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Design and Construction of a Mobile Web-Based Birth Certificate Registration Application (Case Study: Population and Civil Registry Service of Binjai City)

Dilla Herdianti[1], Supina Batubara[2], Melva Sari Panjaitan[3]
[1,2,3]Computer System Study Program, Faculty of Science and Technology, Universitas Pembangunan Panca Budi, Indonesia

ABSTRACT

The birth certificate registration process often faces obstacles, such as long queues and long processing times at the Population and Civil Registration Office of Binjai City. This study aims to design and develop a mobile web-based application that makes it easier for the public to register for birth certificates online, thereby increasing the efficiency of public services. The system development method used is the Waterfall model, which includes needs analysis, system design, implementation, testing, and maintenance. This application is designed using the HTML5, CSS, JavaScript, and PHP frameworks for a responsive mobile interface, and MySQL as a database. The test results show that this application is able to speed up the registration process and minimize data errors, and receive positive responses from users regarding ease of access and system reliability. With this application, it is hoped that the Population and Civil Registration Office of Binjai City can improve the quality of digital population services (9 pt).

Keyword: Aplikasi Pendaftaran, Akta Kelahiran, Mobile Web, Dinas Kependudukan Dan Catatan Sipil, Layanan Public

Corresponding Author:
Supina Batubara
Computer System Study Program
Faculty of Science and Technology
Universitas Pembangunan Panca Budi
Indonesia
Email: supinabatubara@dosen.pancabudi.ac.id

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1. INTRODUCTION

A birth certificate is an official document that is very important for every individual, because it functions as a valid proof of identity recognized by the state. In addition, a birth certificate is a basic document required to access various public services such as education, health, and other population administration. However, the process of making a birth certificate at the Population and Civil Registration Service (Disdukcapil) often faces various challenges, such as long queues, long waiting times, and inefficient administrative processes. This condition not only reduces the quality of public services but also causes inconvenience for people who need birth certificate making services. Advances in information technology offer a solution to this problem through the development of web and mobile-based applications that can be accessed by the public more flexibly. Mobile web-based applications have advantages in terms of accessibility because they can be accessed via mobile devices without the need to download additional applications. In this context, the development of a mobile web-based birth certificate registration application aims to make it easier for the people of Binjai City to carry out the online registration process, so that it can speed up the process time and reduce the administrative burden at the Disdukcapil office. This study uses the Waterfall system development method, which includes the stages of needs analysis, design, implementation, and system testing. Through this application, it is hoped that efficiency can be created in the service of making birth certificates in Binjai City and improve the quality of Disdukcapil public services.

2. RESEARCH METHOD

This study uses the Waterfall model system development method, which consists of several main stages: needs analysis, system design, implementation, testing, and maintenance. This model was chosen because of its structured flow and is suitable for application development needs with clear

specifications. Each stage in the Waterfall model is carried out sequentially to ensure the accuracy and quality of the resulting system.

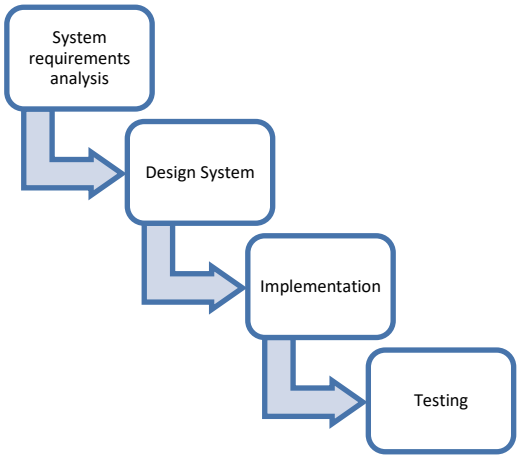

Fig 1. Research Methode

With this method, the mobile web-based birth certificate registration application is expected to meet the needs of the Population and Civil Registry Service of Binjai City in providing more efficient and affordable public services for the community.

The development of this application uses the following software and hardware:

Table 1. Material

Hardware	Software)
A laptop or computer with a minimum specification of an Intel i5 processor, 8GB RAM, and 256GB SSD storage is used for application development. In addition, a mobile device is used for mobile accessibility testing.	The application is developed using HTML5, CSS, JavaScript, and PHP for the interface and programming logic, while MySQL is used for the database.

