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System Information

Web-Based Final Assignment Monitoring Information System Design

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A B S T R A C T

This study aims to design a web-based final assignment monitoring information system in the Business Administration Study Program, Malikussaleh University. This is motivated by various problems in the process of submitting and managing final assignments which are still done manually, such as administrative errors and the slow process of submitting final assignments by students. To overcome these problems, a web-based monitoring information system was developed using the CodeIgniter framework, Bootstrap, and an integrated MySQL database. This system is equipped with several main features, including monitoring student and lecturer data, recording guidance progress, managing activity schedules, and real-time notifications. The implementation results show that the system has succeeded in automating the final assignment administration process, facilitating monitoring guidance progress, and increasing the effectiveness of communication between students and supervisors. With this system, it is expected to provide a structured and efficient solution in managing final assignments.

INTRODUCTION

The Industrial Revolution 4.0 and Society 5.0 eras have driven digital transformation in various sectors, including higher education. Advances in information technology marked by increased internet bandwidth, collaborative digital platforms, and mobility of information access have opened up new opportunities in managing academic processes in higher education [1,2,3]. However, amidst this progress, the Business Administration Study Program at Malikussaleh University still implements a manual system in monitoring students' final assignments, which causes various operational constraints. Manual management of final assignments raises several critical problems. First, the difficulty in tracking the progress of guidance because information is spread across various media such as personal notes, emails, and physical files. Second, the lack of transparency and accountability in the status of students' final assignments. Third, ineffective coordination and communication between students and supervisors. Fourth, the risk of loss and damage to documents in managing physical files. This problem is increasingly complex as the number of students grows [4,5,6].

This study aims to design a web-based final project monitoring information system that can facilitate centralized, structured, and real-time monitoring. The system is developed using PHP and JavaScript with a MySQL database, which can be accessed by students, supervisors, and administrators according to their respective access rights. The main functions of the system include progress monitoring, recording guidance, progress reporting, and management of title submissions and final project trials. The development of this system is in line with the vision of Malikussaleh University to become a superior and globally competitive higher education institution. The implementation of the system is expected to improve operational efficiency, strengthen academic governance, and support the achievement of accreditation

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standards related to final project management. Furthermore, this system can be a model for developing an academic monitoring system for other study programs.

METHOD

Data Collection

1. Observation: Direct observation was conducted on the ongoing final project Monitoring process in the Business Administration Study Program at Malikussaleh University to understand the workflow and existing problems.
2. Interview: In-depth interviews were conducted with related parties, such as students, supervisors, and administrative staff, to explore the needs and obstacles in the final project Monitoring process.
3. Literature Study: Collection of references from relevant books, journals, and scientific articles was used to support the theoretical framework in system design.

System Analysis

A needs analysis was conducted to identify weaknesses in the current manual system and formulate new system specifications. Data Flow Diagram (DFD) and Entity Relationship Diagram (ERD) were used to model the data flow process and database design.

System Design

1. System Architecture: The system was designed using the CodeIgniter and Bootstrap frameworks to ensure interface performance and responsiveness.
2. Database Design: The database structure was designed using MySQL to support effective management of student, lecturer, schedule, and guidance progress data.
3. User Interface (UI): The interface is designed to be user-friendly to support easy access for students, lecturers, and administrators.

System Implementation

The system is implemented using PHP, MySQL, and local server (XAMPP) technology. Implementation includes backend and frontend integration, as well as initial testing on a development environment.

RESULTS AND DISCUSSION

Old System Analysis

The final assignment data collection system at the Business Administration Study Program at Malikussaleh University currently still uses a manual method that is implemented when students enter semester 7. Based on field observations, this system has several limitations such as time inefficiency in the administrative process, constraints on documentation management, high potential for input errors and data duplication, difficulty in searching for information, data security risks, and limited access to real-time information for students and supervisors. This condition indicates the need for a system transformation towards a more integrated and information technology-based direction.

