

IMPLEMENTATION OF THE TOEFL SCORE ACCESS APPLICATION (CSSCORE) USING A WEB-BASED AGILE METHOD

Metta Septiani Dharmawan Soesilo*, Muhammad Yudi Setiawan, Mohammad Ozy, Ilham Mukti, Mahpudin

Informatics Engineering Study Program, Samarinda State Polytechnic

*Corresponding author: mettasptds05@gmail.com, yudisetiawan454545@gmail.com, mhmmdozy44@gmail.com, ilhammoekti@gmail.com, M26145914@gmail.com

Abstract

Due to Politeknik Negeri Samarinda's lack of an online TOEFL score monitoring system, students are now should look for their names on the information board at the UPT Language Building directly if they want to know their scores. Because each student's TOEFL scoresheet must be printed, this procedure takes a lot of time for both students and UPT Language staff. We have created a web-based software program to handle these issues in response to this problem. Along with MySQL for data management, HTML, CSS, and JavaScript help with the software development of the user interface and interactivity. For this project, the Agile development process has been applied. This software's main goal is to give Politeknik Negeri Samarinda a new method that makes it easy for students to view their TOEFL results. Students from Politeknik Negeri Samarinda's Informatics Engineering Study Program are involved in the software's implementation. According to the results, they can look at their TOEFL scores in as little as five minutes, which is a lot quicker and more effective than the manual method that was used before. It is expected that the creation of this software would result in a decrease in burden and an overall improvement in convenience for both staff and students.

Keywords: Agile, Informatics engineering study program student, Politeknik Negeri Samarinda, Quicker and more effective TOEFL score, Web-based.

INTRODUCTION

TOEFL, which stands for Test of English as a Foreign Language, is an assessment designed to measure an individual's proficiency in understanding the English language (Kemala *et al.*, 2019). This test is primarily utilized by those preparing to pursue education abroad; however, it is increasingly employed by institutions to measure their students' English comprehension skills (Putra *et al.*, 2009). The final results of the TOEFL exam yield a score that participants can access as information. Effective and efficient access to this information significantly impacts the quality of an institution, necessitating a system that supports data processing of these scores (Asiyah *et al.*, 2020).

To obtain score information effectively and efficiently, a web-based platform can be developed. Such applications are operable across various platforms and are lightweight, making them a preferred choice for many individuals (Yudha & Panji, 2018).

Creating an effective application also involves choosing the right development methods. One popular approach is the Agile methodology, which allows for flexibility and quick adjustments during the development process (Chandra, 2017).

At Politeknik Negeri Samarinda, TOEFL is administered to evaluate students' personal understanding of the English language. The implementation of TOEFL at this institution is managed by the Language Development Center (UPT Bahasa). However, the current information service for

viewing TOEFL scores relies on a conventional approach, where students must physically visit UPT Bahasa to search their scores from printed sheets displayed on physical notice boards. This method is deemed inefficient due to the considerable time and effort expended merely to check TOEFL scores. To address this inefficiency, a web-based application has been developed to manage students' TOEFL scores. It is anticipated that this application will serve as a more efficient information service for TOEFL scores within the Politeknik Negeri Samarinda environment.

LITERATURE REVIEW

In today's rapidly changing digital world, technology is really helping to improve academic processes, making them easier and more effective. A great example of this is how technology is used to manage the TOEFL (Test of English as a Foreign Language). This test has become an essential part of educational institutions, from high schools to universities (Irmayani & Sudirman, 2019). In this literature review, we'll take a closer look at how software development can make managing the TOEFL easier and more efficient, particularly through the use of web-based solutions.

According to (I. P. Sari, 2021), software is essentially a set of instructions that tells a computer what to do. It includes various features and tools that help us manipulate information effectively.

As highlighted by (Rosyidi *et al.*, 2024), the TOEFL is designed to assess the English proficiency of non-native speakers. The results of this test can be an important requirement for graduating from schools and universities, as well as for government agencies. They can also play a significant role in job applications.

(Noviana, 2022) describes a website as a service available on computers for users. It is made up of a collection of information that can include text, images, animations, audio, and video, all of which can be accessed via the internet.

