

Web-Based Student Service Information System at UIKA Bogor (Case Study: Student Activity Unit (UKM))

Sistem Informasi Servis Mahasiswa di UIKA Bogor Berbasis Web (Kajian Kes: Unit Kegiatan Mahasiswa (UKM))

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ABSTRACT

The rapid development of information technology has encouraged digital transformation in various sectors, including education, especially in information management and academic communication. However, at the Informatics Engineering Study Program of Ibn Khaldun University (UIKA) Bogor, the system for reporting student complaints related to damage to facilities and infrastructure is still carried out manually using paper media. This method poses various problems, such as slow reporting processes, risk of data loss, and lack of efficiency in report management and monitoring. This research aims to develop a student complaint report feature on the Android-based TIAS (Academic Informatics Engineering System) mobile application as an integrated digital solution. The system development method used is the waterfall method, which includes the stages of needs analysis, system design, coding, and testing. The results of the study show that the report features developed are able to improve the efficiency of the reporting process and complaint management, reduce the use of physical documents, and make it easier for students and administrators to monitor the status of reports in real-time. Thus, the development of the report feature in the TIAS application is expected to be an effective and applicable solution in improving the quality of academic services and student complaint management in the university environment.

Keywords: academic information systems; complaint reporting; Android apps; TIAS; waterfall

ABSTRAK

Pesatnya perkembangan teknologi informasi telah mendorong transformasi digital di berbagai sektor, termasuk pendidikan, khususnya dalam pengelolaan informasi dan komunikasi akademik. Namun, pada Program Studi Teknik Informatika Universitas Ibn Khaldun (UIKA) Bogor, sistem pelaporan pengaduan



mahasiswa terkait kerusakan sarana dan prasarana masih dilakukan secara manual menggunakan media kertas. Metode ini menimbulkan berbagai permasalahan, seperti proses pelaporan yang lambat, risiko kehilangan data, serta kurangnya efisiensi dalam pengelolaan dan pemantauan laporan. Penelitian ini bertujuan untuk mengembangkan fitur laporan pengaduan mahasiswa pada aplikasi mobile TIAS (Sistem Teknik Informatika Akademik) berbasis Android sebagai solusi digital yang terintegrasi. Metode pengembangan sistem yang digunakan adalah metode waterfall, yang meliputi tahap analisis kebutuhan, perancangan sistem, pengkodean, dan pengujian. Hasil penelitian menunjukkan bahwa fitur laporan yang dikembangkan mampu meningkatkan efisiensi proses pelaporan dan pengelolaan pengaduan, mengurangi penggunaan dokumen fisik, serta memudahkan mahasiswa dan pihak administrasi dalam memantau status laporan secara real-time. Dengan demikian, pengembangan fitur laporan pada aplikasi TIAS diharapkan dapat menjadi solusi yang efektif dan aplikatif dalam meningkatkan kualitas layanan akademik dan manajemen pengaduan mahasiswa di lingkungan perguruan tinggi.

Kata kunci: *sistem informasi akademi; pelaporan pengaduan; aplikasi Android; TIAS; waterfall*

INTRODUCTION

In a university, it is inseparable from various kinds of organizations, namely the Student Activity Unit (UKM) which is established by students who have the same vision and mission and act as a forum for student activities in developing special interests, talents and skills possessed by each individual in it, one of which is at Ibnu Khaldun University Bogor [(Apriliani et al., 2020). Ibnu Khaldun University Bogor or abbreviated as UIKA is one of the Private Islamic Universities or Universities in Indonesia, which was founded by Ulama Figures in Bogor and is the oldest Islamic campus in Bogor City. UIKA is also active in providing a number of non-academic programs. One of the forums used by UIKA to develop and nurture its students is through a number of student activity units (UKM). Ibnu Khaldun University (UIKA) Bogor continues to strive to produce graduates who are ready to face the challenges of the world of work. Ibnu Khaldun University (UIKA) Bogor itself has 20 SMEs which are divided into three fields, namely sports, art, creativity and self-development.

Student organizations or commonly referred to as Student Activity Units (UKM) on campus, are a medium for students to be able to hone their abilities both mentally, academically and spiritually. Students who have the same interests, passions, and creativity are able to develop certain talents and skills (Hutauruk & Pakpahan, 2021). In the management of the implementation of student activities in universities, both activities that will be carried out by the Student Activity Unit (UKM) and activities in student competitions of course also begin with the submission of proposals by students or representatives of SMEs (Muslihudin & Oktafianto, 2020).

The process of submitting student proposals that is so long is certainly not only time-consuming, but the documentation of each stage in the proposal submission process is often not well managed. In addition, many administrative problems that are often experienced by the student affairs department are the large number of files that accumulate from incomplete student activity proposal documents, inappropriate proposal formats, unstructured activity proposal submission procedures and undocumented reporting of activities (Muslihudin & Oktafianto, 2020).

The management of student data is currently still carried out manually. The difficulty faced today is that the information on management and organizational membership at Ibnu Khaldun University Bogor (UIKA) has not been recorded digitally in the information system. Data related to student organization activities such as recording membership management, making activity proposals, and accountability reports are still carried out on paper that is easily lost, damaged or difficult to find data (Hutauruk & Pakpahan, 2021).

The solution to the problem faced is the need for a Web-based information system in the student affairs sector to facilitate the search for data on student activity units (UKM). Based on the background that has been described, the researcher will make a research entitled Designing and Building a Student Information System for Student Activity Units (UKM) that can help SME activity services. The method used to submit proposals for SME activities is the waterfall method.

PROBLEM STATEMENT

The formulation of this problem is how to analyse, design and build a web-based student data management system at Ibnu Khaldun University Bogor.

LITERATURE REVIEWS

Definition of System

A system is a group of elements that are integrated with a common goal to achieve a goal. Systems are also networks of interconnected procedures, gathered together to perform an activity or to achieve a specific goal. Information is data that has been clarified or processed or interpreted for use in the decision-making process. Information systems are systems that can be defined by collecting, processing, storing, analyzing, disseminating information for specific purposes. Like other systems, information systems consist of inputs (instruction data) and outputs (reports, calculations).

Student Organizations

Student organizations are a means of student self-development that has many benefits, including expanding students' horizons, improving intellect, and increasing students' personal integrity in responding to problems on campus, society, and the nation. Another benefit that students can get by being active in intra-campus student organizations is the development of cooperation skills, organizational skills, as well as communication skills and special skills that are in accordance with the field or type of student organization they participate in.

Student Activity Unit (UKM)

UKM (Student Activity Unit) or commonly called ORMA (Student Organization) is one part of a university where there are students with the same goal who are directly under the leadership of the campus.

