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Information System for Guidance on Student Practical Work Reports in the Computer Science Department of the Web-Based Information Management Study Program

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Abstract *- Supervision of internship reports in the Computer Science Department has traditionally been conducted manually, often causing difficulties in scheduling consultations between students and supervisors and tracking report revisions. To address these challenges, a web-based internship report supervision information system was developed to facilitate online, structured, and well-documented guidance. The system was developed using the Waterfall model and a descriptive qualitative approach during requirements analysis and implementation. Key features include consultation scheduling, report submission, revision tracking, and management of user profiles and announcements. System evaluation involved black-box testing and a limited User Acceptance Test (UAT) with students, supervising lecturers, and an administrator. The results showed an average user satisfaction of 85%, indicating that the system meets user expectations. This system improves efficiency and transparency in the supervision process, enhances communication and coordination between students and supervisors, and allows comprehensive monitoring of internship report progress. Minor issues, such as the absence of real-time notifications, were identified for future improvements. Overall, the system provides an effective, practical, and user-friendly solution for internship report supervision.*

Keywords: *Guidance Information System; Internship; User Acceptance Test; Waterfall.*

1. INTRODUCTION

Higher education plays a crucial role in developing students' professional competencies and preparing them to face the demands of the workforce and industry [1]. One of its implementations is through internship programs or Field Work Practice (PKL), which provide students with opportunities to apply theoretical knowledge learned in the classroom into real-world work [2]. Internship reports serve as formal and reflective documents, recording students' experiences and learning outcomes during their internship period [3].

However, students often encounter challenges in the internship supervision process. In the Computer Science Department, internship supervision is still conducted manually, through face-to-face meetings or personal messages, which causes various problems such as difficulty in scheduling guidance sessions, ineffective tracking of report revisions, late submission of reports, and inconsistent evaluation [4]. These conditions result in inefficient supervision and negatively affect the administrative quality of internship management [5].

With the development of information technology, studies have shown that web-based information systems can significantly improve internship management efficiency [6]. Such systems enable registration of interns, attendance monitoring, document submission, and final evaluation in a structured manner [7]. For example, at SMK Ma'arif NU 2 Boyolali, a web-based system has successfully replaced manual processes, including attendance, daily journals, and final reports, making internship management more organized and efficient [1]. Furthermore, web-based systems allow students to submit daily reports, supervisors to monitor progress in real time, and automate internship certificates [8]. Other studies emphasize the importance of digital documentation support, tracking mentoring history, and centralized announcement management to enhance supervision quality [9].

Although many web-based systems have been developed, most are still limited to basic functions such as attendance tracking, final report submission, or daily journals [10]. Key features that support effective

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supervision, such as online consultation scheduling, staged report submission (versions & revisions), announcement management, mentoring history tracking, and formal evaluation through User Acceptance Testing (UAT) are rarely implemented [11].

Several studies also highlight that cloud integration and web-based systems can strengthen coordination between students, lecturers, and industry partners, minimize administrative delays, and improve data transparency [12]. The implementation of an integrated system has been shown to facilitate evaluation processes, internship registration, attendance tracking, and comprehensive report documentation [13]. Based on these studies, this research proposes the development of a Web-Based Internship Report Guidance Information System for the Computer Science Department. This system is expected to provide online guidance scheduling, versioned and revised report submission, mentoring history tracking, announcement management, and formal evaluation through UAT. With this system, the internship supervision process can run more efficiently, systematically, and transparently, minimizing the administrative issues that have occurred previously [14].

2. RESEARCH METHODOLOGY

The system in this research was developed using the Waterfall model within the System Development Life Cycle (SDLC) [15]. The Waterfall model, as one of the earliest and most commonly applied approaches [16], This method was selected due to its clear structure and straightforward process, which helps the development team stay on track and supports timely completion of the project [17]. Figure 1 presents the steps involved in the Waterfall development process [18].

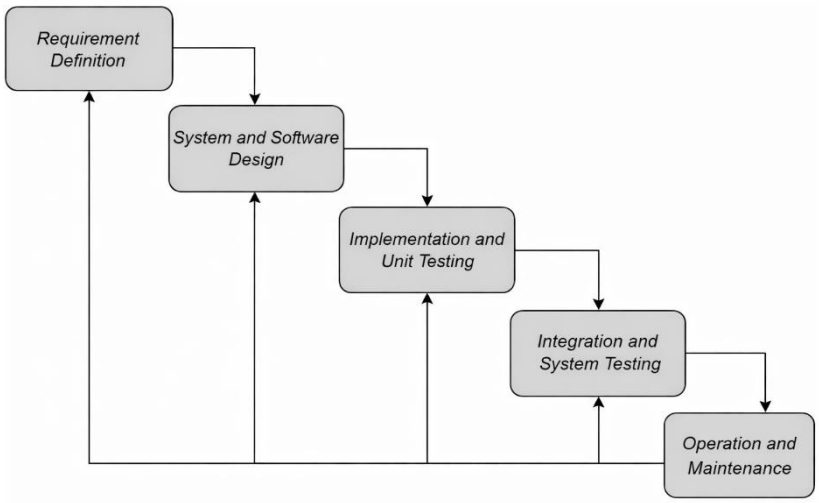

Figure 1. Waterfall method.

