



Designing A Web-Based E-Counseling Application Using The Biopsychosocial Balance Theory To Optimize Academic Guidance And Counseling Services (Case Study: Darussalam Gontor University)

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Abstract

Academic guidance and counseling services play an important role in supporting student welfare and academic success. However, the implementation of counseling services at Darussalam Gontor University still faces various obstacles, such as an unstructured scheduling process, manual counseling history recording, and limited access to services for students. This study aims to design and develop a web-based e-counseling application using biopsychosocial balance theory to optimize academic guidance and counseling services at Darussalam Gontor University. The research method used is the System Development Life Cycle (SDLC) with a Waterfall approach, which includes the stages of needs analysis, system design, implementation, testing, and maintenance. The developed application provides features for making counseling appointments, selecting counselors, filling out counseling forms based on biological, psychological, social, and spiritual aspects, and confirmation of counseling schedules by counselors. System testing was conducted using Black Box Testing to ensure that all system functions ran according to user needs. The results of the study show that the e-counseling application that was developed works well and meets the needs of users, including students, counselors, and administrators. With this application, the counseling service process has become more structured, efficient, and accessible. It is hoped that this e-counseling application can become a digital solution that supports the improvement of the quality of academic guidance and counseling services at Darussalam Gontor University.

Keywords: E-Counseling, Information Systems, Biopsychosocial, Waterfall, Black Box Testing

1. Introduction

Darussalam University (UNIDA) Gontor is a pesantren-based university that integrates academic education with the pesantren system. This environment combines the three pillars of higher education with boarding school routines, such as studying classical Islamic texts, sports, memorizing the Quran, Islamization, zikir (remembrance of God), olah pikir (intellectual training), olah rasa (emotional training), and so on, which are conditioned in an Islamic boarding school environment. Students from diverse social, economic, and cultural backgrounds are required to adapt to intense academic and non-academic activities.[1] Students' daily activities, which include lectures, organizational activities, and religious studies, can cause stress and mental fatigue. Currently, counseling services at Darussalam University (UNIDA) Gontor consist of two systems: unstructured counseling by lecturers or peers, and structured counseling through the counseling service center under the Directorate of Islamic Boarding Schools. However, both systems are still carried out manually, both in terms of scheduling and documenting counseling history. Making counseling appointments via WhatsApp or face-to-face meetings is often inefficient and poorly documented, causing schedule overlaps and making it difficult to monitor student progress. This inefficiency is an obstacle to providing optimal counseling services in the dynamic environment of Islamic boarding schools. One potential solution is the development of a web-based e-counseling system, which allows students and counselors to connect online through a structured platform. E-counseling is a counseling service that utilizes the internet to help individuals overcome mental health issues through electronic communication. E-counseling allows for flexible access and structured data recording, making it more suitable for students who have busy and varied schedules.[2] The implementation of e-counseling in various universities has been proven to significantly increase access to mental health services. However, to be effective in the pesantren environment, this platform needs to be adapted to the characteristics of the students and the philosophy of the institution. The biopsychosocial approach, which encompasses biological, psychological, and social dimensions, has been widely used in mental health services due to its ability to understand individuals holistically. In the context of counseling, the biopsychosocial model is a relevant foundation because it views students holistically, encompassing biological, psychological, and social aspects.[3] This approach allows counselors to design comprehensive interventions, including physical, mental, and social environment assessments of clients. Studies have proven that the biopsychosocial approach is effective in improving the skills of adolescent mental health service facilitators. This model is considered capable of creating a more inclusive environment and supporting

overall mental well-being. Therefore, the application of the biopsychosocial model in counseling services at Darussalam University (UNIDA) Gontor is expected to be a solution that meets the needs of students.

2. Literature Review

Widya Kurniawan, Oddy Virgantara Putra, and Lukman Effendi (2021) in a study entitled "Designing a Web-Based Warehouse Management Application for the UNIDA (U3) Gontor Using the Yii2 Framework," developed a web-based warehouse management information system to address the issues of manual and non-integrated data management at the UNIDA Gontor U3 Minimarket. This research used the waterfall SDLC method with the stages of analysis, design, implementation, testing, and maintenance.[4] Cornelius Rhesa Valdis Setyawan, Muhamad Fahmi Rizal, Suprih Widodo, and Rizki Hikmawan (2023) in their research entitled "Design of Continuous Web APP: Guidance and Counseling Management Information System at SMKN 1 Purwakarta using Laravel Framework" developed a web-based counseling management application using the Laravel framework.[5] The method used was Extreme Programming (XP), with the stages of planning, design, coding, and testing. Nabilla and Arief Ichwani (2023) in their study entitled "Design and Build an Application for Psychology E-Counseling Services for Website-Based Students with the Prototype Method" developed a web-based e-counseling application for students at Esa Unggul University using the Prototype Method. This study used black-box testing to test the application.[5] Fharanita, M. A. Sindring, and S. Buchori (2024) in their study entitled "Development of Website-Based E-Counseling Media for Students of the Faculty of Teacher Training and Education, Muhammadiyah University Kendari" aimed to develop website-based e-counseling media.[6] The method used was Research and Development (R&D) with a modified Borg and Gall model, covering the stages of needs analysis, product development, expert validation, and practicality testing. The results of the study indicate that this media is valid and practical for use in student guidance and counseling services. Its advantage is that it is website-based, making it easy for students to access services anywhere. However, its disadvantage is that the study only reached the limited testing stage and did not involve long-term effectiveness testing.