Website

A website is a collection of web pages that are interconnected with each other. Home pages and independent pages are called web pages. A website is a web that can be visited and viewed over the internet by users all over the world.

Website applications are divided into two categories, namely:

1. Static, i.e. websites whose content is rarely changed or maintained and is one-way and non-interactive. Example of a personal website.
2. Dynamic, which is a website with content that changes frequently and has a two-way nature. Examples are e-news, e-commerce, portals, etc.

Code Igniter

Code Igniter is a PHP Framework that runs on PHP 4 and PHP 5. Code Igniter's main goal is to make it easier for programmers to develop applications quickly without having to program from scratch. Thus, PHP programmers who already have a programming base can work faster to produce the applications they need.

Xampp

Xampp is a software that functions to run websites with the Hypertext Preprocessor (PHP) programming language and uses the MySQL data processor so that it can be used without having to connect to the internet.

MySQL

MySQL is an open source server database that is quite popular in its existence. With its various advantages, the creation of this database software is widely used by practitioners to build a project. The existence of the API (Application Programming Interface) facility owned by MySQL allows various computer applications written in various programming languages to access MySQL databases.

Database

A database is a collection of information that is stored in a computer systematically so that it can be checked using a computer program to obtain information from the database. Databases are used to store information or data that is well integrated inside a computer.

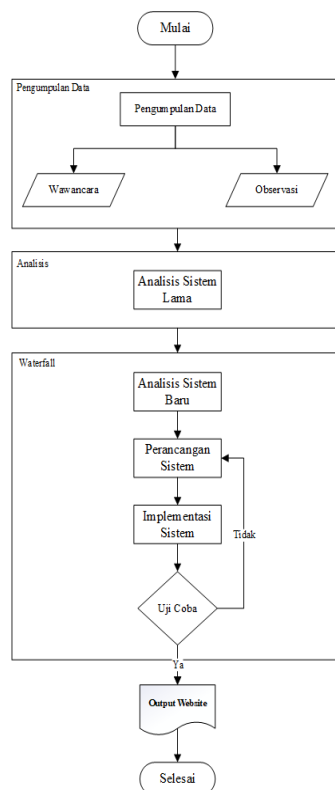
PHP

PHP stands for Hypertext preprocessor, which is a scripting language built into HTML. Most of the syntax is similar to C, Java and Perl languages, plus some specific PHP functions.

METHODOLOGY

Figure 1 below are the steps taken to support the research process so that the research carried out can run more structured and systematic.

Figure 1: Frame of mind



Data Collection

At this stage, data collection is carried out to facilitate the needs analysis process. The data collection techniques used are divided into two parts, namely:

Interviews:

Interviews are conducted in a semi-structured method through direct discussion with resource persons to obtain information related to the process of submitting activity proposals, managing UPM Student Activity Unit (UKM) budget data, and collecting data on the names of SMEs at Ibnu Khaldun University (UIKA) Bogor. The resource person in this study is Mrs. Nurseha Marasabessy, who has the authority and understanding of the management of SME administration. The interview was held on August 20, 2023 at Ibnu Khaldun University Bogor.

The results of the interviews were analyzed using a descriptive qualitative approach. The analysis stage includes transcription of interview data, then data reduction is carried out to sort out information relevant to the research objectives. The information that has been selected is then classified

into categories of system needs, such as the flow of submitting proposals for SME activities, budget management and validation, and the process of reporting activities through the Accountability Report (LPJ) document. The interview data was also used to identify the types of documents involved in the system, including: a) Documents proposing SME activities at Ibnu Khaldun University Bogor, b) Accountability Report Documents (LPJ) for SME activities at Ibnu Khaldun University Bogor, and c) Decree Documents of the Rector (SK Rector) of UIKA Bogor related to the UPM budget of Ibnu Khaldun University Bogor. The findings from this interview are the basis for formulating the functional and non-functional needs of the system to be built.

Observation:

Data collection by observation method is carried out through direct observation of the ongoing activity process, especially the process of submitting proposals for SME activities which are still carried out manually. The observation has been carried out since August 20, 2023 at Ibnu Khaldun University Bogor. In this observation activity, the author notes the flow of the work process, the parties involved, the types of documents used, and the obstacles that arise during the proposal submission process. The observation data is analyzed by describing the actual condition of the running system and comparing it with the ideal procedure. This analysis aims to identify problems with the old system, such as delays in the approval process, duplication of documents, and difficulties in tracking the status of proposals. The results of the observational analysis are then used to validate and strengthen the findings of the interviews, so that a more accurate picture of user needs and weaknesses of existing systems is obtained.

Integration of Analysis Results:

The results of the analysis from the interviews and observations are then integrated to form a comprehensive understanding of the ongoing SME proposal submission system. This data integration is used as a basis for the design of the proposed information system, so that the developed system is able to accommodate user needs, manage documents in a structured manner, and improve the efficiency and effectiveness of the SME administration process at UIKA Bogor.

Analysis of previous web-based student information systems:

After the data collection stage is carried out, the next stage is the analysis of the old system, namely the reporting system that is still running manually. This analysis aims to identify problems that occur in the existing system and determine the need for a new system to suit the goals of system development. In the old system, the process of reporting student complaints was carried out using paper media, starting from recording reports, collecting documents, to the verification process by administrative staff. This condition causes delays in handling reports, high potential for recording errors, and difficulties in recapitulating and tracking the status of reports periodically.

Based on the results of the analysis, the old system has limitations in terms of time efficiency, data accuracy, and ease of access to information. In addition, the absence of a centralized database makes report data difficult to manage and prone to loss or damage. To overcome these problems, data collection and identification of functional and non-functional needs are carried out as the basis for the development of new systems. As a comparative material, this study also analyzes web-based student information systems that have been developed in previous research or implementation. Web-based systems have generally been able to provide digital reporting features, centralized data storage, and faster access to information than manual systems. However, the system still has limitations, such as reliance on desktop or browser devices, less flexible access for mobile users, and reports that are not optimized in real-time.

Based on the comparative analysis, it can be concluded that web-based student information systems have provided increased efficiency compared to manual systems, but have not fully met the needs of mobility and ease of access for students. Therefore, this study proposes the development of an Android-based student complaint reporting feature that is integrated with the TIAS system. This approach is expected to be able to overcome the weaknesses of previous manual and web-based systems

by providing more flexible access, faster reporting processes, and more effective and structured management of report data.

System Development Methods

The system development method in this study uses the Waterfall method. The Waterfall method carried out includes analysis, design, coding and testing. The following is a description of each stage of the Waterfall method.

1. New System Analysis

After the old system analysis process is carried out, the next stage is carried out the new system analysis process which will be developed including, functional and non-functional needs, user needs and analysis of the new system architecture.