2. 1 Requirements Analysis and Definition

This stage focuses on gathering and defining the system's functional and non-functional requirements. Accurate requirement identification is crucial to ensure the system aligns with user needs in real-world usage [19]. According to [20], thorough requirement analysis prevents implementation errors and reduces system rework. In the context of internship supervision systems, requirements typically include online supervision scheduling, structured report submission, revision notes, announcement access, and user role management [21]. These requirements were collected through interviews with lecturers and students, as well as document analysis, to fully understand the internship supervision workflow [22].

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2. 2 System and Software Design

After requirements are defined, the system architecture is designed as a development blueprint. According to [23]**,** the design stage translates requirements into clear models such as database schema, interface layouts, use-case diagrams, and activity diagrams. A well-structured design minimizes implementation errors and supports scalability for future system improvements.

2. 3 Implementation and Unit Testing

Once the design is finalized, system implementation is carried out using suitable web technologies. Each feature, login, scheduling, report upload, revision tracking, announcements is built as a separate module**.** [24] states that unit testing is essential to verify that each module operates correctly before it is integrated with other components. This ensures reliability and reduces integration issues.

2. 4 Integration and System Testing

After successful unit testing, modules are integrated into the complete system [25]. Black-box testing evaluates system behavior based solely on input and output[26]. This testing ensures that all features meet user expectations [27]. Workflows for scheduling, report uploading, revision tracking, and announcement access are verified during this stage [28].

2. 5 Deployment, Operation, and Maintenance

The system is then deployed for real-world use [29]. Maintenance addresses bug fixes, performance improvements, and support for new features [30]. Continuous updates ensure the system remains effective and adaptable to changing academic requirements [31]. Monitoring user feedback and system performance also helps maintain reliability and usability [32].

3. RESULT AND DISCUSSION

In designing this system, a use case diagram was used to describe the functions contained in the system. Figure 2 displays the use case diagram of the Student Internship Report Guidance Information System in the Computer Science Department, Informatics Management Study Program.

3.1 Use Case Diagram

In this system design, a use case diagram was used to illustrate the system functions. The diagram shows the interaction between users (admin, supervising lecturers, students) and the system. Main functions include login, guidance scheduling, report upload, report revision, and centralized announcements.

3.2 User Interface

The User Interface (UI) allows users to interact directly with the system. In the Practical Work Report Guidance Information System, the UI is designed to allow students, lecturers, and administrators to access various features easily. The design process was carried out using Figma, a web-based design platform accessible on various devices.

a. View Login

The login page serves as the primary access point for Administrators, Students, and Supervising Lecturers to enter the system using their designated usernames and passwords. Each user is required to authenticate their identity before gaining access to the system's features, ensuring that data security and user-specific permissions are properly maintained.

All accounts for students and lecturers are pre-generated by the administrator, allowing them to log in without needing to create an account manually. Additionally, a "forgot password" feature is available to assist users who may have misplaced or forgotten their login credentials, enabling them to reset their

password through a guided recovery process. This ensures smooth and uninterrupted access to the system for all users.