2.1. Biopsychosocial Theory

The biopsychosocial model was first developed by George Engel in 1977 as an alternative to the biomedical model that was dominant at the time. This model integrates biological, psychological, and social factors in understanding health and disease, aiming to provide a holistic approach to health services.[7] In its application, biopsychosocial is understood as a comprehensive understanding of illness associated with environmental factors and stress that affect individuals. "Environmental conditions in this case, social support in the biopsychosocial concept, can bring about changes in illness." The diagnostic process in the biopsychosocial model includes three main interrelated dimensions, namely biological, psychological, and social. These three components form the basis for a comprehensive assessment of the patient's condition, so that the treatment provided is more holistic and targeted.[8] The following are details of each diagnosis: 1. Biological Diagnosis This diagnosis focuses on medical or clinical aspects, which are conclusions about the patient's health problems based on international standards such as the International Code of Diagnosis. Physical and supporting examinations are carried out to ascertain the biological conditions that affect the patient's health. 2. Psychological Diagnosis This diagnosis identifies psychological factors experienced by the patient, such as stress, anxiety, or depression, which have the potential to cause or worsen the patient's health condition. "This diagnosis is a conclusion about the psychological factors experienced by the patient, such as stress, anxiety, or depression, which have the potential to cause or worsen the patient's health condition. This diagnosis identifies psychological factors experienced by the patient, such as stress, anxiety, or depression, which have the potential to cause or worsen the patient's health condition. "This diagnosis is a conclusion based on psychological factors experienced by the patient, where these psychological factors can be the cause of the patient's health problems that can worsen or affect healing." 3. Social Diagnosis This diagnosis evaluates influential social factors, such as family dynamics, economic status, social environment, or support from those around them. These social factors can worsen or affect the patient's healing process. 5. Application in counseling. The study explains that this model allows counselors to combine these three aspects in Initial assessment and intervention, so that the client's problems can be identified and addressed comprehensively. "The biopsychosocial model allows counselors to use it in addressing all major areas of problems experienced by clients.[3]" With this approach, counselors can more effectively help clients, for example by working with medical personnel on biological problems, applying psychological counseling techniques for emotional problems, and considering the influence of social systems such as the client's family or environment.

2.2. Universitas Darussalam Gontor

Darussalam Gontor University is one of the Islamic boarding school universities that applies Islamic values to all of its human resources, which has been done since the establishment of Pondok Modern Darussalam Gontor in 1926, which from the beginning has overseen Darussalam Gontor University in every step of its human resource management. In other respects, Darussalam Gontor University not only studies and understands science and technology but also provides support for continuing studies to higher levels with the aim of improving the quality of the university. Darussalam Gontor University (UNIDA) is a pesantren-based university with two campuses: the Men's Campus in Ponorogo and the Women's Campus in Mantingan, Ngawi. With a total of 5,076 students, the university has 7 faculties and 18 undergraduate programs.[1]

2.3. E-Konseling

Online counseling or e-counseling is a form of internet-based mental health service innovation. "Online counseling is counseling via the internet that generally refers to professions related to mental health services through internet communication technology" .[9] E-counseling allows clients and counselors to interact without the limitations of space and time, thereby expanding access to psychological services, especially in the digital age. E-counseling services are available to overcome various obstacles that often arise in traditional consultations. These obstacles include time constraints, embarrassment due to social stigma, difficulty accessing services, high consultation costs, and data confidentiality that is not necessarily guaranteed. With e-counseling, individuals who need psychological help can obtain services

more quickly, flexibly, and comfortably. E-counseling offers a number of advantages, including flexibility of service that is not limited to place and time, cost efficiency, and ease of access, especially for counselees in remote areas. However, there are also disadvantages that need to be considered, such as the limited ability of counselors to read the facial expressions, body language, and verbal cues of counselees, as well as the decline in the natural dynamics of face-to-face counseling interactions. Research shows that e-counseling services can be an effective alternative for reducing psychological distress, although they are not always as effective as face-to-face services in improving life satisfaction. "Online counseling intervention during the pandemic was effective in reducing psychological distress scales such as depression, obsessive-compulsive disorder, interpersonal sensitivity, and anxiety." However, compared to face-to-face counseling, e-counseling tends to be less effective in improving positive aspects such as life satisfaction.

