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Integrated service post information system to support baby growth data reporting

Syaidaturrahmi[1)*], Ali Ikhwan[2)]
Universitas Islam Negeri Sumatera Utara, Medan, Indonesia
[1)]rahmisyaida@gmail.com, [2)]aliikhwan@uinsu.ac.id

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Abstract: The manifestation of technological advances that have played a role in various fields is information systems. Information systems are widely applied in various government agencies such as aspects of education, economy and health. The government seeks to improve services in the health sector by carrying out community empowerment activities through Integrated Service Posts. In its implementation, the Integrated Service Post still uses the manual method, namely recording participant data from the Integrated Service Post, data on measuring baby's height and weighing baby's weight, vitamins and immunizations as well as the results of health checks for pregnant women and the elderly. Considering that continuous monitoring of infant growth and development is very important, the manual system becomes less effective. Thus, the existence of an Integrated Service Post information system helps data collection on infant growth and development as well as the health status of pregnant women and the elderly to be more effective. Researchers used research methods in the form of observation, interviews and literature study. The system design uses Unified Modeling Language and its development uses Rapid Application Development. The results of this study are a website-based Integrated Service Post information system for the implementation of Integrated Service Posts.

Keywords: Information System; Integrated Service Post; Unified Modeling Language; Rapid Application Development; Website

INTRODUCTION

Information technology is increasing very quickly in all aspects at this time (Rohmat & Pertiwi, 2020). The manifestation of technological advances that have played a role in various aspects is information systems. By utilizing optimal information technology in government agencies, it can help work efficiency and data processing efficiency so as to obtain data that is needed (E. P. Sari & Pudjiarti, 2021). The information system is able to facilitate the management and storage of data. The use of information systems can make information fast, precise and accurate (Susandi & Risalati, 2022). Information technology has also been widely applied in various government agencies such as the fields of education, economy and health (Adi, 2020). The government is trying to maximize one of the health sectors. The government's effort to improve services in the health sector is to carry out community empowerment activities through the implementation of Integrated Service Posts (Triana et al., 2021).

Integrated Service Post is one form of efforts to realize public health by organizing and implementing it from, for and with the community which aims to facilitate access to basic health services (Egeten et al., 2019). By supporting the function and role of Integrated Service Post to improve the quality of public health, Integrated Service Post organizes health service activities to the community in the form of health services for infants, pregnant women and the elderly. Integrated Service Post takes place once a month and is run by 4 to 5 officers. Activities carried out by Integrated Service Post include recording data on Integrated Service Post participants, recording height measurements and weighing babies' weight, recording examination results and providing health consultations (Fauzi, 2022).

Based on observations and interviews, researchers obtained supporting data for researchers to solve problems at the Integrated Service Post. The data is in the form of records such as records of baby lists, immunization records, records of baby's height and weight as well as the health of pregnant women and the elderly. The process of recording and collecting data on Integrated Service Post activities is done manually using a ledger compiled into a paper base to make reports on Integrated Service Post activities. This report is an important

*name of corresponding author

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document to be submitted to relevant agencies such as Public Health Center so that the implementation of Integrated Service Post can improve both in terms of services, programs and budgets. This makes the accuracy of data collection important to encourage the performance of Integrated Service Post implementers in providing valid health data and information.

Through this study, researchers created an Integrated Service Post Service Information System that was able to simplify and reduce recording time when carrying out Integrated Service Post activities. This information system can be used to produce information in the form of reports on the development of infants/toddlers more quickly and accurately. This study focuses on designing a system that is able to process data and results of health checks for infants, pregnant women, and the elderly. Thus, reports on infant growth and development, the health of pregnant women and the elderly can be presented quickly.

LITERATURE REVIEW

An information system is a combination of people, hardware, software, communication networks, and data resources that collects, transforms, and distributes information within an organization (Elisabet Yunaeti Anggraeni, 2017). The Integrated Service Post information system is designed to meet the community's need for valid health information and effective and efficient data reporting. Currently the website plays an important role because it is the fastest source of information media that can be accessed anytime and anywhere. Website is part of technological developments. Website is a collection of documents in the form of pages that contain text in HTML (Hyper Text Markup Language) format. A website is stored on a hosting server that can be accessed via an internet browser in the form of a URL (Uniform Resource Locator) (Dewa Made Widia, 2021). This system is designed using the PHP programming language and the Laravel framework.

