

Designing a Web-Based Student Management Information System at STMIK Time using the Agile Method

Frina Nikci Simbolon^{1*}, Feriani Astuti Tarigan², Jackri Hendrik³

^{1,2,3}Information Systems Study Program, STMIK Time Medan, Indonesia
frinanikci16@gmail.com^{1*}, ferianiastitutitime@gmail.com², jackri.hendrik@gmail.com³

Abstract

Higher education is an educational institution that has an important role in producing a quality young generation by facing various challenges in managing daily operations and providing adequate services to students. Student Affairs is one of the units that manage quite a lot of student activities. Student affairs on campus refers to various services, activities and organizations related to students. Student information management at STMIK TIME is still carried out separately and not integrated such as through social media, WhatsApp, and drive links which cause errors and duplication of information. This research aims to design an integrated web-based student management information system to facilitate access to information and improve service efficiency. The system includes four main features namely Services, Activities, Student Activity Assessment, and National Scale Activities. The Agile method is used in the system development process which includes the stages of requirements, design, development, testing, deployment, and review. The result of this research is a website that can help students and student affairs in managing information quickly, efficiently, and structured.

Keywords: Information Systems, Student Affairs, Website, Data Integration, Agile.

1. Introduction

Higher education is an educational institution that has an important role in producing a quality young generation by facing various challenges in managing daily operations and providing adequate services to students. Improving operational efficiency and student services is highly desirable to achieve better quality of education in order to improve efficiency and effectiveness in managing services to students [1]. According to F. Z. Fahmi, R. Sidik, Student Services in a public or private university is an activity that cannot be eliminated. This activity is indirectly a necessity for every student when studying at a university. Usually there are not many staff provided by the college to serve its students so that one staff will serve many students. Therefore, service time will be valuable in maintaining service efficiency [2]. Student affairs provide opportunities for students to develop skills and knowledge. By participating in student activities, students can gain valuable experience. Student Affairs is one of the units that manage quite a lot of student activities. Student Affairs on campus refers to a variety of services, activities and organizations related to students. All activities are supervised by the association coach and managed by the student affairs [3].

At STMIK TIME, the management of student information on campus is currently still carried out separately and not integrated. for example, to find out information on student activities, information related to student services, students can access on campus social media and also information obtained via WhatsApp. Financial administration payments and other information such as class schedules, academic calendars, and activity certificates are submitted via the drive link. This causes various problems, such as information errors and duplication of information. To overcome these problems, the implementation of a student management information system is the right solution in order to provide information quickly and easily. This system is designed with four main features, namely Student Services consisting of Guidebook Services, Scholarship Services, KTM Making Services, Administrative Info Services, Class Schedule, Academic Calendar and Student Calendar.

Student Activities consisting of Academic Clubs, Non-Academic Clubs, Organizations and Certificates. Assessment of Student Activities consisting of mandatory activities organized by STMIK TIME, Reasoning and Scientific Activities, Organizational Activities, Interest and Talent Activities. Student Creativity Program consists of PKM Entrepreneurship, Certified Internship and Student Exchange Program. In this research, the Agile Method will be used. The agile method is one of the methods used in software development. has the advantage of building applications faster so that it can increase user satisfaction, can reduce the risk of software implementation failure in non-technical terms [4]. agile methods are used to design programs that are in accordance with the problems that occur, with the existence of these methods in making programs very fast and efficient [4]. agile methods involve the stages of requirement, design, development, testing,

deployment, and review. With this background, the author wants to conduct research and take the title "Designing a web-based student management information system at STMIK Time using the agile method".

2. Research methods

2.1. Analysis

Analysis is the process of understanding and processing activities that contain student information on campus in order to produce useful information such as explaining in depth the process of managing student information, namely Services, Activities, Student Activity Assessment and National Scale Activities. The analysis is carried out to find out a procedure in the current student affairs system or the proposed system procedure in order to answer research questions or find answers to the problems being studied.

2.2. Analysis of the current system

Ongoing System Analysis is the process of understanding how an existing system works, what it lacks, and what can be improved. The goal is to make sure the system helps work well and efficiently. For example, checking whether the system is fast, easy to use, or there are still problems that make work slow. In the management of student information on campus, it is currently still done separately and not integrated. This causes various problems, such as misinformation and duplication of information. For example, to get information on student activities, information related to student services, students can access on campus social media and also information obtained via WhatsApp. financial administration payments and other information such as class schedules, academic calendars, and activity certificates are submitted via the drive link. This non-integrated system makes students experience problems in getting information quickly and accurately.

