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Psychological Service Management Information System

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Management Information System; Psychological Services; Laravel Framework; Waterfall Method; User Acceptance Testing (UAT).

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ABSTRACT

Growing demand for mental health services is constrained by limited accessibility and inefficient administrative procedures. At Confidence Psikolog, an independent psychological practice in Tasikmalaya City, patient registration, appointment scheduling, and record management are conducted manually through WhatsApp and paper-based documentation. This study aims to develop a web-based Psychological Service Management Information System that enables 24-hour self-registration and centralized digital record management. The system was developed using the waterfall methodology, comprising requirements analysis, system design, implementation, testing, and maintenance. It utilized PHP, the Laravel framework with Model-View-Controller (MVC) architecture, and MySQL as the database management system (DBMS). The results demonstrated successful registration automation and prevention of scheduling conflicts through real-time validation. The MVC architecture and a unique five-character verification code supported secure and systematic management of psychological records in PDF format. User acceptance testing (UAT) involving 22 respondents (20 general users or patients, one psychologist, and one administrator) yielded a score of 90.20%, classified as "Very Satisfactory." These findings demonstrate high user acceptance and operational feasibility, supporting the system's potential implementation to improve administrative efficiency and psychological service management at Confidence Psikolog.

INTRODUCTION

Mental health is a fundamental aspect of individual productivity and overall well-being. In Indonesia, the need to address psychological problems has become increasingly urgent, with approximately 6.1% of the population aged 15 years and older reported to exhibit indications of mental health disorders (Hutabarat & Prianto, 2025). However, the growing public demand for psychological services is often constrained by accessibility barriers, including time limitations, geographical constraints, and inefficient administrative procedures among psychological service providers (Faturizky & Komalasari, 2024; Munira et al., 2023). Structural barriers within Indonesia's mental health system have also been reported to limit equitable access to care (Anindyajati et al., 2022).

Inefficiencies in conventional mental health service management, which predominantly relies on manual and nonintegrated administrative processes, frequently result in communication barriers and scheduling conflicts between patients and counselors (Mohd Ridoi & Mohd Zin, 2024; Pratama et al., 2024). Many independent psychological practices continue to rely on telephone calls or instant messaging applications, such as WhatsApp, for patient

registration (Pontoh & Marlina, 2025). These conventional methods have several limitations, including restricted patient access to available appointment schedules and the requirement for administrative staff to record patient information manually, increasing the risk of human error (Samudra & Asmunin, 2025).

These administrative challenges are evident at the independent psychological practice of Endra Nawawi, S.Psi., M.Psi. (Confidence Psikolog), located in Tasikmalaya City. Preliminary observations revealed that the entire service workflow, including the dissemination of service information, patient registration, appointment scheduling, and the archiving of clients' psychological records, was managed manually. Patients were required to contact administrative staff via telephone or WhatsApp. This approach not only restricted patients' ability to register outside operating hours but also increased the risk of overlapping consultation appointments and the potential loss of clients' historical psychological records due to the absence of a centralized database.

To address these operational challenges, a transition toward digitalization is necessary through the development of a web-based Psychological Service Management Information System. The proposed system extends beyond a conventional company profile website by providing an integrated information management platform developed using the Laravel framework. The implementation of the Model-View-Controller (MVC) architectural pattern in Laravel facilitates the separation of business logic from the user interface, improves system maintainability, supports the implementation of data security mechanisms, and streamlines consultation scheduling (Furqon & Cahyo, 2026). The proposed system is expected to provide continuous access to service information, facilitate simultaneous patient self-registration, and enable systematic and secure management of patients' psychological records. Digital mental health services can broaden access and support continuity of care when they are designed around users' needs (Aditia et al., 2025; Lattie et al., 2022; Philippe et al., 2022).

An information system comprises interconnected components that collect, process, store, and distribute data to support organizational operations and management. Web-based applications offer cross-platform accessibility and can provide continuous service availability, making them particularly suitable for self-service portals that facilitate patient registration and appointment scheduling in psychological practices (Azanisilia & Prajana, 2023). The waterfall model remains a relevant software development methodology for information system projects with stable, clearly defined, and comprehensive user requirements established at the outset (Nova et al., 2022; Rahmi et al., 2023). Its development life cycle comprises requirements analysis, system design, implementation, testing, deployment, and maintenance (Hutabarat & Prianto, 2025; Rahmadoni et al., 2025).