3. RESULTS AND DISCUSSION

The implementation of a mobile web-based application for birth certificate registration has shown significant effectiveness in increasing the efficiency of public services at the Population and Civil Registration Office of Binjai City. The advantage of this application lies in its high accessibility because it can be accessed anytime and anywhere, without requiring the installation of additional applications on the user's device. These results are in line with previous studies showing that digitalization of public services can improve the quality of service and public satisfaction

In addition, shorter registration times provide benefits for the Population and Civil Registration Office in terms of reducing administrative burdens and more efficient resource allocation. This application also reduces dependence on direct interaction between officers and the public, which is very relevant in a pandemic or other emergency situation.

However, there are still several aspects that need to be improved, such as improving data security to make it more resistant to potential cyber attacks. In addition, regular maintenance is needed to ensure that the application continues to run optimally and in accordance with the latest technological developments.

Overall, this mobile web-based birth certificate registration application is an innovative solution that can be a model for other regional Population and Civil Registration Offices in implementing a digital system for population services.

A. Display Admin Result

Fig 2. Home Page

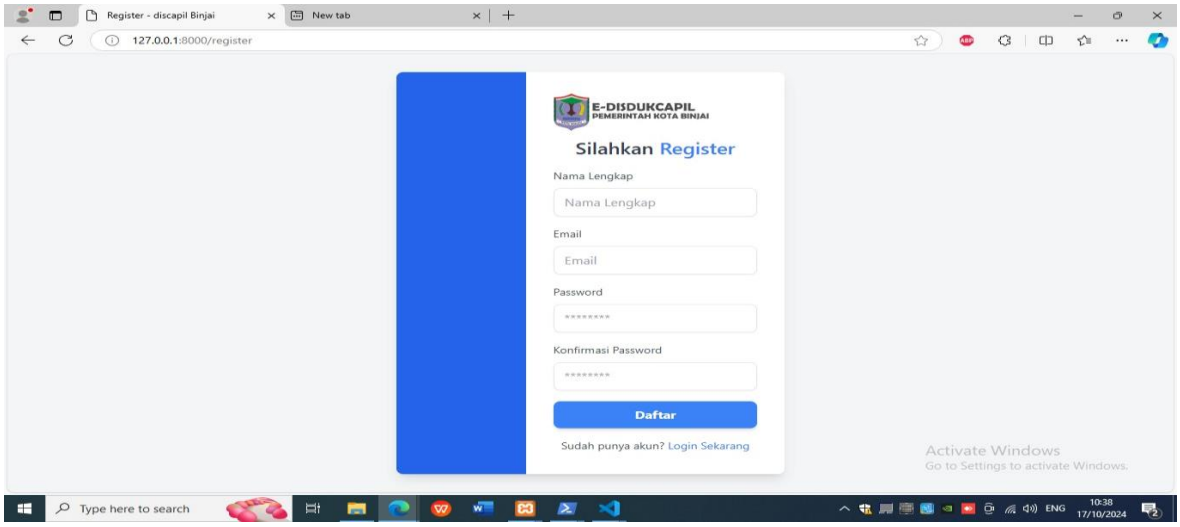

Fig 3. Register Admin

The Home Page is the main display that users will see after successfully logging into the application.