New System Analysis

This study develops a web-based final project monitoring system designed to optimize the process of submitting and monitoring the progress of students' final projects. The implementation of this system utilizes MySQL as the main database for integrated information management. The development of this system is motivated by the need for digitalization of the final project administration process which has been carried out conventionally. The main objective of developing the system is to increase effectiveness and efficiency in three fundamental aspects. First, this system facilitates students in the process of submitting and managing final project files online. Second, the system is designed to optimize the performance of administrative staff through the automation of administrative processes. Third, this system aims to increase the effectiveness of the guidance process through comprehensive monitoring features. The advantage of this web-based system lies in its ability to provide an integrated platform that allows supervisors to monitor the progress of their students in real-time. This system also provides high accessibility for students to obtain the latest information on submission status, guidance schedules, and revision documentation online without time and location limitations. This reflects an effort to modernize final project management that is oriented towards improving the quality of academic services.

New System Design

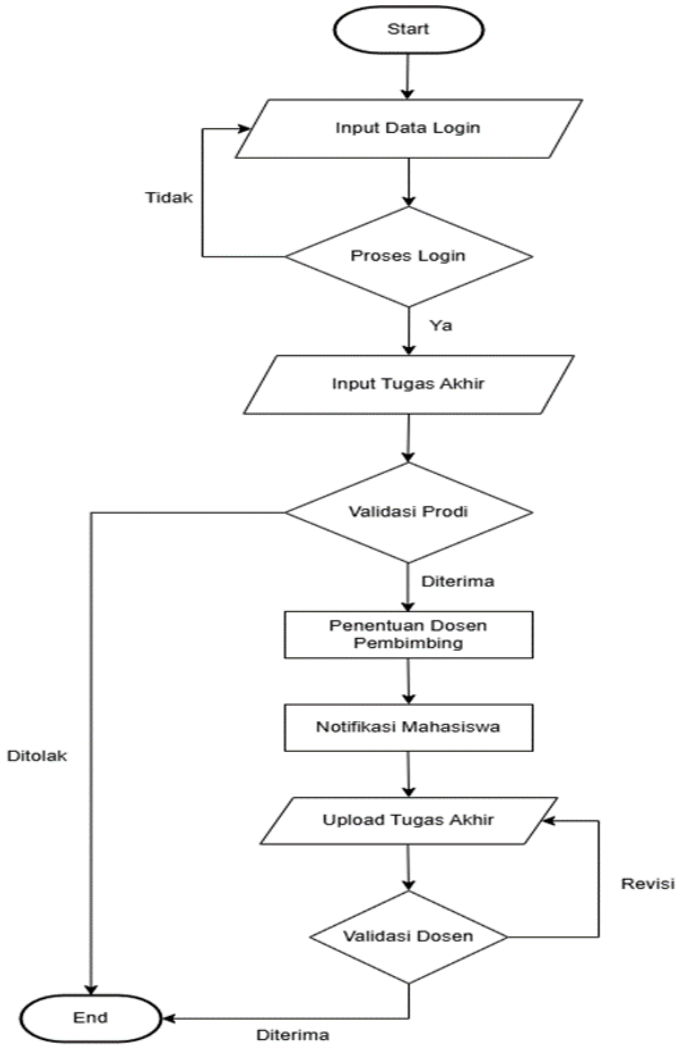

Figure 1. System Design Flowchart

The flowchart illustrates the flow of submission and completion of students' final assignments, starting from the submission of the title to the final approval from the supervisor. This flow is designed to ensure a systematic and structured process in managing final assignments.

System Implementation

1. Login Page

   Figure 2. shows the login page of the Final Assignment Monitoring Information System, which is designed to be used or accessed by admins, study program heads, lecturers, and students with access according to their respective roles.

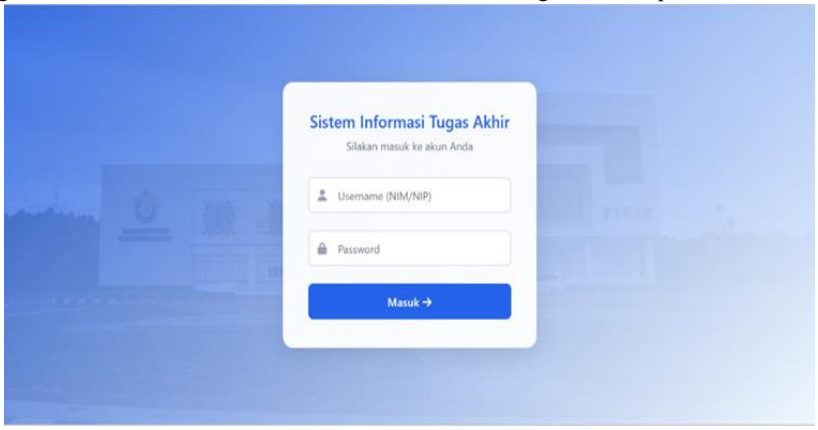

Figure 2. Login Page

2. Admin Page

Figure 3. shows the Admin page which functions to manage several sections such as adding Student data, Departments, Concentrations, Lecturer data, and Settings to change Username and Password.

