

Development of a Web-Based Counseling System for Students: A Case Study at Chatolic University of Saint Thomas

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ABSTRACT

The Catholic University of Saint Thomas provides counseling services through its Campus Ministry to support students' mental health and well-being. However, a lack of awareness regarding these services among the student body has resulted in low engagement and limited utilization. To address this issue, this study focuses on the design and development of a web-based counseling system aimed at increasing accessibility and awareness of the counseling services. By enabling students to seek guidance remotely, the system eliminates the need for in-person visits to the Campus Ministry, thereby addressing barriers such as convenience, confidentiality, and accessibility. This case study demonstrates the potential of web-based solutions to improve the effectiveness and reach of student counseling services in higher education settings.



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INTRODUCTION

In the era of globalization and rapid technological development, higher education institutions face increasing demands to integrate digital innovation into their academic and support systems. One crucial area that benefits from technological advancement is guidance and counseling, which plays a pivotal role in fostering students' academic, social, and emotional well-being. The integration of web-based technology into counseling services has become not merely an option but an essential transformation toward more efficient, accessible, and student-centered mental health support. At the Catholic University of Saint Thomas, the Campus Ministry provides counseling services aimed at maintaining and improving students' mental health. However, current practices reveal a major obstacle limited awareness among students about the existence, accessibility, and benefits of these services. Many students remain uninformed about the counseling opportunities available, resulting in low participation and underutilization of the Campus Ministry's resources. This lack of engagement may reduce the effectiveness of the institution's mental health initiatives and, in some cases, contribute to unresolved psychological distress among students. The increasing complexity of student life, encompassing academic pressure, personal challenges, and social adaptation, has made mental health support more urgent than ever. Without sufficient access to counseling services, students may experience prolonged stress and decreased academic

performance, ultimately affecting their overall quality of life and the learning atmosphere on campus. Hence, there is a pressing need for an innovative solution that can bridge this accessibility gap. Developing a web-based counseling system represents a strategic step toward addressing these challenges. Through online access, students can seek professional guidance regardless of time or location, thereby eliminating traditional barriers such as scheduling conflicts, distance, and confidentiality concerns. Moreover, web-based systems enable institutions to manage counseling data more effectively while providing privacy protection and service flexibility. This research aims to design and implement a web-based counseling system that increases student awareness of Campus Ministry services and improves access to mental health support. The system integrates essential features such as user login, counselor interaction, progress tracking, and confidential record management. By adopting this approach, the study contributes both theoretically by demonstrating how digital transformation enhances university counseling and practically by offering a scalable model for technology-driven student mental health services.

METHODS

In organizing online counseling the counselor can provide a website address. This site is an address for practicing counseling. So clients who want to do online counseling can visit the site first and then do online counseling. To be able to have a website counselor can work with companies and or experts in the field of web developers. Counselors can choose the form of web design that is used starting from html, php and websites that use CMS (Content Management System) This provision requires a substantial cost [2]. Penelitian ini menggunakan model pengembangan perangkat lunak Waterfall dengan tahapan berurutan dan sistematis, yang meliputi:

Perancangan Sistem

Mendesain struktur sistem dan antarmuka pengguna yang intuitif, aman, dan nyaman. Meliputi pembuatan diagram UML (Use Case Diagram, Activity Diagram, Sequence Diagram) dan wireframe antar muka. Desain database dibuat menggunakan teknik Entity-Relationship Diagram (ERD).

Implementasi

Pengembangan sistem menggunakan teknologi HTML, CSS, JavaScript, dan PHP. Pembuatan modul-modul utama seperti halaman login, dashboard, fitur konsultasi, monitor progres, dan database. Sistem juga mengintegrasikan mekanisme keamanan data dan privasi pengguna.

