

Design and Usability Evaluation of an Internship Module Interface Using the Design Thinking Approach

Josua Boyke William Jawak^{1,2}, Trifenaus Prabu Hidayat^{1*}, Hansel Septiyan Pasaribu², Nguyen Thi Bich Thu³

¹ Professional Engineer Program, School of Bioscience, Technology, and Innovation, Atma Jaya Catholic University of Indonesia, Jakarta 12930, Indonesia

² Engineering Management, Faculty of Industrial Technology, Institut Teknologi Del, North Sumatra 22384, Indonesia

³ Industrial Systems Engineering, HCMC University of Technology and Engineering, No 1 Vo Van Ngan Street, Thu Duc Ward, Ho Chi Minh City, Vietnam

Article Info	Abstract
<i>Article history:</i> Received 09 July, 2026 Accepted 18 September 2026 <i>Keywords:</i> <i>Internship module, UI/UX design, design thinking, usability testing, academic information system</i>	<i>The internship course (Kerja Praktik) in the XYZ Study Program requires a structured administrative process involving company registration, document submission, activity monitoring, and seminar assessment. Currently, these processes are still carried out manually through messaging applications and third-party links, resulting in long administrative flows, inconsistent data records, and difficulties for coordinators in monitoring student progress. This study aims to develop a UI/UX design for a user-centered interface of the Internship Module within the XYZ Study Program website using the Design Thinking method. Data were collected through questionnaires and interviews with students, lecturers, and administrative staff. The five stages of Design Thinking—Empathize, Define, Ideate, Prototype, and Test—were applied to identify problems and formulate solutions. The results indicate that users need an integrated, structured, and easy-to-use system that supports internship registration, progress reporting, document submission, and seminar scheduling. A high-fidelity prototype was developed in Figma and evaluated using the System Usability Scale (SUS), achieving scores within grade A–B, indicating high usability and positive user acceptance.</i>

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1. INTRODUCTION

Information systems play a crucial role in supporting effective and efficient academic activities in higher education institutions. The integration of digital technologies enables universities to streamline administrative workflows, improve information accuracy, and enhance the overall quality of academic services (Nurpadilla, Haitsam, & Amalia, 2026). In the context of the XYZ Study Program, the administrative needs of program-specific courses such as the Internship (*Kerja Praktik*/KP) are not fully accommodated by the institution-wide academic platform currently in use. Although the platform effectively supports general academic activities, its features are standardized at the institutional level and do not address the unique and detailed workflows required at the study program level.

The Internship (KP) course is a compulsory component of the curriculum that requires students to work in an industry setting for approximately two months. The overall process begins long before the course registration period, including several stages such as pre-internship briefing, submission of internship request letters, company selection, daily activity reporting through logbooks, and the internship seminar. Currently, these processes

*Corresponding author: Trifenaus Prabu Hidayat
Email address: trifenaus.hidayat@atmajaya.ac.id

are carried out manually using WhatsApp communication, email, and various Google Forms links. Such a fragmented workflow introduces several issues:

1. Lengthy and repetitive processes across multiple platforms,
2. Lack of integrated data between students, supervisors, and administrative staff,
3. Risks of document loss, duplication, and inconsistencies,
4. Difficulties for coordinators in monitoring student progress in real time.

These challenges reflect problems commonly found in educational environments that rely on manual administrative procedures. Fragmented communication channels and repetitive data entry often lead to inefficiencies, increased workload, and a higher potential for administrative errors (Setiawan, Agustin, & Ningsih, 2022). Therefore, an integrated academic information system is essential to ensure that internship-related administrative processes are more structured, reliable, and seamless.

In the development of academic information systems, User Interface (UI) and User Experience (UX) design play vital roles in ensuring the system is intuitive, accessible, and aligned with user needs. Well-defined UI and UX allow users to perform tasks efficiently while minimizing cognitive load (Rivansyah, Arifianto, & Suharso, 2023). Since the internship process involves multiple stakeholders, students, supervisors, and coordinators with distinct requirements, a user-centered approach becomes essential in designing an effective system.

The Design Thinking methodology is well-suited for this purpose, as it provides a structured yet flexible framework that places the needs, behaviors, and constraints of users at the center of the design process. Design Thinking emphasizes empathizing with users, defining core problems, ideating solutions, prototyping concepts, and validating designs through iterative testing (Lockwood & Papke, 2017). This method has been widely applied in educational technology projects and has demonstrated success in producing user-relevant system designs (Raschintasofi & Yani, 2023).

Prior studies on campus-level academic information systems have applied a range of development approaches, including Rapid Application Development (Aryanti, Fitriani, Ardiansyah, & Saepudin, 2021), the Waterfall model (Adli & Abdullah, 2022), and Scrum (Sekti, Laksono, Tiaraputri, Laksono, & Eraydya, 2023). These approaches are effective for translating clearly specified requirements into working systems, but they are largely sequential and requirement-driven, offering limited built-in mechanisms for surfacing the tacit, evolving needs of multiple stakeholder groups. In the context of the Internship process, students, supervisors, and administrative staff hold distinct and sometimes competing expectations that are not fully documented in advance, making a purely requirement-driven approach prone to overlooking user-specific pain points. Design Thinking addresses this gap through its iterative, empathy-driven structure, in which user needs are continuously investigated and validated across the Empathize, Define, Ideate, Prototype, and Test stages rather than fixed at the outset (Lockwood & Papke, 2017). This distinction between requirement-driven and empathy-driven approaches motivates the adoption of Design Thinking in the present study and clarifies the gap that this research addresses.