There has been previous development of website-based software for managing TOEFL, including:

1. Web-Based TOEFL Registration Information System at UPT Bahasa Universitas Palangka Raya (N. N. K. Sari, 2021)
The objective of this software development project is to create a supportive tool for the effective and efficient administration of the TOEFL test at Universitas Palangka Raya. Currently, the process is conducted manually, following the Waterfall methodology.
2. Development of Web-Based TOEFL Administration Management System (Farisqi *et al.*, 2022)
The development of this software aims to manage the administration of TOEFL exams through a web-based platform, with the goal of making the time and effort required for participants involved in TOEFL administrative activities more efficient. This software development also uses the Waterfall methodology.

The literature review indicates that the previous software development used the Waterfall method. The Waterfall method is a step-by-step approach to software development, where each phase must be completed before moving on to the next one (Badrul, 2021). In implementing the Waterfall method, the process begins with the first phase and continues in order to the following phases (Fachri & Surbakti, 2021). This method does not allow for repeated cycles; thus, if changes are needed at a previous stage, the entire process must restart from the beginning (Anisa *et al.*, 2024). The stages of software development using the Waterfall method include requirements analysis, design, implementation, testing, and maintenance (Vicky & Syaripudin, 2022). On the other hand, future software development will adopt an Agile approach, which is more flexible and better

suited to changes. This allows for modifications at earlier stages without needing to go back to the first phase.

RESEARCH METHOD

In the process of developing and realizing the right software, it's important to use the right methods when designing it. For this software development, an Agile methodology is implemented, which is adaptive to potential changes that may come during the application development process. The development of software using the Agile method is done in stages and repeatedly until the preferred system is achieved (Rizkiyah *et al.*, 2024). The initial step in applying this methodology begins with analyzing the requirements necessary for designing the software, creating a simple system overview using use cases, and subsequently implementing it. The data managed within the system is sourced from the Language Unit (UPT Bahasa) and obtained through interview techniques. The interview technique itself is a method of data collection wherein the informant and the interviewer interact directly (Irijiba *et al.*, 2023). Thus, we, as interviewers, pose questions to the UPT Bahasa representatives as informants, who in turn provide data regarding TOEFL scores.

RESULTS AND DISCUSSION

The implementation of the Agile method in software development is performed in the following stages.

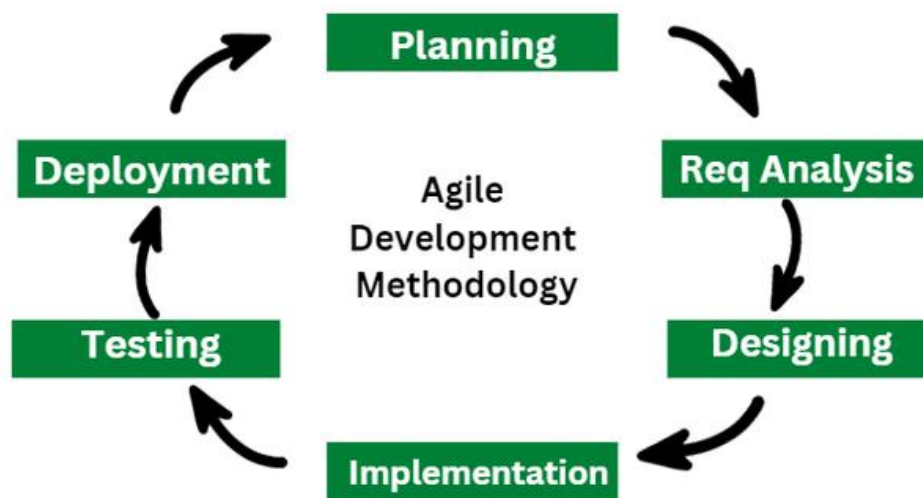


Figure 15. Agile methodology

1. Planning

In this phase, the issues faced at Politeknik Negeri Samarinda are recognized, particularly the lack of an online system for checking TOEFL scores. This problem is the main focus for the development of this software. After pinpointing the core issue, the system flow and application range are also established during this stage. The final discussion in this phase involves selecting an appropriate name for the application that addresses this issue. Thus, the name CSScore has been chosen, which stands for Computer Science Score, as the application will initially be tested within the Information Technology Study Program.

2. Requierment Analysis

This phase aims to identify the requirements of both students and administrators, who are the main entities involved in the software. The requirements are categorized into two types: functional requirements and non-functional requirements.

2.1 Functional Requirements

2.1.1 Students

In the system, students can log in and access a dashboard that displays their TOEFL scores directly.

2.1.2 Admin

In the system, administrators can log in and access a specific admin dashboard. Once logged in, they will be able to input student data and record students' TOEFL scores.