2.3. Analysis of the Proposed Method

In this sub chapter, an analysis of the methods used in this research is described. The method proposed and used in the development of the STMIK TIME Student Information System is the Agile method. With the following stages: Requirement, This stage aims to collect information about services such as guidebook services, scholarship services, KTM making services, administrative info services, class schedules, academic calendars and student calendars. Activities such as academic clubs, non-academic clubs, organizations, and certificates. Student Activity Assessment such as PAM explanation, mandatory activities, reasoning and scientific activities, organizational activities. National scale activities such as PKM, ORMAWA, P2MW, certified internships, and student exchange programs. Information will be obtained from the source (Student Affairs STMIK TIME), in order to get complete information about user needs for the system to be designed. Design, at this stage will design a prototype using balsamiq mockup software. This design includes 4 features and dropdowns, namely Services (Guidebook Services, Scholarship Services, KTM Making Services, Administration Info Services, Course Schedules, Academic Calendar and Student Calendar). Activities (Academic Club, Non-academic Club, Organization, and Certificate).

Student Activity Assessment (PAM Explanation, Mandatory Activities, Reasoning and Scientific Activities, Organizational Activities). National Scale Activities (PKM, ORMAWA, P2MW, Certified Internship, and Student Exchange Program). Development, at this stage researchers use PHP, CSS, JavaScript, and HTML programming language coding, Bootstrap 5 for website design. Some supporting software used includes MySQL for database management, XAMPP as a local server, Visual Studio Code as a code editor, and Use Case Diagrams to model user interactions with the system. This website uses one main database with the name "campus_db", which contains several tables, namely admin, news, events, type_certificate, calendar, calendar_mhs, students, announcements, assessment_pam, and certificate. All data in this database is managed through phpMyAdmin to facilitate system management. Testing, the next stage is to test the system as a whole. By conducting trials such as the login process, ensuring user access in accordance with their rights. Data management, checking whether service data, activities, assessments can be input, changed or deleted and function according to user needs and are error-free. Testing will be carried out on four main features along with dropdowns, namely Services (Guidebook Services, Scholarship Services, KTM Making Services, Administration Info Services, Course Schedules, Academic Calendar and Student Calendar).

Activities (Academic Club, Non-academic Club, Organization, and Certificate). Student Activity Assessment (PAM Explanation, Mandatory Activities, Reasoning and Scientific Activities, Organizational Activities). National Scale Activities (PKM, ORMAWA, P2MW, Certified Internship, and Student Exchange Program). This stage aims to ensure that each feature can function properly and is interconnected, so that it meets user needs optimally. Deployment, this stage is a stage that aims to deploy the application done by the designer to the user. By uploading the system to a server or hosting so that it can be accessed online. the designer provides service update information to users via a google form shared via WhatsApp. In this step, testing is again carried out after the system is implemented, to ensure that there are no problems or bugs in the system when used directly. Review, the last stage is for the final evaluation by checking the response from users who use the application. Collecting responses from users through questionnaires or interviews, analyzing user responses to see if the system meets the needs, if deficiencies are found improvements are made based on the input provided. Review Aims to ensure the system runs optimally and provides a user experience.

2.4. Proposed System Analysis

this section, an analysis of the proposed system to be built will be carried out, the analysis of the proposed system is usually also called an analysis of functional requirements. Functional analysis will be described using a Use Case Diagram. Fig. 1 is a Use Case Diagram of the Student Information System to be built.

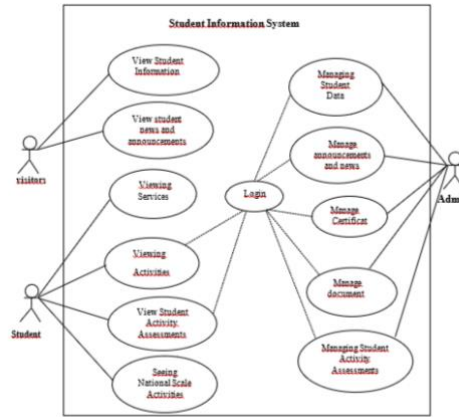


Fig. 1: Use case diagram of student information system

3. Results and discussion

In this chapter we will discuss the results of the display of the student management information system website at STMIK TIME with the agile method divided into three parts, namely User Display, Admin Display and Student Display.

3.1. User View

User View is the initial page that appears when the system is run without the need to log in. This page is public and is intended to provide general information about student activities and services to visitors, both from students, lecturers, and the general public. In this user view there is a Home page, service page, activity page, student activity assessment page, national scale activity page and login page.

