

Full Paper

## Design and Development of a Website-Based Cooperation Information System at the Faculty of Engineering, University of Riau

**Putri Ramadhani Muliaqalbi<sup>1</sup>**,  
Universitas Riau, Pekanbaru, Indonesia  
<mailto:putrirm006@gmail.com>  
**Dian Ramadhani<sup>2\*</sup>**,  
Universitas Riau, Pekanbaru, Indonesia  
[dianramadhani@lecturer.unri.ac.id](mailto:dianramadhani@lecturer.unri.ac.id)

\*Corresponding Author

### ABSTRACT


The management of cooperation activities at the Faculty of Engineering, University of Riau was previously conducted manually and via disparate platforms, which created inefficiencies in document distribution and cooperation-duration monitoring. This study aims to design and develop a centralized cooperation information system to support administrative and monitoring processes within the faculty. The system was developed using the Prototype method and evaluated according to the ISO 25010 standard. The evaluation results indicate very high functional suitability, strong performance efficiency, high usability, and excellent scores in reliability, maintainability, security, portability, and compatibility. These findings suggest that the developed cooperation information system effectively improves the efficiency and accuracy of cooperation management and provides a comprehensive solution for centralized cooperation administration at the Faculty of Engineering

### KEYWORDS

Cooperation Management; Centralized Information System; Prototype Method; ISO 25010; Faculty of Engineering

Muliaqalbi, P. R., Ramadhani, D. (2025). Paper Title. *jasmed*, 3(1), pp. 41-59. <https://doi.org/10.20895/jasmed.v3i1.10129>

Article Submitted 14/11/2025. Revision uploaded 13/12/2025. Accepted 13/12/2025.

© 2025 by the authors of this article. Published under CC-BY 

## 1. INTRODUCTION

The development of information technology has brought significant changes in various fields, including in establishing and managing cooperation. The use of technology has become a supporting tool that can facilitate and accelerate information exchange, as well as assist in structured data management. Technology-based solutions, such as websites as information systems, can facilitate online communication and data management for cooperation. University of Riau is a higher education institution committed to producing excellent and professional graduates [1]. The Faculty of Engineering is one of the faculties at University of Riau that implements this commitment. However, in order to realize this, cooperation with various parties is needed to support educational development and access to broader resources.

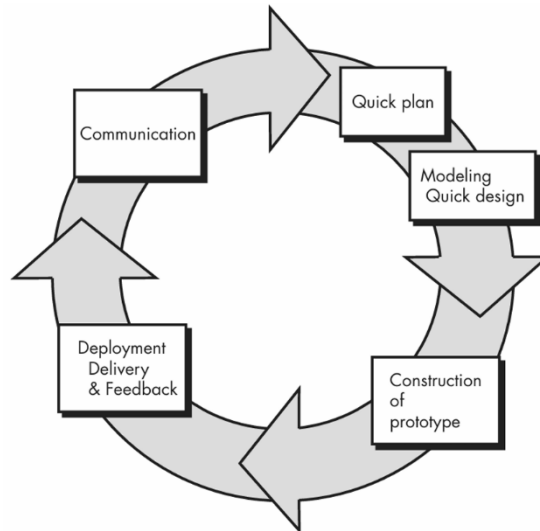
The Faculty of Engineering currently faces challenges in managing cooperation activities due to the absence of an integrated system. Most data are still stored in Google Spreadsheets, which limits centralization, accessibility, and data accuracy. Cooperation documents are collected and distributed manually between departments, programs, and the faculty, often causing delays and inefficiencies in administrative workflows. In addition, the use of inconsistent document templates across study programs increases the risk of formatting errors and data discrepancies. The monitoring of cooperation durations is also performed manually, resulting in missed deadlines and difficulties in identifying expired agreements. These fragmented processes hinder coordination, reduce transparency, and slow down decision-making. Therefore, a centralized and automated information system is required to streamline document management, ensure consistency, and support more efficient monitoring of cooperation activities within the faculty. Similar to the development of a data management application, management teams often face operational challenges when relying on separate or manual systems. These challenges can lead to inefficiencies, errors, and difficulties in tracking and coordinating activities. Therefore, an integrated system is necessary to streamline management, monitoring, and documentation processes, enabling more organized and effective operations [2].

Previous studies have proposed web-based systems to address the management of cooperation activities in higher education institutions. One study developed a system using the Prototype method to overcome user challenges in managing and monitoring the increasing number of cooperations, as manual processes in collecting, managing, and exchanging information caused delays in follow-up actions [3]. Another study aimed to improve the limitations of existing systems by implementing the Prototype method and providing features such as a dashboard, MoU, PKS, and IA management, as well as searchable agreement data [4]. A different study designed a system to address difficulties in compiling reports and monitoring contract durations using the Waterfall method, which included features for listing cooperations, viewing details, inputting data, and generating reports [5]. Although these studies successfully addressed several administrative challenges, this research incorporates additional features such as centralized document templates and an integrated notification system. Therefore, this study aims to enhance previous designs by including these features to support more efficient and structured cooperation management at the faculty level.

In developing the system, this study uses the Prototype method. The Prototype method is suitable for projects that do not describe functional and feature requirements in detail. This method helps developers better understand the system to be built [6]. In the development of the initial prototype, the system is built to depict the interface according to the identified user requirements. This prototype aims to give users an early view of how the system will look and behave [7]. The Prototype method allows developers to identify shortcomings in the initial results and make improvements before the full functionality is implemented [8]. Using the Prototype method, the system is developed based on the current requirements. The initial result may not fully represent all the functions of the system, but it already covers the core features. Through the implementation of this method, developers and users can interact throughout the system development process [9]. The system is designed to centralize document management for faculties, departments, and study programs, equipped with notification features to remind users of cooperation activities and a template page for easier document access.

## 2. METHODS

The Prototype Method is an appropriate approach for projects that do not clearly define functional and feature requirements in detail. This method helps developers and stakeholders gain a better understanding of the system to be developed [6].



**Figure 1** Prototype Stages

There are five stages of software development using the Prototype method, as shown in Figure 1:

1. **Communication**  
At this stage, developers communicate with stakeholders, namely the Vice Dean for Student Affairs, Cooperation, and Alumni, the Sub-Coordinator for Cooperation, the Cooperation Administrator, one of the Heads of Department, and one of the Study Programme Coordinators at the Faculty of Engineering, University of Riau to gather relevant data. This includes identifying and analyzing problems, defining the objectives to be achieved through system development, and determining the current known system requirements.
2. **Quick Plan and Modelling Quick Design**  
This stage involves planning the system by determining its functional and non-functional requirements. A design model is then created to represent the system's functions based on the identified functional requirements.
3. **Construction of Prototype**  
During this stage, the system is built using a programming language based on the predefined design model, followed by system testing to ensure functionality and accuracy.
4. **Deployment, Delivery, and Feedback**  
In this final stage, the completed and tested prototype is delivered to the users for practical use. Users then provide feedback, which is used to refine and improve the system.

The research process flow can be seen in Figures 2 as follows.