2.2 Non-Functional Requirements

2.2.1 Usability

The user interface will be user-friendly and easy to navigate.

2.2.2 Compability

The application is compatible with various types of browsers.

2.2.3 Portability

The application can be used on various devices that support a browser.

2.2.4 Maintenance

The system is easy to maintain and update. This is because it was developed using Agile methodology.

2.2.5 Database Management

The application can effectively manage student data and TOEFL score data.

2.2.6 Programming Language

The application will be designed using the Python programming language.

3. Designing

This phase aims to create a system overview that will act as a reference for the system designers.

3.1. Flowchart

A flowchart is a diagram that illustrates the sequence of program procedures represented in geometric shapes and arrows to indicate the relationships among the procedural steps (Ridlo, 2017).

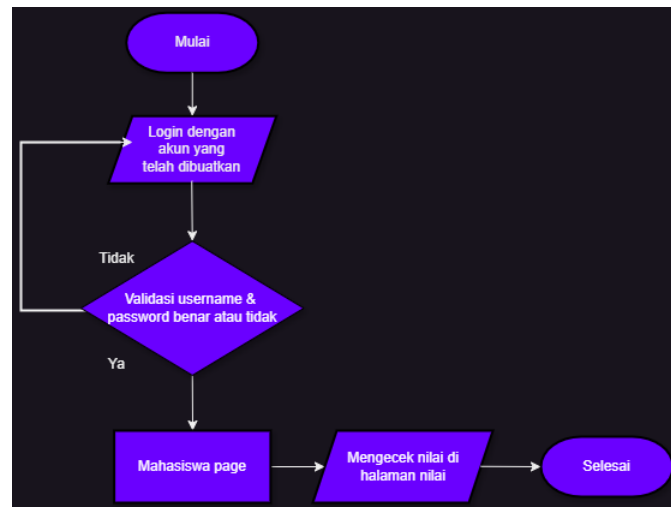


Figure 16. Flow chart of a student

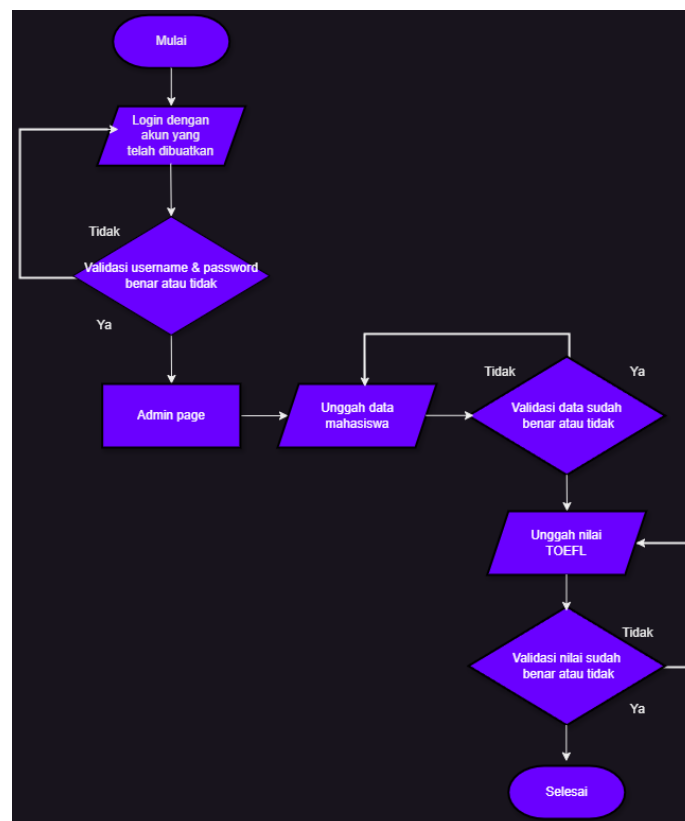


Figure 17. Flow chart of a admin

3.2. Use Case Diagram

A Use Case Diagram is a diagram that represents the interaction relationships between actors and the system (Kurniawan, 2018).