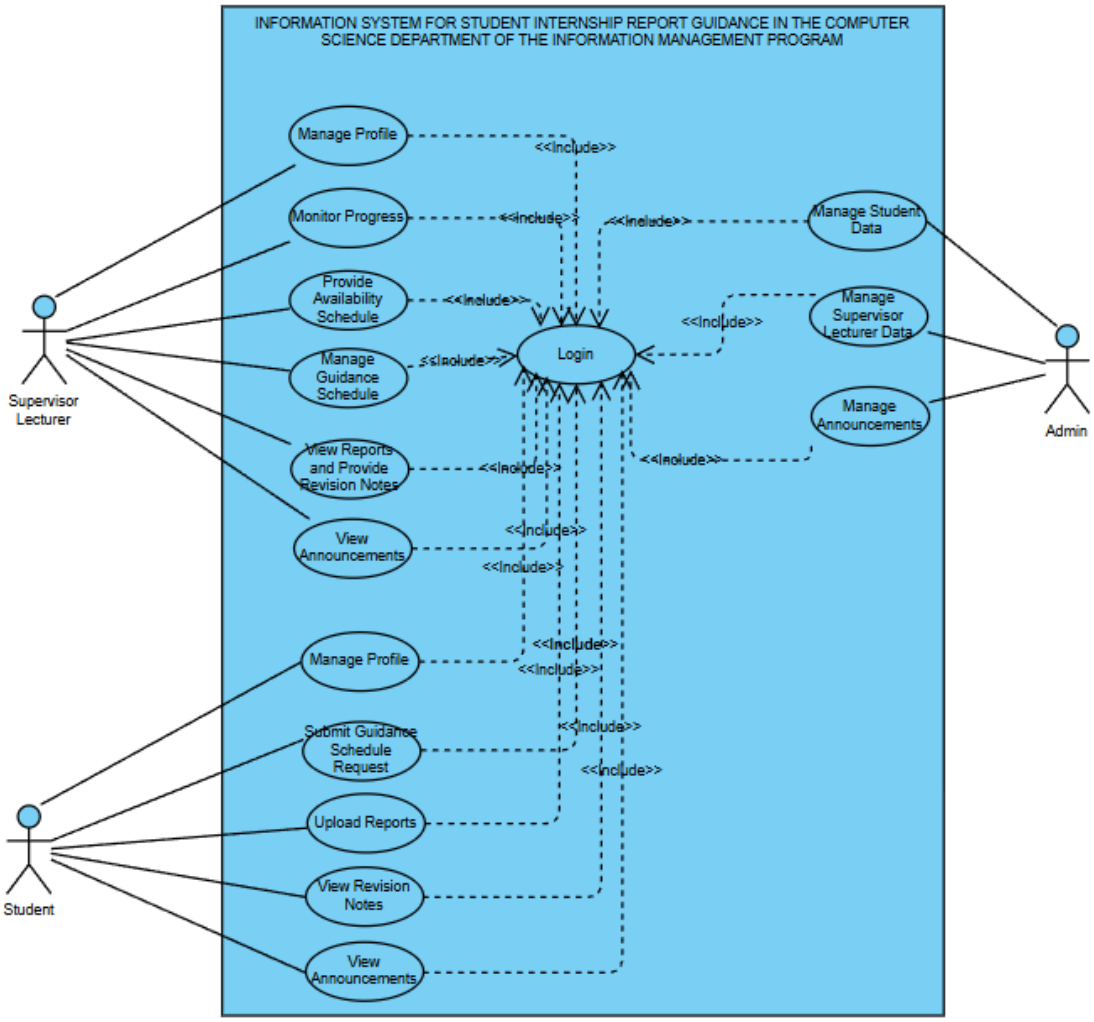

Figure 2. Use case diagram.

Figure 3. Login view.

b. Dashboard Admin View

The Admin Dashboard is the main interface displayed after an administrator successfully logs into the system. This page provides a centralized overview of administrative activities, including the most recent announcements created by the admin. In addition to displaying announcements, the dashboard also offers access to various system management features, allowing administrators to oversee user accounts, monitor scheduling activities, manage report submissions, and perform other essential administrative tasks efficiently.

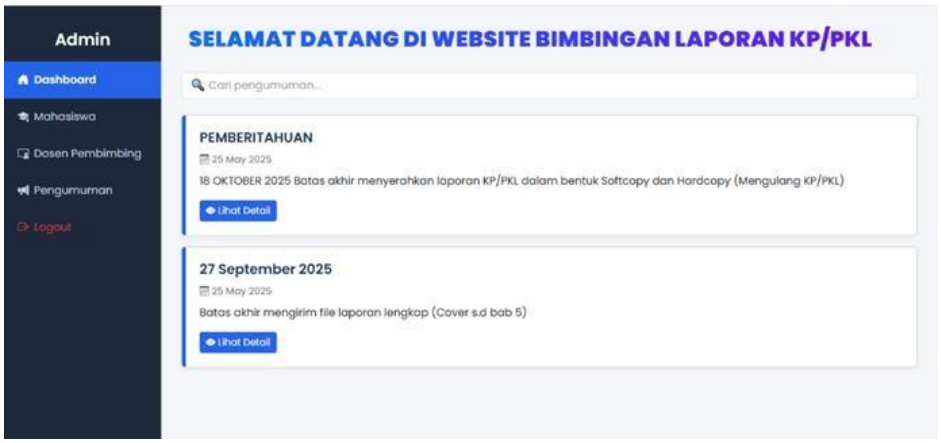

Figure 4. Dashboard admin view.

c. Lecturer Dashboard View

The Supervisor Dashboard is the main interface displayed when a supervising lecturer logs into the system. This page provides an overview of key supervision-related activities, including the total number of schedule requests submitted by students, the total number of internship reports received, and the overall number of students currently under the lecturer's guidance. By presenting this information in a clear and structured manner, the dashboard helps supervisors manage their responsibilities more efficiently, monitor student progress, and respond promptly to guidance requests.