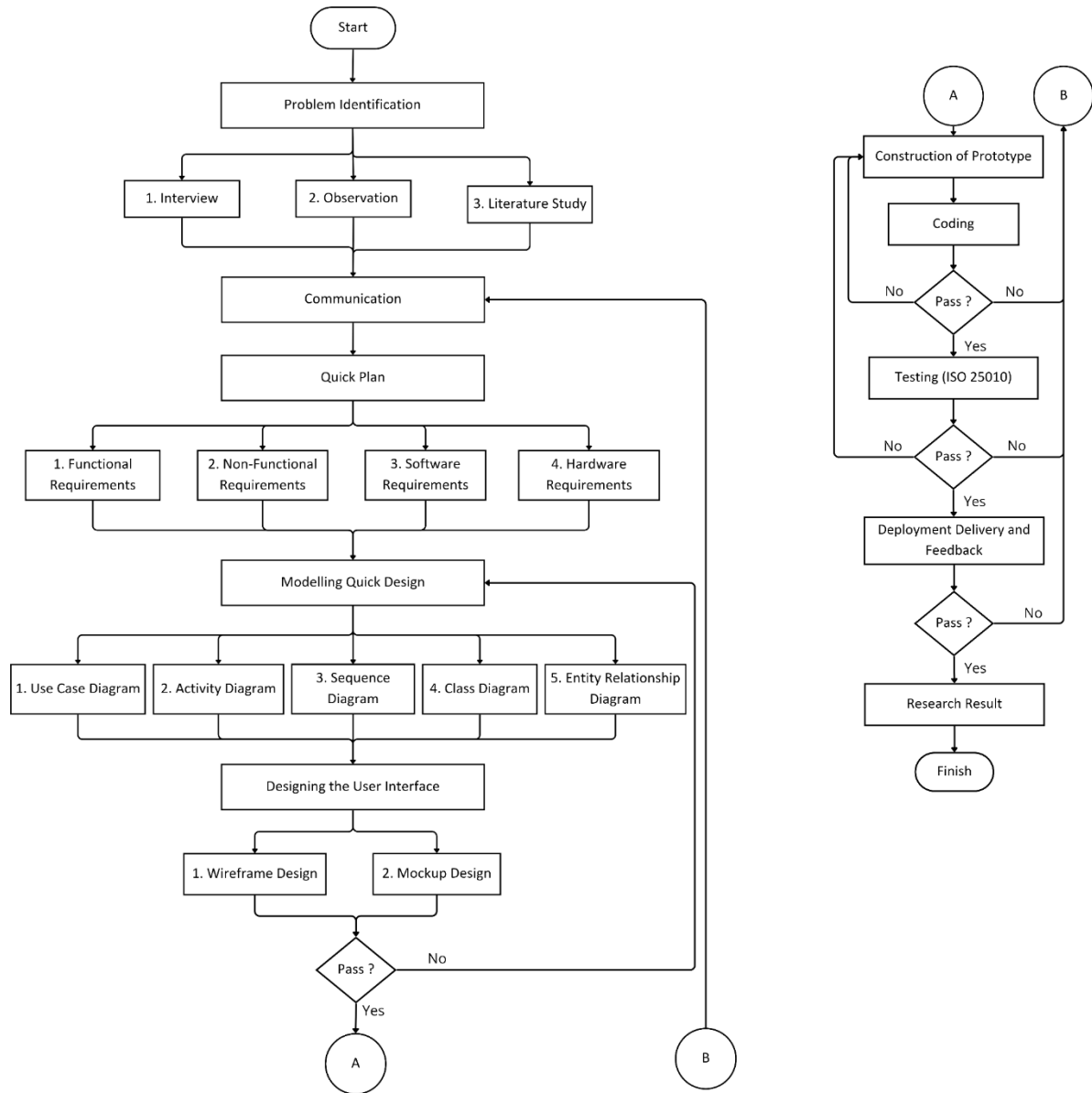


Figure 2 Research Process

### 2.1 Problem Identification

At this stage, developers communicate with stakeholders to gather relevant data. This includes identifying and analyzing problems, defining the objectives to be achieved through system development, and determining the current known system requirements. The process included:

1. Interviews were conducted to obtain information regarding the problems currently faced by users, the methods currently implemented, and their perspectives on the use of an information system website.
2. Observation involved direct examination at the research site to understand the existing process of managing and monitoring cooperations from beginning to end, as well as to identify the problems experienced by users.
3. A literature review was carried out to collect information related to the design of the cooperation information system website, including insights on system development using the prototyping method, by utilizing books and previous related research literature as sources of reference.

## 2.2 Communication

The communication stage is the first phase in the prototype development process. At this stage, interviews were conducted to identify user requirements for the system to be developed, including the features needed by users. Based on the interview results, the problems and the expected solutions are as follows:

**Table 1** User Communication Table

No.	Problem	Solution
1.	Difficulty in collecting and distributing documents among the Cooperation Administrator, Study Program Coordinator, and Department Head via WhatsApp, which is time-consuming.	A cooperation list feature that displays all existing cooperations, along with upload and download functionalities for document management.
2.	Difficulty in accessing cooperation document templates for the Study Program Coordinator and Department Head.	A document template distribution feature that allows users to access and download templates whenever needed.
3.	The cooperation duration monitoring process is not automated, potentially leading to cooperations that have expired but are still being carried out.	A notification feature that alerts users to review the status of existing cooperations.
4.	The information visible to the public on the Faculty of Engineering's website regarding cooperations only displays limited data, such as partners, document numbers, scopes, and partner logos, without additional details. Furthermore, information updates are not automatic and must be manually performed by the administrator.	A homepage that presents all cooperations within the Faculty of Engineering in the form of graphs and tables, including the status of each cooperation, with automatically updated data based on the latest changes.

## 2.3 Quick Plan

Based on the interviews that have been conducted, the system requirements can be determined, namely the functional requirements that serve as the main elements in developing the system to solve the problems. The system was built by following the following requirements:

1. The system must be able to view the list of cooperations.
2. The system must be able to upload signed agreement and reporting documents.
3. The system must be able to download cooperation agreement and reporting documents.
4. The system must be able to download document templates.
5. The system must be able to send notification messages to specific users.
6. The system must be able to display the system information homepage that shows the list of cooperations in the form of graphs and tables.