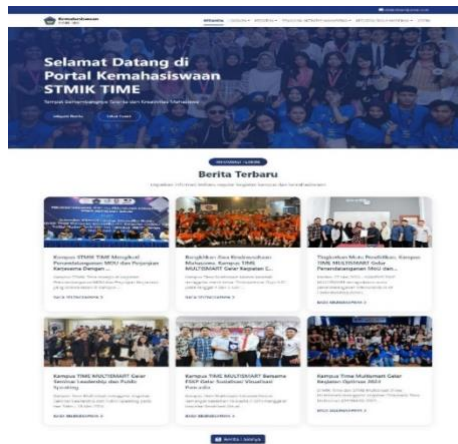


Fig. 2: Home page

The Services page is designed with a dropdown menu feature consisting of Guidebook Services, Scholarship Services, KTM Making Services, Administrative Info Services, Course Schedules, Academic Calendar and Student Calendar etc.

1. Guidebook service page

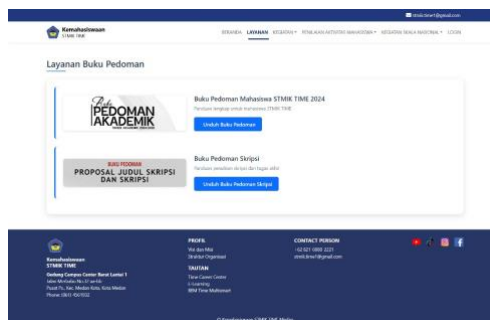


Fig. 3: Guidebook service page

2. Scholarship service page

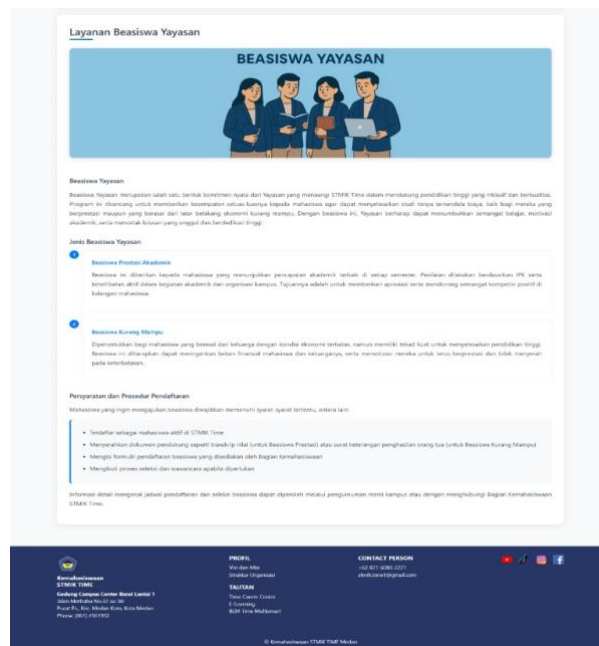


Fig. 4: Scholarship service page

3. Organization Page

This menu provides access to information about the Student Executive Board (BEM) organization, Bem Benefits, BEM Division and organizational structure.



Fig. 5: Organization Page

4. Admin view

Admin View is a dashboard page that can be accessed after the user has successfully logged in as an admin. This page is private and can only be accessed by users who have access rights as system managers. This view provides various features such as news data, event data, announcement data, student calendar and PAM verification. The admin has full control over the content displayed on the public page. This view is designed to make it easier for admins to manage and monitor all system activities efficiently.

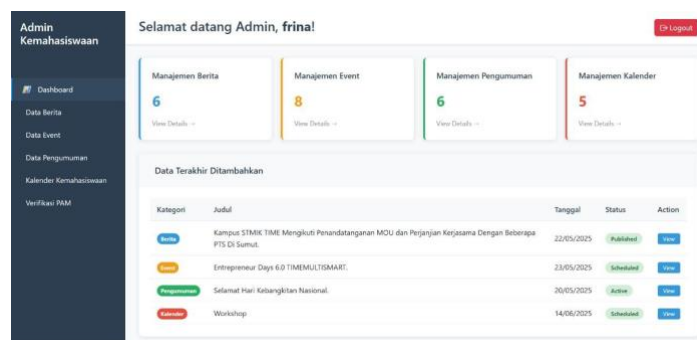


Fig. 6: Admin dashboard page

5. Student view page

Displays information relevant to individual student activities such as certificates, PAM assessments and profiles. This view aims to provide convenience for students in accessing information and interacting with student services independently and in an integrated manner.