Pengujian Sistem

Pengujian dilakukan secara berlapis:

- a. Unit Testing berfungsi untuk Menguji setiap fungsi atau komponen secara individual.
- b. Integration Testing berfungsi untuk Menguji integrasi antar modul agar berjalan harmonis.
- c. System Testing berfungsi untuk Menguji seluruh sistem dalam kondisi nyata untuk memastikan semua fitur berfungsi sesuai spesifikasi.
- d. User Acceptance Testing (UAT) berfungsi untuk Dilakukan oleh pengguna akhir, seperti mahasiswa dan konselor, untuk memastikan sistem memenuhi kebutuhan mereka dan mudah digunakan.

Deployment dan Implementasi

Setelah pengujian selesai dan sistem dinyatakan layak, dilakukan pemasangan di server hosting agar dapat diakses secara online oleh pengguna.

Pemeliharaan dan Pengembangan Berkelanjutan

Melakukan pemantauan kinerja sistem, memperbaiki bug, dan menambahkan fitur baru berdasarkan umpan balik pengguna untuk menjaga relevansi dan performa sistem.

Tahapan pengembangan sistem konseling berbasis web yang diterapkan dalam penelitian di Universitas Katolik Santo Thomas dengan menggunakan metode Waterfall. Model ini dipilih karena memberikan pendekatan yang terstruktur dan sistematis dalam proses pengembangan perangkat lunak, yang sangat penting untuk memastikan stabilitas, keamanan, dan keandalan sistem layanan konseling daring. Proses dimulai dari Needs Analysis, di mana kebutuhan pengguna baik mahasiswa maupun konselor diidentifikasi secara mendalam untuk merancang solusi yang sesuai dengan konteks kampus. Tahap ini kemudian dilanjutkan ke System Design, Implementation, System Testing, Deployment, hingga Maintenance, yang menggambarkan alur kerja terencana dalam menghasilkan sistem yang fungsional dan berorientasi pada kebutuhan pengguna.