Laravel is a modern PHP framework based on the Model-View-Controller (MVC) architectural pattern, which applies the principle of separation of concerns. The Model manages application data, data-related logic, and database interactions, including client information, counseling schedules, and psychological records. The View presents an interactive and responsive user interface (UI) using Laravel's Blade templating engine, while the Controller handles incoming requests, coordinates interactions with the Model, and returns appropriate responses to the user. Laravel also provides built-in security mechanisms, including protection against cross-site request forgery (CSRF), automatic output escaping through Blade to mitigate cross-site scripting (XSS), and parameterized database queries through Eloquent Object-

Relational Mapping (ORM) to reduce the risk of SQL injection attacks (Furqon & Cahyo, 2026). PHP is an open-source, server-side programming language used for dynamic web application development (Wahyudin & Rahayu, 2020), while MySQL is a relational database management system (RDBMS) employed to centrally store and manage client information, appointment schedules, and psychological service records.

User acceptance testing (UAT) is a final-stage software testing process conducted to determine whether a system satisfies end-user requirements and is suitable for operational implementation (Fitriastuti et al., 2025; Setyadi et al., 2025). In this study, UAT assessed user satisfaction and system acceptance using a Likert-scale questionnaire (Pranatawijaya et al., 2019) based on four evaluation criteria: understandability, attractiveness, learnability, and operability. Comparable evaluation approaches have been used to measure end-user satisfaction with web-based information systems (Prastio et al., 2024; Zunanta et al., 2022).

METHOD

The Psychological Service Management Information System was developed using the waterfall model, as illustrated in Figure 1. The first stage involved a literature review focusing on software engineering, the Laravel framework, and the digitalization of psychological service administration. The second stage involved requirements analysis, during which data were collected through interviews and direct observations to identify limitations in the existing administrative workflow and establish the system's functional requirements. The third stage involved system design, which included Unified Modeling Language (UML) modeling using use case and activity diagrams, relational database design using entity-relationship diagrams (ERDs) and database table structures, and user interface and user experience (UI/UX) design through wireframing.

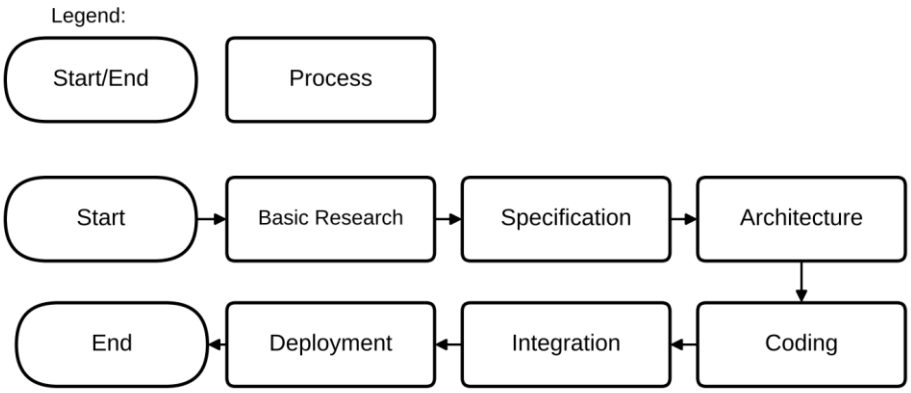

Figure 1. Waterfall Method

The fourth stage involved system implementation, during which the system and interface designs were translated into functional code using PHP and the Laravel framework with the Model-View-Controller (MVC) architecture and MySQL as the database management system. The fifth stage involved system integration and testing through user acceptance testing (UAT), which included 22 respondents comprising 20 general users or patients, one psychologist, and one administrator. The evaluation assessed user satisfaction and system acceptance. The sixth stage involved deployment and maintenance, during which the

application was deployed to a production environment using Anymhost Indonesia's web hosting service. Maintenance was limited to corrective maintenance, including post-deployment monitoring and the resolution of minor software bugs identified during initial system operation.

RESULTS AND DISCUSSION

This section describes the interface implementation results of the development of the Psychological Service Management Information System, the results of system testing using the *User Acceptance Test* (UAT) method, and the stages of system *deployment* to the *live production* environment.