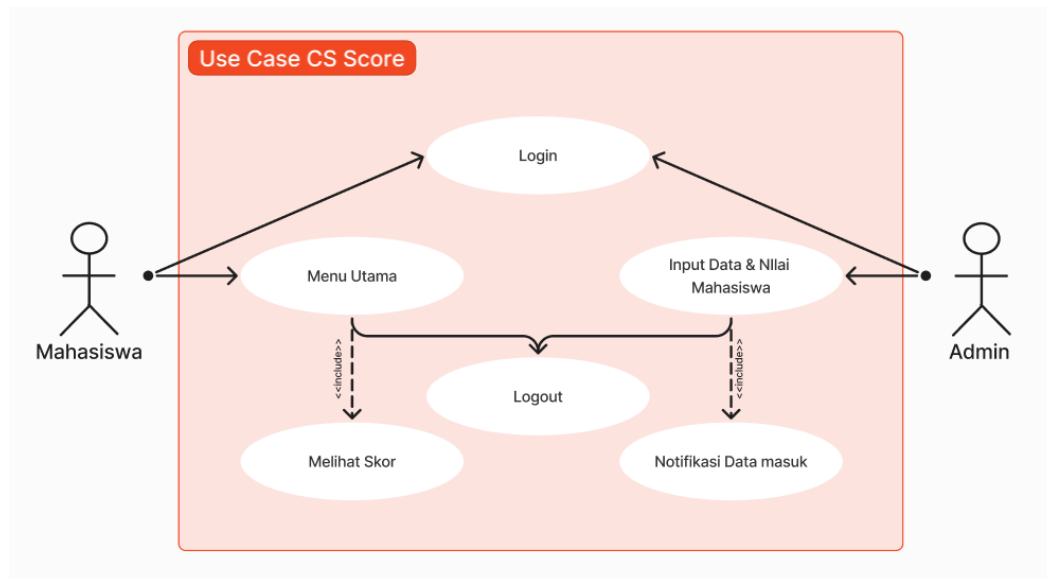


Figure 18. Use case diagram of CSScore System

3.3. Entity Relationship Diagram (ERD)

An ERD (Entity-Relationship Diagram) is a diagram that illustrates the relationships between entities along with their attributes (Akbar & Haryanti, 2021).

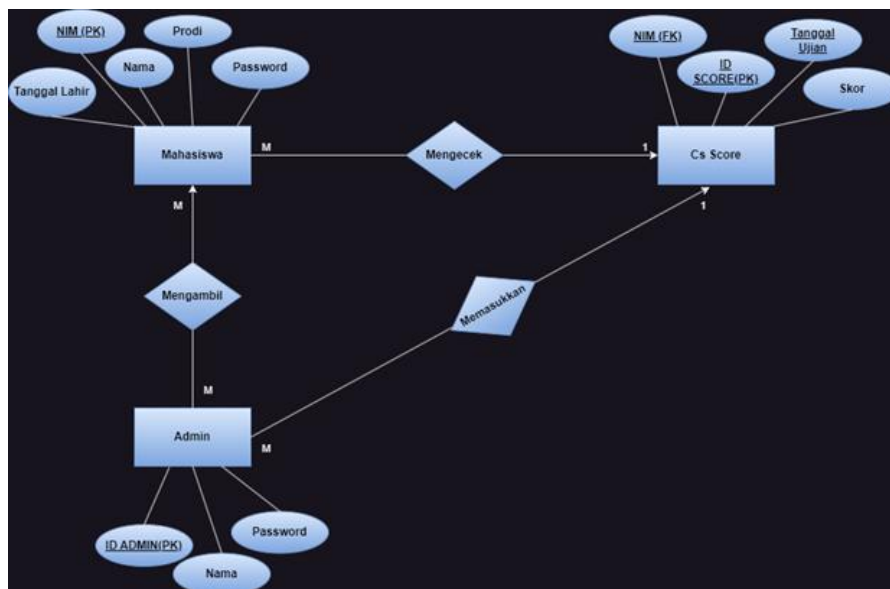


Figure 19. Entity relationship diagram of CSScore

4. Implementation

The implementation phase is the point where the development process of CSScore begins (Amarta & Anugrah, 2021), in accordance with the design that has been previously created.

4.1 Login Page Display

The login page is the main page of CSScore and can be accessed by both students and administrators. Usernames and passwords for students are given by the administrator, while usernames and passwords for administrators are created by the system.