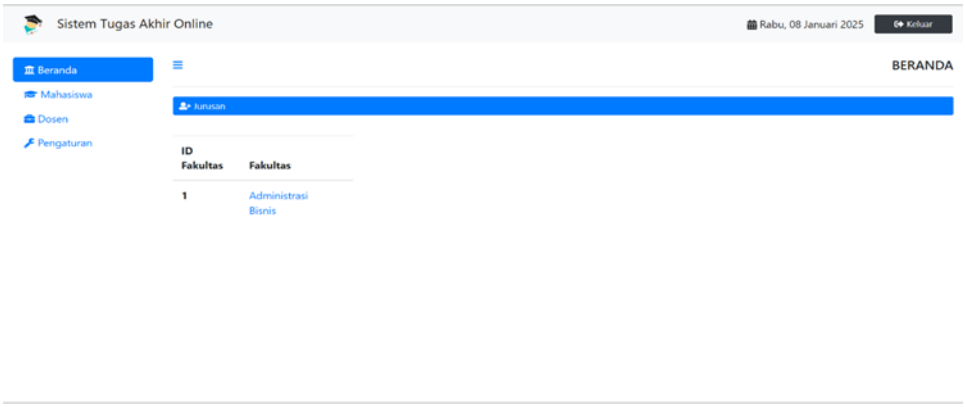

Figure 3. Admin Page

3. Student Menu on Admin

Figure 4. shows a page designed to make it easier for admins to manage student data. Admins can add new student data, edit existing data, and ensure that student information is stored accurately in the system.

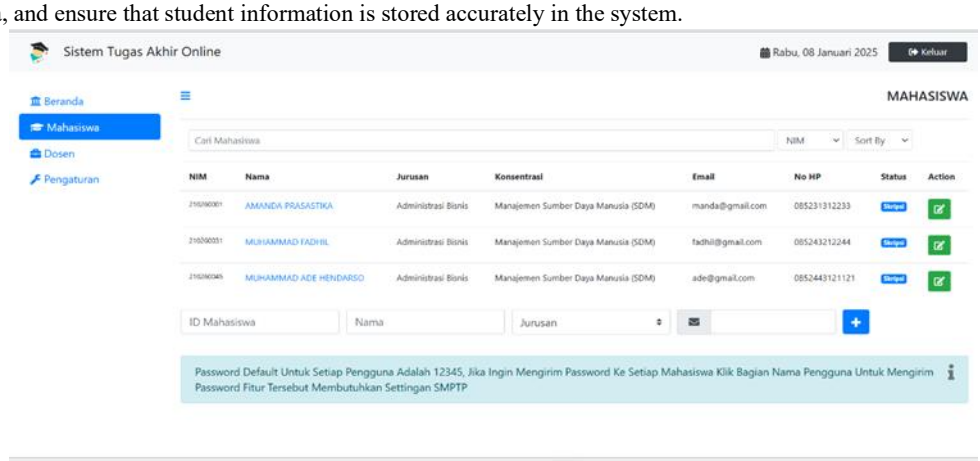

Figure 4. Student Menu on Admin

4. Lecturer Menu on Admin

Figure 5. displays a page that allows the admin to add new lecturer data and edit existing lecturer data as needed.