PHP is a programming language used to create websites. PHP stands for "PHP: Hypertext Preprocessor". PHP is a scripting language that can be integrated with HTML and resides on the server. PHP is a script used to create dynamic web pages (Dewa Made Widia, 2021). MySQL (My Structure Query Language) is a database management system software SQL (Database Management System) or DBMS from many database systems such as Oracle, MySQL, Postgre SQL and others (Dewa Made Widia, 2021). PHP programming supports MySQL database well.

Developing web applications requires a framework. The framework contains a collection of program code that is collected and organized into well-structured folders for ease of use. Laravel is a PHP framework that can help in the web development process and is free to use. Laravel was developed by Taylor Otwell, an American programmer. Laravel focuses on clarity and simplicity in writing and display, as well as producing functional web applications that work (Sholihin, Nurjaya, 2022).

The development of this system uses the RAD (Rapid Application Development) method. RAD (Rapid Application Development) is a software production phase that maximizes software design processing time. The advantage of this method is that the development process requires a short and fast time and involves the user directly in its development (Hafiz Maulana Siagian et al., 2022). The development of the RAD method consists of a series of processes such as requirements planning, system design and implementation (Gunawan, 2022). The testing phase is carried out using black box testing. Black-box testing is a test that focuses on the functional specifications of the software, where the tester can determine a set of input conditions and perform tests on the program's functional specifications (Hidayat & Muttaqin, 2018).

METHOD

Research Stages

System research stage:

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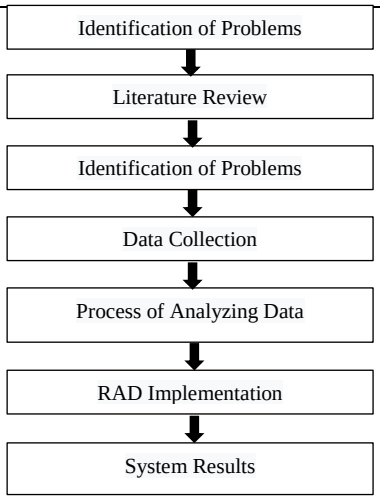

Fig. 1 Research Stages (Ikhwan & Aslami, 2022)

Data Collection Techniques

Several data collection techniques:

Observation

Observation is the collection of necessary data with direct monitoring of the research topic (Widyastuti, Handini., Siregar,Juarni., dan Ishak, 2020). Researchers made observations while observing and observing directly how the activities of Integrated Service Post officers in the process of checking the development of babies and the health of pregnant women and the elderly.

Interview

Interviews are data collection by conducting direct interviews with related parties orally or in writing (Syahrullah, 2018). Researchers held questions and answers to informants to obtain relevant information regarding system requirements.

Literature Study

Literature study is collecting data through research, reading, and collecting reference books, journals and other documents related to writing and research (Yani et al., 2019).

System Development Techniques

System development is carried out by means of Rapid Application Development (RAD).

Requirement Plan Phase

Describe the needs of the Integrated Service Post system. What was done was to analyze and interview Integrated Service Post officers. The results obtained are related to the mechanism or procedure of the Integrated Service Post data information system.

System Design Stage

The system design is done by applying use case diagrams and Integrated Service Post database design.

Implementation Phase

Implementation aims to implement the methods and programs required by the system. The system is adjusted to the needs and the system model that has been designed. Furthermore, an Integrated Service Post service information system will be created.

System Analysis

After the data collection process is complete, the next step is system analysis. The process of understanding the operating system is the basis for designing or improving existing systems (Mukhlis, 2022). This stage will analyze the operating system and the recommended system at the Integrated Service Post. System analysis is carried out by examining the current process where complexity and constraints arise, then further analysis is

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carried out in order to obtain a proposed system to solve system problems (Natalia et al., 2022). The running system and the recommended system are shown in the figure 2 and 3.