Given these considerations, an integrated system at the study program level is urgently needed to support the full internship workflow. Therefore, this study focuses on designing an Internship Module using the Design Thinking approach, with the goal of developing a UI/UX prototype that meets user needs and improves the efficiency of internship administration within the XYZ Study Program.

2. METHODOLOGY

This study employs both qualitative and quantitative descriptive methods across its stages. Qualitative analysis is used to explore user problems, understand workflow patterns, and identify pain points through interviews and observations, aligning with the nature of descriptive qualitative analysis that focuses on interpreting patterns from user experiences. Meanwhile, quantitative analysis is applied during the usability evaluation using the System Usability Scale (SUS), where numerical values derived from questionnaire responses are processed and interpreted statistically (Ali, Hariyati, Pratiwi, & Afifah, 2022). The overall research framework adopted in this study, spanning the five Design Thinking stages, is illustrated in Figure 1.

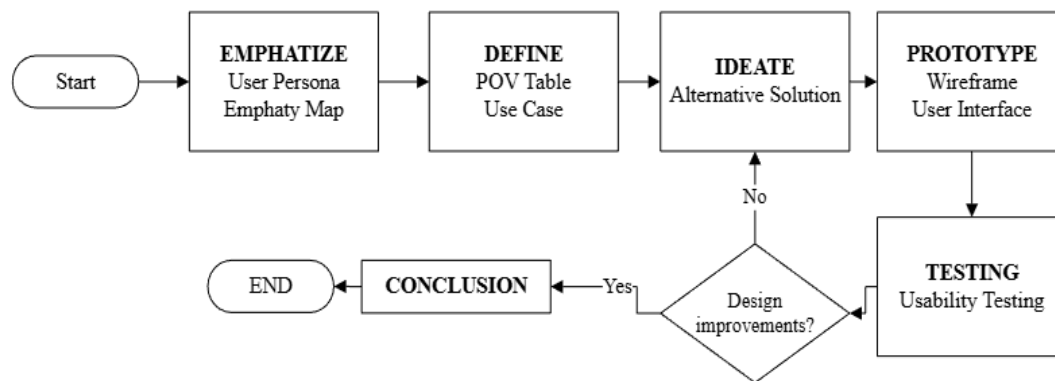


Figure 1.
Research Framework

The research adopts the Design Thinking framework as the primary methodological approach for developing the UI/UX design of the Internship Module. Design Thinking is iterative, flexible, and user-centered, making it suitable for designing solutions that address real user needs in academic administration. The method emphasizes deep understanding of users, problem definition, idea generation, prototyping, and testing. The stages applied in this study are described as follows.

1. Empathize

At this stage, interviews and questionnaires were conducted to identify issues experienced by users during the administration of the Internship course. Users included:

- a. students who were preparing for or currently undertaking internships,
- b. internship supervisors,
- c. the Internship Coordinator,
- d. administrative staff involved in processing internship-related documents.

Data collection focused on difficulties in internship registration, requesting internship letters, selecting companies, submitting log-books, and scheduling seminars. The results were transformed into user personas and empathy maps, which reflect user characteristics, goals, motivations, and the challenges they face during the internship process.

2. Define

Data gathered during the Empathize stage were analyzed and synthesized to formulate core problem statements. The problems were structured using the Point of View (POV) Table, which helped articulate:

- a. who the users are,
- b. what they need,

- c. and why they need it.

At this stage, recurring issues—such as fragmented administrative processes, lack of system integration, and monitoring difficulties—were identified as the main concerns that the Internship Module must address.

3. Ideate

The ideation phase generated solution concepts based on the problem statements. Brainstorming and mapping were used to develop feature ideas needed in a digital Internship Module, including:

- a. online internship registration,
- b. automated letter request and issuance,
- c. structured company selection workflow,
- d. digital internship log-book submission,
- e. supervisor feedback and progress tracking,
- f. seminar scheduling and document submission.

These feature ideas were formalized into use case diagrams, representing system requirements from the perspectives of students, supervisors, coordinators, and administrative staff.

4. Prototype

In this stage, the proposed solutions were transformed into visual designs. The prototyping process consisted of:

- a. User Flow Development – mapping step-by-step user interactions (e.g., submitting internship applications, filling log-books, scheduling seminars).
- b. Wireframing – creating low-fidelity sketches to outline layout and navigation.
- c. High-Fidelity Prototypes – developing detailed UI designs in Figma that reflect real system behavior and visual identity consistent with the study program.
- d. The prototype illustrates the complete workflow of the Internship Module, integrating all stakeholders' needs into a seamless digital interface.

