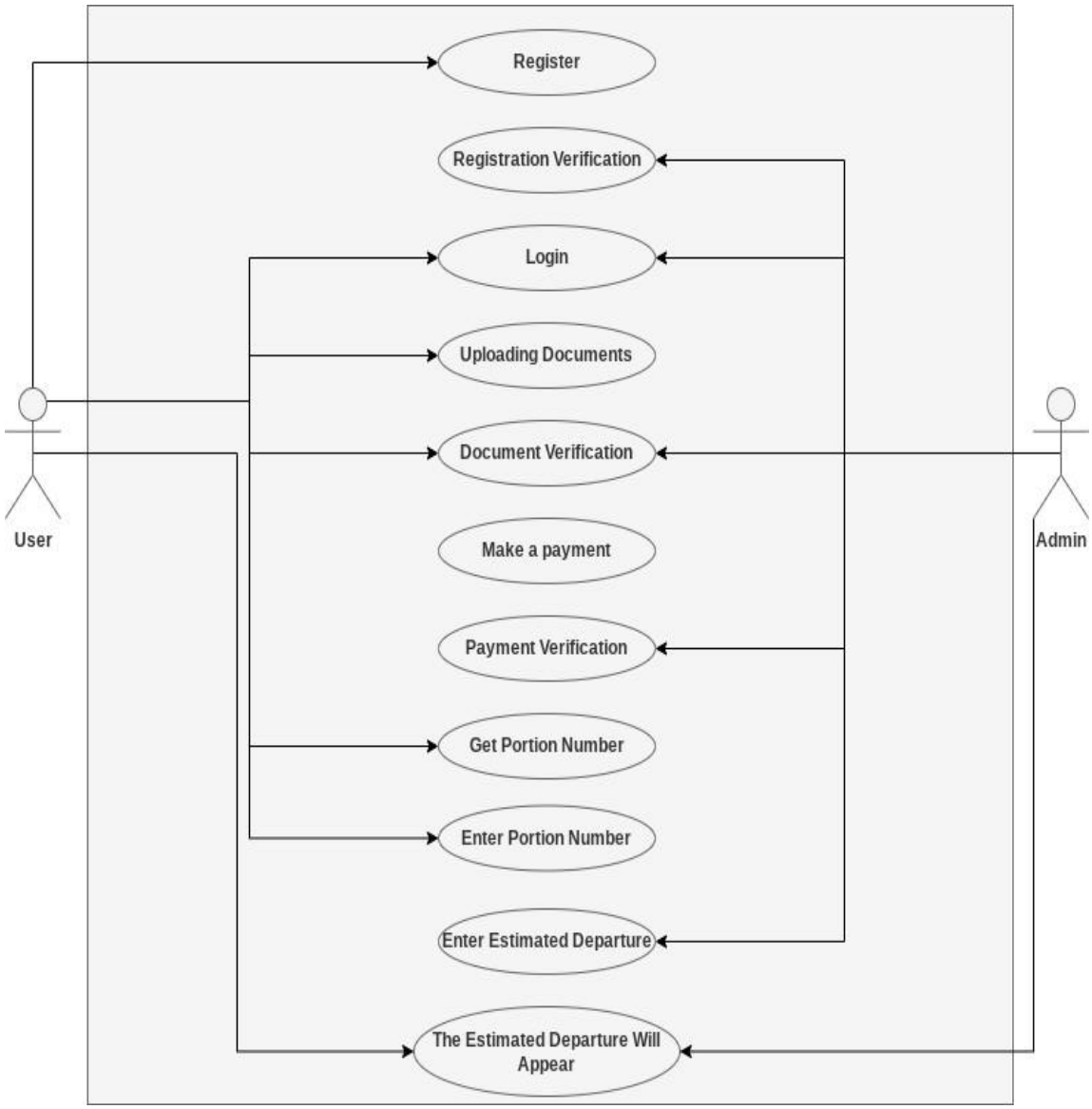

Figure 2. Usecase Diagram

To find out the functional requirements of a system to be developed, a use case diagram is needed. Figure 2 is the use case diagram used in this research.