Implementation of the User Menu (Front-End)

The Home page displays the consultant's profile and the main service areas (Industrial & Organizational, Adolescent & Adult Clinical, Educational, Cognitive, and Behavioural Psychology), as shown in Figure 2. The About Us & Legality page presents brief information on the history of the institution and its official legality (NPWP and HIMPSI membership number), as shown in Figure 3.



Figure 2. Home Page

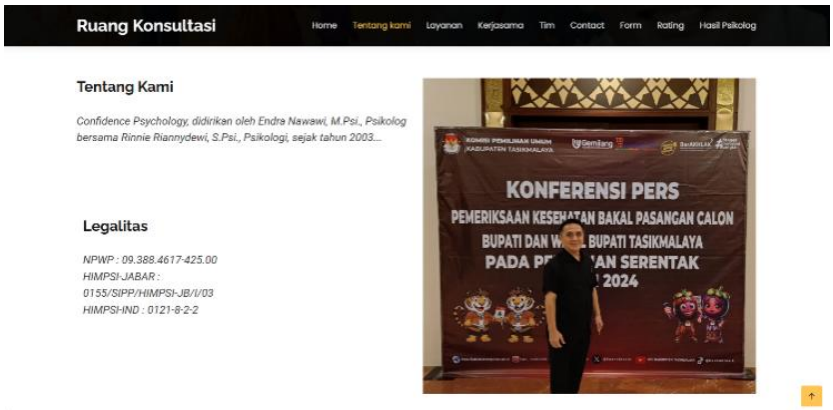

Figure 3. About Us & Legality Page

The Services page displays the service catalogue (Psychological Tests, Assessment, Research, Training, Speakers, and Consultation), as shown in Figure 4, while the Portfolio page

presents the track record of cooperation with Government, Educational, and Corporate institutions (Figure 5).

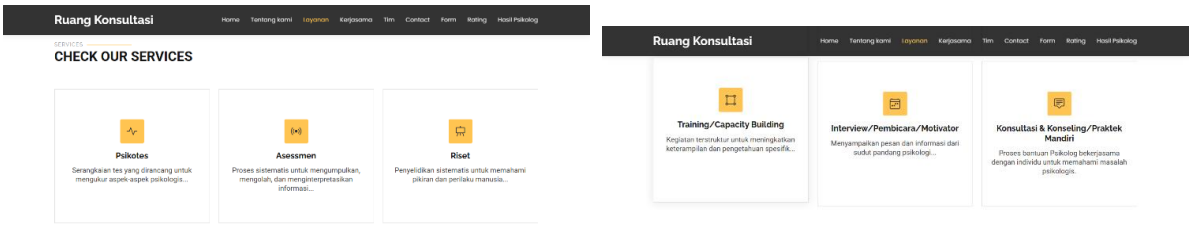

Figure 4. Services Page

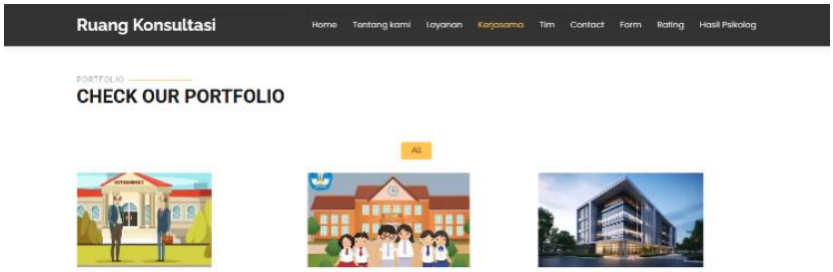

Figure 5. Portfolio Page

The Consultation Registration page (*Form*) provides a 24-hour *self-service* schedule booking form with individual or institutional category options (Figure 6). The Reviews & Ratings page (*Reviews*) allows patients to give reviews and star ratings (scale 1–5), as shown in Figure 7. The Psychologist Report Results page is a special feature for patients to download the report of their psychological examination results securely using verification of their full name and a 5-character unique code (Figure 8).