2.4. Information System Development (SDLC Waterfall)

An information system is a combination of information technology and human activities that use this technology to support operations and management. This system manages data into information that is useful for decision making. According to Stair and Reynolds, an information system is a collection of interacting components that collect, process, store, and distribute information to support decision-making and control within an organization. An information system can also be described as a concept that refers to software or systems that have stages such as planning, analysis, design, implementation, and testing, with the aim of forming effective work patterns in software management. The Software Development Life Cycle (SDLC) is a series of systematic processes used to build high-quality software in a structured and organized manner. "SDLC is also a mechanism aimed at ensuring that the software being built meets the requirements"³⁷.^[10] SDLC is the foundation for the development of various software engineering models, including Waterfall, Prototype, RAD, and Agile models. The stages of developing the e-Counseling information system in this study used the Waterfall method, which included: a. Needs Analysis This stage was carried out by gathering information on user needs, particularly those of counselors, regarding the system to be developed. The analysis was conducted through interviews, observations, and the collection of necessary data. Requirements analysis is the process of gathering focused information on requirements, particularly on software. At this stage, software requirements are identified from both functional and non-functional aspects. To understand the nature of the program being built, software engineering (analysis) must understand the information domain, behavior, performance, and interface required. At this stage, system design involves designing data structures, information system models, displays, and programming procedures. This design is created so that the system can be developed properly during the implementation stage. System design is a stage of the process that focuses on designing the system to be created. Program Code Implementation or Writing the results of the system design are then realized in the form of program code using the PHP programming language and HeidiSQL database. Program code writing is the stage where the results of the system design are realized as a set of programs or program units. In software development, PHP and HTML are often used to write program code, while CSS and Bootstrap are used to arrange the layout and structure. After implementation, testing was conducted using the blackbox method to ensure that the system was running as required. Testing is a stage in which the results of the previous stages are trialed to evaluate the level of user satisfaction with the application. After the system is implemented, maintenance is carried out, which includes analysis of additional features and system vulnerability fixes. The maintenance phase is carried out after the system is implemented, including analysis of additional features and system vulnerability fixes. Implementation of this phase is relevant when the company uses the application continuously over a long period of time.

2.5. Website-Based Application

A web-based application is a software application that runs on a remote server and is accessed via the internet using a web browser. The main logic and processes of the application are on the server side, while users (clients) simply use a web browser to interact without the need to install special software locally. Web applications are generally built with standard web technologies such as HTML, CSS, and JavaScript for the user interface, as well as server-side programming languages (e.g., PHP or Java) on the backend. In web-based application development, the main structure is divided into three main components: frontend, backend, and database. Each component has different functions and technologies, but they are interconnected to form a complete system. Frontend (Client-Side) the frontend is the part of a web application that interacts directly with users. This component is responsible for the visual appearance and user experience (UX). The programming languages commonly used in the frontend are HTML for page structure, CSS for layout and style, and JavaScript for dynamic interactivity. Current frontend technology development is supported by various modern frameworks such as ReactJS, Angular, and Vue.js, which accelerate the user interface development process.^[5] With a good frontend, users can access application features easily and conveniently through a web browser on various devices. The backend is the part of an application that runs on the server side and manages business logic, user authentication, security, and database integration. Users do not interact directly with the backend, but every request sent from the frontend is processed in the backend to generate an appropriate response. Common programming languages for backend include PHP, Python (Django, Flask), Java (Spring Boot), Node.js, and Ruby on Rails. The backend is also responsible for handling the API (Application Programming Interface) that connects the frontend to the database and other external services. Examples of implementation in e-Counseling. One study developed a web-based e-Counseling Information System for a vocational school, which makes it easier for guidance counselors to manage student character and achievement data online. This system provides features such as student case data input, counseling history, and analytical reports. Another study designed a website-based psychological e-Counseling service system for students using ReactJS. The application supports online counseling session scheduling, online session implementation, and a user satisfaction rating mechanism.

3. Research Method

The research model used is the System Development Life Cycle (SDLC) with a Waterfall approach, as this approach allows for structured and sequential system development from start to finish, and is suitable for use in projects with clearly defined requirements from the outset. This model consists of six stages, namely requirement analysis, system design, implementation, testing, evaluation, and maintenance.