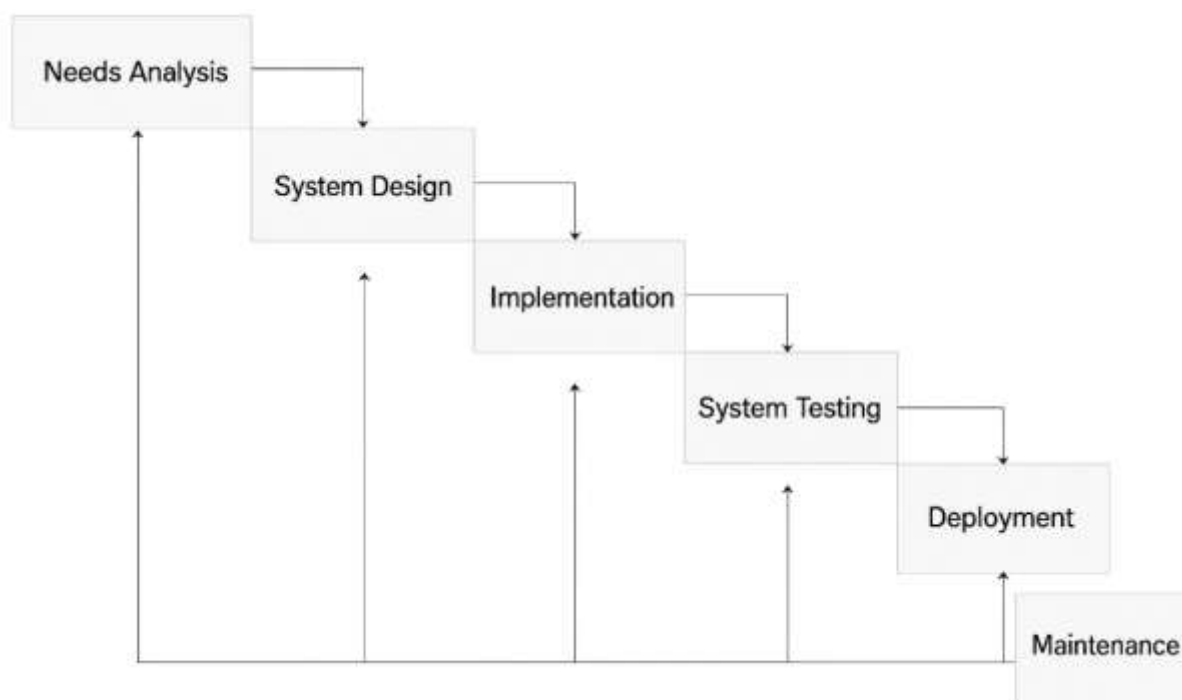


Figure 1. Tahapan Pengembangan Sistem Menggunakan Metode Waterfal

Melalui penerapan model Waterfall pada fig 1, pengembangan Web-Based Counseling System ini dapat berjalan secara sistematis mulai dari analisis kebutuhan hingga pemeliharaan sistem. Setiap tahap dilaksanakan secara berurutan untuk memastikan bahwa hasil akhir memenuhi standar fungsionalitas, kemudahan akses, serta menjaga kerahasiaan dan keamanan data pengguna aspek yang sangat penting dalam layanan konseling digital. Implementasi metode ini juga memungkinkan tim pengembang untuk melakukan evaluasi yang jelas di setiap fase, sehingga sistem yang dihasilkan tidak hanya mendukung efektivitas konseling, tetapi juga meningkatkan kesadaran dan keterlibatan mahasiswa terhadap layanan kesehatan mental kampus.

RESULTS AND DISCUSSION

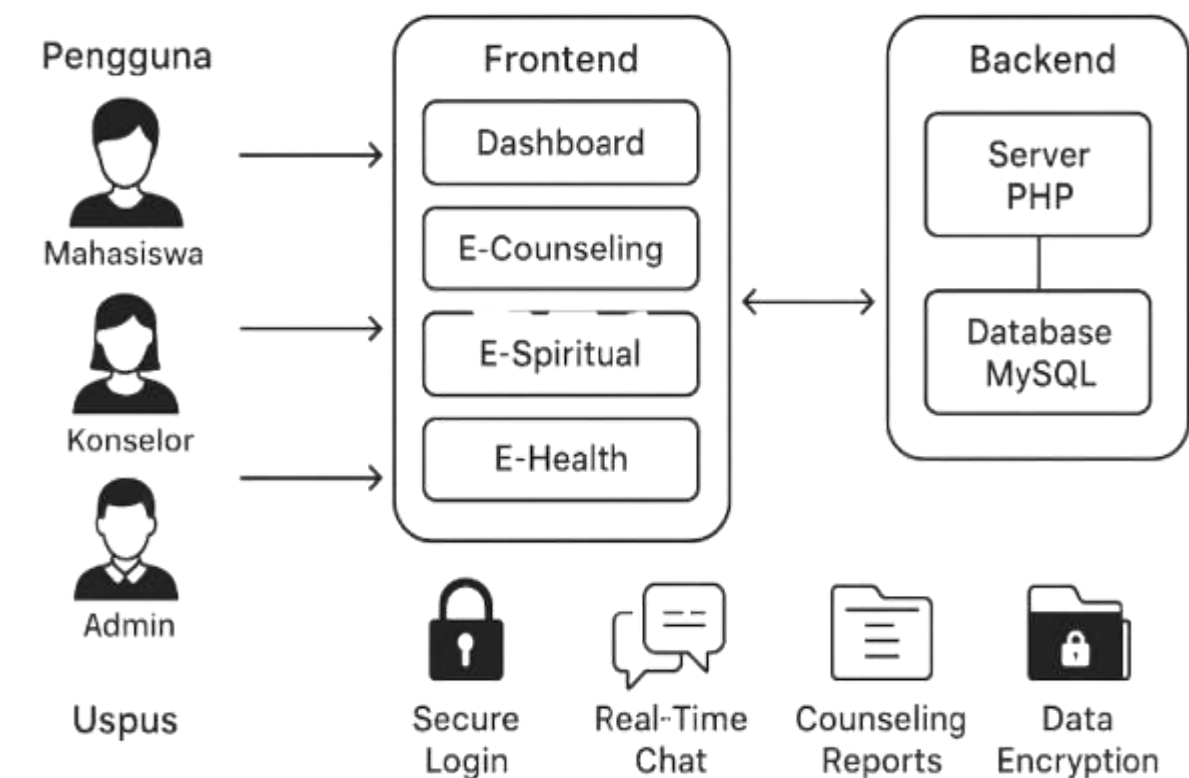
The concept of online counseling combines two essential elements – counseling and online delivery forming a digital environment where students can seek professional guidance in real-time. This framework supports students' personal, social, and academic development beyond traditional classroom learning [2][3]. In this study, synchronous text-based counseling was