5. Testing

Usability testing was conducted using the System Usability Scale (SUS). Respondents were asked to interact with the high-fidelity prototype and complete a 10-item SUS questionnaire. The SUS method provides a quantifiable measure of usability and is widely used due to its reliability and simplicity (Yulyana, Arthana, & Agustini, 2019), as summarized in Figure 2.

The questionnaire followed the standard SUS instrument, consisting of ten statements alternating between positive (odd-numbered) and negative (even-numbered) phrasing, each rated on a five-point Likert scale ranging from strongly disagree to strongly agree. Responses were scored following the standard SUS procedure: for odd-numbered items, one point was subtracted from the response value; for even-numbered items, the response value was subtracted from five. The resulting values for all ten items were summed and multiplied by 2.5 to yield a score ranging from 0 to 100 for each respondent, which was then mapped onto the acceptability range, grade scale, and adjective rating categories. Because the SUS instrument used is the standard, previously validated questionnaire established in prior usability research, no separate pilot validation was conducted; instead, the internal consistency of the responses collected in this study was subsequently checked using Cronbach's alpha, as reported in Section 3.4.

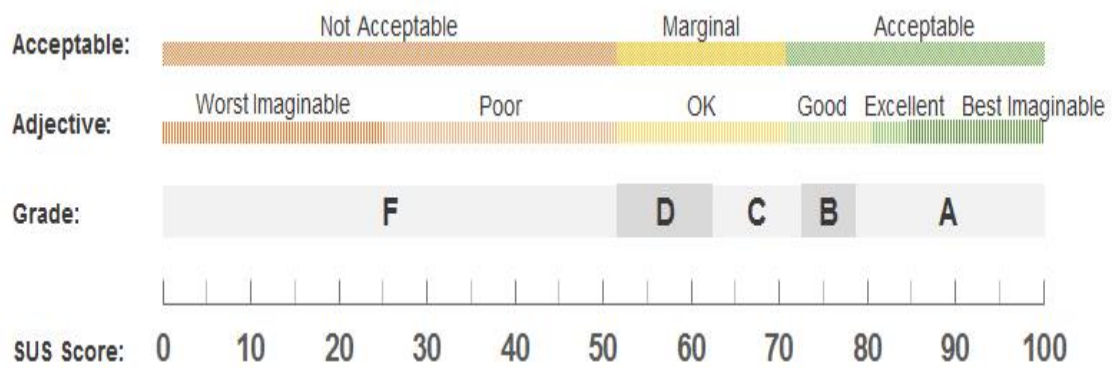


Figure 1.
SUS Scale Testing

The SUS results were calculated using standard scoring procedures, yielding a final score categorized into acceptability ranges (Acceptable, Marginal, Not Acceptable), grade scales (A–F), and adjective rating levels (e.g., Good, Excellent). These results were used to evaluate the effectiveness and user-friendliness of the Internship Module prototype.

Data were collected using interviews, questionnaires, and literature studies. The study employed a purposive sampling technique, where samples were selected based on criteria relevant to internship activities (Septiani, Aribbe, & Diansyah, 2020). The criteria included:

1. Students: those currently undertaking or who have completed the Internship course.
2. Lecturers: those serving as internship supervisors or holding functional roles such as Program Chair or Dean.
3. Administrative Staff: assistants and BAAK staff responsible for processing internship-related documents.
4. Internship Coordinator: responsible for managing all Internship activities within the study program.

All selected participants were interviewed to identify detailed issues encountered throughout the Internship process. Their feedback served as the foundation for defining system requirements, generating solution ideas, and evaluating the final prototype.

Alongside the inclusion criteria above, exclusion was applied to lecturers without a functional or coordinator role, staff not directly involved in Internship-related administration, and students who had not yet undertaken an internship, final project, or MBKM activity, since these individuals would not yet have direct experience of the workflow under study. At the time of data collection, the Study Program had a total population of 203 active students, 9 active lecturers, and 4 active administrative staff. From this population, the study recruited 13 students (third- and fourth-year, each meeting at least one inclusion criterion above), 4 lecturers (all holding a coordinator or functional role directly tied to the Internship, Final Project, or MBKM courses), and 3 staff members (two teaching assistants and one administrative staff member directly responsible for these processes). Because sampling was purposive rather than random, representativeness is argued on criterion relevance rather than statistical generalizability: the lecturer and staff samples deliberately captured nearly all personnel holding a direct administrative or supervisory role in the Internship process at the time of the study, while the student sample was drawn from the cohorts already exposed to the internship registration, logbook, and seminar stages under investigation.

3. RESULT AND DISCUSSION

3.1 Emphatize

Empathy was conducted with thirteen students, four lecturers, and three teaching assistants to identify various challenges that arise in the final project administrative process. The identified issues were then represented through user persona and empathy map models. The researcher also carried out structured interviews with final-year students to explore in depth each problem related to the stages of final project administration. The results of these interviews supported the analysis process and the development of the user personas and empathy maps as shown in Figure 2.