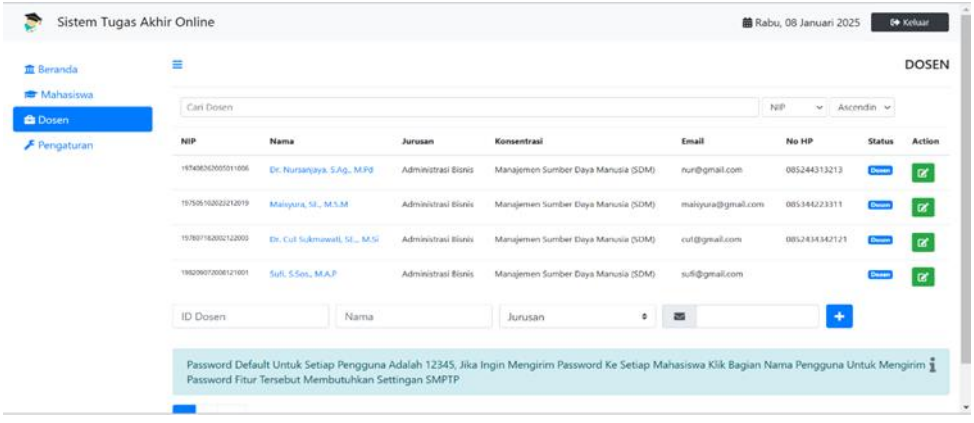

Figure 5. Lecturer Menu on Admin

5. Admin Settings Menu

Figure 6 shows the settings menu that allows the admin to change the username and password to maintain the security of system access.

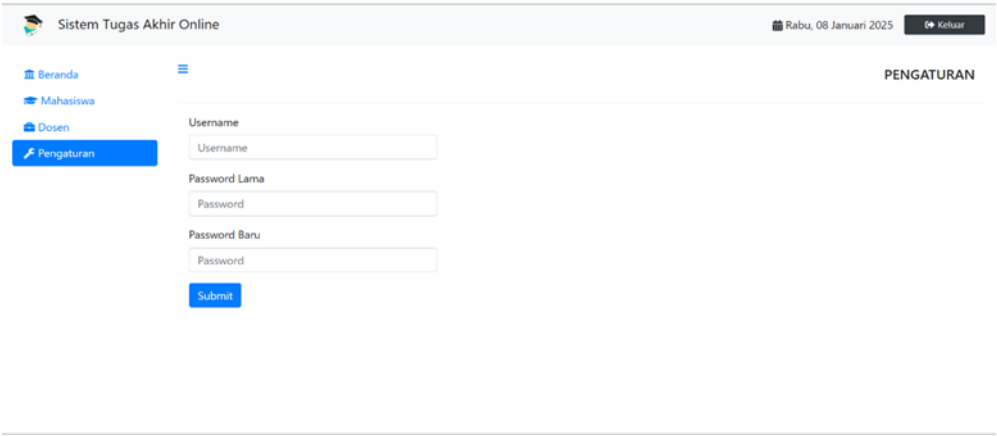

Figure 6. Admin Settings Menu

6. Head of Study Program Notification Page

Figure 7. shows a page that functions as a notification, where the supervisor receives notification from the head of study program regarding the thesis and the list of supervised students.

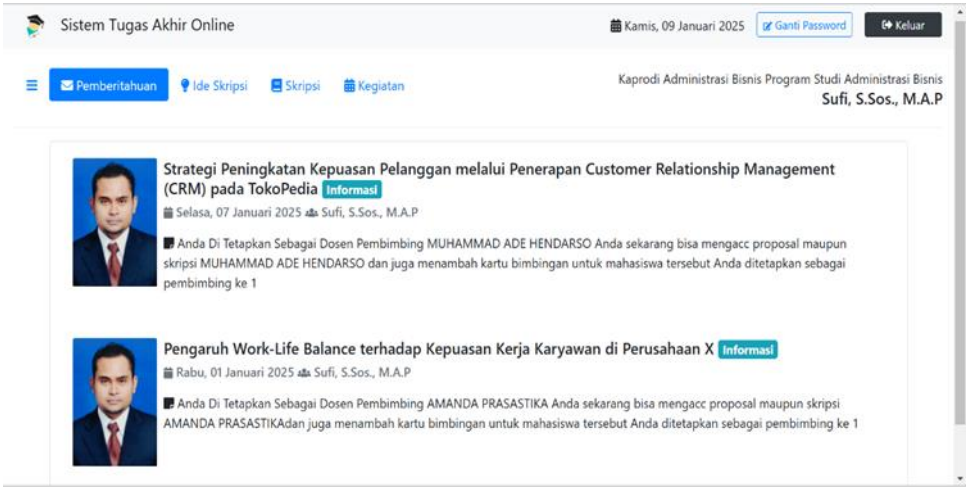

Figure 7. Head of Study Program Notification Page

7. Thesis/Final Project Idea Page

Figure 8. displays a page that allows the Head of Study Program to accept or reject the submission of a final project if it is not appropriate or has been submitted previously.