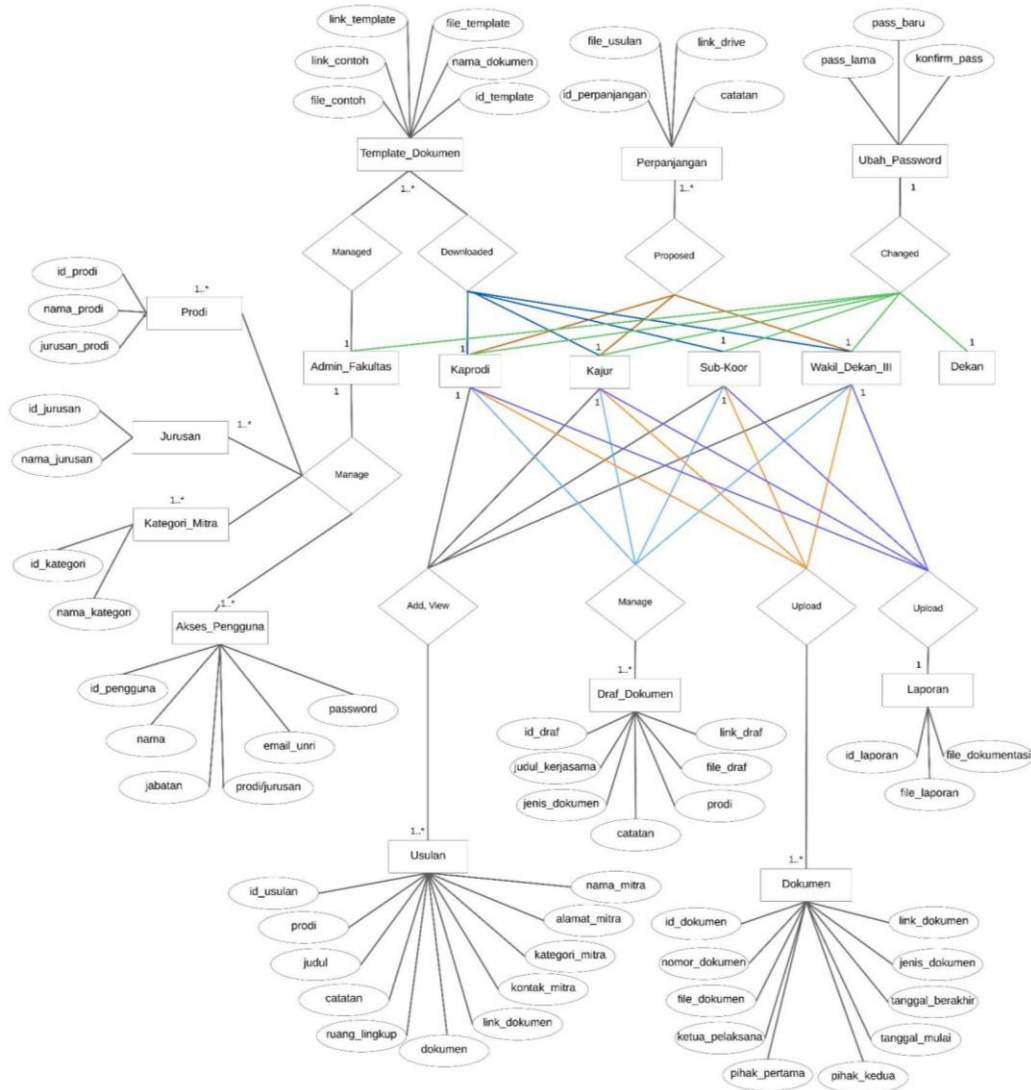
## 2.4 Modelling Quick Design

A use case diagram is a model that describes a set of basic functions, actors, and their relationships. The use case diagram is created to visualize the behavior of a system [10]. It is used to illustrate the system's functional requirements derived from user interviews that have been conducted. Figure 3 shows the use case diagram of this information system.



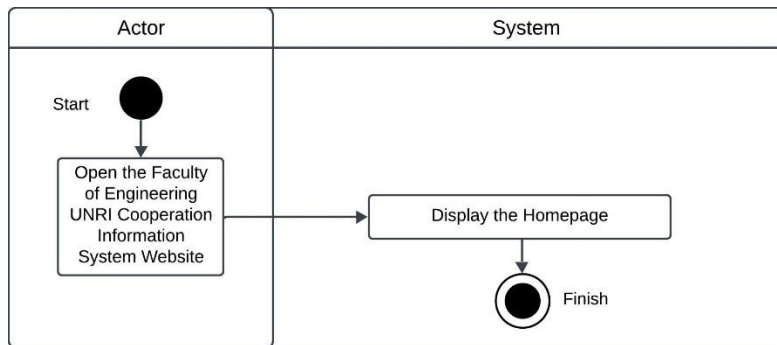
**Figure 3** Use Case Diagram

In the development of this system, an Entity Relationship Diagram (ERD) is used to illustrate the database in a structured manner and to show the relationships between entities. The Entity Relationship Diagram can be seen in Figure 4.



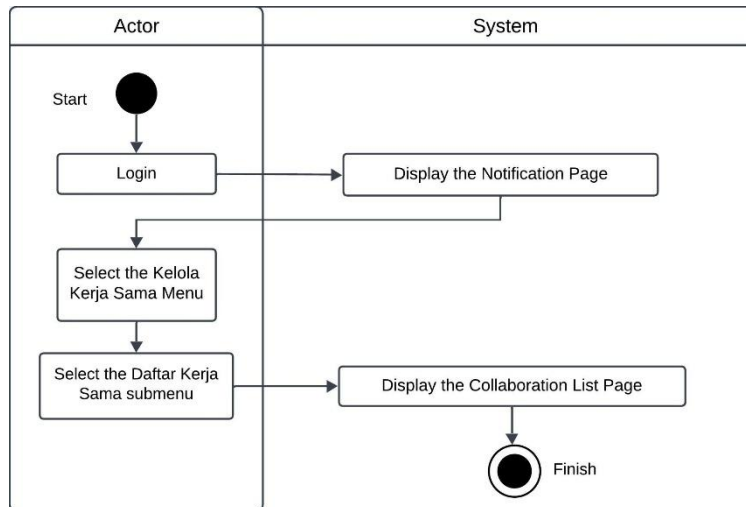
**Figure 4** Entity Relationship Diagram

The flow of activities for each functional requirement is illustrated using an Activity Diagram. Figure 5 illustrates the process of viewing the homepage, which can be performed by all users in general to view the list of existing cooperations.



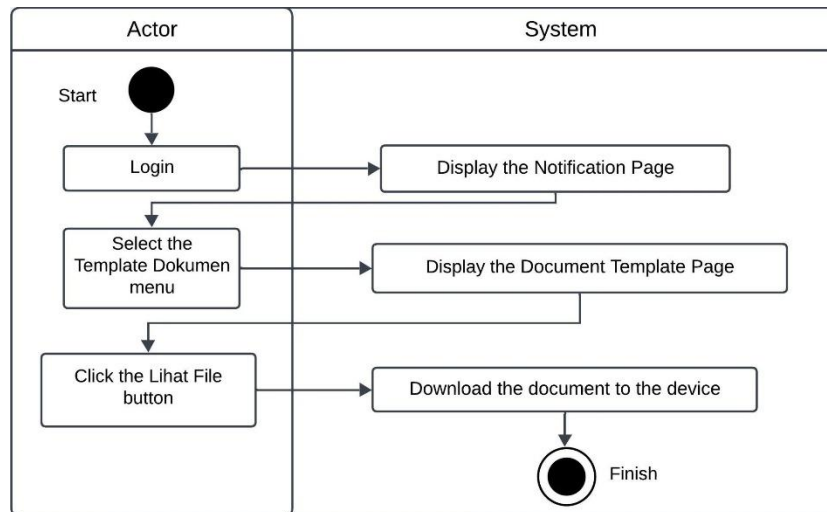
**Figure 5** Activity Diagram of Viewing the Homepage

Figure 6 illustrates the process of viewing the list of cooperations by the user is carried out by clicking the Kelola Kerja Sama menu on the navigation bar. Next, the user selects the Daftar Kerja Sama submenu and the system displays the cooperation list page along with the status of each cooperation.