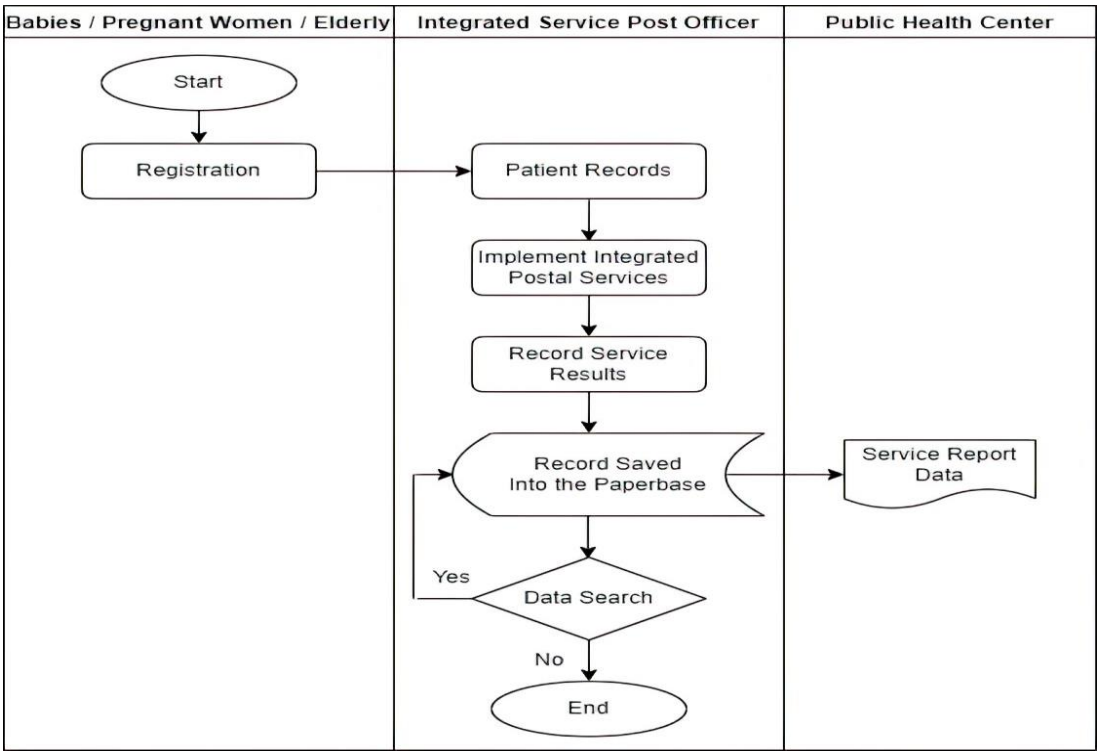

Fig. 2 Running System

A system that runs at an integrated service post that still uses the manual method with paper base.