2. Design and Design

At this stage, Object Oriented Diagram (OOD)-based design is carried out using Unified Modelling Language (UML) which consists of Use case diagram, Activity diagram, Sequence diagram, Class diagram and also Interface design.

3. Coding

At this stage, the process of implementing an information system design module for student services in the student activity unit is carried out which is then written program code (coding), this process is a translation design into a language understood by a computer. The programming language used is PHP.

4. Testing

At this stage, the system testing process is carried out using the black box method to test the functionality of each feature created and determine the system's shortcomings and weaknesses.

FINDINGS AND DISCUSSION

System Needs Analysis

The analysis stage is the stage used for the purpose of defining or determining the services that will be provided by the system, the purpose of creating the system, and the limitations of the services that will be provided by the system. The system needs analysis described in this chapter includes several stages, including running a system analysis, a proposed system analysis, a functional needs analysis, and a user needs analysis.

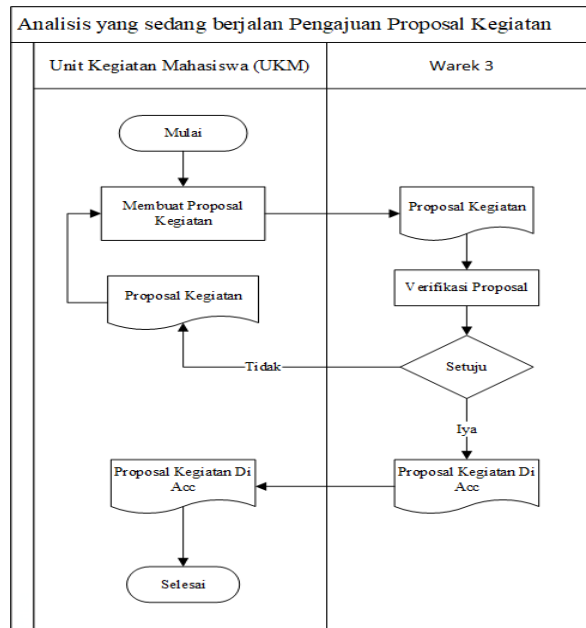
Running System Analysis

The ongoing system analysis was carried out on SMEs at the University. The University level is carried out in the process of submitting activity proposals and reporting on the implementation of activities carried out by each UKM at the University.

1. Submission of activity proposals by student activity units (UKM):

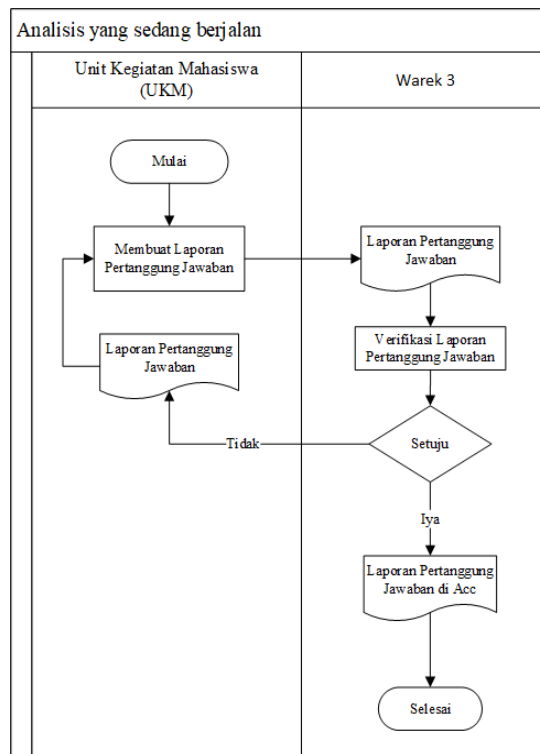
The mechanism for submitting activity proposals by student activity units (UKM) is shown in figure 2 below.

Figure 2: Mechanism for submitting activity proposals by SMEs



2. Activity accountability report by student activity units (UKM):
 The mechanism for reporting activity accountability reports by student activity units is shown in Figure 3 below.

Figure 3: Accountability Reporting Mechanism

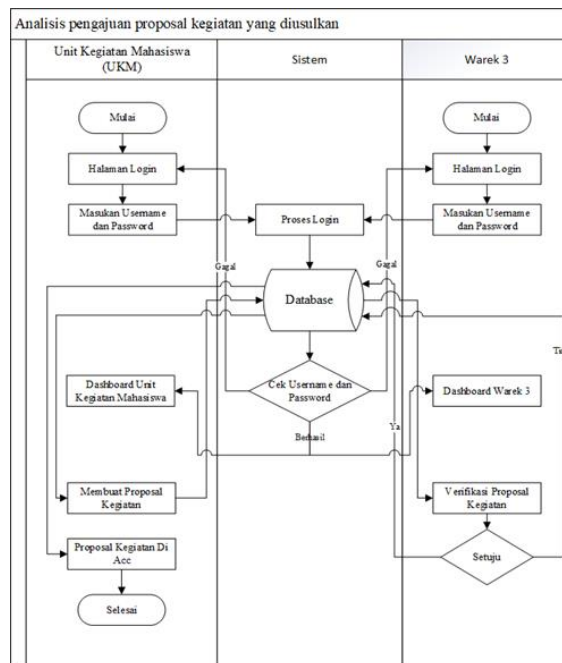


Proposed System Analysis

The proposed system analysis is an overview of how the system will be created and useful so that the system design can be tailored to the main functions of the system's needs. The analysis of the proposed system is shown in Figure 4 and Figure 5.

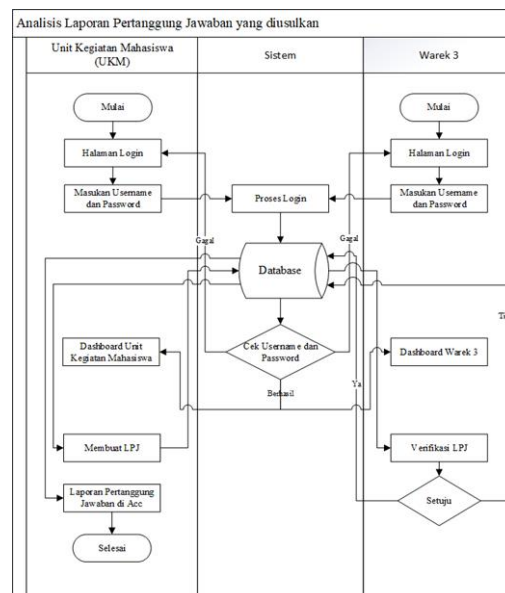
1. A new business process for student activity unit Submission of proposals for student activity units (UKM)