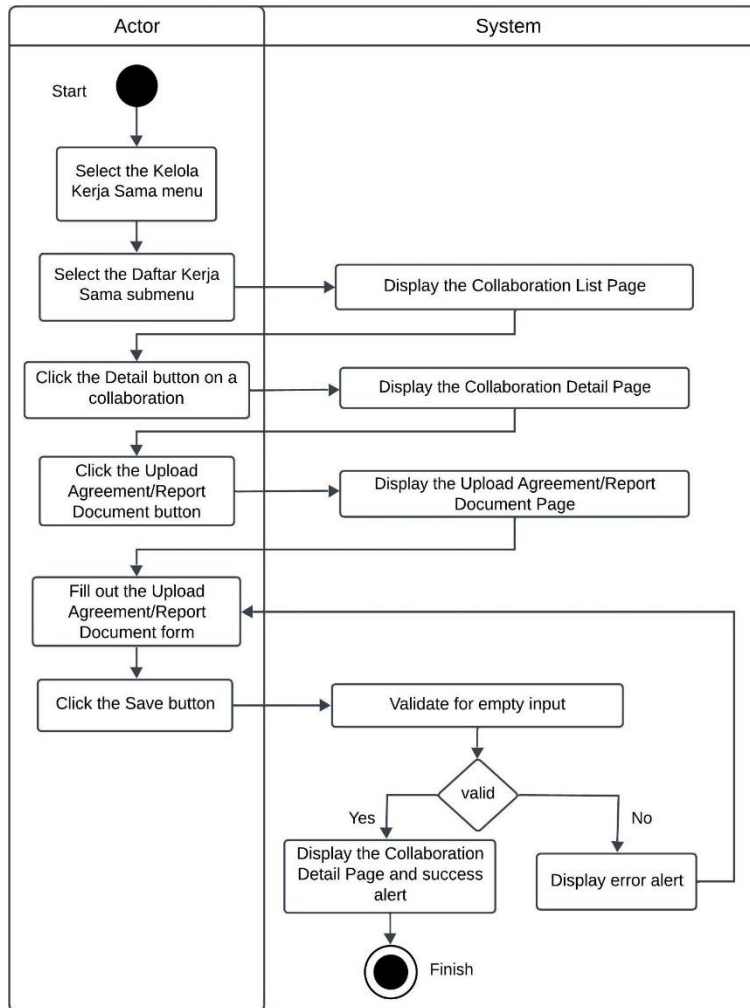
**Figure 6** Activity Diagram of Viewing the Cooperation List

Figure 7 illustrates the process of downloading a cooperation document template, carried out on the Template Dokumen page. The user can click the Lihat File button and the system will download the document to the user's device.



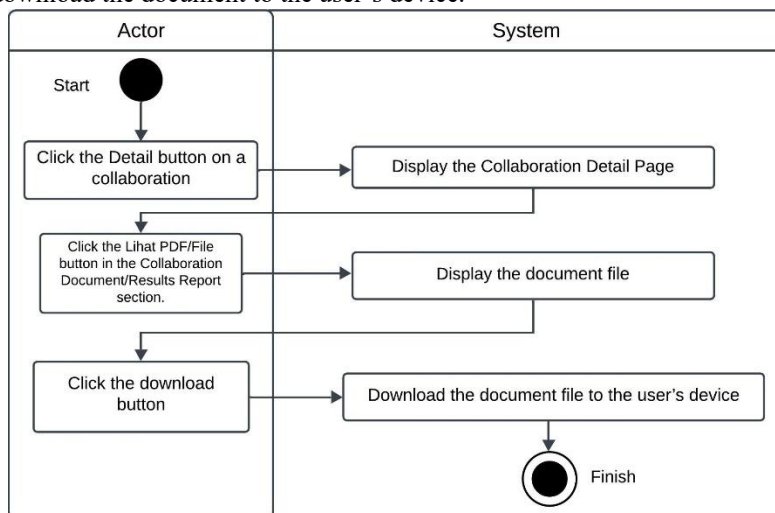
**Figure 7** Activity Diagram of Downloading Document Template

Figure 8 illustrates the process of uploading cooperation documents, which includes both agreement documents and report documents. This process is carried out on the detail page of a cooperation by clicking the Upload Agreement/Report Document button and filling out the available form.



**Figure 8** Activity Diagram of Uploading Cooperation Documents

Figure 9 illustrates the process of downloading cooperation documents, including both agreement documents and report documents. This process is carried out on the detail page of a cooperation by clicking the Lihat PDF/File button and the system will download the document to the user’s device.



**Figure 9** Activity Diagram of Downloading Cooperation Documents

All system designs that have been created will be followed by the development of the user interface, which will then be reviewed by the users. If the design is approved, it will proceed to the system development phase in accordance with all the system's functional requirements.

## 2.5 Construction of Prototype

At this stage, the previously designed system interface will be implemented into a web-based system using a programming language. The website development is carried out using the Laravel framework, Bootstrap, and Tailwind CSS to ensure a neat and well-structured appearance, as well as to facilitate database connectivity. Subsequently, system testing will be conducted by applying the ISO 25010 standard, which consists of eight characteristics:

1. Functional suitability, assesses the suitability of the resulting system with the existing requirements. Testing is carried out using the Guttman scale, which is a measurement scale with definite answers, namely "Yes" or "No" [11]. The calculation formula for the functional testing score is as follows [12]:

$$\text{Functional Suitability Score} = \frac{TB}{N} \times 100\%$$

Notation:

Notation:

TB = Successful Test Cases

N = Total Number of Test Cases

2. Performance efficiency is a characteristic that evaluates the system's performance under specific conditions [12]. This testing will be conducted using PageSpeed Insights.
3. Usability is a characteristic that evaluates the system's capability when used by users in achieving effectiveness, efficiency, and user satisfaction [13]. This testing will be conducted using the User Experience Questionnaire (UEQ), and the data obtained will be analyzed using the Data Analysis Tool (DAT).
4. Reliability will be tested using the SonarQube platform. SonarQube analyzes the source code and provides results related to code quality, detecting defects, vulnerabilities, and code smells [14].
5. Maintainability will also be tested using the SonarQube platform by identifying program code that is difficult to maintain. In this test, the results used are based on code smells.
6. Portability is carried out by running the information system website across different browsers. The formula for calculating the success percentage is as follows [15]:

$$\text{Portability Score} = \frac{\sum SB}{\sum N} \times 100\%$$

Notation:

SB = System Operates Successfully

N = Total Number of Browsers

7. Security is a characteristic that evaluates the system's ability to protect information and data [13]. This testing will also be conducted using SonarQube.
8. Compatibility is conducted by running the system on various devices with different specifications. The formula for calculating the feasibility percentage is as follows [16]:

$$\text{Compatibility Score} = \frac{\sum SB}{\sum N} \times 100\%$$

Notation:

SB = System Operates Successfully

N = Maximum Score

To further evaluate whether the developed solution effectively addresses the problem, two additional tests were conducted:

1. Testing based on the problem and the developed solution, was carried out using the Guttman Scale. The respondents' responses were calculated using the following formula [17]:

$$P = \frac{f}{n} \times 100\%$$

Notation:

P = Percentage

f = Number of "Yes" responses

n = Total number of respondents

2. Testing based on user satisfaction, with the developed solution was conducted using a 5-point Likert Scale, with the response options: strongly agree, agree, neutral, disagree, and strongly disagree. The

analysis of the results employed descriptive statistical measures, including the mean, mode, and standard deviation.