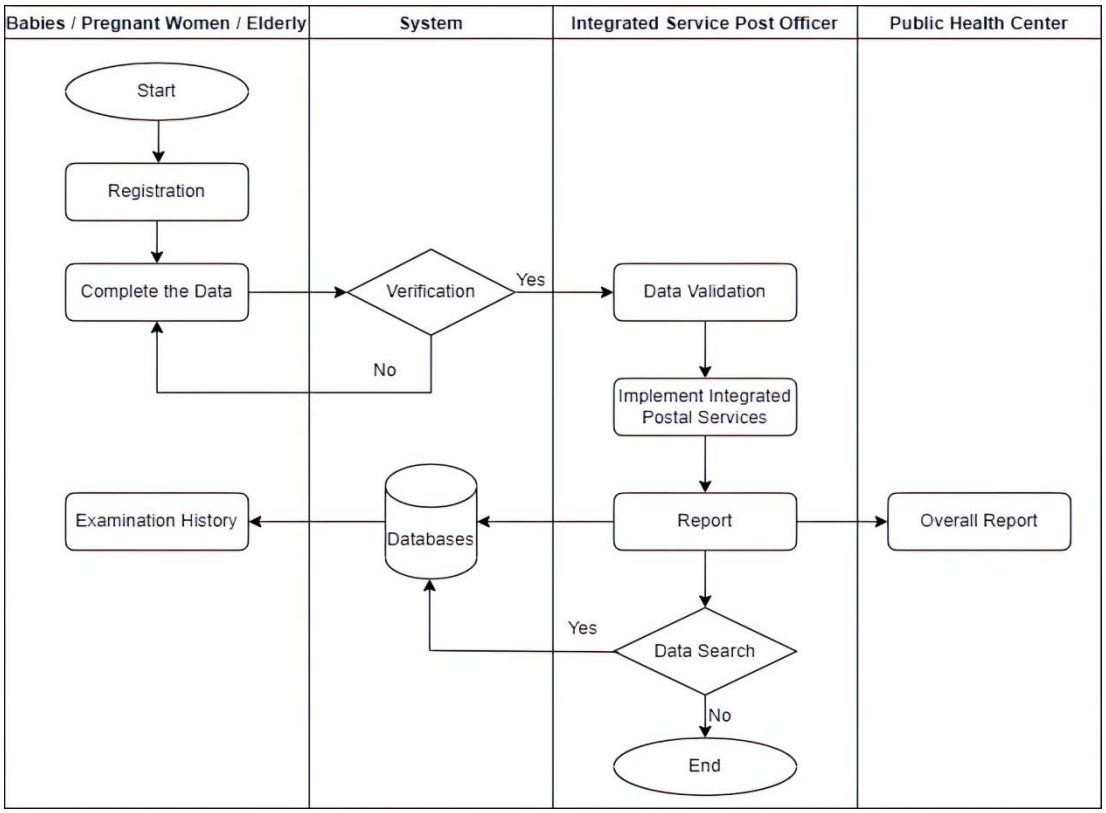

Fig. 3 Recommended Systems

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Recommended system for use in integrated service posts.

RESULT

Use Case Diagrams

Use case diagrams are used in the development of information systems where the use case captures the functional requirements of the system in question (Syafrial Fachri Pane, Wahyu Kurnia Sari, 2020). Use cases are used to show the relationship between the system and the user (L. I. Sari et al., 2022).