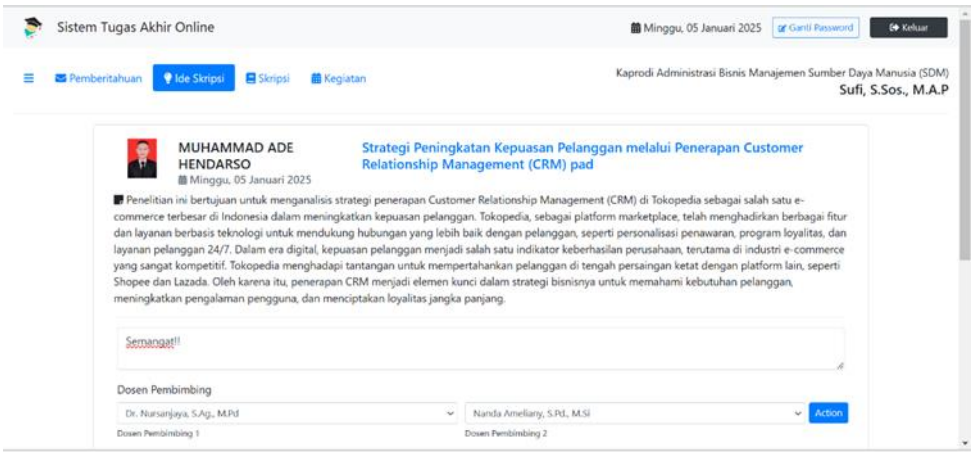

Figure 8. Thesis / Final Project Idea Page

8. Thesis/Final Project Page

Figure 9. displays a page that allows the Head of Study Program to see a list of students who have submitted final project titles, print consultation cards, and obtain information about supervisors and students being supervised.

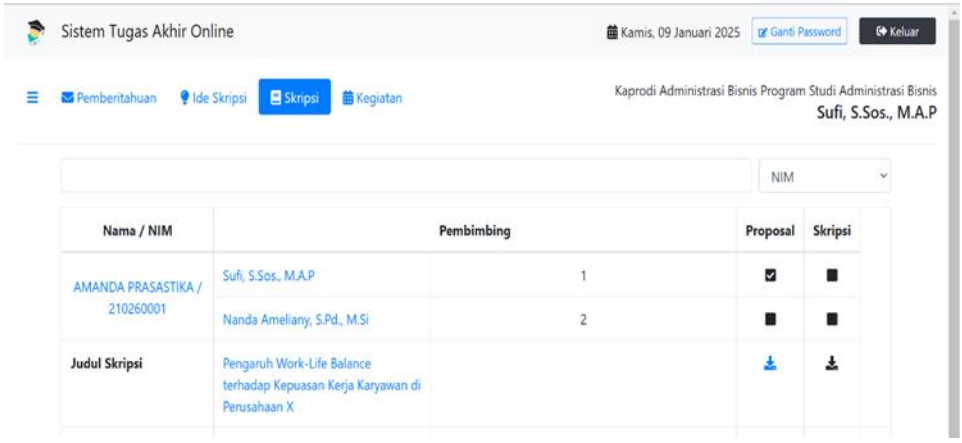

Figure 9. Thesis / Final Project Page

CONCLUSION

Based on the research results, the implementation of the Web-based Final Assignment Monitoring System at the Business Administration Study Program at Malikussaleh University has succeeded in presenting a significant transformation in the management of students' final assignments. This system has succeeded in integrating various important features such as thesis idea submission, a guidance system with two lecturers, real-time notifications, digital guidance cards, and document management with QR Code verification. The implementation of the system has increased efficiency through 24/7 accessibility that makes it easier for students living far away, direct communication with supervisors, structured digital document management, and real-time monitoring of thesis status. However, the system still has several limitations that need to be improved, especially in terms of alumni management, data management based on graduation year, and security aspects such as password recovery and automatic backup. However, overall, this system has succeeded in transforming the final assignment management process from a manual system to a more efficient and structured digital system. The success of the implementation is reflected in the increased effectiveness in data management, simplification of administrative processes, increased communication effectiveness, and more systematic guidance management. This system has proven its role as an effective solution in modernizing the final assignment management process at the study program level.