Figure 5. Lecturer dashboard view.

d. Guidance Schedule View

This page serves as the interface where students can submit their proposed guidance schedule to their supervising lecturer. It presents a table showing the lecturer's available time slots for conducting consultations. Students may choose any time and date listed as available. However, if the lecturer has

not yet provided specific availability, the system allows students to submit a request by proposing their preferred date and time for the guidance session. This feature ensures flexibility and facilitates smoother coordination between students and supervisors.

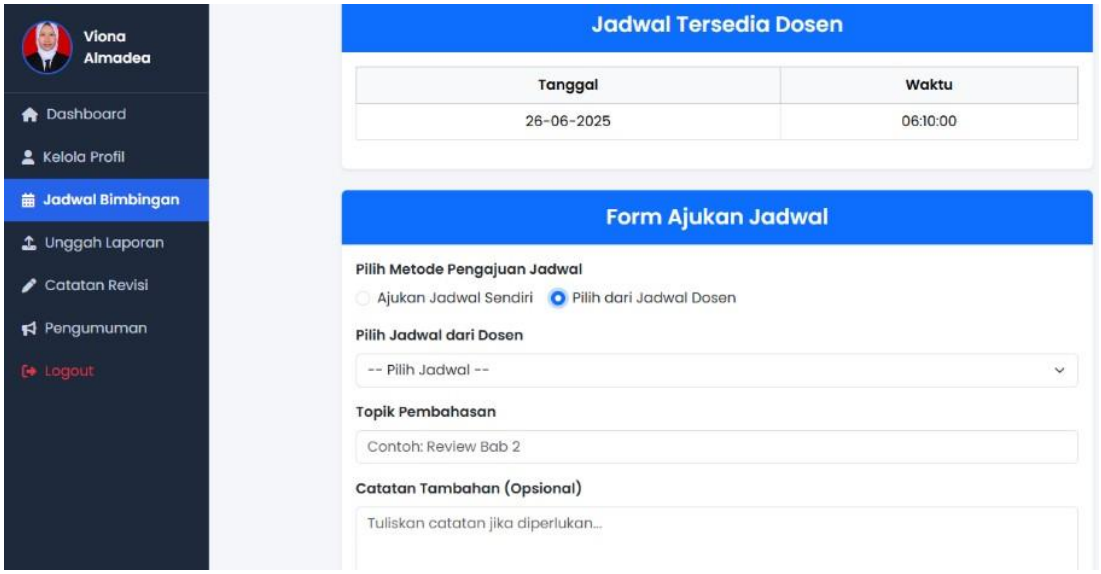

Figure 6. Guidance schedule view.

e. Upload Report View

This is the report upload form page. On this page, students enter the report title and can then upload the report file or report link, or simply select one or the other. Students can also check the progress of their submitted report.

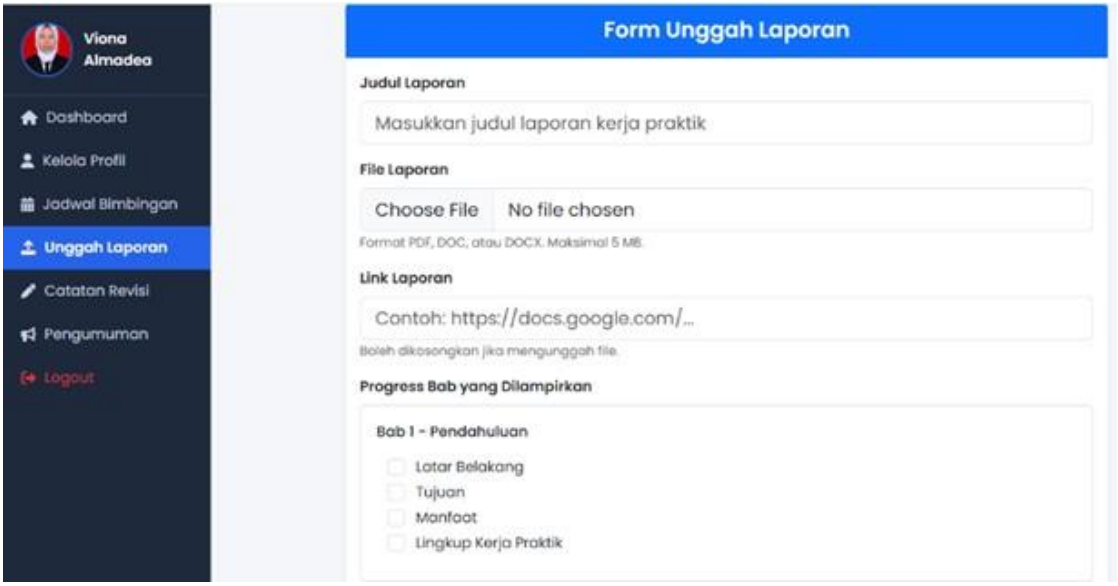

Figure 7. Upload report view.