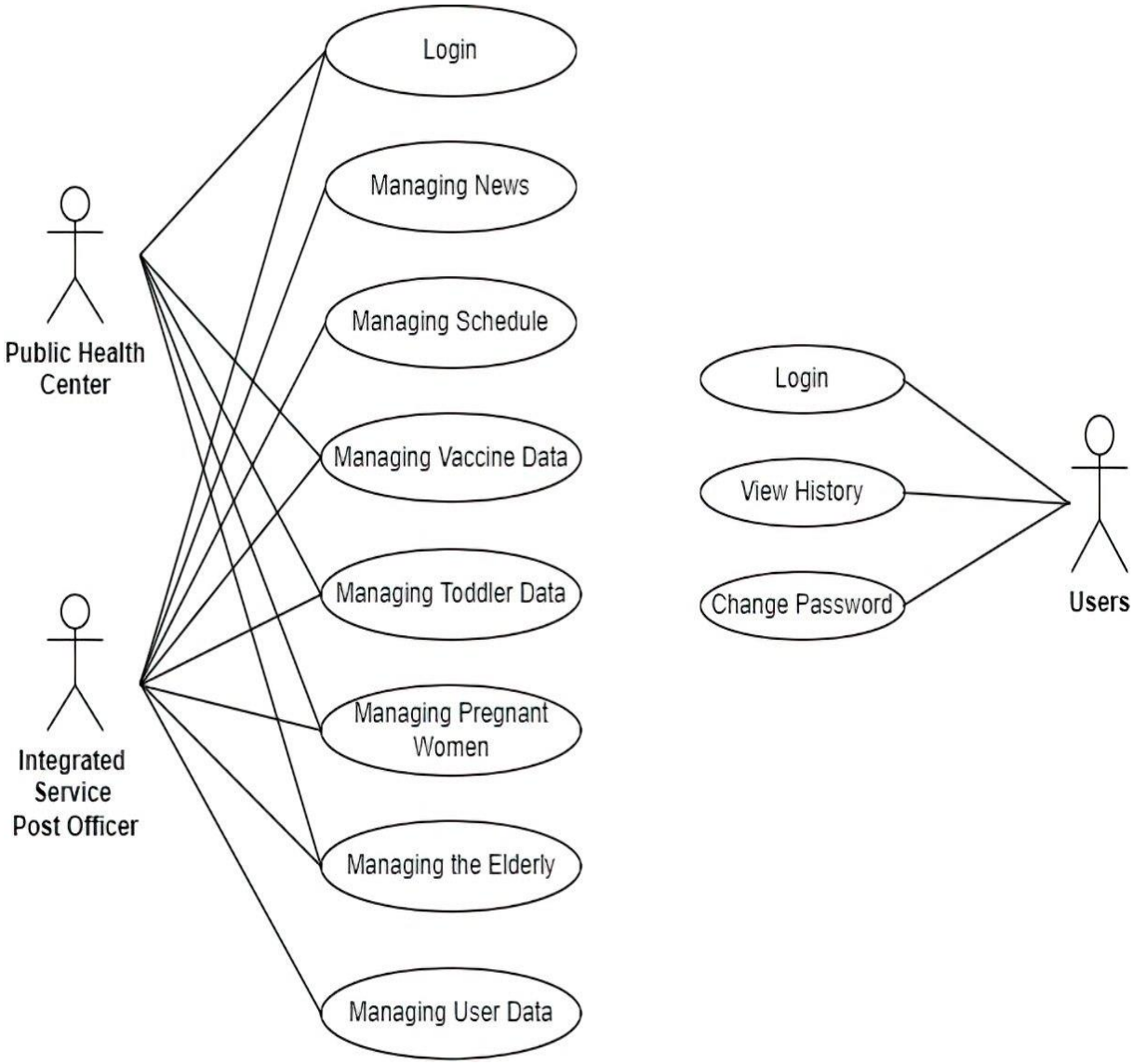

Fig. 4 Use Case Diagram

Database Design

Database design is a database component that is described in the form of a relational entity diagram (Hanifah et al., 2021). Entity Relationship Diagram (ERD) serves to create a logical database modeling (L. I. Sari et al., 2022).

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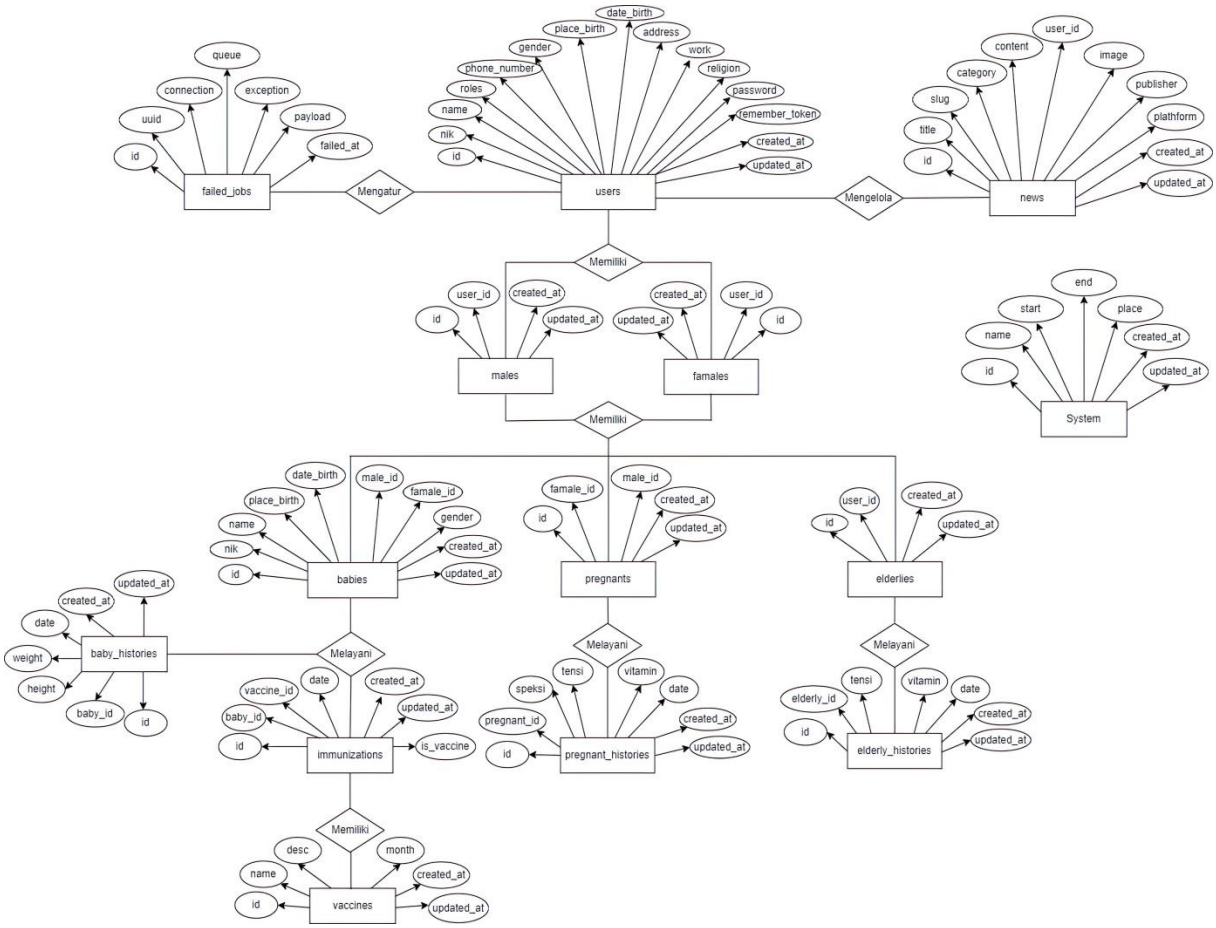

Fig. 5 Entity Relational Diagram

Implementation

Implementation of the Integrated Service Post Information System:

Login Page View

Displays the login page.