REFERENCES

Book: Single Author

[1] Indah Purnama Sari. Algoritma dan Pemrograman. Medan: UMSU Press, 2023, pp. 290.

[2] Janner Simarmata Arsan Kumala Jaya, Syarifah Fitrah Ramadhani, Niel Ananto, Abdul Karim, Betrisandi, Muhammad Ilham Alhari, Cucut Susanto, Suardinata, Indah Purnama Sari, Edson Yahuda Putra. Komputer dan Masyarakat. Medan: Yayasan Kita Menulis, 2024, pp.162.

[3] Mahdianta Pandia, Indah Purnama Sari, Alexander Wirapraja Fergie Joanda Kaunang, Syarifah Fitrah Ramadhani Stenly Richard Pungus, Sudirman, Suardinata Jimmy Herawan Moedjahedy, Elly Warni, Debby Erce Sondakh. Pengantar Bahasa Pemrograman Python. Medan : Yayasan Kita Menulis, 2024, pp.180

[4] Zelvi Gustiana Arif Dwinanto, Indah Purnama Sari, Janner Simarmata Mahdianta Pandia, Supriadi Syam, Semmy Wellem Taju Fitrah Eka Susilawati, Asmah Akhriana, Rolly Junius Lontaan Fergie Joanda Kaunang. Perkembangan Teknologi Informatika. Medan: Yayasan Kita Menulis, 2024, pp.158

[5] Indah Purnama Sari. Buku Ajar Pemrograman Internet Dasar. Medan: UMSU Press, 2022, pp. 300.

[6] Indah Purnama Sari. Buku Ajar Rekayasa Perangkat Lunak. Medan: UMSU Press, 2021, pp. 228.

Journal Article from the Internet

[7] Sari, I.P., Jannah, A., Meuraxa, A.M., Syahfitri, A., & Omar, R. (2022). Perancangan Sistem Informasi Penginputan Database Mahasiswa Berbasis Web. Hello World Jurnal Ilmu Komputer 1 (2), 106-110