f. Student Report View

This is the student report upload page. Within the student report table, there is a column for attached chapters, which lists the progress of each chapter. On this page, the supervisor can also view the contents of the student's report file and provide revision notes.

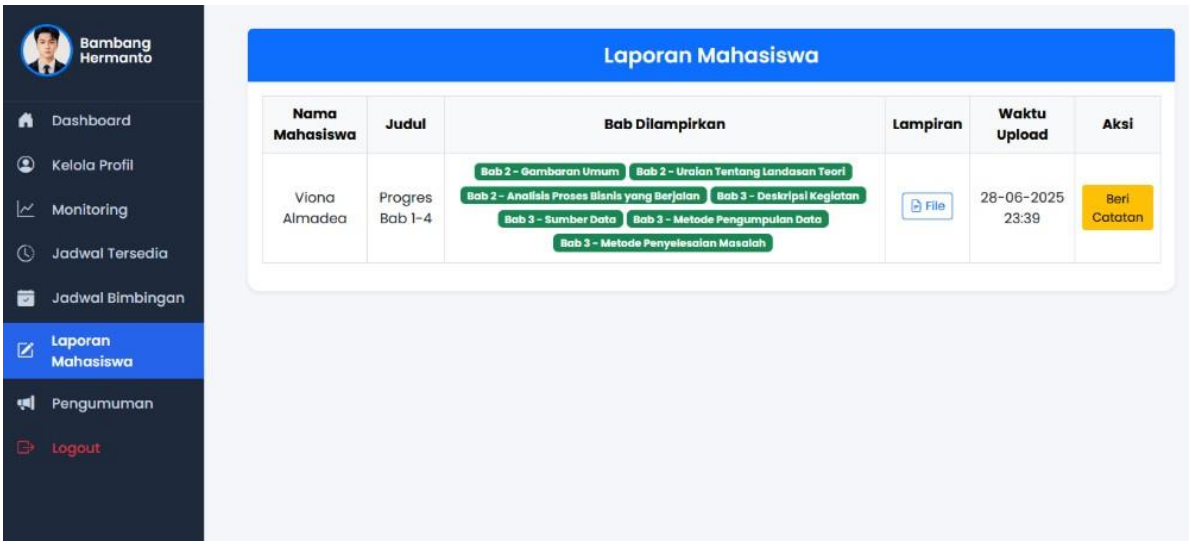

Figure 8. Student report view.

g. Revision Notes View

This is a page displaying the revision notes provided by the supervisor. Students can view these revision notes by accessing the report file link, viewing the contents of the report file marked for revision, or by viewing the revisions in the "Notes" section.