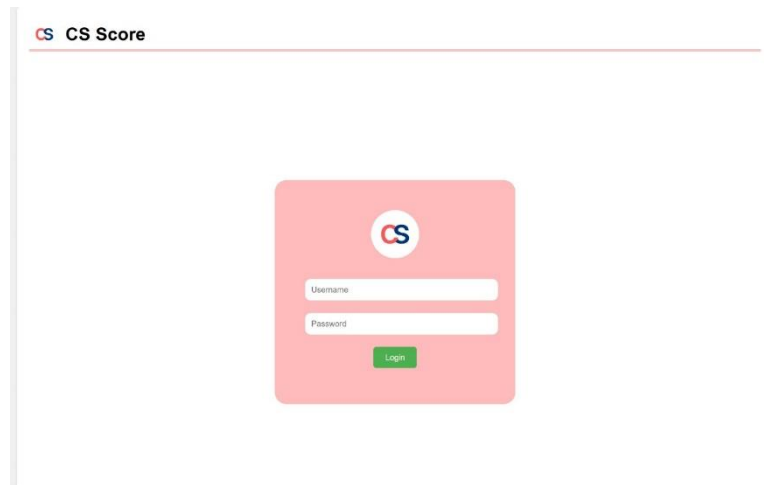


Figure 20. Login page display

4.2 Student Dashboard Page Display

After successfully logging in, students will access the dashboard page, which will include their TOEFL scores.

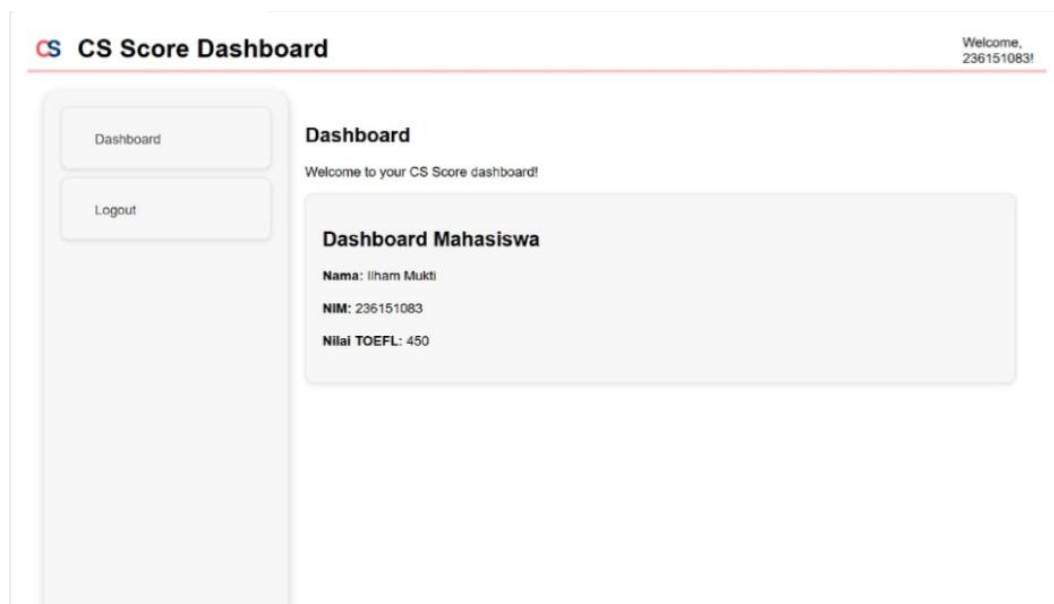


Figure 21. Student dashboard page display

4.3 Admin Dashboard Page Display

The administrator can directly input student data and TOEFL scores on this dashboard page.