Figure 4: Submission of Activity Proposal Proposals



2. Submission of Student Activity Unit (UKM) Activity Responsibility Report

Figure 5: Proposed Accountability Report

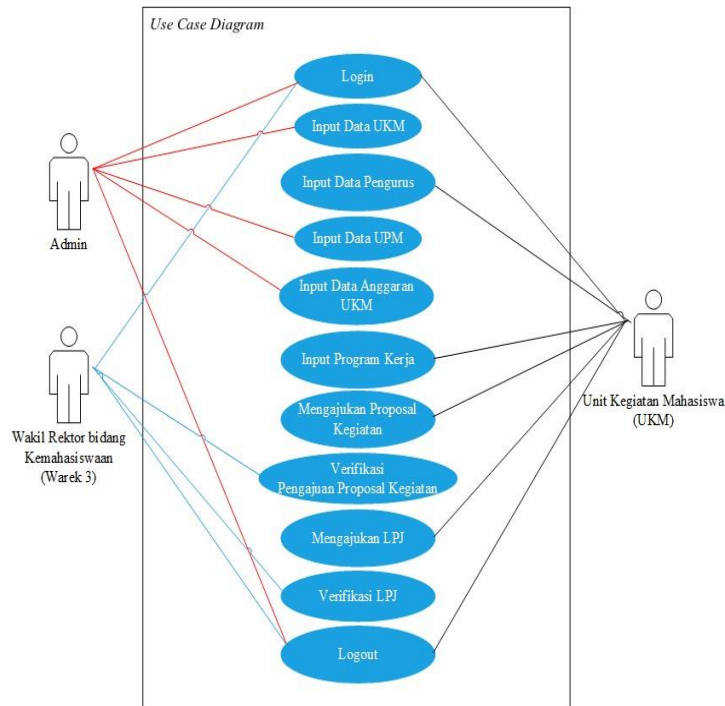


System Planning

Use Case Diagram

A use case diagram is a description or representation of the interaction of activities performed by actors on the system. The use case provides a brief overview of the relationship between the user of the system and its functionality. In the case of use, it will be known what functions are present in this system. A diagram of the use case can be seen in Figure 6.

Figure 5: Use case diagram

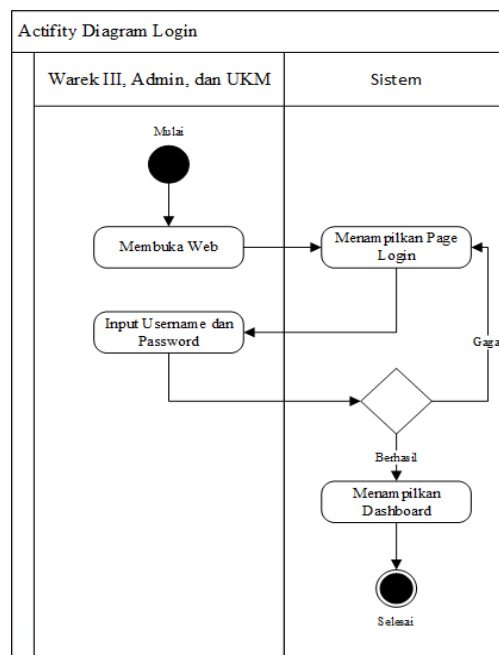


Activity Diagram

Activity Diagram Login

The login activity diagram describes the activities of the Vice Chancellor for Student Affairs (Warek III), Admin, and Student Activity Unit (UKM) before entering the system dashboard page by entering the username and password on the login page. The activity diagram can be seen in Figure 7.

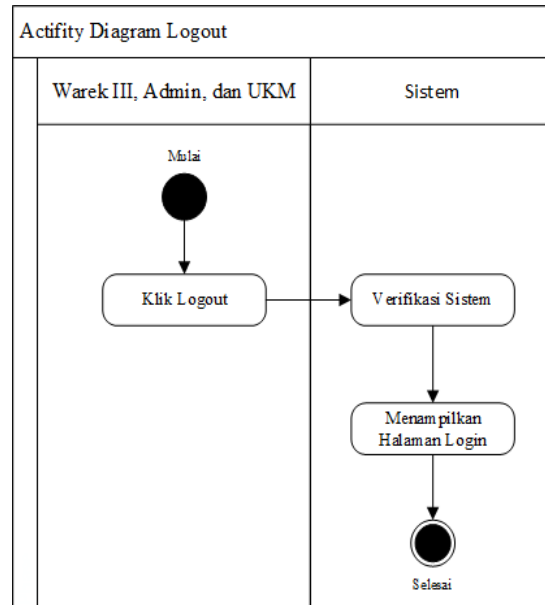
Figure 6: Activity Diagram Login



Exit Activity Diagram

The Logout activity chart describes the user's activity to log out of the system. A logout activity diagram can be seen in Figure 8.

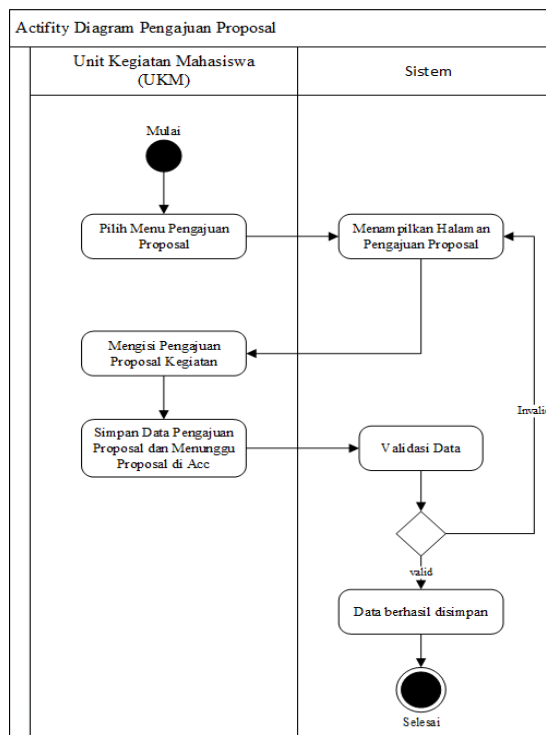
Figure 7: Exit Activity Diagram



Activity Proposal Submission Activity Diagram

The activity proposal activity diagram describes the user's activities to submit an activity proposal to be implemented. The activity diagram of the submission of activity proposals can be seen in Figure 9.