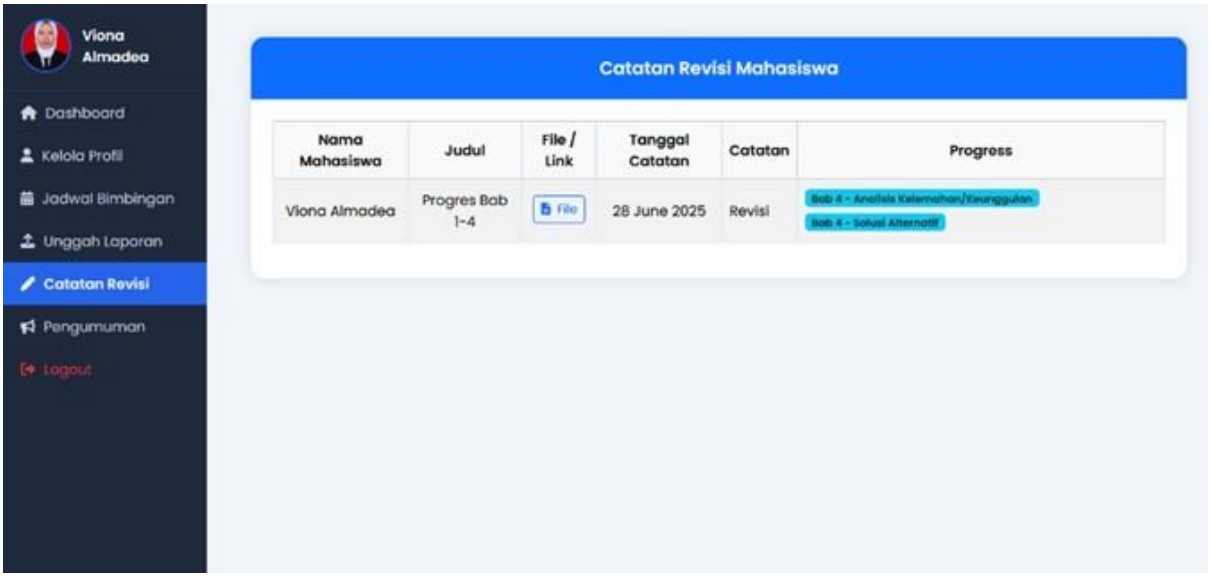

Figure 9. Revision note's view.

3.3 System Evaluation and User Acceptance Testing (UAT)

All system modules were tested at both unit and system levels to ensure that each feature functions according to user roles. Functional testing showed that the login module worked properly for each user role; the guidance scheduling module allowed students to select available time slots, which could then be approved or rejected by lecturers; the report upload and revision modules functioned correctly, enabling accurate tracking of progress for each chapter; and the announcement module displayed information centrally so that all users could easily access the latest updates.

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In addition to functional testing, a limited User Acceptance Testing (UAT) was conducted with 10 students, 3 supervising lecturers, and 1 admin. The results indicated that the majority of users were satisfied with the system, with satisfaction ranging from 80% to 95% for different features, resulting in an average satisfaction of approximately 85%. Minor issues were noted, primarily the absence of real-time notifications for schedule updates and revision notes, which could be addressed in future system enhancements. Overall, the system demonstrated effective functionality and received positive user reception.

Table 1. User Acceptance Test result.

No	Feature	Users	Satisfaction (%)	Notes
1	Login & Authentication	Students, Lecturers, Admin	95	Works as intended
2	Admin Dashboard	Admin	95	Account, schedule, and announcement management run smoothly
3	Lecturer Dashboard	Lecturers	95	Facilitates monitoring of reports and schedules
4	Guidance Scheduling	Students, Lecturers	80	Schedule selection is easier, real-time notification needed
5	Upload Report	Students	85	Report files & links successfully uploaded
6	Student Report & Revision	Lecturers	85	Lecturers can provide chapter-by-chapter revision notes
7	Revision Notes	Students	80	Notes easy to access; notifications can be added
8	Announcements	All Users	95	Announcements clearly visible

Table 1 summarizes the results of the User Acceptance Testing (UAT) for the Student Internship Report Guidance Information System. Overall, the system received high satisfaction ratings**,** with most features achieving 85–95% satisfaction. Features such as login, admin dashboard, lecturer dashboard, and announcements were fully functional and well-received by users. Minor issues were observed in guidance scheduling and revision notes, where the lack of real-time notifications slightly affected user experience. These findings indicate that the system is generally effective, user-friendly, and ready for practical use, while still offering opportunities for further improvement, particularly in implementing real-time alerts to enhance communication and workflow efficiency.

3.4 System Effectiveness Analysis

The system effectively accelerates the internship guidance process, reduces schedule conflicts, and improves documentation compared to manual systems. Integration of revision notes and centralized announcements enhances communication and record-keeping. Compared to previous digital systems that were limited to attendance or document submission, this system provides full integration for internship guidance.

4. CONCLUSIONS

4.1 Conclusions

This web-based internship report guidance information system has been successfully developed to streamline the guidance process between students and their supervisors. Based on the User Acceptance Test (UAT)

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results, the system achieved an average satisfaction of approximately 85%, indicating that the provided features generally meet user expectations. The system has improved the guidance process in several ways, including facilitating scheduling of consultations, submitting internship reports, and providing revision notes by supervisors. It also simplifies communication and coordination between students and supervisors. All guidance data is stored centrally and can be accessed at any time, enabling comprehensive monitoring of internship report progress. Minor limitations, such as the absence of real-time notifications, were identified and can be addressed in future system enhancements. Overall, the system demonstrates effectiveness, usability, and practicality for managing the internship guidance process in higher education.

4.2 Recommendations

To further enhance the effectiveness, usability, and long-term sustainability of the internship report guidance information system, several recommendations are proposed. These suggestions aim to optimize system performance, improve user experience, and support future development.

i. Implement Real-Time Notifications: Adding notifications for schedule updates, report submissions and revision notes will improve communication and workflow efficiency.
ii. Develop a Mobile Version: A mobile application can increase accessibility for students and lecturers, allowing guidance activities to be managed anytime and anywhere.
iii. Integrate with Campus Academic Database: Linking the system with the campus academic database will facilitate automatic verification of student data and streamline administrative processes.
iv. Enhance Reporting Features: Providing advanced reporting and analytics can help lecturers and administrators monitor the progress of internship reports more effectively.
v. Continuous User Feedback: Regularly collecting user feedback will help identify new needs and improve system usability over time.