### 2.6 Deployment, Delivery, and Feedback

After the system development was completed, including the completion of the iteration stage and system testing, the system was handed over to the users. The system was delivered to the Faculty of Engineering, specifically to the Vice Dean III, the Sub-Coordinator of Cooperation, and the Cooperation Administrator. At this stage, the overall system was re-explained to the users by directly demonstrating its operation. During this activity, the feedback received indicated that the system met the users' needs and expectations, and its simple interface made it easy to understand. Therefore, the system development process was considered complete.

## 3. RESULT

The cooperation information system was developed as a web-based application, guided by the functional requirements that had been identified and the system design that had been created. This section presents explanations of the core features along with the prototype interface of the developed system, followed by a description of the system testing results conducted together with the users.

### 3.1 Homepage

Figure 10 shows the prototype of the homepage that can be accessed by general users. This page displays a list of cooperations within the Faculty of Engineering, University of Riau, presented in the form of graphs and tables as information for all users.

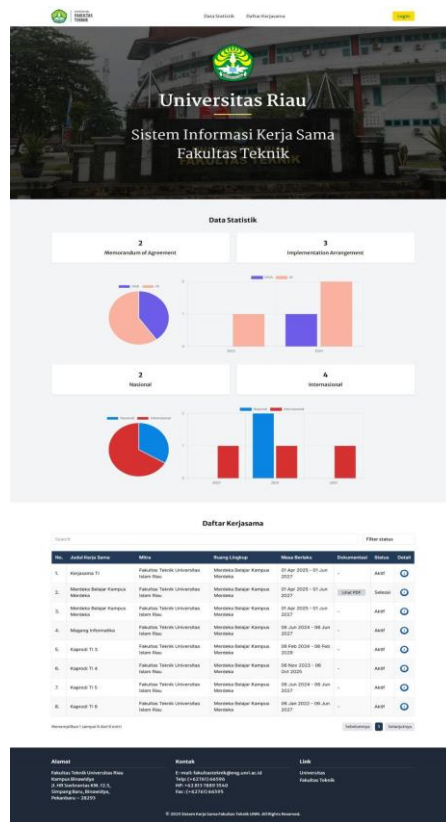


Figure 10 Homepage

### 3.2 Cooperation List Page

Figure 11 below shows the prototype of the cooperation list page, which displays all existing cooperation records. The data can be filtered based on the type of cooperation, scope of study program, and status, as well as searched for specific cooperation using the search feature.

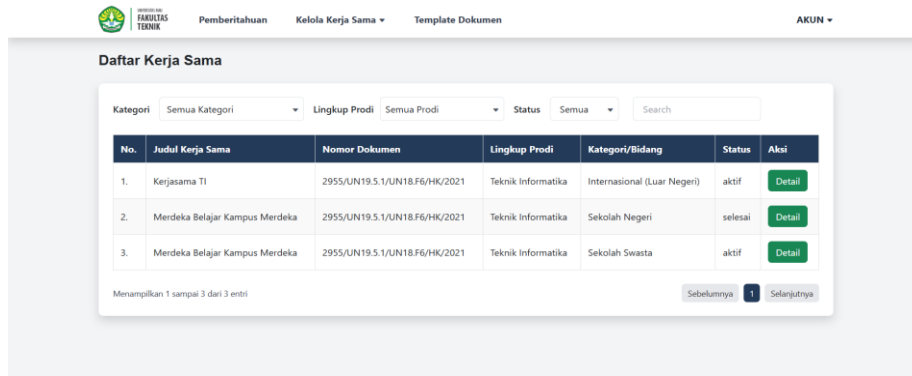


Figure 11 Cooperation List Page

### 3.3 Cooperation Detail Page

Figure 12 below shows the prototype of the cooperation detail page. This page displays detailed information about the cooperation activities, including their status, related documents, and cooperation reports. On this page, users can also upload agreement and report documents, as well as download these documents.

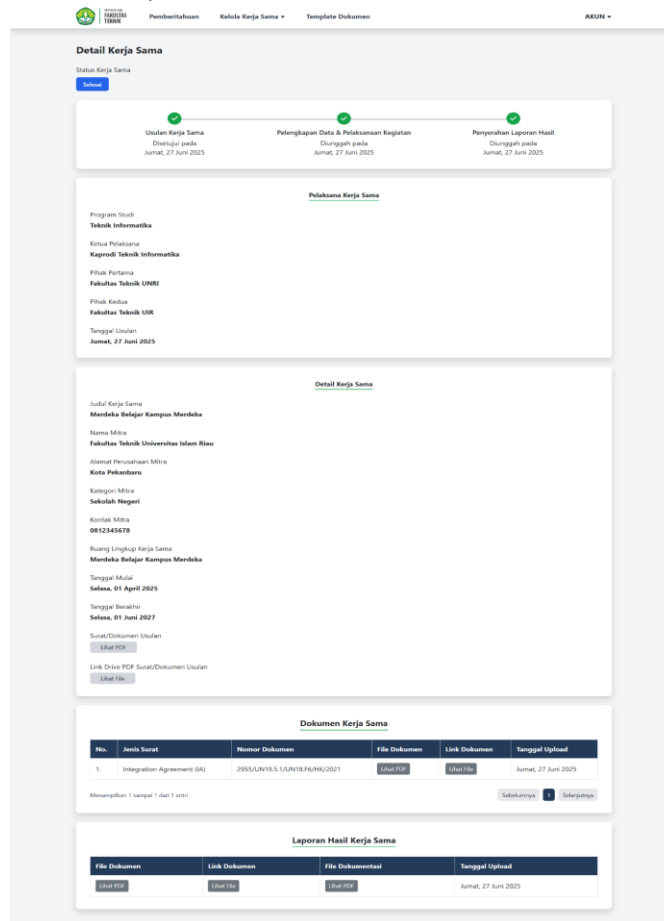


Figure 12 Cooperation Detail Page

### 3.4 Agreement Document Upload Page

Figure 13 below shows the prototype of the cooperation agreement document upload page. On this page, users can upload documents that already have an official letter number and signatures, as well as fill in other required