2) Activity Diagram

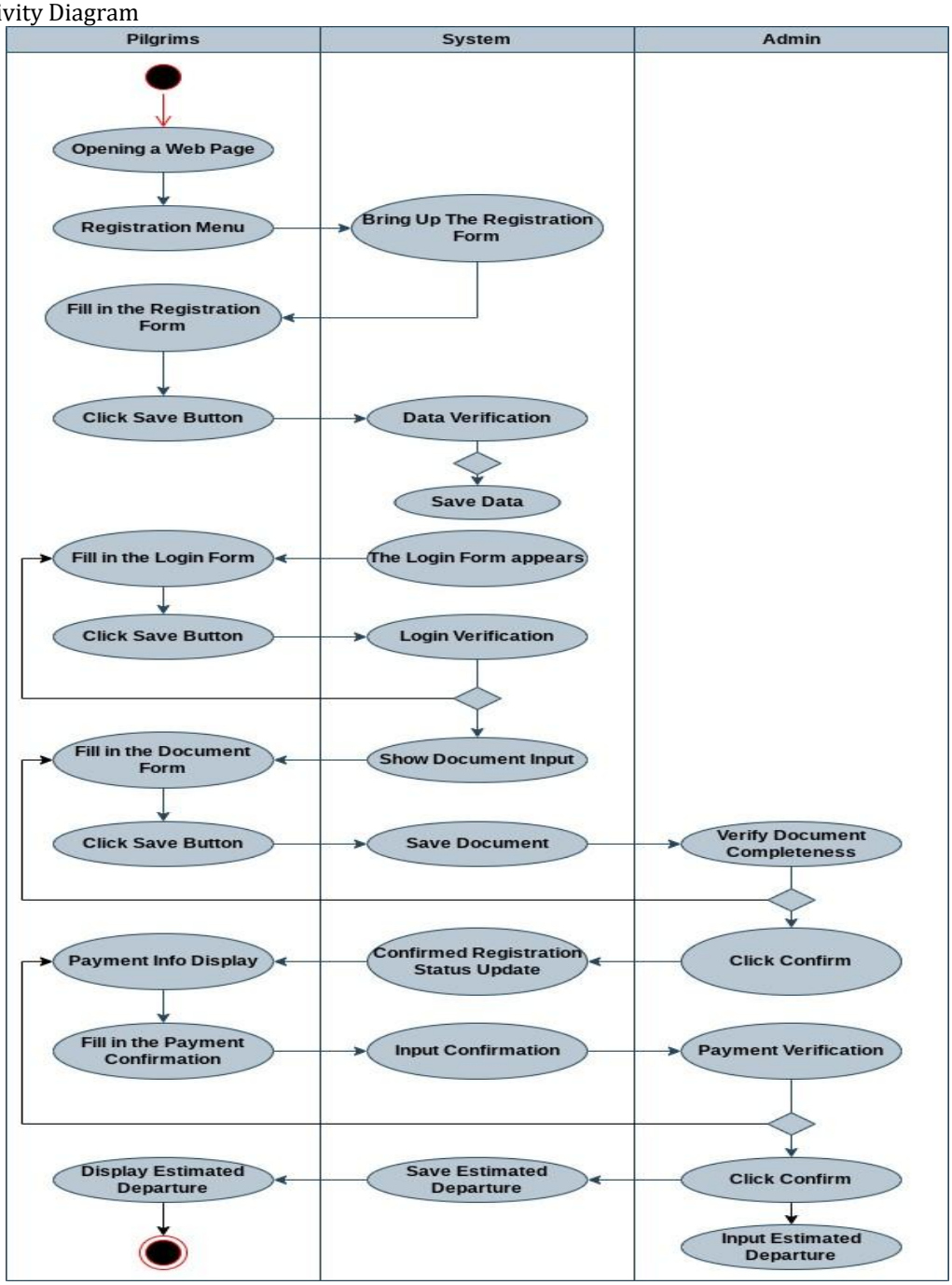

Figure 3. Activity Diagram

On this Hajj departure monitoring website activity, pilgrims log in, register for Hajj by filling in the form and completing the documents required to make payments, get a portion number and fill in the portion number, until they can see the estimated Hajj departure schedule. The Hajj Registration Activity Diagram can be seen in Figure 3.