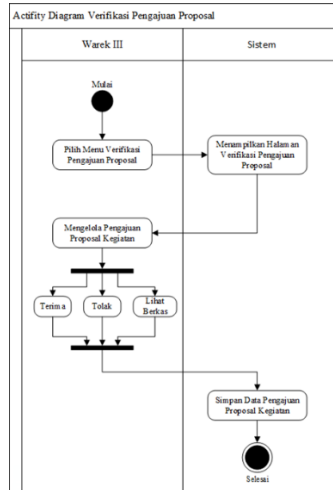
Figure 8: Activity Proposal Submission Activity Diagram



Proposal Submission Verification Activity Diagram

The diagram of the proposal submission verification activity explains the activities of Warek 3 to verify the activity proposals submitted by SMEs. A diagram of the verification activities of proposal submission can be seen in Figure 10.

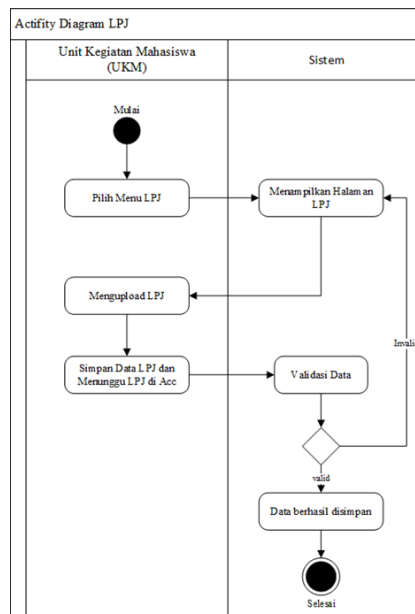
Figure 9: Proposal Submission Verification Activity Diagram



Activity Diagram Accountability Report

The accountability report activity chart describes the user's activity for filing an accountability report. The activity diagram of the accountability report can be seen in Figure 11.

Figure 10: Accountability Report Activity Diagram

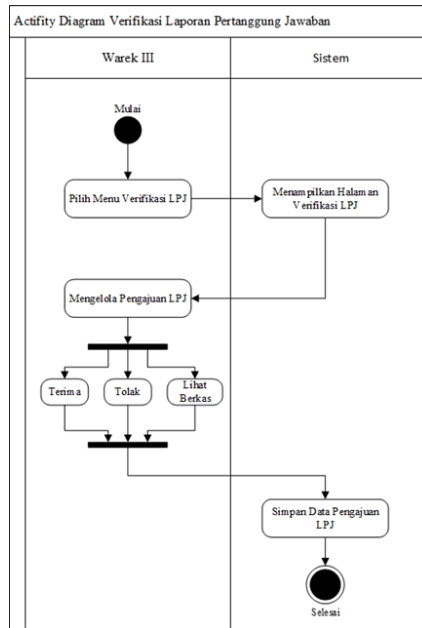


Accountability Report Verification Activity Diagram

The diagram of the accountability report verification activity explains the activities of Warek 3

to verify the accountability report submitted by SMEs. The diagram of the accountability report verification activities can be seen in Figure 12.

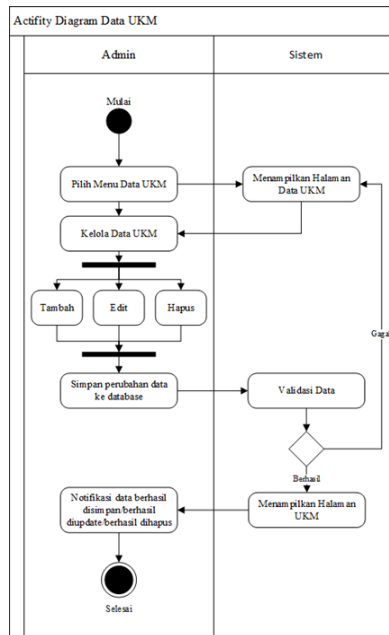
Figure 11: LPJ Verification Activity Diagram



SME Data Activity Diagram

The SME data activity diagram depicts the Admin's activity to add, edit, and delete SMB data. A diagram of SME data activity can be seen in Figure 13.

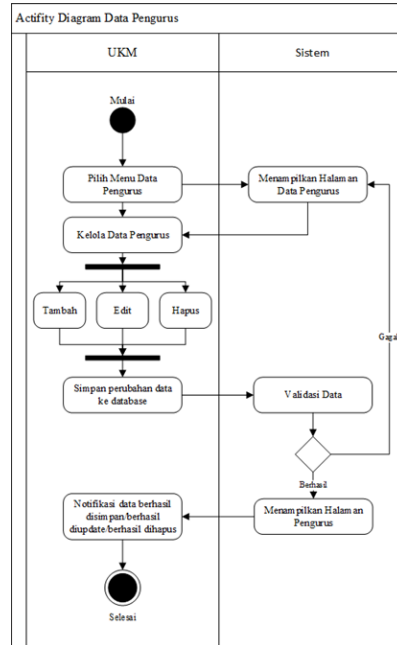
Figure 12: SME Data Activity Diagram



Activity Chart Data Manager

The management data activity diagram describes the activities of SMEs to add management data. A diagram of administrator data activity can be seen in Figure 14.

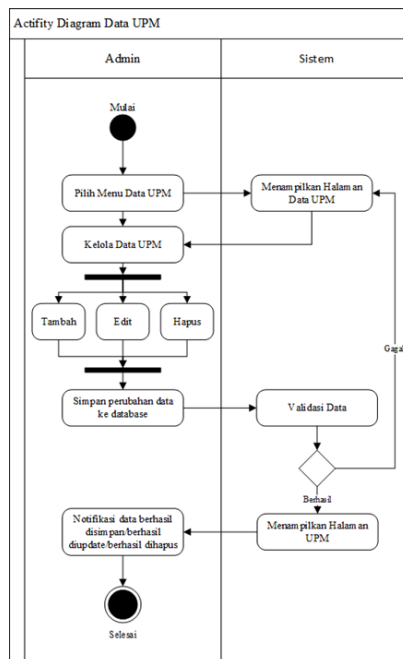
Figure 13: Activity Chart Data Manager



UPM Activity Diagram Data

The UPM data activity diagram depicts the Admin's activity to add UPM data. The UPM data activity diagram can be seen in Figure 15.