Figure 2.
User Persona & Empathy Map Student

The researcher conducted structured interviews with four lecturers who met the predetermined criteria. The insights obtained from these interviews were then used to develop the user persona and empathy map shown in Figure 3.



Figure 3.
User Persona & Empathy Map Lecturer

For the administrative staff group, the researcher conducted structured interviews with three staff members. The insights obtained from these interviews were then used to develop the user persona and empathy map presented in Figure 4.

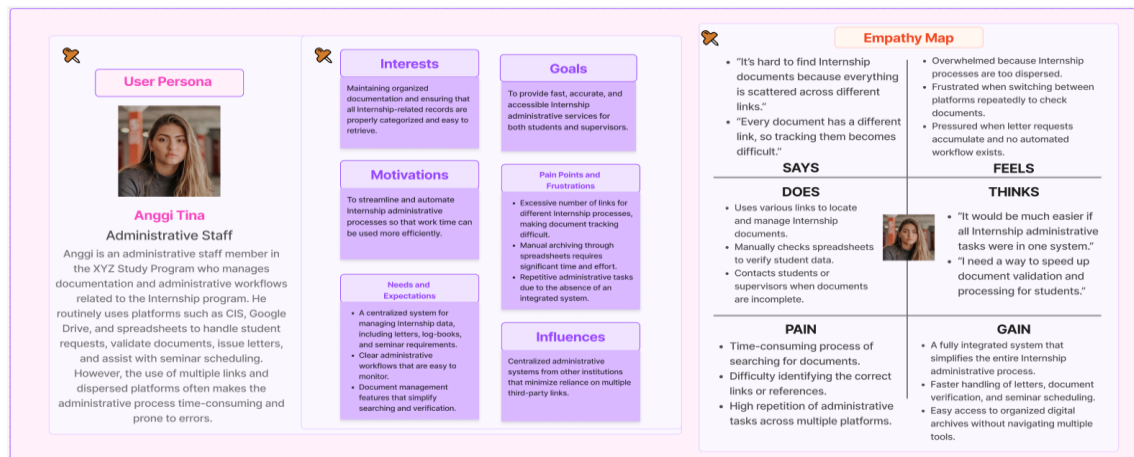


Figure 4.
User Persona & Empathy Map Administrative Staff

All user personas and empathy maps are utilized as the foundational basis for the analysis conducted in the Define stage.

3.2 Define

The problems identified during the Empathize phase were subsequently refined in the Define phase to determine their root causes, scope, and implications for each stakeholder. This stage employed the Point of View (POV) analytical framework, which facilitates a structured interpretation of user requirements and constraints derived from their qualitative statements, as recommended in prior studies (Arifah, Meiriza, Putra, Oktadini, & Sevtiyuni, 2023). The resulting POV synthesis is summarized in the following table.

Table 1.
POV Table

User	Problem	Need	Insight
Student	– Internship processes are fragmented across multiple platforms (WhatsApp, email, Google Forms) and documents are difficult to locate.	– A unified digital platform that centralizes all Internship activities and resources.	– Fragmentation leads to inefficiency, higher error rates, and increased cognitive load during administrative tasks.
	– No clear workflow for registration, company approval, log-book submission, and seminar preparation.	– A structured, step-by-step Internship workflow.	– Lack of process clarity causes procedural mistakes and delays.
Staff	– Document submission and archiving for Internship activities are not centralized.	– A dedicated document management and archiving system.	– Third-party tools result in unorganized records and hinder long-term traceability.
	– Monitoring student progress requires manual checking across various sources.	– A real-time monitoring dashboard for all students.	– Manual tracking is time-consuming and prone to information gaps.
Lecturer	– Log-book entries and progress updates are scattered, making supervision difficult.	– An integrated log-book system with validation and feedback features.	– Centralized monitoring improves supervisory effectiveness and accuracy of activity records.
	– Multiple links and non-uniform documents complicate assessment and guidance.	– A unified portal for supervising and evaluating Internship tasks.	– Consolidation supports consistent assessment and reduces administrative burden.

Based on the statements summarized in Table 1. POV Table, the predominant issues relate to extensive and fragmented administrative processes. To analyze these processes, each activity was modeled using a user journey map. A user journey map provides a structured representation of the sequential steps taken by users when interacting with a system (Kurniasari, Safitri, & Mardiana, 2022), as illustrated in Figure 5.