C. System Implementation

1) Dashboard Page Display

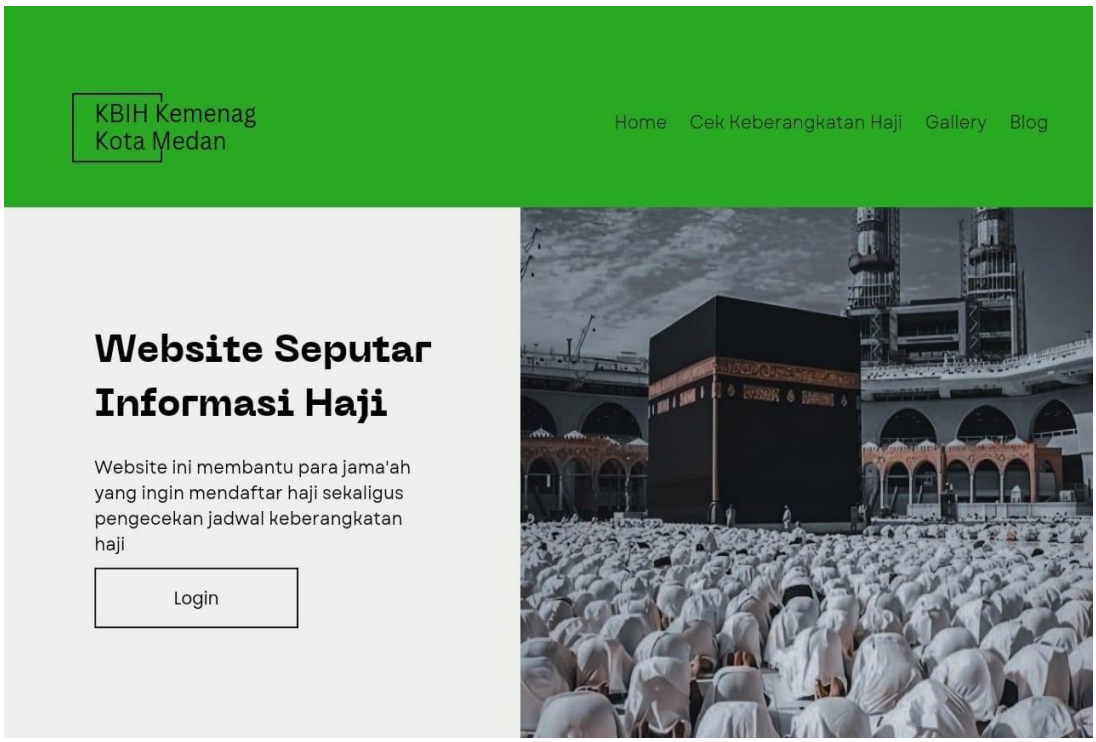

Figure 4. Dashboard Page Display

In Figure 4 above is a dashboard display which contains information on the latest website activity.