Figure 14: UPM Activity Diagram Data

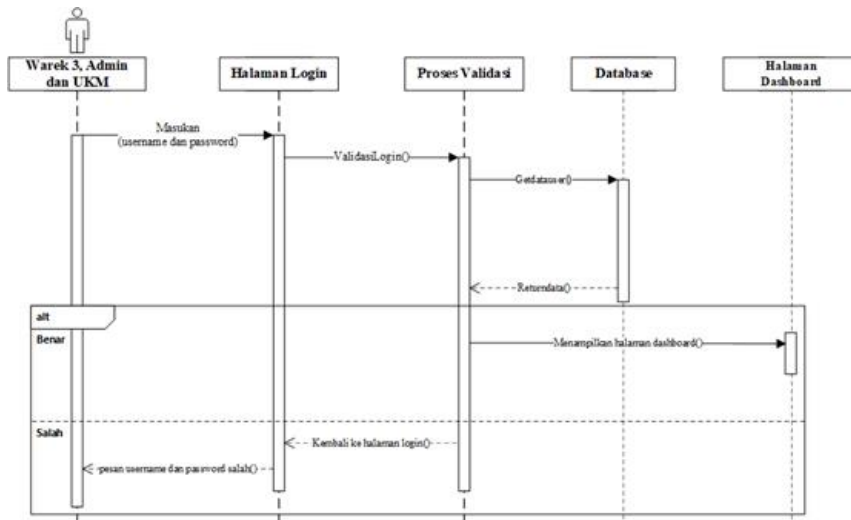


Sequence Diagram

Login Sequence Diagram

The login diagram sequence illustrates the sequence of processes carried out by Warek 3, Admin and SME before entering the system. The sequence of the login diagrams can be seen in Figure 16.

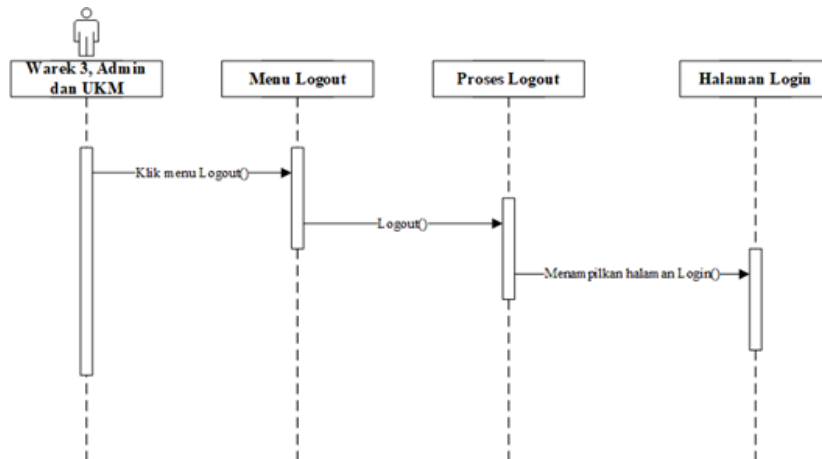
Figure 15: Login Sequence Diagram



Exit Sequence Diagram

The Logout sequence diagram describes the sequence of processes carried out by Warek 3, Admin and SME before exiting the system. The Logout Sequence Diagram can be seen in Figure 17.

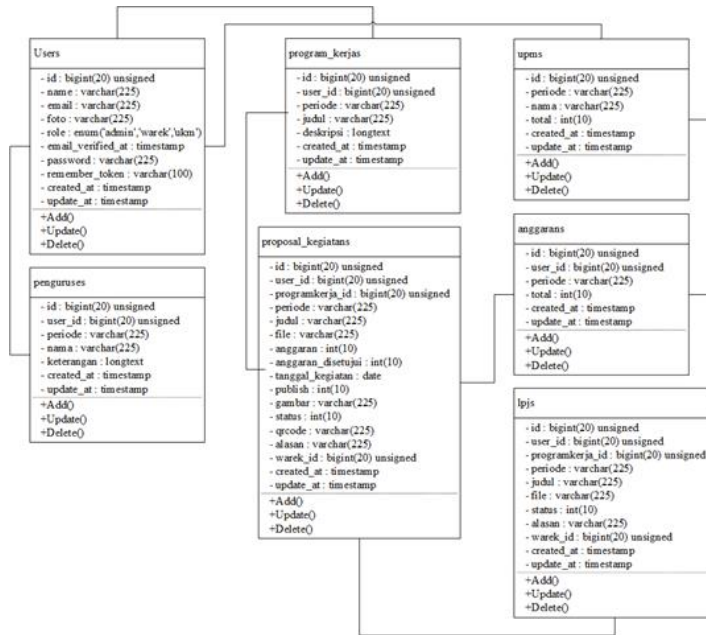
Figure 16: Exit Sequence Diagram



Class Diagram

A class diagram is a way of mapping or describing the structure of a system by modelling classes, attributes, operations, and relationships between objects. Diagram classes can be mapped in detail and clearly, taking into account what specific code the program needs. It is capable of being implemented to the structure described. The class diagram is shown in Figure 18.

Figure 17: Class diagram



Implementation

Implementation of a web-based activity proposal submission information system by writing program code using the PHP programming language. The display of the information system for submitting activity proposals is as follows.

1. Login Page

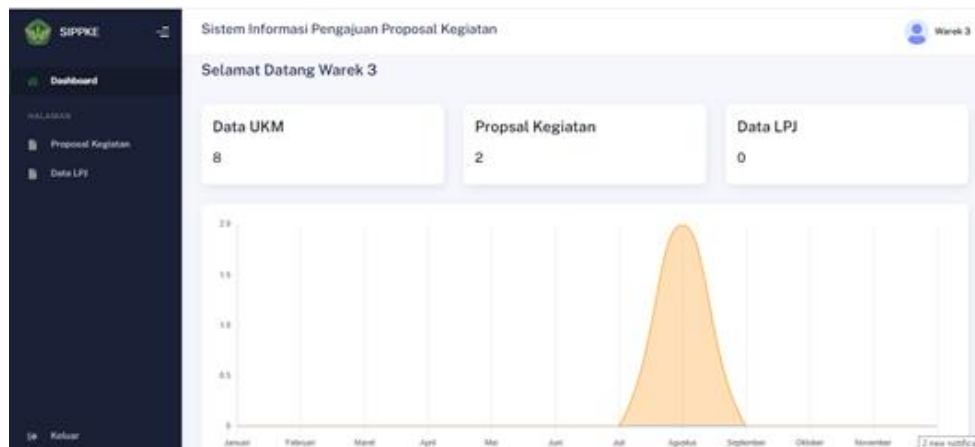
The login page is where users who want to log in to the system must first log in by entering the username and password that the user has. The login page view is shown in Figure 19.

Figure 18: Login Page



2. Dashboard Page

The Dashboard page is a page that displays information about the activity proposal submission process. The dashboard page view is shown in Figure 20.

Figure 19: Dashboard of Warek Page 3

3. Student Activity Unit (UKM) Data Input Page

The data input page of the Student Activity Unit (UKM) displays information about the data of the Student Activity Unit (UKM) of Ibnu Khaldun University Bogor. The display of the Student Activity Unit (UKM) data page is shown in Figure 21.