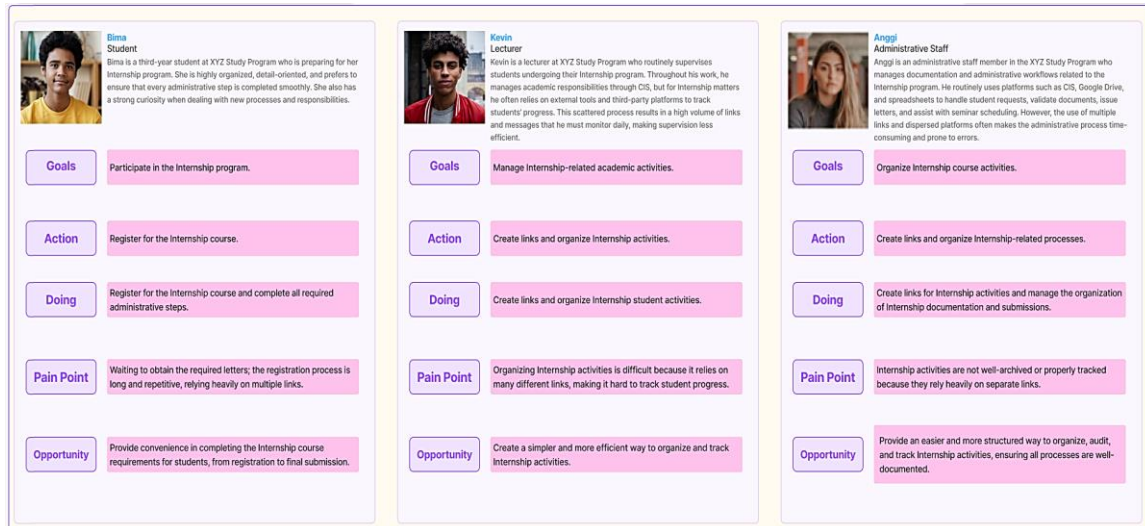


Figure 5.
User Journey Map for Each User

3.3 Ideate

The next stage is the *ideate* phase, which focuses on generating ideas based on the problems identified in the previous steps (Kasri, Novan, & Ramadhani, 2021). From the various issues experienced by the respondents, it was concluded that an integrated web-based information system would be the most effective solution for addressing the needs of students, lecturers, and teaching assistants. This study therefore concentrates on designing the UI/UX of the system, with the development of several key features described in Table 2.

Table 2.
System Features and Modules

User	Module	Description
Student	Internship	This module consists of three main stages: registering for the target company, completing all Internship activities — including log-book submission and special topic approval — and finalizing the process with the Internship seminar registration.
Staff	Internship	This module supports administrative staff by consolidating all student activities from the pre-Internship phase to the completion of the Internship, as well as managing the scheduling of Internship seminar sessions.
Lecturer	Internship	This module assists lecturers in monitoring and aggregating student activities throughout the Internship period. It focuses on the entire Internship workflow, starting from student registration up to the completion of the Internship seminar.

The developed features were then represented in a use case diagram, with the modeling results illustrated in Figure 6.