Fig. 6 Login Page

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Profile Account Page View.
Displays the profile account page.

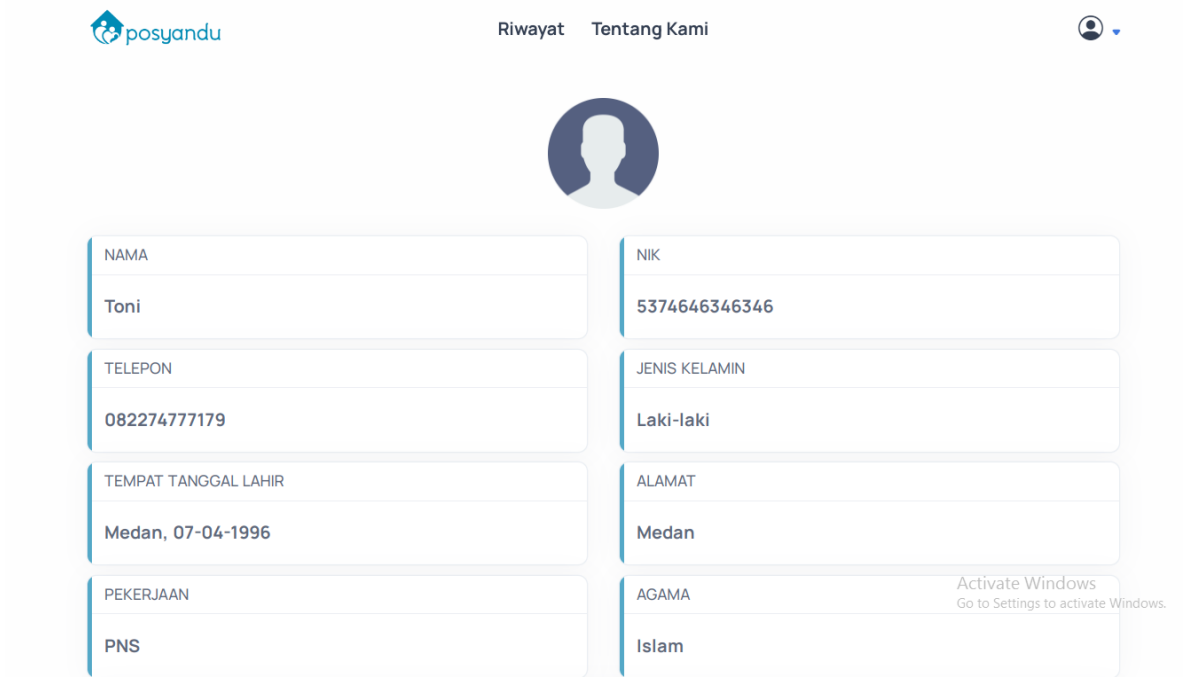

Fig. 7 Profile Account Page

Dashboard Page View
Displays the dashboard page.