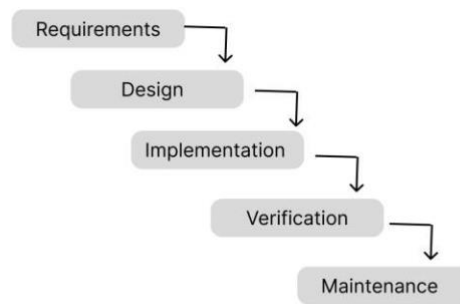


Fig. 1: Research Stages

3.1. System Design

At the system design stage, the process involves designing the system's logic flow to illustrate how users (students, counselors, and administrators) interact with the web-based e-counseling system.

a. Student Flowchart Diagram

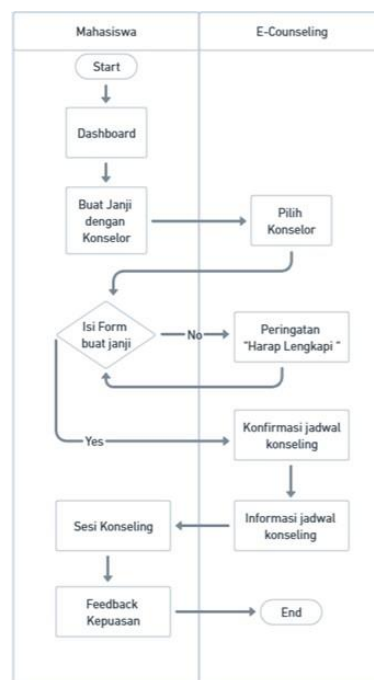


Fig. 2: Student Flowchart

The explanation of the flowchart algorithm can be seen in the following discussion:

1. Start: Indicates the beginning of the process of using the e-counseling system by students.
2. Dashboard: After logging in, students are directed to the main dashboard page which displays various service menus, including the feature to make a counseling appointment.
3. Make an Appointment with a Counselor: Students select the menu to make a new appointment, after which the system will display a list of available counselors.
4. Select a Counselor: Students select one of the counselors from the available list according to their needs or preferences.
5. Fill in the Appointment Form: The system displays a form that students must fill in, including the date, time, reason for counseling, and counseling method (online/offline).
 - a. If the form is incomplete: The system will display a warning message "Please Complete" and students cannot continue the process.
 - b. If the form is complete: The system processes the data and saves the counseling appointment request to the database.
6. Counseling Schedule Confirmation: The system notifies the student that the request has been successfully sent and is awaiting confirmation from the admin or counselor.
7. Counseling Schedule Information: Once approved, the system will display the confirmed counseling schedule details (date, time, and counselor's name).
8. Counseling Session: Students attend the counseling session according to the scheduled time, either online or offline.

9. Satisfaction Feedback: After the session ends, students are asked to provide feedback assessment or feedback on the counselor's service and performance.
10. End: Marks the end of the process of creating and implementing counseling appointments in the system.

b. Admin Flowchart Diagram

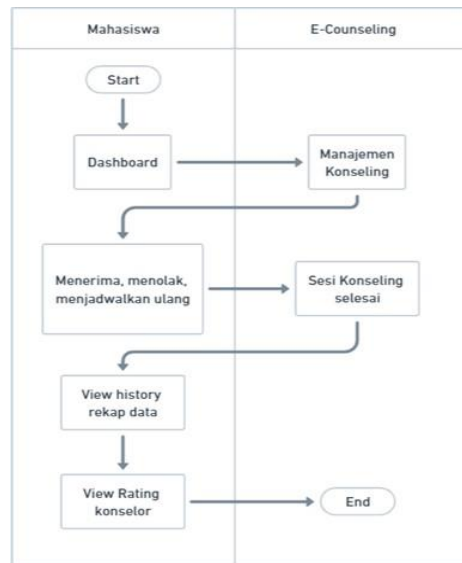


Fig. 3: Admin Flowchart

An explanation of the flowchart algorithm can be seen in the following discussion:

Start: The process begins when the administrator opens and runs the e-counseling system.

Dashboard: After logging in, the administrator is directed to the dashboard page, which contains various counseling service management menus.

1. Counseling Management: The administrator selects the counseling management menu to view the list of appointment requests from students. The system will display the list of incoming requests.
2. Accept, Reject, Reschedule: The admin has three options: accept the request, reject the request, or reschedule according to the counselor's availability. If the request is approved, the counseling session will be scheduled as selected.
3. Counseling Session Complete: After the counseling session takes place, the admin records the status that the session has been completed.
4. View Data History Summary: The administrator can view the student counseling data history, including sessions that have taken place, schedules, and other notes.
5. View Counselor Ratings: The administrator can also view the ratings given by students to counselors. This feature is useful for evaluating the quality of service and counselor performance.
6. End: The administrative process for one counseling cycle is complete, and the system is ready to receive new input.