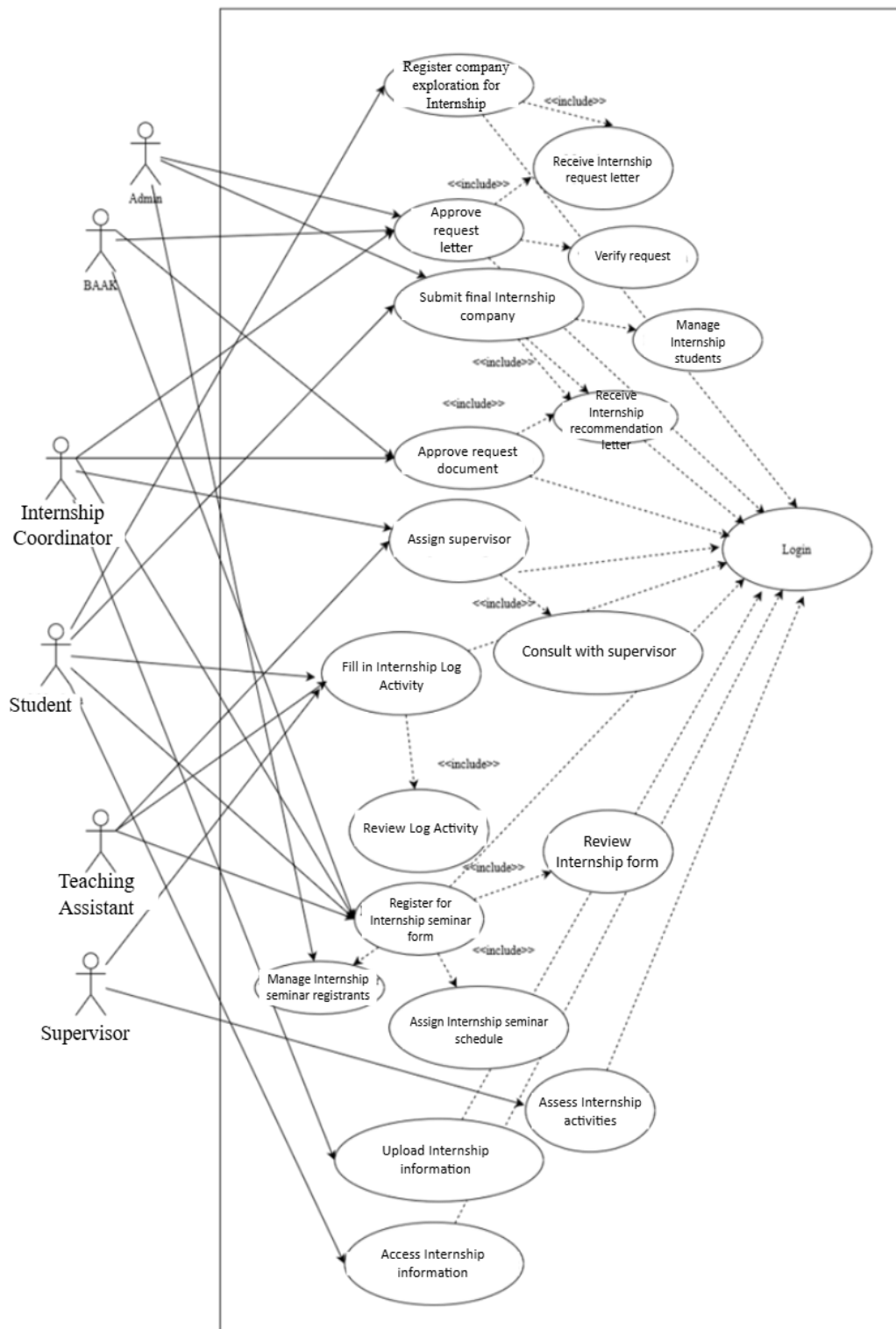


Figure 6.
Use Case Diagram

This diagram consists of several components, including actors, use cases, and the relationships between them. The modeling process is intended to illustrate, define, and document the requirements that the system must fulfill (Pertiwi, *et al.*, 2023). Through this model, the interactions among the admin, Internship Coordinator, lecturers, and staff/teaching assistants can be clearly visualized.

3.4 Prototype

The prototyping stage was initiated after the solution concepts for the Internship Module were established during the Ideate phase. The prototype served as a concrete representation of the proposed system, enabling users to visualize how the identified issues in the Internship process would be addressed. The modeling phase was carried out through three levels of wireframing—low-fidelity, mid-fidelity, and high-fidelity. At this stage, the interface structure was outlined to depict the visual components and the corresponding user flows associated with key Internship activities. Wireframing provides a preliminary overview of the system's layout, conceptual design, and navigation paths, thereby facilitating the development of the subsequent high-fidelity prototype (Santoso, 2022). The low-fidelity wireframe is illustrated in Figure 7.

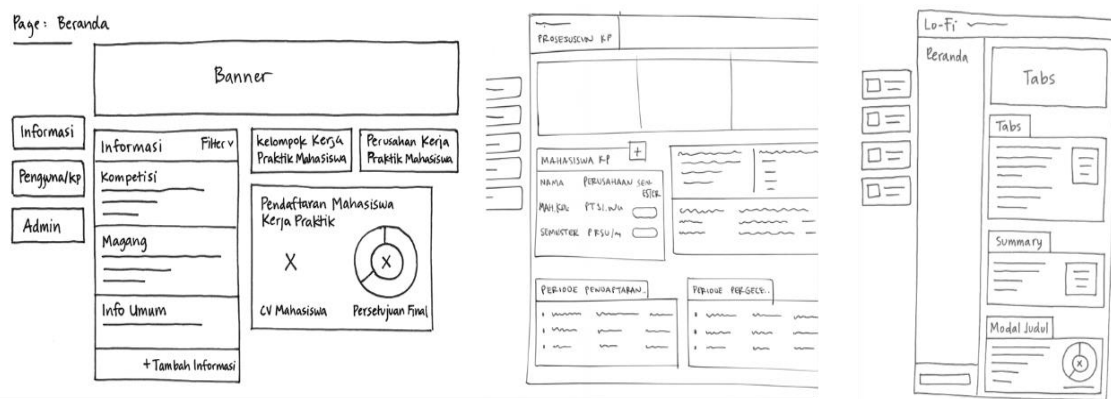


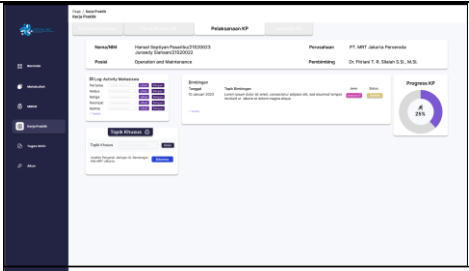
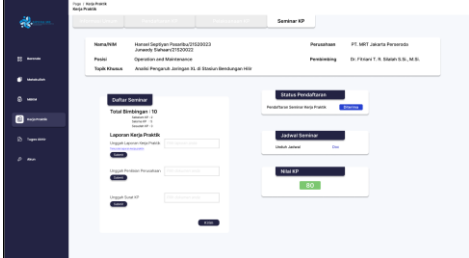
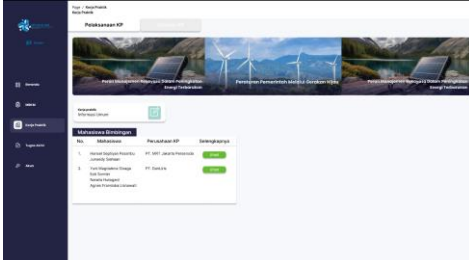
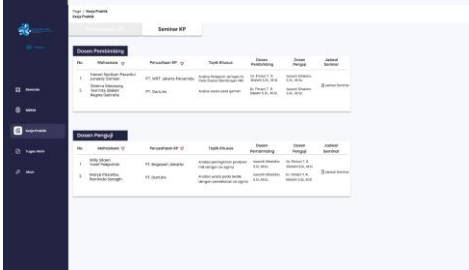
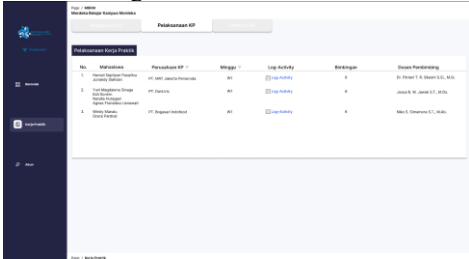
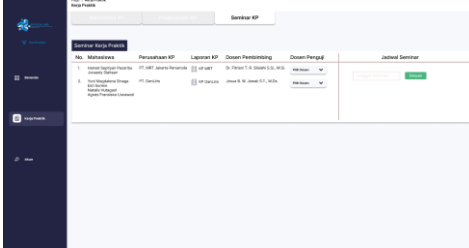
Figure 7.
Lo-Fi Design Look