Figure 20: SME Data Input Page

The table displays the following data:

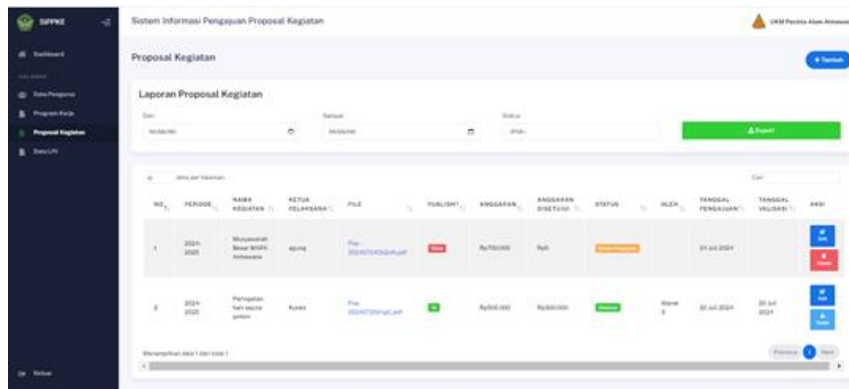
NO	NAMA	EMAIL	FOTO	AKSI
1	UKM Taekwondo	taekwondo@example.com		Edit Hapus
2	UKM Badminton	badminton@example.com		Edit Hapus
3	UKM Futsal	ukmfutsal@example.com		Edit Hapus
4	UKM Pecinta Alam Almawana	almawana@example.com		Edit Hapus

Menampilkan data 1 dari total 1

4. Activity Proposal Page

The activity proposal submission page is where the Student Activity Unit (UKM) submits activity proposals. The page view for submitting activity proposals is shown in Figure 22.

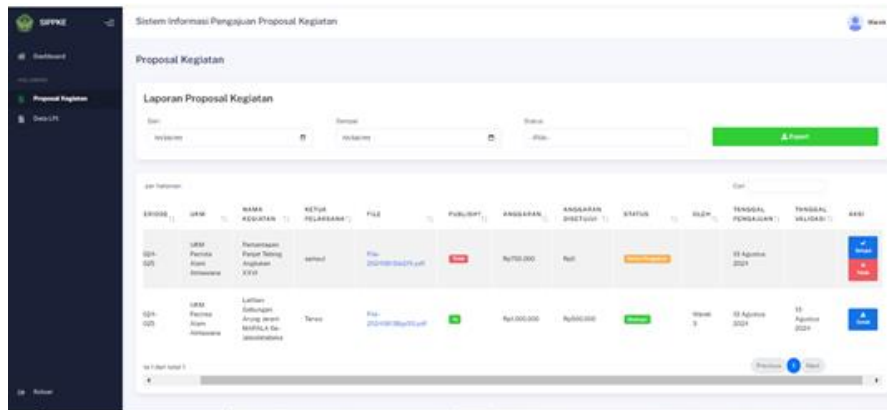
Figure 21: Activity Proposal Page



5. Activity Proposal Verification Page

The activity proposal verification page is where there is an activity proposal submission file that must be verified by the Vice Chancellor for Student Affairs (Warek 3). The view of the activity proposal verification page is shown in Figure 23.

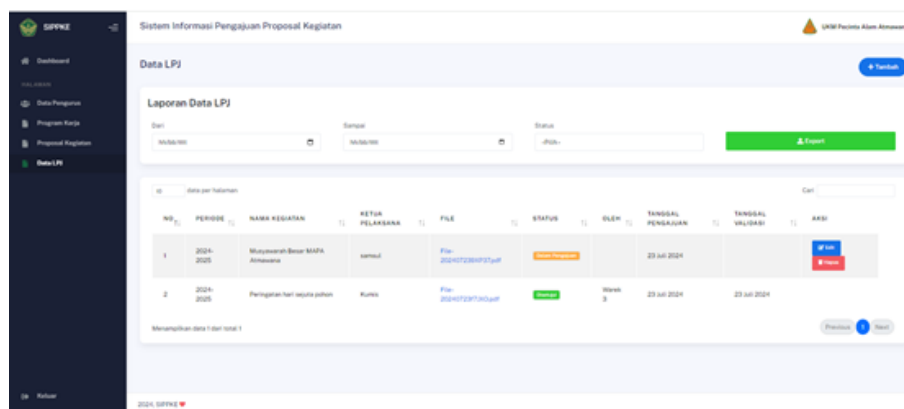
Figure 22: Activity Proposal Verification Page



6. Accountability Report Page

The accountability report page is where the Student Activity Unit (UKM) uploads activity accountability reports. The page view of the accountability report is shown in Figure 24.

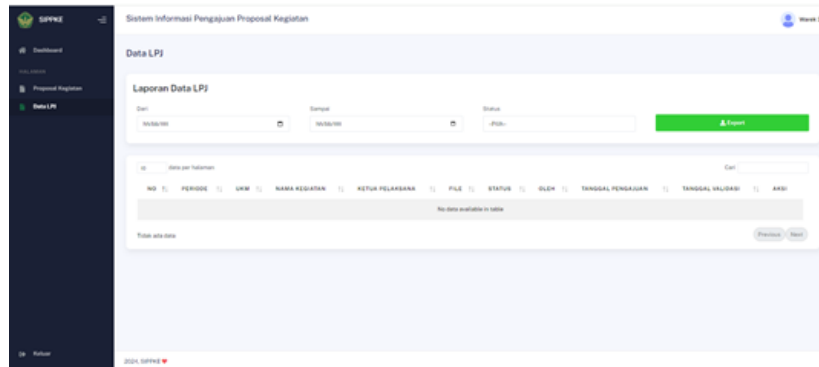
Figure 23: Accountability Report Page



7. Accountability Report Verification Page

The accountability report verification page is the page where the accountability report file must be verified by the Vice Chancellor for Student Affairs (Warek 3). The view of the accountability report verification page is shown in Figure 25.

Figure 24: Accountability Report Verification Page



Testing

Testing is a way to determine the feasibility of a program without knowing its internal code, the system uses blackbox testing as a testing tool on this system. The tests can be seen in Table 1.