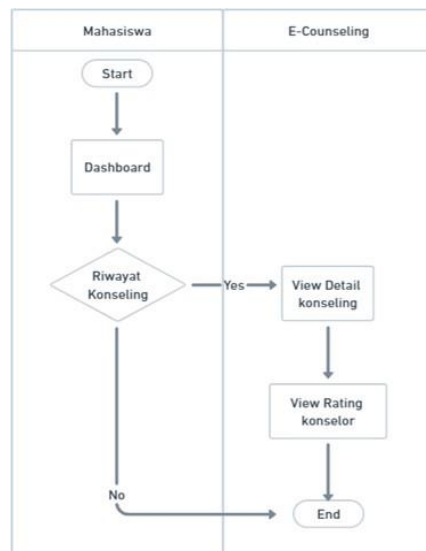


Fig. 4: Counselor Flowchart

c. Counselor Flowchart Diagram

The explanation of the flowchart algorithm can be seen in the following discussion:

1. Start: The process begins when students access the e-counseling system.
 2. Dashboard: After logging in, students will be directed to the main dashboard page which displays various menus, including the Counseling History menu.
 3. Counseling History: Students select this menu to check whether they have had a counseling session before. There are two possibilities here:
 - a. Yes: The student has a counseling history. The system will display details of the sessions that have been conducted.
 - b. No: The student has never had a counseling session. The system returns to the dashboard without displaying any data.
 4. View Counseling Details: If there is a history, the system displays detailed information related to the sessions that have been completed, such as the counselor's name, time of implementation, and a summary of the counseling topics.
 5. View Counselor Rating: Students can give or review ratings for the counselor who handled the session as part of the service evaluation.
- End: Marks the end of the process of reviewing counseling history and evaluation by the student.

d. Use Case Diagram

USE CASE DIAGRAM E-COUNSELING

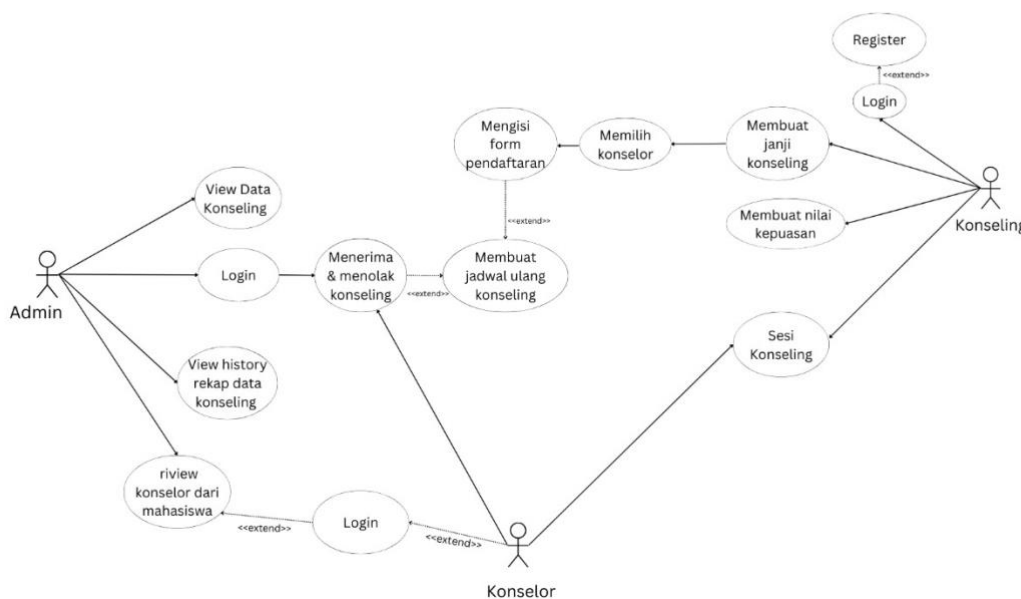


Fig. 5: Use case diagram e-counseling

The following use case diagram illustrates the relationship between actors (system users) and accessible system functionality (use cases). There are three main actors in the system, namely Students (Clients), Counselors, and Admins. Each actor has a role and access rights in accordance with their function in the counseling service process.

1. Students
 - a. Login/Register: Students can create an account and log into the system.
 - b. Select Counselor: Students select a counselor from the available list.
 - c. Fill Out Registration Form: After selecting a counselor, students fill out the data required for counseling (extend).
 - d. Make a Counseling Appointment: Students schedule a session with a counselor.
 - e. Counseling Session: Students attend the scheduled session.
 - f. Provide Satisfaction Rating: After the session, students provide a rating for the counselor.
2. Admin
 1. Login: Log into the system as an administrator.
 2. View Student Counseling Data: View data related to student counseling sessions.
 3. Accept/Reject Counseling: Approve or reject appointment requests from students.
 4. Reschedule Counseling: Reschedule if there is a time conflict (extend).
 5. View Data Recap History: View the history of all counseling sessions.
 6. Review Counselors from Students: View the results of counselor evaluations from students (extend from counseling data management).

3. Counselor
 - a. Login: Access the counselor-specific system.
 - b. Counseling Session: Conduct sessions with students who have been assigned.
 - c. Accepting/Rejecting Counseling: Approving or rejecting appointment requests from students.