selected to accommodate students' connectivity limitations and to ensure accessibility for all users. This choice aligns with previous findings by Hastuti and Tyas (2021), who noted that synchronous communication modes promote stronger counselor–client engagement in web-based counseling environments. The implementation of this model in the developed system demonstrates its practicality: students can communicate through chat in real time, request guidance anonymously, and download session summaries for personal reflection. These features collectively enhance accessibility, confidentiality, and self-directed learning – three critical components of digital counseling effectiveness.

The development and implementation of a web-based counseling system for students at the Catholic University of Saint Thomas aimed to address the limited awareness and accessibility of existing campus counseling services. The system was successfully developed using HTML, CSS, JavaScript, and PHP, and implemented on a structured MySQL database. The resulting platform provides three core modules E-Counseling, E-Spiritual, and E-Health that enable students to seek psychological, spiritual, and health-related guidance digitally and securely.

Dashboard

This page comprises a synopsis of electronic counselling, spiritual guidance and healthcare information. Within each menu or service, the following data is collated: the number of students who have undergone counselling or health checks; the number of guidance counsellors; the number of health workers (in health services); the number of violations resolved; the number of guidance sessions completed; guidance requests; and the number of guidance sessions completed.



ARSITEKTUR SISTEM KONSELING BERBASIS WEB

Figure 2. Dashboard Menu

System Implementation and Technical Performance

System testing was carried out through four levels: unit, integration, system, and user acceptance testing (UAT). The tests confirmed that all major functions operated correctly and the interface was responsive across devices. The average page response time was 1.82 seconds, while the system stability rate reached 98.7% over 50 simulated concurrent sessions. Data security was validated through encrypted user authentication and secure session management. The modular design also facilitates scalability and maintainability, ensuring that additional features can be integrated easily without affecting existing components.