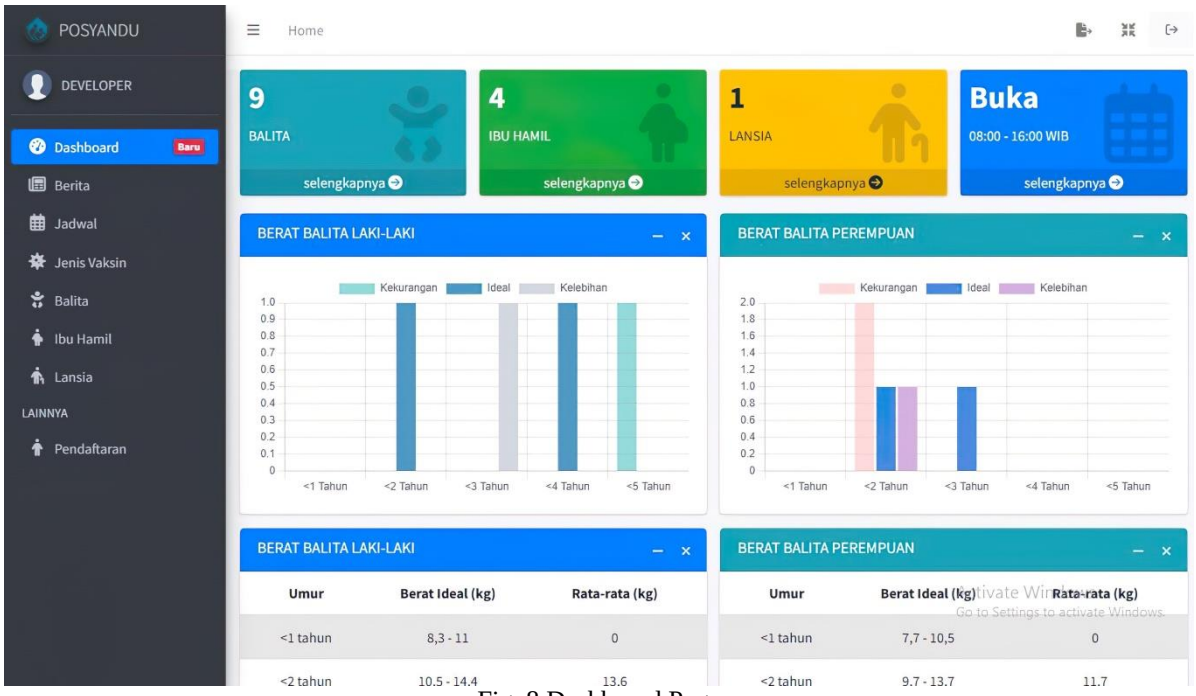

Fig. 8 Dashboard Page

Report Page View
Displays the Integrated Service Post inspection report form.

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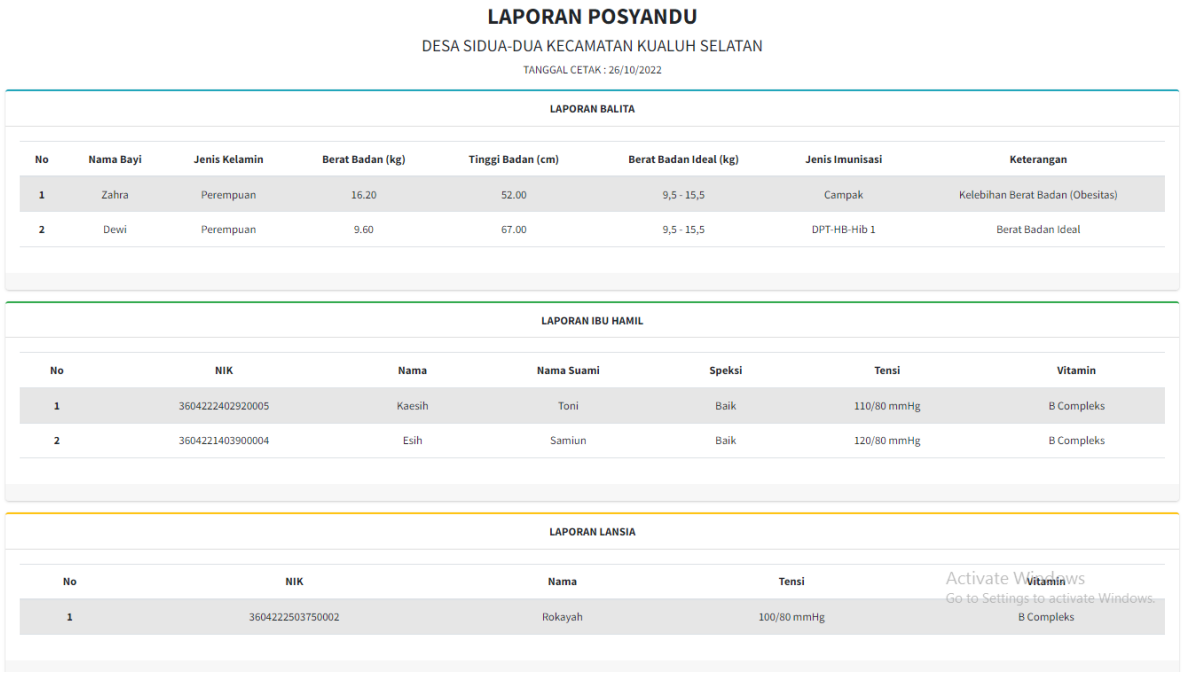