The <<extend>> symbol in the diagram indicates additional conditional relationships, such as “Filling Out the Registration Form” as part of the “Selecting a Counselor” process, or “Rescheduling Counseling” as a continuation of the “Accepting & Rejecting Counseling” feature. This use case diagram serves as a reference for developers to understand the scope of features to be implemented and to design the system according to user needs.

4. Results and Discussion

4.1 Application Design Results

Design Results The interface implementation is the display of the application that has been created. The following is the display found in the application.

4.1.1. Login Page

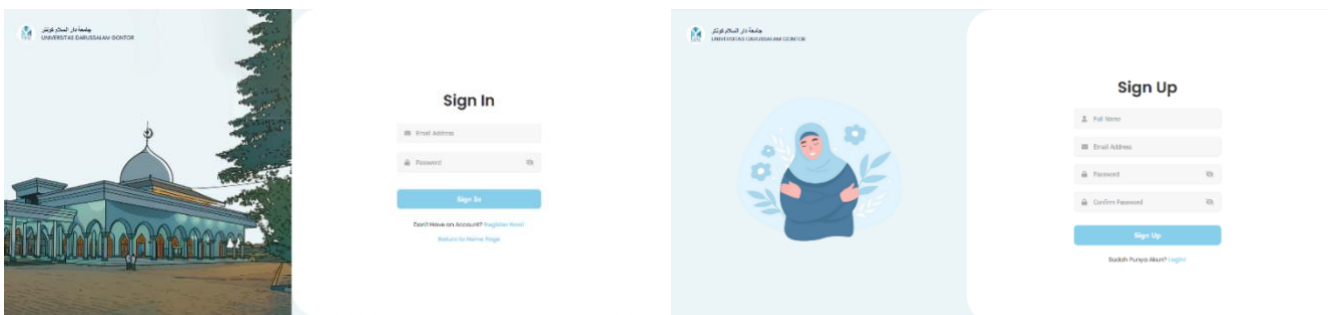


Fig. 6: Login Page

On the Sign In page (left side), the campus identity is highlighted through an artistic illustration of the mosque building, which is the icon of UNIDA Gontor. Next to the illustration, there is a simple form that asks users to enter their email address and password to access their accounts. This design also considers user convenience by providing a feature to view passwords (eye icon) and quick links to switch to the registration page or return to the main homepage in case of navigation errors. The Sign Up page (right side) has a more user-friendly visual approach, featuring an illustration of a woman wearing a hijab with a soft floral background. The form in this section is slightly more complex as it requires users to fill in their full name, email address, and password confirmation to ensure the security of the newly created account. The navigation flow is made very intuitive, where users who accidentally enter the registration page but already have an account can immediately return to the login page via the “Login” link located at the bottom.