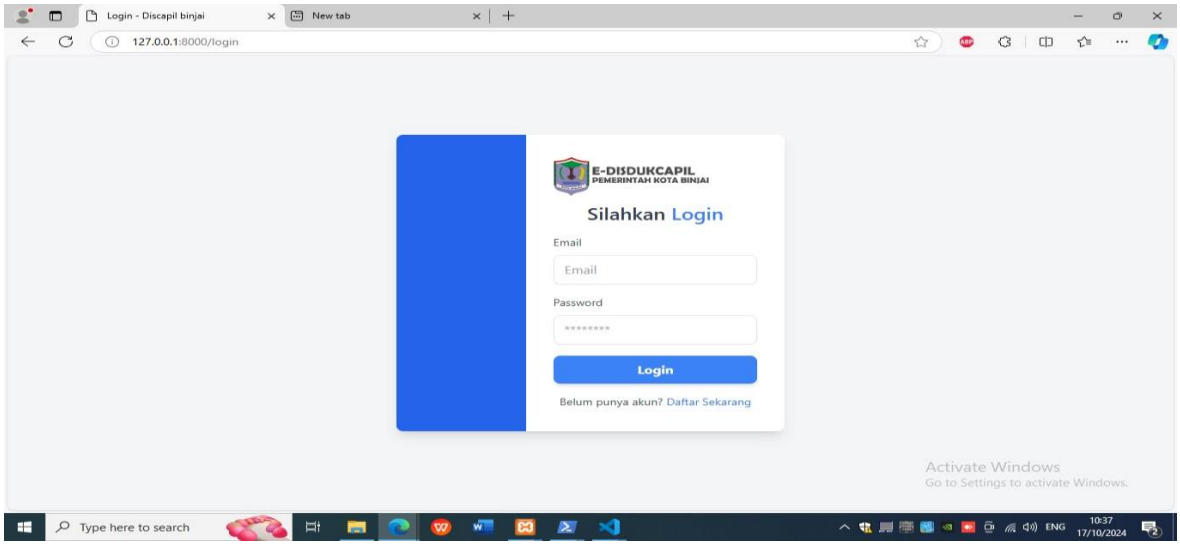

Fig 4. Login Admin

The public registers on the Disdukcapil website and logs in to register for birth certificates, then fills in the data according to the input data determined by the Dinas Kependudukan Kota Binjai as shown in the image below.