LAPORAN POSYANDU

DESA SIDUA-DUA KECAMATAN KUALUH SELATAN

TANGGAL CETAK : 26/10/2022

LAPORAN BALITA

No	Nama Bayi	Jenis Kelamin	Berat Badan (kg)	Tinggi Badan (cm)	Berat Badan Ideal (kg)	Jenis Imunisasi	Keterangan
1	Zahra	Perempuan	16.20	52.00	9,5 - 15,5	Campak	Kelebihan Berat Badan (Obesitas)
2	Dewi	Perempuan	9.60	67.00	9,5 - 15,5	DPT-HB-Hib 1	Berat Badan Ideal

LAPORAN IBU HAMIL

No	NIK	Nama	Nama Suami	Speksi	Tensi	Vitamin
1	3604222402920005	Kaesih	Toni	Baik	110/80 mmHg	B Compleks
2	3604221403900004	Esih	Samiun	Baik	120/80 mmHg	B Compleks

LAPORAN LANSIA

No	NIK	Nama	Tensi	Vitamin
1	3604222503750002	Rokayah	100/80 mmHg	B Compleks

Fig. 9 Report

Testing

The Integrated Service Post Information System is tested using black box testing that focuses on the functionality available on the system.

Table 1. Black box testing

No	Testing Section	Testing Scenario	Expected Results	Test Results	Status
1.	Register	User enters data on the register page	User goes to login page	Login page appears	Success
2.	Login	Admin and user enter NIK and Password	Admin and users will enter the main menu	Main page appears	Success
3.	Profile Account	User select account	System displays the account profile	Account page appears	Success
4.	History	User select the history menu	User can view examination history	History page appears	Success
5.	About Me	User select about me menu	Users can view information about the website	About me page appears	Success
6.	Home Page	User select the home menu	System displays the home menu	Home page appears	Success
7.	Dashboard Admin	Admin select the dashboard menu	System displays the dashboard menu	Dashboard page appears	Success
8.	News	Admin select the news menu	System displays the news menu	News page appears	Success
9.	Schedule	Admin select the schedule menu	System displays the schedule menu	Schedule page appears	Success
10.	Vaccine Types	Admin select the vaccine type menu	System displays the vaccine type menu	Vaccine type page appears	Success
11.	Toddler	Admin select the toddler menu	System displays the toddler menu	Toddler data page appears	Success
12.	Pregnant Women	Admin select the pregnant women menu	System displays the pregnant women menu	Pregnant woman data page appears	Success
13.	Elderly	Admin select the elderly menu	System displays the elderly menu	Elderly data page appears	Success

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14.	Registration	Admin select the registration menu	System displays the registration menu	User registration data page appears	Success
15.	Report	Admin select the report menu	System displays examination data for toddlers, pregnant women and the elderly	Report data page appears	Success
16.	Logout	Admin and User select the logout button	Admin and user logged out system and show login page again	Login page appear again	Success

The final result of testing the integrated service post information system with a black box is that no errors or bugs were found in any process of functional testing of website applications. The Integrated Service Post information system can function properly and can be accessed in the form of a website.

DISCUSSIONS

The Integrated Service Post website provides monthly services related to periodic Integrated Service Post activities. This site is used by three types of users: General users (community), Integrated Service Post Officers (administrator) and Public Health Center. In terms of users in general, previously users must register to get an account in order to access the Integrated Service Post website. After that, the general user can access the website menu with the account and check the results of the periodic survey history in the history menu to check the progress from month to month. For Integrated Service Post officers, officers will verify the data of people registered at the Integrated Service Post location so that the inspection can continue. Integrated Service Post officers manage all Integrated Service Post activities starting from news, schedules, immunization vaccines, baby data, pregnant women data, elderly data, and user data registered on the Integrated Service Post website. This website then allows Integrated Service Post officers to more effectively and efficiently display reports on the results of routine Integrated Service Post activities every month which are reported to the Public Health Center. For Public Health Center users, Public Health Center can manage report data contained on the Integrated Service Post website.

CONCLUSION

Based on research at the Integrated Service Post, it was concluded that to simplify and speed up the process of health services at the Integrated Service Post, a website-based Integrated Service Post Information System was created. This information system allows Integrated Service Post implementers to easily manage data on the development of infants, pregnant women and the elderly, so that reporting on infant development data becomes more effective and efficient. In the future, this system can continue to be developed using various features that are more perfect according to future needs.

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*name of corresponding author