4.1.2. User Page

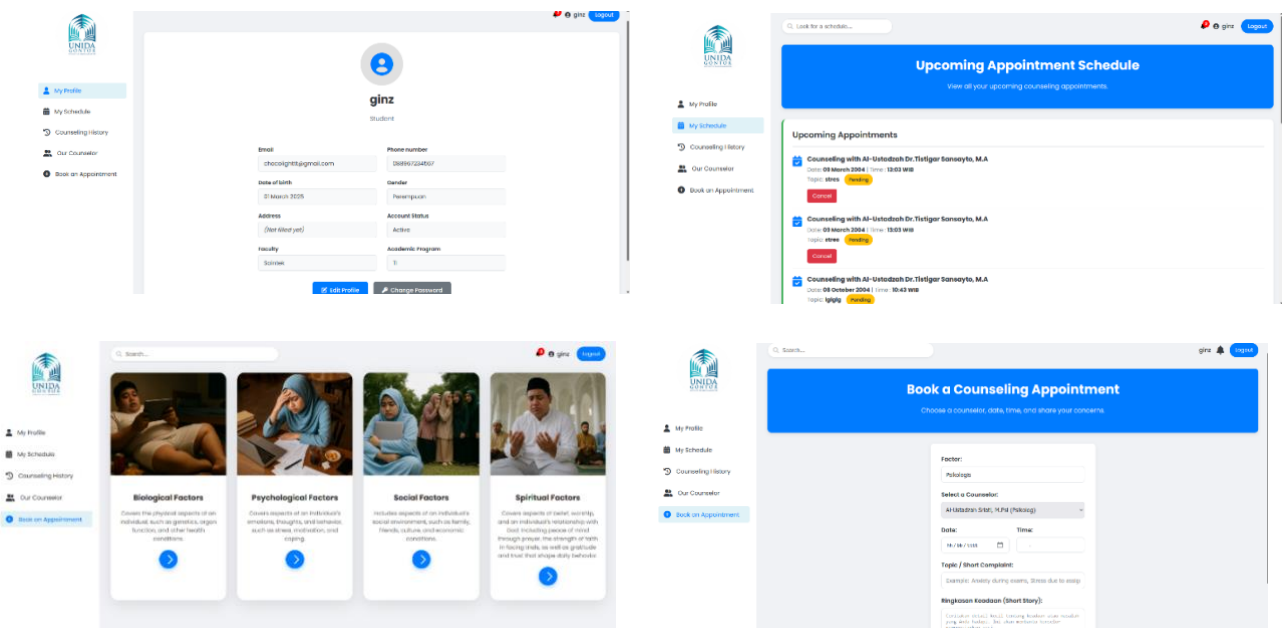


Fig. 7: User Page

Profile Management and Navigation The first page (top left) is the User Profile dashboard for a student named “ginz”. This page displays complete personal information, ranging from email address, phone number, faculty, to active account status. On the left side, there is a main navigation menu that is consistent on every page, including access to profiles, schedules, counseling history, counselor lists, and appointment booking forms. Counseling Schedule Monitoring on the second page (top right) focuses on the Upcoming Appointment Schedule. Students can view a list of approved appointments, complete with the counselor's name (such as AI-Ustadzah Dr. Tistigar Sansayto, M.A.), date, time, and topic of discussion. There is also a “Pending” status indicator and a cancel button that gives students full control over their schedules. The third page (bottom left) of the Problem Factors Education section presents an educational approach before students register. The system divides problem categories into four main aspects: Biological, Psychological, Social, and Spiritual. Each category is accompanied by illustrations and brief explanations to help students identify the root causes of their problems before consulting with professionals. The Appointment Booking Process The last page (bottom right) is the Book a Counseling Appointment form. At this stage, users can select relevant problem factors, choose their preferred counselor, and determine the time of the meeting. Students are also asked to write a brief summary or story about their current condition so that counselors can provide more targeted assistance.

4.1.3. Konselor & Admin Page

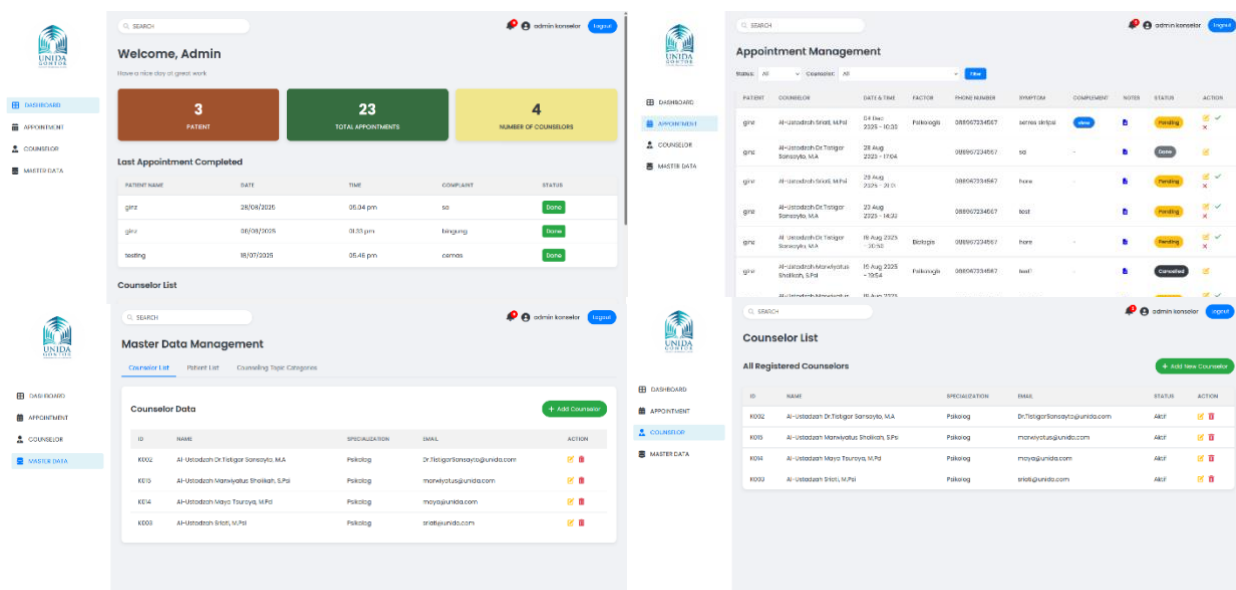


Fig. 8: Konselor & Admin Page

The Main Dashboard (Top Left) of this page is a control center for administrators that provides a real-time summary of service statistics. At the top, there are three main information cards showing the number of patients (3 people), total appointments (23 sessions), and the number of available counselors (4 people). Below that is the “Last Appointment Completed” table, which monitors the latest activity history, including the patient's name, consultation time, brief complaint, and the success status of the session. Appointment Management (Top Right): This page focuses on the operational management of the entire consultation schedule. Admins can filter data by status or counselor name to facilitate monitoring. The table on this page is very detailed, displaying the patient's phone number, problem factors (such as psychological or biological), and action buttons to approve, reject, or view the complete notes of each incoming appointment request. Master Data Management (Bottom Left) This section functions as the system's database center, divided into several tabs, namely the counselor list, patient list, and counseling topic categories. On this display, the admin can see the basic identities of the counselors, including their unique IDs, their respective specializations, and their official email addresses. This page also features an “Add Counselor” button to update or add new experts to the system. The Counselor List (bottom right) on this page is a special display that details all professionals registered with UNIDA Gontor. In addition to displaying identity and specialization information, there is a status column that indicates whether the counselor is currently “Active” or not. Admins are given full control through the action column to edit data or delete counselor accounts if necessary to maintain the validity of information on the platform.