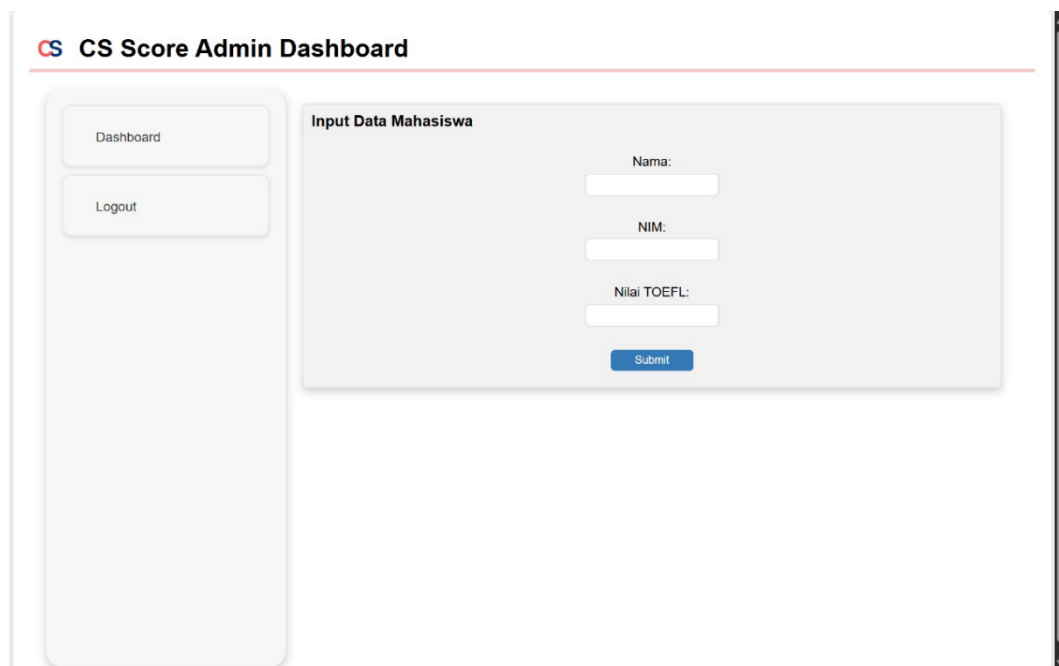


Figure 22. Admin dashboard page display

5. Testing

Table 5. Testing results of the CSScore System

Testing	Things tested	Test Status
Login	Student and Admin Login	Succeed
Students		
Access Dashboard	View the main menu	Succeed
Performance Score	View name and score information	Succeed
Administrator		
Access Dashboard	View the main menu	Succeed
Input Data	Input student data and TOEFL scores	Succeed
Leave	Return to login page	Succeed

6. Deployment

This phase is the final phase in the Agile methodology, ensuring that the software meets the requirements and is ready for use by the users, specifically students and administrators in this case (Mike *et al.*, 2023).

CONCLUSION

CSScore aims to enhance the efficiency of students at Politeknik Negeri Samarinda. By utilizing the Agile methodology, CSScore demonstrates its adaptability to potential changes that may occur in the future.

ACKNOWLEDGEMENT

We express our heartfelt gratitude and praise to God Almighty for His blessings, which have empowered us to successfully complete the development of this software and the related paper. This paper has been prepared as part of the requirements for the Software Engineering course at the State Polytechnic of Samarinda.

We would like to extend our deepest thanks to:

1. Mr. Arief Bramanto Wicaksono Putra, S.ST., MT., our lecturer, for his invaluable guidance, support, and direction throughout the preparation of this paper.
2. Our group members, who actively participated in the software development process, contributing both ideas and effort: Muhammad Yudi Setiawan, Mohammad Ozy, Ilham Mukti, and Mahpudin.
3. Our classmates, who provided helpful suggestions during the software development process.

Your contributions have been instrumental in our success, and we are profoundly grateful for your support.

REFERENCES

- Akbar, I. S., & Haryanti, T. (2021). Pengembangan Entity Relationship Diagram Database Toko Online Ira Surabaya. *Computing Insight: Journal of Computer Science*, 3(2), 28-35.
- Amarta, A. A. F., & Anugrah, I. G. (2021). Implementasi Agile Scrum Dengan Menggunakan Trello Sebagai Manajemen Proyek Di PT Andromedia. *Jurnal Nasional Komputasi dan Teknologi Informasi*, 4(6), 528-534.
- Anisa, F., Harahap, F. S., Al Khosyi, H., & Sari, I. P. (2024). Pengembangan Software Menggunakan Model SDLC Guna Mencapai Keselarasan dengan Kebutuhan Pengguna. *Journal Of Informatics And Busisnes*, 1(4), 229-232.
- Asiyah, L. N., Sulistyanto, M. P. T., & Aziz, A. (2020). Penerapan Restful Web Service Untuk Optimalisasi Kecepatan Akses Pada Aplikasi Berbasis Android. *JOINTECS (Journal Inf. Technol. Comput. Sci., vol. 5, no. 2, p. 129, 2020, doi: 10.31328/jointecs. v5i2. 1260.*
- Badrul, M. (2021). Penerapan Metode Waterfall Untuk Perancangan Sistem Informasi Inventory Pada Toko Keramik Bintang Terang. *PROSISKO: Jurnal Pengembangan Riset dan Observasi Sistem Komputer*, 8(2), 57-52.
- Chandra, Y. I. (2017). Perancangan Aplikasi Resep Pengobatan Gangguan Pernapasan Dengan Tanaman Obat Menggunakan Pendekatan Agile Process Dengan Model Extreme Programming Berbasis Android.
- Fachri, B., & Surbakti, R. W. (2021). Perancangan Sistem Dan Desain Undangan Digital Menggunakan Metode Waterfall Berbasis Website (Studi Kasus: Asco Jaya). *Journal Of Science And Social Research*, 4(3), 263-267.
- Farisqi, M. I., Rusdianto, D. S., & Ananta, M. T. (2022). Pembangunan Sistem Pengelolaan Administrasi Ujian TOEFL berbasis Website. *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer*, 6(6), 2941-2948.
- Irijiba, R., Esabella, S., & Karisma, Y. (2023). Aplikasi TOEFL Institusional Berbasis Web (Studi Kasus: UPT Pusat Bahasa Universitas Teknologi Sumbawa). *Bulletin of Information Technology (BIT)*, 4(1), 29-36.