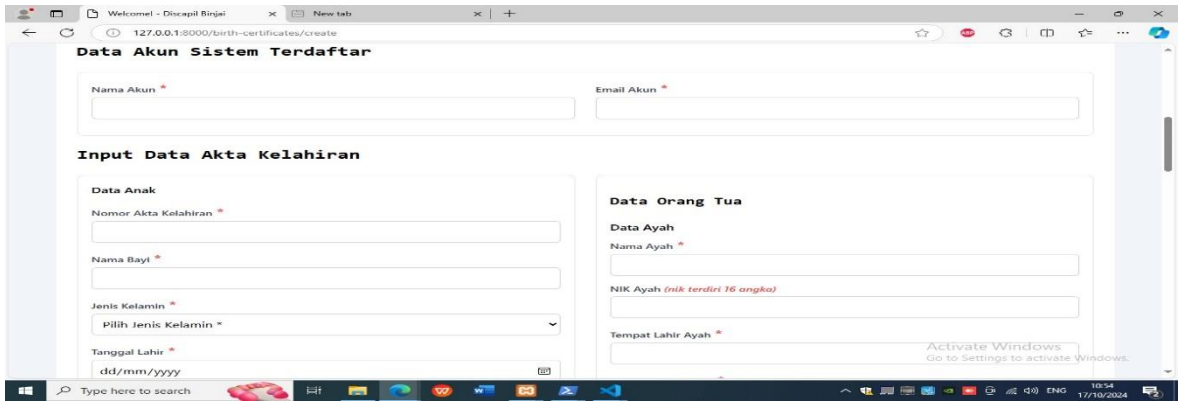

Fig 5. Account List view

B. Display Citizen Result

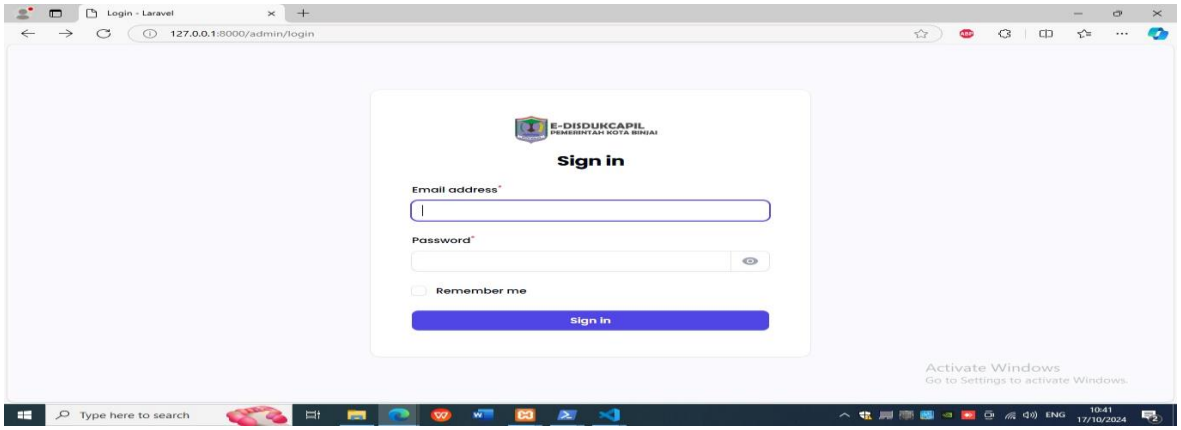

Fig 6. Login Citizen

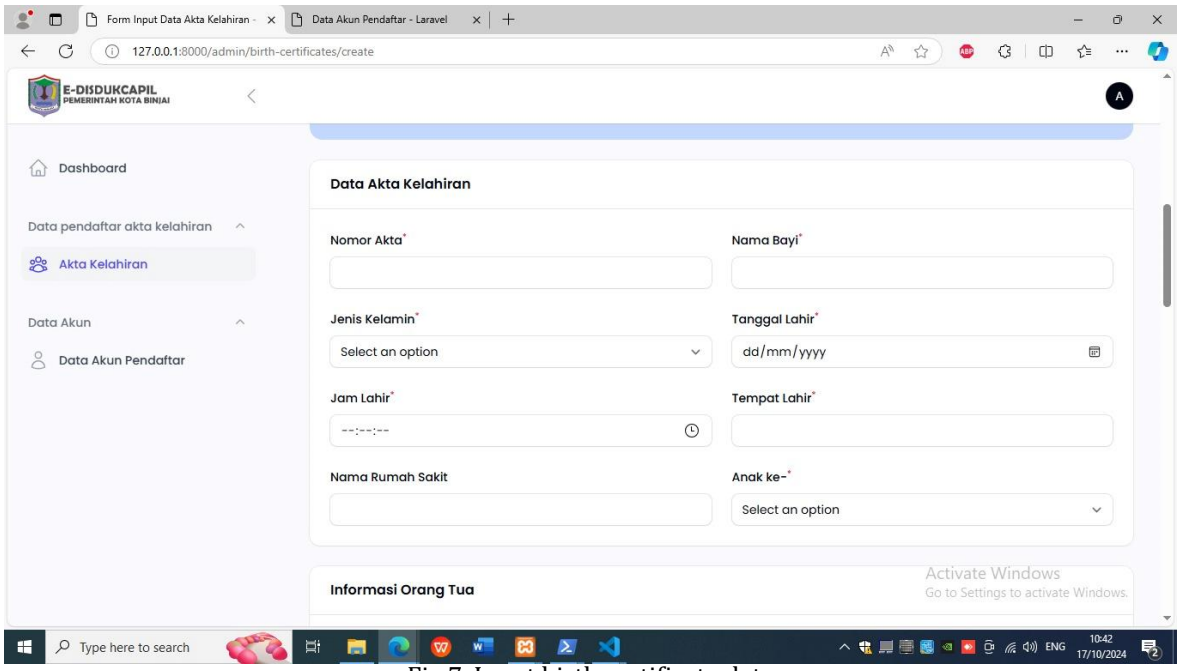

Fig 7. Input birth certificate data

In the following form, people can input the population data they wish to register.

4. CONCLUSION

The development of a mobile web-based birth certificate registration application at the Population and Civil Registration Office of Binjai City has succeeded in providing an effective solution to improve the efficiency of public services. This application allows the public to register for birth certificates online, which speeds up the verification process and reduces queues and waiting times at the Disdukcapil office. The test results show that this application is not only able to meet user needs in terms of speed and ease of access, but also gets a positive response from users because of its ease and reliability. With a responsive interface design and the use of an adequate data security system, this application is able to provide an optimal user experience and maintain the confidentiality of personal information. Another advantage is the ability of the application to be accessed via mobile devices without the need to install additional applications, thus increasing accessibility and convenience for users. However, to achieve more optimal service quality, routine maintenance and improvement of the security system are needed so that it can continue to adapt to technological developments and potential cyber threats. Overall, this application can be a model for digitalizing public services for other regions that want to improve the efficiency of population administration through the use of mobile web technology.

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