5. Conclusion

This study has designed a counseling service information system in the form of an e-counseling website that provides solutions and convenience in the counseling process. This system is designed to improve the effectiveness of counseling data management and scheduling, as well as to make it easier for users to make appointments and select counselors according to their needs. Based on the results of functional testing (black box), it can be seen that the features in the application function properly. The results of the acceptability test achieved in the testing received a positive rating from major stakeholders at 91.43%, media experts (90%), and 22 female students who participated in the testing (96.15%).

Acknowledgment

The developers would like to express their sincere gratitude to all individuals and institutions that have supported the development of this e-Counseling project. Special thanks go to the supervising lecturers and counseling experts for their valuable technical guidance, constructive input on the system flow, and continuous encouragement during the process of designing the application interface and functions. The developers would also like to thank Darussalam Gontor University (UNIDA Gontor) for providing facilities, data, and operational insights that greatly contributed to the analysis of feature requirements in this platform. Thanks are also extended to fellow developers and family members whose moral support and motivation played a vital role in the completion of this project. We greatly appreciate and value all forms of assistance, whether in the form of time, technical resources, or intellectual input. This project was developed independently and was not funded by any external grants.

References

- [1] W. Kurniawan, A. Musthafa, and A. Kirani, "Analisis Klasifikasi Tingkat Kesehatan Mental pada Mahasiswi Akhir dalam Menempuh Tugas Akhir Menggunakan Algoritma Support Vector Machine Studi Kasus : Universitas Darussalam Gontor," vol. 9, no. 2502, pp. 17–27, 2024.
- [2] S. N. Sugandi, F. Ananda, L. Magdalena, and M. Hatta, "Aplikasi Layanan E-Counseling Mental Health (Mecare) Dengan Pendekatan Agile Scrum," *J. Digit.*, vol. 12, no. 2, p. 178, 2022, doi: 10.51920/jd.v12i2.294.
- [3] R. R. Hidayat, "Layanan Bimbingan dan Konseling Model Biopsikososial," *Indones. J. Guid. Couns. Theory Appl.*, vol. 11, no. 1, pp. 81–87, 2022.
- [4] W. Kurniawan, O. V. Putra, and L. Effendi, "RANCANG BANGUN APLIKASI MANAJEMEN GUDANG MINIMARKET UNIT USAHA UNIDA (U3) GONTOR BERBASIS WEB MENGGUNAKAN FRAMEWORK Yii2," *Pros. Semin. Nas. Sains Dan Teknol.*, pp. 122–130, 2021.
- [5] N. Nabilla and A. Ichwani, "Design and Build an Application for Psychology E-Counseling Services for Website-Based Students with the Prototype Method," *J I M P - J. Inform. Merdeka Pasuruan*, vol. 7, no. 2, p. 55, 2023, doi: 10.51213/jimp.v7i2.468.
- [6] F. Muhita, A. Sindring, and S. Buchori, "PENGEMBANGAN MEDIA E- COUNSELING BERBASIS WEBSITE BAGI MAHASISWA FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN UNIVERSITAS MUHAMMADIYAH KENDARI Abstrak PENDAHULUAN Bimbingan dan Konseling di zaman , tentu saja memudahkan berbagai pihak . Sisi positif lain yang pe," vol. 21, no. 12, 2024.
- [7] G. L. Engel, "Engel1977," *Science (80-.)*, vol. 196, no. 4286, pp. 129–136, 1977, [Online]. Available: <https://science.sciencemag.org/content/196/4286/129#BIBL>
- [8] D. Bolton and G. Gillett, *The Biopsychosocial Model of Health and Disease: New Philosophical and Scientific Developments*. 2019. doi: 10.1007/9783030118990.
- [9] Ifdil and Z. Ardi, "Konseling Online Sebagai Salah Satu Bentuk Pelayanan E-konseling Indonesian Institute for Counseling and Education," *J. Konseling Dan Pendidik.*, vol. 1, no. 1, pp. 15–22, 2013, [Online]. Available: <http://jurnal.konselingindonesia.com>
- [10] A. Saravanos and M. X. Curinga, "Simulating the Software Development Lifecycle: The Waterfall Model," *Appl. Syst. Innov.*, vol. 6, no. 6, 2023, doi: 10.3390/asi6060108.