2) Login Page Display

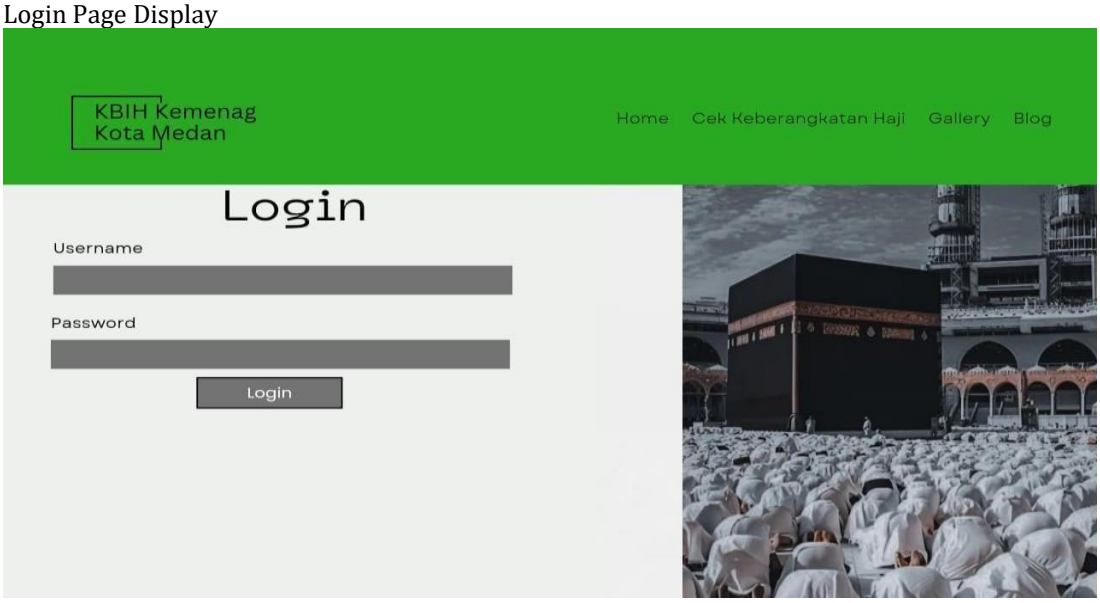

Figure 5. Login page display

In Figure 5 above is the login display that is used to log in with the pilgrim's account to register, make payments and check or monitor the Hajj departure schedule.

3) Display of the Hajj Registration page

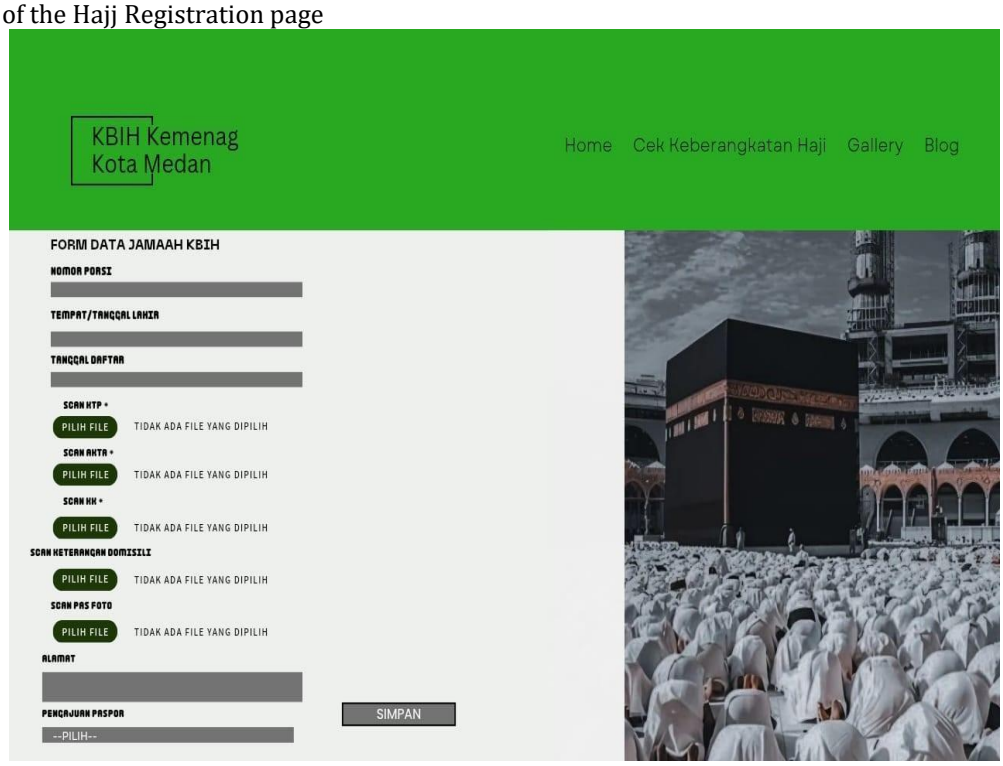

Figure 6. Display of the Hajj Registration Page

In Figure 6 above, pilgrims can register for Hajj by filling in the portion number, place and date of birth, completing personal identity documents and others.