Analysis of the low-fidelity design indicates that the Internship Module consists of three primary interaction stages for each user type. These stages form the foundation of the interface flow to be developed, as detailed in Table 3.

Table 3.
Lo-Fi Design Look

User Interface	Description
Student	Initial display, on the initial display you will see the entire process flow of the practical work activities that have been carried out by students. For Internship Registration, students can register by submitting an Application Letter, Cover Letter, Download Application Letter, and download other letters.

Table 4. (Continued)
Lo-Fi Design Look

User Interface	Description
	Implementation, students can fill in activity logs, submit special topics, and diagram the progress of practical work.
	Seminars, students can register for seminars and download the seminar schedule. They can also upload revised documents.
Lecturer 	In implementation, lecturers can see all the students under their guidance and can approve the appropriate activity log documents.
	Seminar, lecturers can download schedule information for seminars for students they supervise.
Coordinating Lecturer & Staff 	Implementation, coordinators and staff can see the entire list of internship students along with the activity logs that have been submitted.
	Seminar, coordinators and staff can upload the work practice seminar schedule.

3.5 Testing

The evaluation was carried out by presenting the interface design to users and providing explanations of each feature and process within the system. In this study, three types of users were involved: students, lecturers, and coordinators. The questionnaire was administered to thirteen students, four lecturers, and three teaching assistants. The results of the System Usability Scale (SUS) evaluation for all user groups can be seen in Table 5.

Table 5. SUS Calculation Results

Students													Lecturer												
Res	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total	Total x 2.5	Res	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total	Total*2.5
1	4	3	4	4	3	4	4	4	4	3	37	92.5	1	3	3	3	3	3	3	3	3	3	3	30	75
2	3	2	3	3	2	1	2	3	3	3	25	62.5	2	3	3	3	4	3	4	3	4	3		33	82.5
3	4	2	3	3	4	3	3	4	3	3	32	80	3	2	4	2	4	2	4	2	4	2	4	30	75
4	4	3	3	3	3	4	4	4	4	3	35	87.5	4	4	3	3	3	2	3	2	3	3	3	29	72.5
5	4	2	3	2	4	2	3	4	3	2	29	72.5	Result												
6	4	4	4	3	4	4	3	4	3	4	37	92.5	Teaching Assistant												
7	3	2	4	4	3	3	2	4	3	3	31	77.5	Res	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total	Total*2.5
8	3	3	4	3	3	3	4	4	4	4	35	87.5	1	3	2	3	3	2	3	3	3	3	2	27	67.5
9	3	4	4	4	4	3	4	4	4	3	37	92.5	2	4	1	3	4	3	4	3	4	3	4	33	82.5
10	2	4	3	4	3	4	3	3	4	1	31	77.5	Result												
11	3	3	4	3	4	4	4	3	4	3	35	87.5	BAA												
12	3	4	4	4	4	3	4	4	3	3	36	90	1	3	3	3	3	3	3	3	3	3	3	30	75
13	4	4	3	3	3	4	4	3	4	4	36	90	Result												
Result												83.85												76.25	75

The results of this calculation are then mapped onto the SUS chart to see which category the completed work falls into. The mapping results can be seen in Figure 8.