The screenshot shows a web form titled "Upload Dokumen Kerja Sama". At the top, there is a navigation bar with the logo of "FAKULTAS TEKNIK" and menu items: "Pemberitahuan", "Kelola Kerja Sama", and "Template Dokumen". A user profile "AKUN" is visible in the top right. Below the navigation, there is a "Kembali" link. The main heading is "Upload Dokumen Kerja Sama". A dark grey instruction box says: "Silakan upload dokumen perjanjian yang telah memiliki nomor surat dan bertanda tangan." The form contains several input fields: "Jenis Dokumen", "Nomor Dokumen", "Ketua Pelaksana", "Pihak Pertama", "Pihak Kedua", "Tanggal Mulai" (with a date picker icon), and "Tanggal Berakhir" (with a date picker icon). Below these are two file upload sections: "File Dokumen (PDF)" with a "Choose File" button and "No file chosen" text, and "Link Drive PDF Surat/Dokumen" with an empty text input field. At the bottom of the form are two buttons: a green "Simpan" button and a red "Batal" button.

information in the form.

Figure 13 Agreement Document Upload Page

### 3.5 Report Document Upload Page

Figure 14 below shows the prototype of the report document upload page. On this page, users can upload report documents and documentation files related to the completed cooperation activities.

The screenshot shows a web form titled "Upload Laporan Hasil Kerja Sama". It has the same navigation bar as Figure 13. The main heading is "Upload Laporan Hasil Kerja Sama". A dark grey instruction box says: "Silakan upload laporan hasil kerja sama yang telah diketahui Wakil Dekan III dan bertanda tangan." The form contains three main sections: "File Dokumen (PDF)" with a "Choose File" button and "No file chosen" text; "Link Drive PDF Dokumen" with an empty text input field; and "Dokumentasi Kegiatan (PDF)" with a "Choose File" button and "No file chosen" text. At the bottom of the form are two buttons: a green "Simpan" button and a red "Batal" button.

Figure 14 Report Document Upload Page

### 3.6 Document Template Page

Figure 15 below shows the prototype of the document template page. On this page, all available templates that can be downloaded by users are displayed. Users can directly download a template by clicking the *Lihat File* button.

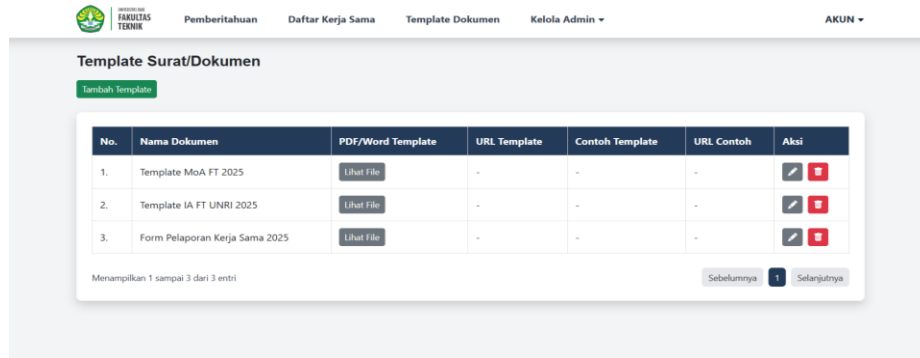


Figure 15 Document Template Page

### 3.7 Cooperation Notification

Figure 16 shows the email notification interface for a new proposal sent to the intended recipient. The email includes the type of proposal, the proposer, and a description of the notification. This notification may refer to a new cooperation proposal, an extension proposal, a draft document proposal, the approval or rejection status of a cooperation proposal, or a reminder of cooperation duration nearing its expiration.



Figure 16 Cooperation Notification

### 3.7 Testing Results

1. In the Functional Suitability testing that has been conducted, there were 46 test cases and all of them were successfully executed. Based on the tests that have been conducted, the following are the obtained testing result.

Table 2 Functional Suitability Testing Results

No.	Test Cases	Testing Scenario	Expected Result	Remarks
1.	Accessing the homepage	Accessing the website URL and viewing the list of active and completed collaborations	Successfully displays the homepage and shows the list of collaborations	Success
2.	Performing login	User logs in with the correct email and password according to their role (Dean, Vice Dean III, Sub-Coordinator, Admin, Head of Department, and Head of Study Program)	Successfully logs into the system and is redirected to the Notification page	Success
		User logs in with an incorrect email or password	Login fails and displays the message "Email or Password is incorrect."	Success
3.	Viewing the collaboration list	Accessing the Collaboration List page through the navigation bar	Displays the list of collaborations from all study programs	Success

4.	Viewing collaboration details under the faculty, user's department, or user's study program	Clicking the "Detail" button on one of the collaborations	Displays the selected collaboration details	Success
5.	Creating a new collaboration proposal	Clicking the "Add Proposal" button and completing the proposal form	Displays the message "Collaboration proposal has been successfully submitted."	Success
		Clicking the "Add Proposal" button without filling in one of the required input fields	Displays the message "Please fill out this field."	Success

To determine the success rate, the percentage score was calculated as follows:

$$\begin{aligned}
 \text{Functional Suitability Score} &= \frac{46}{46} \times 100\% \\
 &= 100\%
 \end{aligned}$$

- In the Performance Efficiency testing results show that the performance of the system achieved a score of 98 for the desktop view and 74 for the mobile view.