4) Payment Form Display

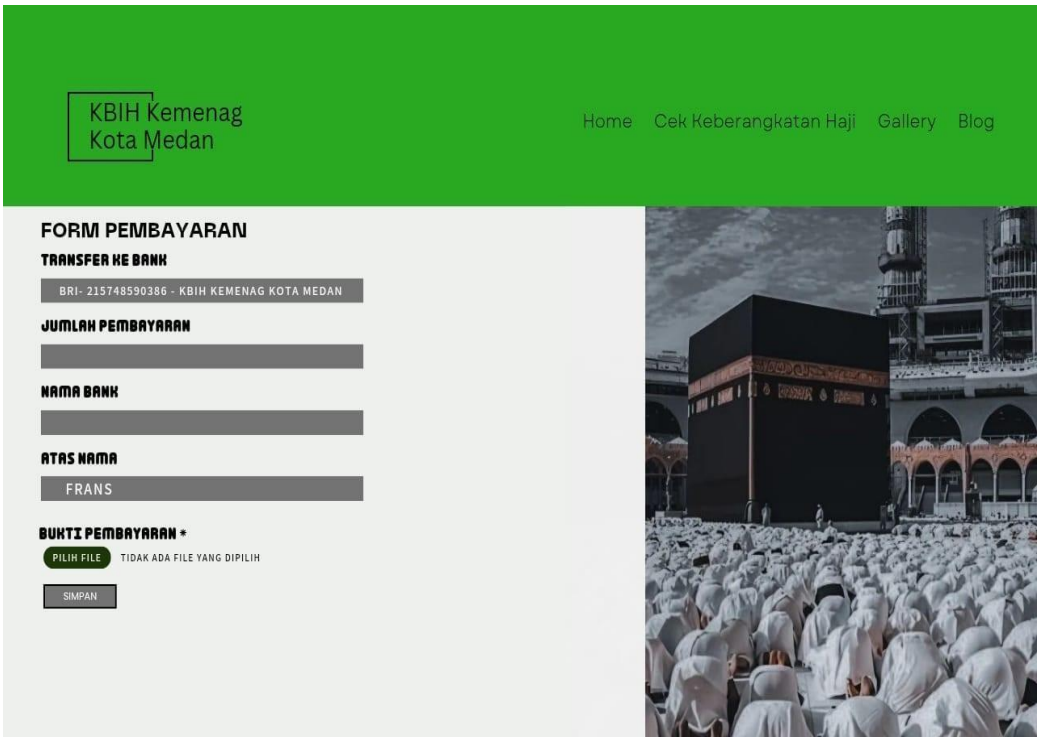

Figure 7. Payment Form Display

In Figure 7 above, the congregation makes payment via transfer and uploadsproof of payment.