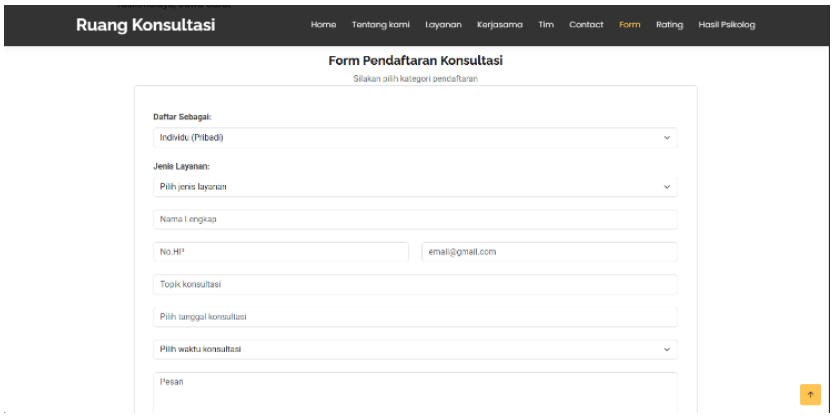

Figure 6. Consultation Registration Form

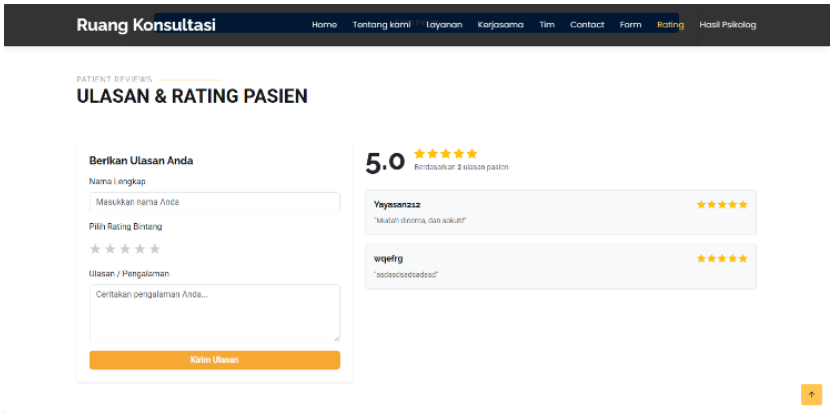

Figure 7. Reviews & Ratings Page

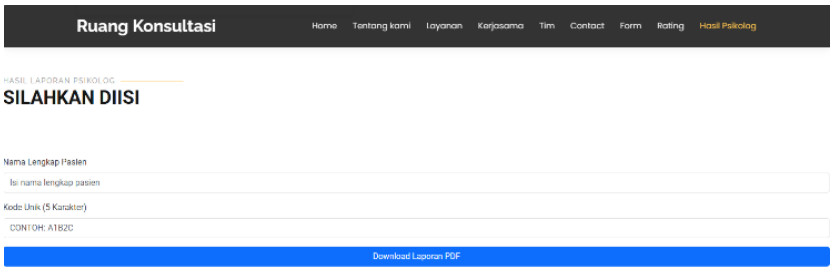

Figure 8. Psychologist Report Results Page

Implementation of the Psychologist Menu

The Schedule & Counselling Appointment Management feature facilitates the psychologist and assistant in confirming, rescheduling, or rejecting schedule requests in *real time* to avoid schedule clashes. The Patient Report feature is a module for recording the patient's anamnesis history, main complaints, observation results, and clinical recommendations. The Payment Management feature verifies patients' proof of payment transfers to ensure administrative validity.

Implementation of the Assistant Menu

The Medical Record & Autoanamnesis Management feature manages patients' initial medical record data (Figure 9). The Website & Manual Booking feature monitors incoming orders automatically from the *web* and provides a manual data input feature for patients who register via *WhatsApp* (Figure 10).