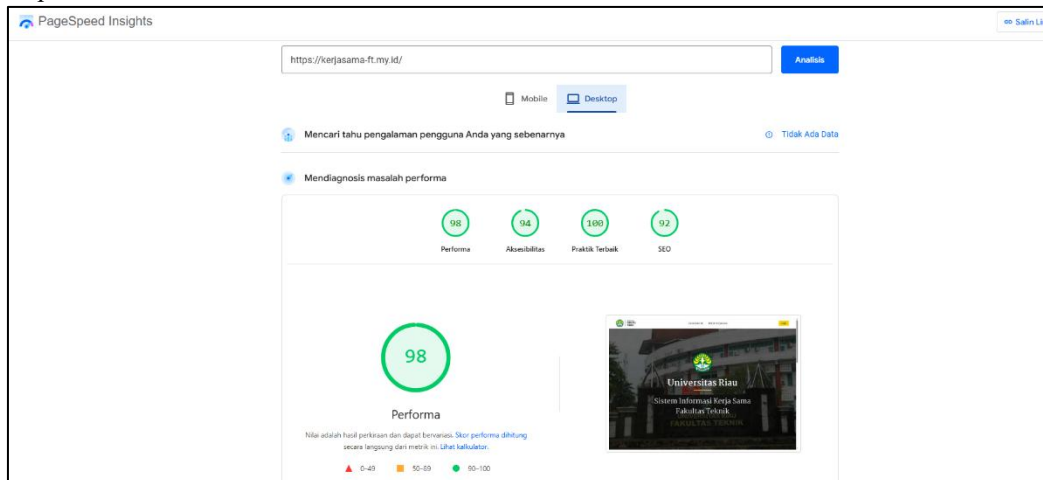


Figure 17 Desktop Performance Efficiency Results

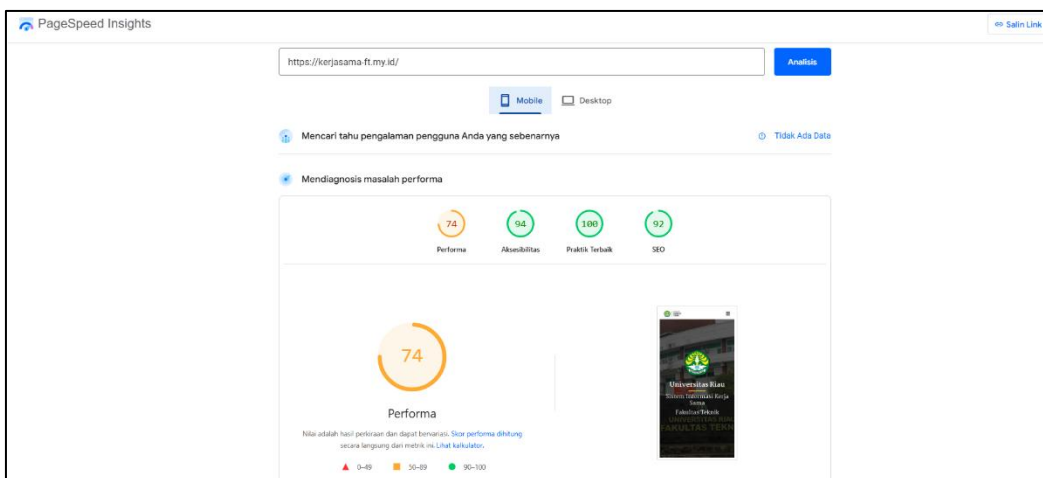
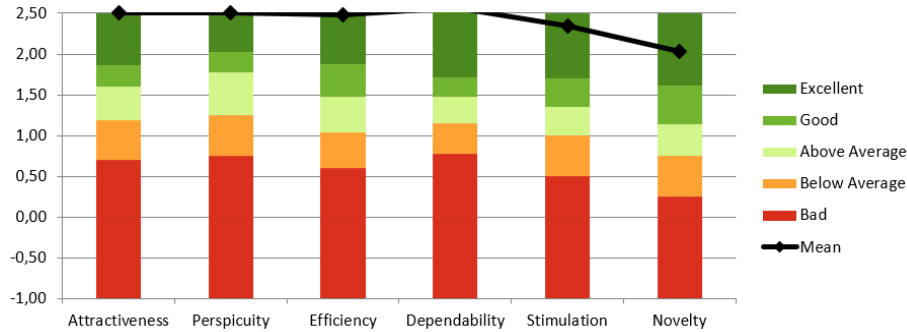


Figure 18 Mobile Performance Efficiency Results

3. In the usability testing, the results can be seen as follows:

**Table 3** UEQ Scale Evaluation Results

UEQ Scale		
Scale	Mean	Variance
Attractiveness	2.500	0.12
Perspicuity	2.500	0.23
Efficiency	2.475	0.25
Dependability	2.563	0.17
Stimulation	2.338	0.35
Novelty	2.038	0.48



**Figure 19** UEQ Benchmark

The mean scores across the six scale categories fall within the positive evaluation range, based on the UEQ Handbook, which states that scale evaluations with values greater than 0.8 are considered positive. Furthermore, the variance values, which indicate the level of response diversity among respondents, fall into the high agreement category according to the UEQ Handbook, which defines UEQ scale variance values below 0.83 as representing high agreement.

- In the Reliability testing using SonarQube, which examines each line of program code, the system obtained an A score with 0 issues.
- In the Maintainability testing using SonarQube, the system also achieved an A score with 78 issues.
- In the Portability testing, by running the system on five different browsers, the system achieved a 100% score, as shown below.

$$\begin{aligned}
 \text{Portability Score} &= \frac{5}{5} \times 100\% \\
 &= 100\%
 \end{aligned}$$

- In the Security testing, conducted using the SonarQube platform as a tool for evaluating code quality, the system received an A score with 0 issues.
- In the Compatibility testing, by running the system on ten different devices, both mobile and desktop, the system achieved a 100% score, as shown below.

$$\begin{aligned}
 \text{Compatibility Score} &= \frac{10}{10} \times 100\% \\
 &= 100\%
 \end{aligned}$$

To further evaluate whether the developed solution effectively addresses the problem, two additional tests were conducted:

- The testing based on the problem and solution consisted of 4 test cases corresponding to the User Communication Table (Table 1), with a total of 35 respondents. The following presents the calculation results of the conducted testing:

$$P = \frac{35}{35} \times 100\%$$

$P = 100\%$

2. The testing based on user satisfaction produced the following calculation results:

**Table 4** Table of Descriptive Statistical Calculation Results

Question	Mean	Mode	Standard Deviation
1	1.125	1	0.354
2	1.167	1	0.408
3	1	1	0
4	1.167	1	0.408
5	1.167	1	0.408
6	1	1	0
7	1.375	1	0.744
8	1.222	1	0.441
9	1.333	1	0.5
10	1.222	1	0.441
11	1.111	1	0.333
12	1.115	1	0.326
13	1.346	1	0.562
14	1	1	0

- Mean : The average score for each testing question falls within the range of 1.00 to 1.80.
- Mode : The mode, or the most frequently occurring value, is a score of 1, which corresponds to “Strongly Agree”.

Standard deviation : The standard deviation values are smaller than the mean values.

#### 4. DISCUSSION

System testing using the ISO 25010 standard produced good results. In the functional suitability testing, a percentage value of 100% was obtained, meaning that all test cases ran as expected. In the performance efficiency testing, a score of 98 was obtained on the desktop display and a score of 74 on the mobile display. This indicates that the system can run well on both desktop and mobile devices and provides a responsive display. In the usability testing, the mean scale value was above 0.8 and included in the positive evaluation category. Furthermore, the variance value was included in the high agreement category or low variation level, indicating that all respondents considered the system good and had similar opinions. There was also a benchmark showing that all assessment aspects were included in the excellent category. In the reliability, maintainability, and security testing using SonarQube, the system obtained an A score, indicating that all program code was in good condition and there were no bugs that caused fatal errors in the system, the system was very easy to maintain, and there were no security issues. In the portability and compatibility testing, a percentage result of 100% was obtained, which means the system can run well and be accessed on various browsers and devices tested.

Furthermore, testing was conducted to determine whether the developed solution was able to solve the problems faced by users. This testing was carried out with users by answering several questions in two types of testing. The testing based on problems and solutions obtained a value of 100% for each question and was included in the “All” category, meaning that all respondents agreed that the system was able to solve existing problems. The testing based on user perspectives resulted in three conclusions, namely that the average level of respondent satisfaction was very high, where the mean value calculation result was in the range of 1.00 to 1.80 or in the “Very High” category, the majority of respondents strongly agreed that the solution was able to solve the problems based on the mode value of 1 or “Strongly Agree”, and the respondents’ opinions tended to be consistent based on the standard deviation value that was smaller than the mean value, meaning that the respondents had opinions that were generally similar and not significantly different.