5) Estimed Departure Display

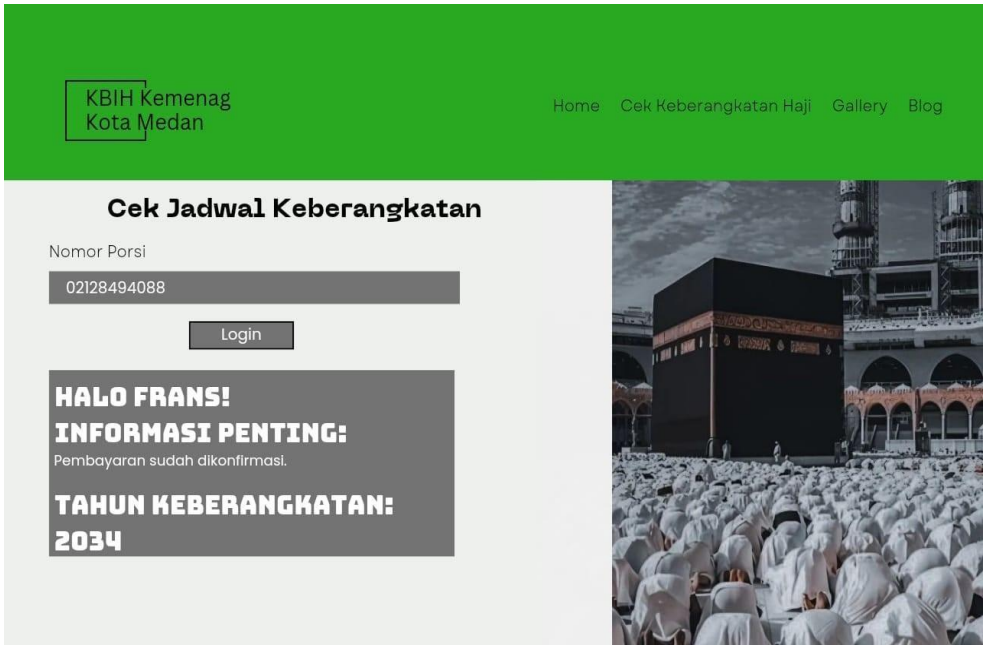

Figure 8. Estimated Hajj Departure

In Figure 8 above, pilgrims can see and find out the estimated Hajj departure.

D. System Validation

After the above system has been successfully created, the next step in the testing process is to validate the system accordingly, whether the system is running well or not. The following system validation is created in the table below:

Table 2. System Validation

Feature	Validation	Result
Online Registration	Test the registration feature by filling in the form completely	Successfully, data on prospective pilgrims is stored in the database
Online payment	Testing the payment feature by uploading proof of transfer	Successful, payment data is recorded in the system
Check departure schedule	Testing the schedule checking feature by entering portion numbers	Successfully, the system displays the estimated departure schedule according to the portion number
Data management of prospective pilgrims	Testing access and manipulation of prospective congregation data by admin	Successfully, admin can manage prospective congregation data well
Reports and statistics	Testing of report generation and departure statistics	Successfully, reports and statistics can be generated accurately by the system

From Table 2, the validation above can be concluded that the system built has been successfully tested and is able to carry out all the main features well, such as online registration, payment, checking schedules, data management, and generating reports. Thus, the system is feasible to implement.

Based on the interview data presented in Table 1, it was identified that the process of data collection and scheduling for prospective Hajj pilgrims at the Medan City Ministry of Religion is still conducted manually. This manual process leads to frequent input errors, difficulties in tracking registration status, and limited real-time access to information for the pilgrims. These findings are consistent with the study by Oktavianti [1], which emphasizes that manual systems in Hajj services hinder operational efficiency and data accuracy.

The implementation of an information system developed using PHP and MySQL enables automation in core processes such as registration, payment, and estimation of Hajj departure schedules. The use of use case and activity diagrams during the design phase ensures that the system addresses the functional requirements effectively. This aligns with the findings of Meirosanti and Sopiah [6] as well as Rizwan [9], who highlight the importance of structured modeling in the development of Hajj information systems to prevent failure and enhance usability.

The system validation results in Table 2 confirm that the key features of the system including online registration, payment submission, schedule checking, data management, and report generation performed successfully during testing. This indicates that the system meets its operational goals and is ready for implementation. Supporting studies from Khoirunnisa [7] and Harahap [10] also demonstrate that integrated systems like SISKOHAT contribute to improved service quality, better user experience, and enhanced transparency in Hajj service delivery.

In general, the findings of this research support existing literature which advocates for the integration of information technology in Hajj management systems to enhance administrative efficiency and public access to accurate information. The adoption of such systems is proven to optimize workflow and service quality within government institutions [3], [4], [13].

4. CONCLUSION

This study concludes that the design and implementation of a web-based Hajj departure monitoring system at the Medan City Ministry of Religion effectively resolves key issues related to manual data handling, human error, and limited access to timely information. Through the use of PHP programming and a MySQL database, the developed system provides essential features such as online registration, digital payment processing, estimated departure tracking, and automated reporting.

System testing and validation confirm that all core functionalities operate as expected and are aligned with institutional needs. The application of this system offers significant advantages including improved operational efficiency, enhanced service quality, and greater convenience for prospective pilgrims.

The findings suggest that the implementation of a web-based monitoring system is not only feasible but also beneficial. It is recommended that similar systems be adopted by other Ministry of Religion offices across Indonesia to improve the overall management of Hajj pilgrimages.

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