LITERATURE

[1] F. K. Dewi and R. N. Hanifah, “Web-Based Student Internship Monitoring Information System (Case Study: SMK Ma’arif NU 2 Boyolali),” *IC-ITECHS*, vol. 5, no. 1, pp. 10-20, 2024.

[2] M. T. P. Perdana, G. Farell, T. Sriwahyuni, and L. Mursyida, “Design and Implementation of a Web-Based Internship Management Information System for Vocational Education,” *J. Vokasi Inform.*, vol. 5, no. 2, pp. 25-38, 2024.

[3] A. I. Santos, C. M. Ferreira, S. Serpa, and M. J. Sá, “What is an Internship Report? Contributions to the Construction of its Meaning,” *J. Educ. e-Learning Res.*, vol. 7, no. 1, pp. 1-6, 2020, doi: 10.20448/journal.509.2020.71.1.6.

[4] A. N. Hasanah and A. Salim, “Development of a Web-Based Internship Monitoring Application for Teachers at PT Chlorine Digital Media SisInfo,” *SisInfo*, vol. 7, no. 2, pp. 160-173, 2025.

[5] H. A. Rahmadhani and I. S. Putri, “Rancang Bangun Sistem Absensi Peserta Magang Berbasis Web di PT Jasamarga RO3,” *Jutisi J. Ilm. Tek. Inform. dan Sist. Inf.*, vol. 14, no. 2, pp. 75-85, 2024.

[6] M. Faridiansyah, D. Irawan, and S. D. Purnamasari, “Intern Placement and Monitoring System at SMK YP Gajah Mada Palembang,” *Brilliance*, vol. 4, no. 1, pp. 463-469, 2024.

[7] S. Okta Rina, R. Darni, V. I. Delianti, and R. Marta, “Development of a Web-Based Internship Licensing System Using the Waterfall Model at the Ministry of Law and Human Rights,” *J. Vokasi Inform.*, vol. 5, no. 1, pp. 55-68, 2025.

[8] M. Nugraha, R. Agus, H. Fathi, and R. Baginda, “Development a Web-Based Student Internship Application using Laravel Framework,” *J. Inf. Technol. its Util.*, vol. 6, no. 1, pp. 12-25, 2024.

[9] R. Ikhwansyah and S. Samsudin, “Perancangan Sistem Informasi Penerimaan Peserta Magang Berbasis Web pada Kantor BPS Kabupaten Simalungun,” *J. Ilm. Sains dan Teknol.*, vol. 8, no. 1, pp. 21-30,

 | doi: 10.23960/pepadun.v6i3.301

2024.

[10] H. Ismayanti and R. Komalasari, "Perancangan Sistem Presensi Magang Berbasis Web dengan QR Code pada DPMPTSP Kota Bandung," *SISINFO J. Sist. Inf. dan Inform.*, vol. 7, no. 1, pp. 10-20, 2024.

[11] D. A. Wardana, N. Safitri, and I. A. Sinaga, "Perancangan Sistem Informasi ICT Tour dan Pemantauan Magang Berbasis Web pada PT. Telkom," *J. Inf. Syst. Manag.*, vol. 6, no. 2, pp. 40-55, 2025.

[12] W. F. W. A. Rahman, M. S. Bustamam, and Y. H. Putra, "The Development of an Integrated Cloud-based System to Enhance Internship Management," *J. ICT Educ.*, vol. 11, no. 2, pp. 33-45, 2024.

[13] M. F. Alamsyah and K. M. Harahap, "Development of a Web-Based Attendance System for Internship Students with Using Coordinate Point Validation," *J. Metrokom Media Tek. Elektro dan Komput.*, vol. 1, no. 2, pp. 50-60, 2024.

[14] A. Suparyati, I. Widiastuti, and I. N. Saputro, "Field Work Practice Monitoring System to Support Practical Activities for Vocational High School Students," *JTP - J. Teknol. Pendidik.*, vol. 26, no. 2, pp. 100-115, 2024.

[15] V. Febriana and I. Santoso, "Pembangunan Sistem Informasi Praktik Kerja Lapangan Berbasis Web: Studi Kasus BPS Kota Malang," *Seminar Nasional Official Statistics*, pp. 655-668, 2022.