[8] Satria, A., Ramadhani, F., & Sari, I.P. (2023). Rancang Bangun Sistem Informasi Penerimaan Peserta Didik Baru (PPDB) Sekolah Menengah Kejuruan Telkom 2 Medan Menggunakan Codeigniter. Wahana Jurnal Pengabdian kepada Masyarakat 2 (1), 23-31
[9] Sari, I.P., Azzahrah, A., Qathrunada, I.F., Lubis, N., & Anggraini, T. (2022). Perancangan sistem absensi pegawai kantoran secara online pada website berbasis HTML dan CSS. Blend sains jurnal teknik 1 (1), 8-15
[10] Hariani, P.P., Sari, I.P., & Batubara, I.H. (2021). Android-Based Financial Statement Presentation Model. JURNAL TARBIYAH 28 (2), 1-16
[11] Sari, I.P., Syahputra, A., Zaky, N., Sibuea, R.U., & Zakhir, Z. (2022). Perancangan sistem aplikasi penjualan dan layanan jasa laundry sepatu berbasis website. Blend sains jurnal teknik 1 (1), 31-37
[12] Sari, I.P., Al-Khowarizmi, A., & Batubara, I.H. (2021). Cluster Analysis Using K-Means Algorithm and Fuzzy C-Means Clustering For Grouping Students' Abilities In Online Learning Process. Journal of Computer Science, Information Technology and Telecommunication Engineering 2 (1), 139-144
[13] Hutasuhut, B.K., Sari, I.P., & Al-Khowarizmi, A. (2023). Analysis the Effect of Digitalization and Technology on Web-Based Entrepreneurship. Journal of Computer Science, Information Technology and Telecommunication Engineering 4 (1), 350-354
[14] Sari, I.P., Batubara, I. H., & Al-Khowarizmi, A. (2021). Sensitivity Of Obtaining Errors In The Combination Of Fuzzy And Neural Networks For Conducting Student Assessment On E-Learning. International Journal of Economic, Technology and Social Sciences (Injects) 2 (1), 331-338
[15] Sari, I.P., Fahroza, M.F., Mufit, M.I., & Qathrunad, I.F. (2021). Implementation of Dijkstra's Algorithm to Determine the Shortest Route in a City. Journal of Computer Science, Information Technology and Telecommunication Engineering 2 (1), 134-138
[16] Manurung, A.A., Nasution, M.D., & Sari, I.P. (2023). Implementation of Fuzzy K-Nearest Neighbor Method in Dengue Disease Classification. 2023 11th International Conference on Cyber and IT Service Management (CITSM), 1-4
[17] Sari, I.P., Batubara, I.H., Al-Khowarizmi, A., & Hariani, P.P. (2022). Perancangan Sistem Informasi Pengelolaan Arsip Digital Berbasis Web untuk Mengatur Sistem Kearsipan di SMK Tri Karya. Wahana Jurnal Pengabdian kepada Masyarakat 1 (1), 18-24
[18] Sari, I.P., & Batubara, I.H. (2021). Perancangan Sistem Informasi Laporan Keuangan Pada Apotek Menggunakan Algoritma K-NN. Seminar Nasional Teknologi Edukasi dan Humaniora (SiNTESa) (1).
[19] Ramadhani, F., Satria, A., & Sari, I.P. (2023). Implementasi Metode Fuzzy K-Nearest Neighbor dalam Klasifikasi Penyakit Demam Berdarah. Hello World Jurnal Ilmu Komputer 2 (2), 58-62
[20] Sari, I.P., Batubara, I.H., & Basri, M. (2022). Implementasi Internet of Things Berbasis Website dalam Pemesanan Jasa Rumah Service Teknisi Komputer dan Jaringan Komputer. Blend Sains Jurnal Teknik 1 (2), 157-163
[21] Sari, I.P., & Ramadhani, F. (2021). Pengaruh Teknologi Informasi Terhadap Kewirausahaan Pada Aplikasi Perancangan Jual Beli Jamu Berbasis WEB. Prosiding Seminar Nasional Kewirausahaan 2 (1), 874-878
[22] Sari, I.P., Al-Khowarizmi, A., Ramadhani, F., & Sulaiman, O.K. (2023). Implementation of the Selection Sort Algorithm to Sort Data in PHP Programming Language. Journal of Computer Science, Information Technology and Telecommunication Engineering 4 (1), 377-381
[23] Ichsan, A., Al-Khowarizmi, A., & Azhari, M. (2024). Implementation of The Sales and Purchase Program Application Using the Rapid Application Development Model Web Based. Tsabit Journal of Computer Science 1 (1), 27-34
[24] Sari, I.P., & Batubara, I.H. (2021). User Interface Information System for Using Account Services (Joint Account) WEB-Based. International Journal of Economic, Technology and Social Sciences (Injects) 2 (2), 462-469
[25] Ramadhani, F., & Sari, I.P. (2021). Pemanfaatan Aplikasi Online dalam Digitalisasi Pasar Tradisional di Medan. Prosiding Seminar Nasional Kewirausahaan 2 (1), 806-811
[26] Sari, I.P., & Alfarisi, F. (2024). Perancangan Sistem Aplikasi Pendataan Membership Gym Menggunakan Metode Unified Software Development Process (USDP) Berbasis Web. Hello World Jurnal Ilmu Komputer 3 (1), 37-48
[27] Sari, I.P. (2020). Implementasi Pembayaran SPP Berbasis WEB Pada Sekolah Menengah Pertama (SMP) Muhammadiyah Kota Medan. Jurnal Pengabdian Barelang 2 (03), 11-14
[28] Habib, T.A., Azly, R., Irza, M.A., & Prasetya, I. (2024). User Interface Design for the Orca Music Player Mobile Application. Tsabit Journal of Computer Science 1 (1), 18-26
[29] Sari, I.P., Batubara, I.H., Ramadhani, F., & Wardani, S. (2022). Perancangan Sistem Antrian pada Wahana Hiburan dengan Metode First In First Out (FIFO). Sudo Jurnal Teknik Informatika 1 (3), 116-123
[30] Ramadhani, F., Satria, A., & Sari, I.P. (2022). Aplikasi internet berbasis website sebagai E-Commerce penjualan komponen sport car. Blend Sains Jurnal Teknik 1 (2), 69-75