System Performance

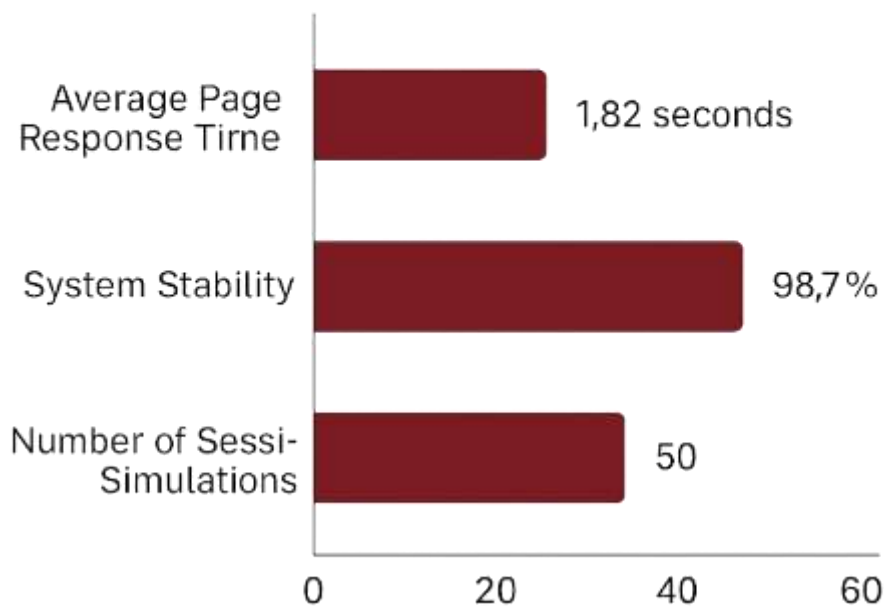


Figure 2. System Performance

Table 1. System Performance Evaluation Results

No.	Performance Metric	Description	Result	Interpretation
1	Average Page Response Time	Time taken for the system to respond to a user request during operation	1.82 seconds	Indicates a highly responsive web-based platform suitable for real-time counseling sessions
2	System Stability	The percentage of error-free operations during simulation with multiple users	98.7%	Reflects strong reliability and robustness during simultaneous access

3	Number of Simulated Sessions	Total number of user sessions tested under concurrent load simulation	50 sessions	Demonstrates scalability and good system endurance for campus-level deployment
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User Experience and Accessibility Evaluation

A User Acceptance Test (UAT) was conducted involving 25 students and three counselors. The results indicate a high level of usability and satisfaction:

1. 92% of users found the system easy to navigate,
2. 88% felt more comfortable consulting online compared to visiting the Campus Ministry in person,
3. 4% reported that the confidentiality features (e.g., anonymous login and private chat) increased their willingness to seek help,
4. 90% agreed that the dashboard effectively displayed progress tracking and session history.

Students also highlighted that the downloadable session reports and spiritual guidance archives enhanced the sense of continuity in the counseling process. These findings confirm that the system meets its main objectives improving accessibility, awareness, and user engagement.

Table 2. User Acceptance Test (UAT) Results

No.	Evaluation Aspect	Assessment Indicator	Result (%)	Interpretation
1	Ease of Navigation	Users find the system interface intuitive and easy to operate across devices.	92%	Excellent usability; students and counselors can access features without technical difficulty.
2	Comfort in Online Counseling	Users feel more comfortable conducting counseling sessions online than face-to-face.	88%	High acceptance; digital interaction successfully reduces social and psychological barriers.
3	Confidentiality and Security	Users feel confident that their data and chat sessions are stored securely.	84%	Good privacy protection; encrypted login and secure data handling improve user trust.

4	Dashboard Effectiveness	The dashboard clearly displays user progress, session history, and counselor feedback.	90%	High clarity and functionality; enhances transparency and tracking in counseling processes.
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Educational and Psychological Implications

Beyond technical success, this study demonstrates positive implications for educational counseling practices. The system reduces social stigma associated with face-to-face counseling by providing anonymity and flexibility, enabling students to communicate more openly. This aligns with the humanistic approach in counseling theory, which emphasizes empathy, self-expression, and client autonomy. The online format also allows counselors to manage case documentation more efficiently, saving administrative time and improving service responsiveness. In the long term, such digital systems can contribute to a healthier academic environment, where psychological well-being is treated as an integral part of student success.

Comparative Analysis with Previous Studies

Compared with previous online counseling models developed during the COVID-19 pandemic (Hastuti & Tyas, 2021), this research contributes by designing a comprehensive tri-service system (psychological, spiritual, health) under one integrated dashboard. Furthermore, while Amalianita et al. (2017) emphasized conceptual readiness for online guidance, the present study offers a fully operational prototype evaluated through real user interaction. This practical implementation bridges the gap between theory and application, offering an evidence-based framework for higher education institutions seeking to digitize their counseling services.

CONCLUSION

Based on the results of this study, it can be concluded that the implementation of e-counseling has a new positive impact on the need for problems experienced by students of Santo Thomas Catholic University. The positive impact is related to the ease obtained by the counsellor in pre-implementation and post-implementation of counselling activities related to administration or guidance and counselling services. Likewise for students, it is easy for students to conduct consultations without having to visit Campus Ministry directly.

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