[16] G. B. M. T. Sitorus, R. A. G. Effendi, J. F. Napitupulu, H. Pranoto, and E. S. Hermawan, "Bridging the Gap: A Comparative Evaluation of Agile , Waterfall , and Hybrid Methodologies in Modern Software Projects," *Procedia Comput. Sci.*, vol. 269, pp. 1259-1268, 2025, doi: 10.1016/j.procs.2025.09.067.

[17] I. M. Akbar, R. Septiana, and P. E. Mountaines, "Pembuatan Back-End Sistem Informasi Kerja Praktik pada Departemen Teknik Komputer Menggunakan Framework Laravel Creating a Back-End Information System for Practical Work at the Department of Computer Engineering, Diponegoro University," *Jurnal Teknik Komputer*, vol. 2, no. 3, pp. 233-239, 2023, doi: 10.14710/jtk.v2i3.38985.

[18] Y. Nugraha, "Web-Based Thesis Management Information System Design," *Sinkron : Jurnal dan Penelitian Teknik Informatika*, vol. 6, no. 4, pp. 2602-2612, 2022.

[19] R. Kumar and A. Singh, "Functional and Non-Functional Requirements Analysis for Online Internship Management Systems," *J. Softw. Evol. Process*, vol. 35, no. 3, p. e2423, 2023, doi: 10.1002/smr.2423.

[20] W. Lau, M. Tan, and H. Lim, "Requirement Engineering in Web-Based Educational Systems: A Case Study," *Int. J. Inf. Manage.*, vol. 62, p. 102429, 2022, doi: 10.1016/j.ijinfomgt.2021.102429.

[21] Y. Huang and C.-H. Lee, "Improving Student Internship Management Using Web-Based Systems," *Comput. Educ.*, vol. 182, p. 104474, 2022, doi: 10.1016/j.compedu.2022.104474.

[22] L. Chen, J. Wang, and R. Zhao, "Analysis and Design of a Web-Based Internship Supervision System for University Students," *J. Educ. Technol. Syst.*, vol. 50, no. 2, pp. 212-230, 2021, doi: 10.1177/0047239520965689.

[23] M. Roif, T. Afrianto, and S. H. Wijoyo, "Pengembangan Sistem Informasi Praktik Kerja Lapangan (PKL) Siswa Berbasis Website Menggunakan Metode Extreme Programming (Studi Kasus: SMK Negeri 1 Sumenep)," *JTIIK*, vol. 11, no. 1, 2024.

[24] M. Mintarsih "Pengujian Black Box Dengan Teknik Transition Pada Sistem Informasi Perpustakaan Berbasis Web Dengan Metode Waterfall Pada SMC Foundation," *Jurnal Teknologi Dan Sistem Informasi Bisnis*, vol. 5, no. 1, pp. 33-35, 2023.

[25] J. Wang and L. Chen, "Integration Testing of University Management Systems," *Educ. Inf. Technol.*, vol. 26, pp. 1203-1221, 2021, doi: 10.1007/s10639-020-10425-1.

[26] R. Jain and N. Patel, "Black-Box Testing Techniques for Educational Web Applications," *Int. J. Comput. Appl.*, vol. 176, no. 10, pp. 35-44, 2020, doi: 10.5120/ijca2020919123.

[27] W. Rahman and A. Khan, "Ensuring Functionality in Web-Based Systems via Black-Box Testing," *J. Softw. Testing, Verif. Reliab.*, vol. 31, no. 2, p. e2105, 2021, doi: 10.1002/stvr.2105.

 | doi: 10.23960/pepadun.v6i3.301

[28] H. Li and X. Zhang, "Workflow Verification in Educational Platforms," *J. Educ. Technol. Syst.*, vol. 51, no. 1, pp. 75-92, 2022, doi: 10.1177/00472395211025432.

[29] T. Ahmed and S. Noor, "Deployment Strategies for Web-Based Educational Systems," *Int. J. Adv. Comput. Sci. Appl.*, vol. 11, no. 12, pp. 150-162, 2020, doi: 10.14569/IJACSA.2020.0111219.

[30] A. Khalid and N. Yusof, "Software Maintenance for Academic Management Systems," *J. Softw. Maint. Evol. Res. Pract.*, vol. 33, no. 5, p. e2337, 2021, doi: 10.1002/smr.2337.

[31] J. Rodriguez and L. Martinez, "Continuous Update and Maintenance Practices for Web Applications," *J. Web Eng.*, vol. 20, no. 4, pp. 345-362, 2021, doi: 10.13052/jwe1540-9589.2045.

[32] W. Zhang and J. Liu, "User Feedback and System Performance Monitoring in Web Systems," *Int. J. Inf. Technol. Web Eng.*, vol. 17, no. 2, pp. 50-65, 2022, doi: 10.4018/IJITWE.2022040104.