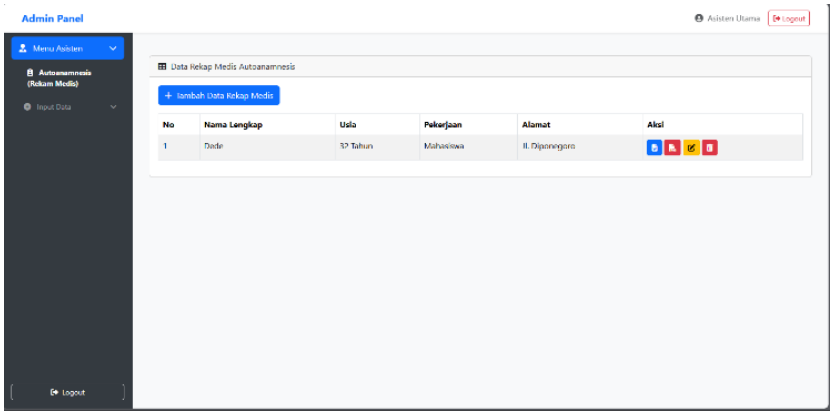

Figure 9. Medical Record & Autoanamnesis Management

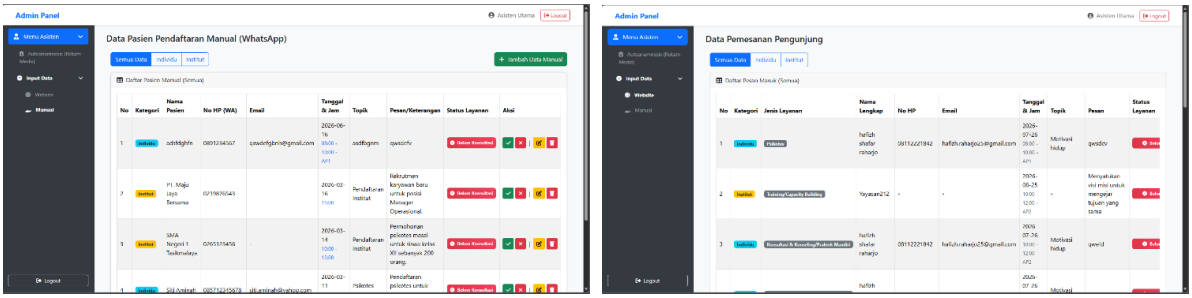

Figure 10. Website & Manual Booking

User Acceptance Testing (UAT) Results

The feasibility test of the system was conducted using the *User Acceptance Test* (UAT) method by distributing questionnaires to 22 respondents based on the aspects of *Attractiveness*, *Operability*, *Understandability*, and *Learnability*. Based on the recapitulation of the questionnaire calculations, *Attractiveness* (visual appeal) obtained a percentage of 86.36% (criterion: Very Satisfactory), *Operability* (ease of operation) obtained 94.32% (Very Satisfactory), *Understandability* (clarity of language and information) obtained 90.34% (Very Satisfactory), and *Learnability* obtained 89.77% (Very Satisfactory). Overall, the UAT produced a total score of 635 out of a maximum value of 704, giving an average percentage of 90.20%. Referring to the standard assessment criterion interval (81%–100%), this value falls into the "Very Satisfactory" category, which proves that this information system is feasible, easy to operate, and able to meet the operational service needs of *Confidence* Psikolog effectively.

Hosting Implementation and Deployment

The *deployment* stage was carried out so that the system can be accessed online by the public and the management in *real time*. The server infrastructure and domain configuration used are presented in Table 1.

Table 1. Server Infrastructure and Domain Configuration

Infrastructure Parameter	Configuration Detail
Hosting Service Provider	AnymHost Indonesia
Server Name	Wlfbseth
Server IP	163.223.227.44
Main Domain Name	konsul.endra-psikolog.com
Control Panel	cPanel (Kawaiihost Control Panel)
Database Management System	MySQL (wlfbseth_belajar)

Based on the post-*deployment* test results, the domain endra-psikolog.com has been stably connected to the hosting server, and all application modules from the user, assistant, psychologist, and admin sides run well in the *live production* environment.

CONCLUSION

The web-based Psychological Service Management Information System successfully automated 24-hour patient self-registration and prevented consultation scheduling conflicts through real-time validation. The management of digital psychological records and reports was centralized in a relational database using the Laravel framework with the Model-View-Controller (MVC) architecture. The system also incorporated a unique five-character verification code as an additional access control mechanism to support data confidentiality. Based on the user acceptance testing (UAT) results, the system achieved a score of 90.20%, corresponding to the "Very Satisfactory" category, indicating high user acceptance and supporting its feasibility for operational implementation in the production environment. For future development, the integration of an automated payment gateway is recommended to facilitate real-time verification of patients' financial transactions, reduce reliance on manual verification, and improve the overall efficiency of psychological service administration.

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CONFLICT OF INTEREST

The authors declare that this research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

AUTHOR CONTRIBUTIONS

All authors contributed to the preparation and writing of this article.

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