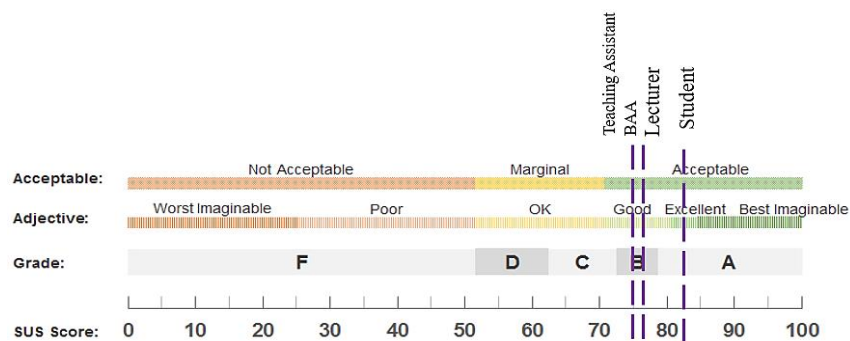


Figure 8.
Result SUS Testing Scale

The student interface obtained a mean SUS score of 83.85 (SD = 9.22, range 62.5-92.5, $n = 13$), corresponding to Grade A with an *excellent* adjective rating, indicating high usability and positive user acceptance. The lecturer interface achieved a mean score of 76.25 (SD = 4.33, range 72.5-82.5, $n = 4$) (Grade B, *good*), demonstrating that the design is sufficiently usable and well accepted. The coordinator interface received a mean score of 75 (SD = 7.50, range 67.5-82.5, $n = 3$) (Grade B, *good*), likewise falling within the *acceptable* usability range. Across all 20 respondents combined, the mean SUS score was 81.00 (SD = 8.86), which falls within Grade A and the *excellent* adjective range, indicating that the overall design was rated positively across user groups despite the moderate variation between them. To assess the internal consistency of the questionnaire responses, Cronbach's alpha was calculated across all 20 respondents and item scores, yielding a value of 0.69, which is at the threshold conventionally considered acceptable for a ten-item scale administered to a relatively small, heterogeneous sample spanning three distinct user roles. Collectively, these results confirm that the proposed UI design meets established usability standards across all user groups.

3.6 Discussion

The SUS scores obtained in this study are broadly consistent with those reported in comparable Design Thinking-based UI/UX design studies for campus information systems. Titan, Budiman, and Putra (2023) reported a SUS score of 84.54 for a car rental booking interface designed using Design Thinking, closely matching the student interface score obtained here (83.85). Madawara, Tanaem, and Bangkalang (2022) obtained a lower score of 75.75 for a multifunction student identity card application, comparable to the lecturer and coordinator interface scores in this study (76.25 and 75, respectively), while Candra, Sukmasetya, and Hendradi (2023) reported a higher score of 88 for a mobile academic certificate system. Positioned against this range, the scores obtained in the present study sit toward the middle to upper end of prior Design Thinking-based campus system evaluations, suggesting that the empathy-driven, multi-stakeholder approach adopted here produced a design at least as usable as comparable single-user-group systems, despite the added complexity of accommodating three distinct user roles within one integrated interface. This comparison should nonetheless be interpreted cautiously, as differences in sample size, application domain, and respondent familiarity with similar digital tools may influence SUS outcomes independently of interface design quality.

Several limitations should be acknowledged. First, the lecturer and staff samples were small ($n = 4$ and $n = 3$, respectively), reflecting the limited population of coordinators and administrative personnel directly responsible for the Internship process within the Study Program rather than a methodological shortcoming; this nonetheless constrains the statistical stability of the corresponding SUS estimates, as reflected in their variability relative to the student group. Second, the usability evaluation was conducted on a high-fidelity prototype rather than a deployed, production system, so the reported scores reflect perceived usability under guided exploration rather than usage under real administrative workload and time pressure. Third, the SUS testing scenario in the underlying research encompassed the Internship, Final Project, and MBKM modules within a single integrated system; the scores reported here therefore reflect the usability of the broader academic administration system in which the Internship Module is embedded, rather than the Internship workflow in strict isolation.

These limitations point to two directions for future research: first, validating the design through a deployed pilot of the Internship Module with real users under authentic administrative workload, which would allow usability and task-completion metrics to be measured under production conditions rather than guided prototype exploration; and second, extending the SUS evaluation with a larger and more balanced sample across user roles, potentially supplemented with task-based metrics such as time-on-task or error rate, to corroborate the perception-based SUS findings reported here.

4. CONCLUSION

This study presents a UI/UX design for an integrated Internship Module aimed at improving the administrative workflow of the Internship program. The proposed design streamlines key processes—including company registration, activity logging, supervision, and seminar preparation—into a centralized web-based system that benefits students, supervisors, and administrative staff. Usability evaluation using the System Usability Scale (SUS) produced scores within the A–B grade range with “excellent” to “good” adjective ratings, indicating strong usability and system acceptance across all user groups. These findings demonstrate that the proposed interface is suitable for further development into a fully operational information system. Beyond this practical contribution, the study offers a

methodological contribution by demonstrating how Design Thinking can be systematically combined with a structured design-evaluation framework—here, the Point of View table for problem synthesis and design-quality variables such as web page anatomy, grid theory, balance, and unity for comparing candidate interfaces—to reconcile the needs of multiple, role-differentiated stakeholders within a single administrative workflow. This combined approach illustrates a transferable evaluation pattern for other program-specific academic modules (e.g., final project or independent-study administration) that similarly involve several distinct user roles with differing requirements. Future work may include expanding administrative features, designing mobile-responsive interfaces, and deploying the system for real-world evaluation.

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