Table 1: Testing

No.	Test Classes	Test Description	Results
1	Log in	Enter your username and password	Successful
2	Dashboard	Display the amount of activity proposal data and LPJ	Successful
3	SME Data Input Menu	Displays the SME data input page and to add, edit, and delete data.	Successful
4	Manager Data Input Menu	Displays the administrator's data input page and to add, edit, and delete data.	Successful
5	Menu Input Data UPM	Displays the UPM data input page and to add, edit, and delete data.	Successful
6	Work Program Menu	Displays the SME work program data page and to add, edit, and delete data.	Successful
7	Activity Proposal Submission Menu	View data pages to submit activity proposals and to add, edit, and remove data.	Successful
8	Activity Proposal Verification Menu	View the activity proposal verification page	Successful
9	LPJ Application Menu	Displays the LPJ application page and to add, edit, and delete data.	Successful
10	LPJ Verification Menu	Display the LPJ verification page	Successful
11	Exit	Displays system exit view.	Successful

User Acceptance Testing

To support the claims of the effectiveness of the developed system, this study applies User Acceptance Testing (UAT) as a method of evaluating user acceptance of the information system for proposal submission and SME data management at UIKA Bogor. UAT is carried out to ensure that the system has met the needs of the end user and functions according to the goals that have been set. UAT testing involves user representatives, namely UPM administrative staff, UKM administrators, and students involved in the process of submitting activity proposals. The test is carried out by providing scenarios for using the system, such as the process of uploading activity proposals, managing budget data, verifying documents, and uploading and checking the Accountability Report (LPJ). Each test scenario was evaluated based on success criteria, including suitability of system functionality, ease of use, speed of access, and clarity of the information displayed. The test results show that all the main functions of the system can run well and are accepted by the user, with the success rate of the function reaching $\pm 95\%$ based on the tested scenario.

User Satisfaction Evaluation

In addition to UAT, user satisfaction evaluation was also carried out using the questionnaire method. The questionnaire was compiled using a five-level Likert scale, ranging from *strongly disagree* to *strongly agree*, which included several aspects of the assessment, including the ease of use of the system, the clarity of the process flow, the speed of the system, the interface display, and the benefits of the system in supporting the SME administration process. The results of the evaluation showed that the level of user satisfaction was in the good to very good category, with an average satisfaction score of $\pm 88-92\%$. Users stated that the system was able to speed up the process of submitting activity proposals, simplify document management, and increase transparency and traceability of submission status compared to the manual system previously used.

Discussion of Evaluation Results

Based on the results of the UAT and user satisfaction evaluation, it can be concluded that the developed system has met the needs of users and is feasible to implement. The high level of acceptance and user satisfaction shows that the system is effective in improving the efficiency of the SME administrative process, reducing reliance on physical documents, and minimizing errors and delays in the management of proposals and activity reports.

CONCLUSION

Based on the discussion and implementation carried out in this study, it can be concluded that a web-based information system for the activities of the student activity unit (UKM) has been successfully created as needed, allowing access by the UKM organization and the Vice Chancellor for Student Affairs (Warek 3), and can display UKM data, budgets, work program reports, submission and verification of activity proposals, and accountability reports (LPJ). For further development, it is expected that the system can be expanded for use by other organizations such as BEM, MPM, DPM, and P2UM, equipped with additional access rights for users such as trainers and finance, as well as improve features by adding new menus, such as an approved file export menu.

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REFERENCES

- A. C. Hutauruk and A. F. Pakpahan, "Designing a Web-Based Student Organization Information System at Adventist University Indonesia Using Agile Development Methods (Case Study: Adventist University of Indonesia)," *CogITO Smart J.*, vol. 7, no. 2, pp. 315–328, 2021, doi: 10.31154/cogito.v7i2.328.315-328.
- A. J. Oktasari and D. Kurniadi, "Web-Based Design of Student Activity Management Information System," *Voteteknika (Tek. Vocational). Electron. and Inform.*, vol. 7, no. 4, p. 149, 2020, doi: 10.24036/voteteknika.v7i4.106536.
- A. Solichin, "Web Programming with PHP and MySQL - Achmad Solichin - Google Books," Univ. Budi Luhur, p. 120, 2016.
- F. Palembang, R. F. Palembang, O. Intracampus, and K. Interpersonal, "The Role of Intracampus Student Organizations in Developing Student Interpersonal Intelligence," *El-Idare J. Manaj. Educators. Islam*, vol. 2, no. 1, pp. 61–79, 2016.
- Fitri Ayu and Nia Permatasari, "Design of a street vendor data processing information system in the public relations division of PT pegadaian," *J. Infra tech*, vol. 2, no. 2, pp. 12–26, 2018, [Online]. Available: <http://journal.amikmahaputra.ac.id/index.php/JIT/article/download/33/25>
- H. Fuad and R. Riayan, "Design and Construction of Financial Data Service Information System for Student Case Studies at STMIK Bina Sarana Global," *J. Sisfotek Glob.*, vol. 3, no. 2, 2013.
- I. Tangkudung, R. D. R. Dako, and A. Y. Dako, "Website Evaluation Using the Iso/IEC 25010 Method," *Semin. Nas. Tech.*, vol. 2019, no. November, pp. 87–107, 2019.
- J. McDermid, Book review: *Software Engineering: A Practitioner's Approach*, vol. 10, no. 6. 1995. doi: 10.1049/sej.1995.0031.
- M. Muslihudin and D. Oktafianto, "Jurnal simada," *J. Sist. Inf. Manaj. Database*, vol. 03, no. 01, p. 68, 2020.
- M. Permata, "Information System of STMIK Palcomtech Student Activity Unit," *Sntibd*, vol. 1, no. 1, pp. 315–319, 2016.
- M. R. Muhammad Irfan Nur, Mustari S. Lamada, "DESIGN AND CONSTRUCTION OF INFORMATION SYSTEM FOR STUDENT ACTIVITIES OF THE DEPARTMENT OF INFORMATICS AND COMPUTER ENGINEERING BASED ON MUHAMMAD'S WEB," *VOL. 1*, pp. 129–146, 2018.
- Muhammad Helmi Satria Fedianto, Firza Prima Aditiawan, and Muhammad Muharrom Al Haromainy, "Testing of Documentation Systems and Information Networks Using Black Box Testing and White Box Testing," *J. Publ. Sist. Inf. and Manaj. Business*, vol. 3, no. 1, pp. 213–221, 2023, doi: 10.55606/jupsim.v3i1.2447.
- N., A. Ibrahim, and A. Ambarita, "Website-Based Water Customer Complaint Information System in Pdam Ternate City," *IJIS - Indonesia. J. Inf. Syst.*, vol. 3, no. 1, p. 10, 2018, doi: 10.36549/ijis.v3i1.37.
- Novendri, "Understanding the Web," *Dumai Lantern*, vol. 10, no. 2, pp. 46–57, 2019.

S. L. Apriliani, S. Esabella, and M. Julkarnain, "Designing and Building a Web-Based Student Activity Unit (UKM) Monitoring Application of the University of Technology of Sumbawa," *Hexag. J. Tek. and Science*, vol. 1, no. 2, pp. 18–22, 2020.