This research builds upon previous studies based on the problems identified in the research object. While other studies focused on developing systems with comprehensive features for document management, this research introduces additional features, namely a centralized document template page and a notification feature. These additional features provide an enhanced user experience and convenience in managing and monitoring cooperation activities

## 5. CONCLUSION

Based on the results of the research and testing that have been carried out, it can be concluded that the Faculty of Engineering cooperation Information System has been successfully designed and developed, and is capable of addressing the problems faced by users. The system resolves issues related to the collection and distribution of cooperation documents by enabling centralized management within the system, eliminating the need to contact specific parties. Furthermore, the system addresses the issue of inconsistent document structures by providing standardized document templates that can be easily downloaded through the system. Lastly, the system also resolves the issue of monitoring cooperation durations, which was previously done manually by checking each document one by one, by introducing automated email notifications for cooperations nearing their expiration date.

Based on the results of the research and testing, several suggestions are proposed for future development of the Faculty of Engineering cooperation Information System, including the addition of WhatsApp notification features to improve the monitoring of proposals and cooperation durations, as well as the development of a mobile-based system to enhance user access with a more adaptive interface for mobile devices.

## 6. REFERENCE

- [1] Universitas Riau, “Sejarah UNRI,” accessed on December 21, 2024, from <https://unri.ac.id/visi-misi-universitas-riau/>.
- [2] R. Anisa and D. Ramadhani, “Design and Development of a Makeup Artist Data Management Application,” *Indonesian Journal of Informatic Research and Software Engineering (IJIRSE)*, vol. 5, no. 2, pp. 158–167, 2025, doi:10.57152/ijirse.v5i2.2293. Available: <https://journal.irpi.or.id/index.php/ijirse/article/view/2293/1065>
- [3] R. A. Ludhiana and S. Noor, “Analisis dan Perancangan Sistem Informasi Kerjasama Berbasis Web Untuk Meningkatkan Efisiensi Kolaborasi Kerjasama di Politeknik Piksi Ganesha,” *Journal of Information Technology Student*, vol. 2, no. 2, pp. 25–42, 2023.
- [4] H. H. Dukalang, M. H. Koniyo, and A. Mulyanto, “Pengembangan Website Sistem Informasi Kerja Sama Universitas Negeri Gorontalo,” *Jurnal Vokasi Sains dan Teknologi*, vol. 3, no. 2, pp. 97–105, 2024.
- [5] L. Muryono, N. R. Naafian, and K. A. T. Wibowo, “Perancangan Sistem Informasi Kerjasama Pada Fakultas Teknik Universitas Sebelas Maret Surakarta,” *Indonesian Journal of Information Technology and Computing*, vol. 3, no. 2, pp. 2798–9216, 2023. Available: <https://journal.polhas.ac.id/index.php/imaging>.
- [6] R. S. Pressman and B. R. Maxim, *Software Engineering: A Practitioner’s Approach*, 9th ed. New York, NY: McGraw-Hill Education, 2020, pp. 27–29.
- [7] B. A. Alfahri and N. B. Nisa, “Implementasi SDLC Prototyping Dalam Perancangan Website Profil Sekolah MIS Nahdhatul Islam,” *Journal of Information Systems Technology (JTSTI)*, vol. 6, no. 1, pp. 1–10, 2025.
- [8] R. Taufiq, D. Y. Prianggodo, Y. Sugiyani, and N. Andini, “Penggunaan Metode Prototype Pada Pengembangan Sistem Informasi Imunisasi Posyandu,” *JIKA (Journal of Informatics)*, vol. 7, no. 4, p. 433, 2023. <https://doi.org/10.31000/jika.v7i4.9329>.

- [9] F. Anisa, F. S. Harahap, H. A. Khosyi, I. P. Sari, and Yahfizham, “Pengembangan Software Menggunakan Model SDLC Guna Mencapai Keselarasan dengan Kebutuhan Pengguna,” *Journal of Informatics and Business*, vol. 1, no. 4, p. 230, 2024. Available: <https://jurnal.itc.web.id/index.php/jibs/index>.
- [10] G. Booch, J. Rumbaugh, and I. Jacobson, *The Unified Modeling Language User Guide*. Addison Wesley Longman, Inc., 1998, pp. 20–23, 89.
- [11] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*, 19th printing. Bandung: Alfabeta, 2013.
- [12] M. S. Lamada, A. S. Miru, and R. Amalia, “Pengujian Aplikasi Sistem Monitoring Perkuliahan Menggunakan Standar ISO 25010,” *Jurnal Media TIK*, vol. 3, no. 3, pp. 1–3, 2020. <https://doi.org/10.26858/jmtik.v3i3.15172>.
- [13] M. D. Mulyawan, I. N. S. Kumara, I. B. A. Swamardika, and K. O. Saputra, “Kualitas Sistem Informasi Berdasarkan ISO/IEC 25010: Literature Review,” *Majalah Ilmiah Teknologi Elektro*, vol. 20, no. 1, pp. 15–23, 2021. <https://doi.org/10.24843/mite.2021.v20i01.p02>.
- [14] I. Onyenweaku, M. H. Shahine, and M. S. Brown, “A SonarQube Static Analysis of the Spectral Workbench,” *International Journal of Natural Science and Reviews*, vol. 6, no. 16, p. 5, 2021. <https://doi.org/10.28933/ijnsr-2020-12-0605>.
- [15] D. Vitalocca and A. A. Badaruddin, “Pengembangan Aplikasi Kalkulator Penghitung Luminansi Berbasis Android,” *Jurnal Media Elektrik*, vol. 18, no. 3, p. 133, 2021.
- [16] I. G. Andika and C. P. Yanti, “Analisis Evaluasi Aplikasi Augmented Reality Untuk Informasi Kebudayaan Bali Berdasarkan Standar ISO 25010,” *Jurnal Resistor (Rekayasa Sistem Komputer)*, vol. 1, no. 1, p. 36, 2018. 241-Article Text-711-2-10-20180503.
- [17] A. Malik and M. M. Chusni, *Pengantar Statistika Pendidikan*. Yogyakarta: Deepublish, 2018, p. 88.

## 7. AUTHORS



Putri Ramadhani Muliaqalbi is a bachelor of Informatics Engineering from Universitas Riau, Faculty of Engineering (2025). Her research interests focus on web application development, system design, and user interface (UI) design. Email: [putrirm006@gmail.com](mailto:putrirm006@gmail.com)



**DIAN RAMADHANI** was born in Duri, Riau, Indonesia. She completed her bachelor’s degree in Informatics Engineering in 2011 and a master’s degree from the Bandung Institute of Technology (ITB) Bandung in 2017. Her research interests include data mining, data analysis, machine learning, natural language processing, business intelligence, and decision support systems.