[31] Sari, I.P., Ramadhani, F., Satria, A., Apdilah, D., & Basri, M. (2023). Rancangan UI/UX Aplikasi Analytics pada Toko Online Wao Sneakers Menggunakan Figma Berbasis Mobile. Factory Jurnal Industri, Manajemen dan Rekayasa Sistem Industri 1 (3), 93-101

[32] Sari, I.P., Al-Khowarizmi, A., & Batubara, I.H. (2021). Implementasi Aplikasi Mobile Learning Sistem Manajemen Soal dan Ujian Berbasis Web Pada Platform Android. IHSAN: JURNAL PENGABDIAN MASYARAKAT 3 (2), 178-183

[33] Sari, I.P., & Ramadhani, F. (2021). User Interface Prototype Using User Centered System Design Method in Motorvice Information System. 2021 International Conference on Computer Science and Engineering (IC2SE) 1, 1-6

[34] Ramadhani, F., Sari, I.P., & Satria, A. (2024). Perancangan UI/UX Surat Keterangan Waris dalam Pengembalian Dana Haji Berbasis Web. Blend Sains Jurnal Teknik 2 (3), 198-203

[35] Sari, I.P., Hariani, P.P., Satria, A., & Manurung, A.A. (2023). Rancang Bangun Sistem Informasi Pengelolaan Arsip Materi Ajar Berbasis Web untuk Guru MAS Darul Falah. Wahana Jurnal Pengabdian kepada Masyarakat 2 (2), 59-65

[36] Sari, I.P., Syafii, R., Lubis, D.F.,, Setyadi, A., & Nasution, P. (2022). Pemanfaatan fasilitas google dalam perkuliahan di fakultas teknologi informasi. Blend Sains Jurnal Teknik 1 (2), 107-113

[37] Ramadhani, F., & Sari, I.P. (2021). Improving the Performance of Naïve Bayes Algorithm by Reducing the Attributes of Dataset Using Gain Ratio and Adaboost. 2021 International Conference on Computer Science and Engineering (IC2SE) 1, 1-5

[38] Sari, I.P., Sulaiman, O.K., Al-Khowarizmi, A., & Azhari, M. (2023). Perancangan Sistem Informasi Pelayanan Masyarakat pada Kelurahan Sipagimbar dengan Metode Prototype Berbasis Web. Blend Sains Jurnal Teknik 2 (2), 125-134

[39] Sitompul, D.N., Rahmatika, A., & Sari, I.P. (2023). Application of The Sales and Purchase Program Using The Rapid Application Development Model. Al'adzkiya International of Computer Science and Information Technology (AIoCSIT) Journal 4 (1), 6-16

[40] Sari, I.P., Ramadhani, F., Satria, A., & Apdilah, D. (2023). Implementasi Pengolahan Citra Digital dalam Pengenalan Wajah menggunakan Algoritma PCA dan Viola Jones. Hello World Jurnal Ilmu Komputer 2 (3), 146-157

[41] Sari, I.P., Sulaiman, O.K., Ramadhani, F., & Satria, A. (2023). Perancangan Sistem Manajemen Surat Berbasis Web Pada Kantor Camat Tano Tombangan Angkola. INCODING: Journal of Informatics and Computer Science Engineering 3 (2), 61-76

[42] Guntur, S., Ichsan, A., & Sari, I.P. (2024). Designing a Web-Based Mail Management System at the Beringin Helvetia Sub-district Office. Altafani: Jurnal Pengabdian Masyarakat 1 (1)

[43] Sari, I.P., Al-Khowarizmi, A., Jannah, A., Meuraxa, A.M., & Tanjung, M.I. (2023). Web-Based Offline Game Suit Design: A Model Overview. Journal of Computer Science, Information Technology and Telecommunication Engineering 4 (2), 389-394

[44] Sari, I.P., Al-Khowarizmi, A., Sulaiman, O.K., & Apdilah, D. (2024). System Design for Ordering and Digitizing Website-Based Bus Tickets. Journal of Computer Science, Information Technology and Telecommunication Engineering 5 (1), 543-549