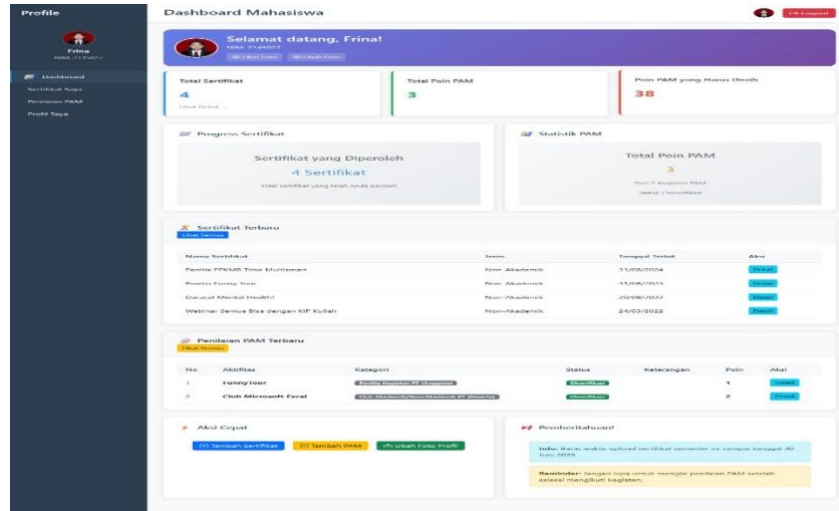


Fig. 7: Student view page

4. Conclusion

After completing this thesis, based on the results of designing and building a student website that has been done. The author draws several conclusions as follows:

1. The student website that has been built is able to provide important information needed by students, such as campus news, activities/events, official announcements, and videos of campus activities. All information is displayed dynamically through the home page, which can be accessed without login.
2. The navigation structure is designed with a complete and directed main menu, covering various student services such as scholarship information, KTM making, class schedules, organizational activities, ORMAWA, PKM, and other national scale programs. This makes it easier for students to access services centrally.
3. The Student Activity Assessment (PAM) feature is one of the advantages of the system, because students can see the results of their non-academic activity assessment directly, which has been verified by the admin and integrated with the points system. This helps document student achievements and activities in a transparent and systematic manner.

5. Suggestions

For the development of the system in a better direction, there are various suggestions to complement the conclusions drawn, namely Strengthening PAM Features Although the PAM feature has been realized, it is recommended to continue to be developed, especially in terms of assessment automation, data integration into academic systems, and providing feedback to students and the addition of a Real Time Notification System The notification feature is needed so that students get the latest information such as announcements, It is recommended for to add a two-step authentication feature (Two-Factor Authentication/2FA) to maintain account security, especially on admin accounts and sensitive student data.

References

- [1] S. Rahmawati, A. Putra Juledi, and V. Sihombing, "Implementasi Sistem Informasi Manajemen dalam Perguruan Tinggi: Studi Kasus tentang Efisiensi Operasional dan Pelayanan Mahasiswa," *J. Ilmu Komput. dan Sist. Inf.*, vol. 7, no. 1, pp. 75–77, 2024, doi: 10.55338/jikomsi.v7i1.2716.
- [2] F. Z. Fahmi, R. Sidik, U. K. Indonesia, and P. Kemahasiswaan, "Perancangan Sistem Informasi Pelayanan Kemahasiswaan Berbasis WEB Terintegrasi dengan LINE CHAT API di Program Studi Sistem Informasi UNIKOM Student Services Information System Design Web-Based Integrated with LINE CHAT API in Information Systems Study Pr".
- [3] T. D. Andini, Dzikrullah Akbar, Zain Bagus Dwi Asmoro, and Achmad Noercholis, "Pemanfaatan Metode Agile Development Dalam Sistem Informasi Kepegawaian Di Institut Asia Malang," *POSITIF J. Sist. dan Teknol. Inf.*, vol. 9, no. 2, pp. 75–83, 2023, doi: 10.31961/positif.v9i2.1995.
- [4] W. Nyunando and D. Nasien, "Implementasi Agile Dynamic System Development Method Berbasis Web Pada Sistem Penggajian," *J. Mhs. Apl. Teknol. Komput. dan Inf.*, vol. 2, no. 1, pp. 33–38, 2020.
- [5] L. Trisnawati and D. Setiawan, "Sistem Monitoring Kegiatan Kemahasiswaan Menggunakan Metode Agile Development," *JOISIE J. Inf. Syst. Informatics Eng.*, vol. 6, no. 1, pp. 49–57, 2022.