- Irmayani, I., & Sudirman, A. (2019). Implementasi Aplikasi Tes TOEFL Berbasis Desktop. *Pros. Semant*, 2(1), 169-174.
- Kemala, R. F., Astuti, I. F., & Maharani, S. (2019). Penerapan metode Fuzzy C-Means pada aplikasi simulasi TOEFL (test of English as a foreign language) berbasis web (studi kasus: fakultas MIPA Universitas Mulawarman). *Jurnal Ilmiah Ilmu Komputer*, 14(1), 17.
- Kurniawan, T. A. (2018). Pemodelan use case (UML): evaluasi terhadap beberapa kesalahan dalam praktik. *J. Teknol. Inf. dan Ilmu Komput*, 5(1), 77.
- Mike, A., Zen, B. P., & Utami, A. (2023). Penerapan Metode Agile Pada Website Indekost Sruntul Menggunakan Framework Laravel. *Jurnal Ilmiah Media Sisfo*, 17(2), 266-279.
- Noviana, R. (2022). Pembuatan aplikasi penjualan berbasis web monja store menggunakan php dan mysql. *Jurnal Teknik dan Science*, 1(2), 112-124.
- Putra, A. D., Suryono, R. R., & Darmini, D. (2009). Rancang bangun media pembelajaran TOEFL berbasis web. Seminar Nasional Aplikasi Teknologi Informasi (SNATI),
- Ridlo, I. A. (2017). Panduan pembuatan flowchart. *Fakultas Kesehatan Masyarakat*, 11(1), 1-27.
- Rizkiyah, E. V. F., Kusuma, A. P., & Puspitasari, W. D. (2024). Rancang Bangun Aplikasi Peminjaman Ruang Berbasis Web Dengan Metode Agile Menggunakan Library ReactJS (Studi Kasus: Universitas Islam Balitar). Seminar Nasional Sistem Informasi (SENASIF),
- Rosyidi, A. Z., Paris, A. S., & Hasanah, N. L. (2024). Pelatihan Toefl Sebagai Upaya Untuk Meningkatkan Kemampuan Pemahaman Test Bahasa Inggris Bagi Mahasiswa Di Himpunan Mahasiswa Himmah Nwdi Lombok Tengah. *Insanta: Jurnal Pengabdian Kepada Masyarakat*, 55-61.
- Sari, I. P. (2021). *Buku Ajar Rekayasa Perangkat Lunak* (Vol. 1). umsu press.
- Sari, N. N. K. (2021). Sistem Informasi Pendaftaran Tes Toefl Pada Upt Bahasa Universitas Palangka Raya Berbasis Website. *Jurnal Teknologi Informasi: Jurnal Keilmuan dan Aplikasi Bidang Teknik Informatika*, 15(1), 53-59.
- Vicky, V. O., & Syaripudin, A. (2022). Perancangan Sistem Informasi Absensi Pegawai Berbasis Web Dengan Metode Waterfall (Studi Kasus: Kantor Dbpr Tangerang Selatan). *OKTAL: Jurnal Ilmu Komputer dan Sains*, 1(01), 17-26.
- Yudha, F., & Panji, A. M. (2018). Perancangan aplikasi pengujian celah keamanan pada aplikasi berbasis web. *Cyber Security Dan Forensik Digital*, 1(1), 1-6.