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Universitas Nasional Lecturer Attendance System Design Using Web-Based Low Fidelity Prototype Method

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ABSTRACT

The Universitas Nasional Lecturer Attendance Website is a web-based application that functions for lecturers to do attendance while the lecturer or admin secretariat can validate the attendance of the lecturer if the lecturer is not present because he is unable to input attendance. On the website, there are several features that can be used by users, including student features, lecturer features, and admin features. students can update their profile and can ask questions to academics through the contact us feature. Likewise, lecturers and admins will validate the absences of lecturers in the admin feature. This can make it easier for the admin to go through the database. In addition, this website can make it easier for admins in terms of archiving / recapping data because the system is connected directly through the database.

1. Introduction

The design of information systems is important for universities and lecture activities, especially at the Universitas Nasional or UNAS. There have been many developments for lecture activities used by UNAS, but the development of important activities such as the process of monitoring lecturer attendance still uses a manual system. As well as the many complaints from students who feel that there are still many lecturers who are not present in lectures, which causes the university to have difficulty monitoring the attendance of lecturers.

The design of the website is carried out using the low fidelity prototype method to process design development, the stages carried out using this method are idea - system design - evaluation - implementation - evaluation[1][2]. Then translated into a programming language, namely by using PHP and HTML, while for the database using MYSQL, which is completed is expected to make it easier for UNAS students and lecturers in the teaching process in class. So that the existing academic system process can make it easier for lecturers and students.

Several journals are used as references, the author refers to the first research journal, namely[3]. Research on the Web-Based Attendance System at the FKIP UNIMUDA Sorong Study Program has produced an attendance system that can collect data on an average score of 87.31 in the very good category, so the attendance system is feasible to use[4]. Research on the Design of Web-Based Lecturer Attendance Monitoring at STMIK Bina Sarana Global, still has shortcomings, namely students still cannot access the website and students still have difficulty finding information about lecturer attendance[5]. Web-Based Student Attendance Application Development in the Information Technology and Computer Education Study Program, this uses the ADDIE model which produces design analysis and design in the form of an analysis of application requirements that have been developed through the testing stages of media experts with an average of 4.28 with the very good category and alpha testing of 4.113 with very good category[6]The design of the Lecturer Attendance System at Gunadarma University, still has problems in regulating the data processing system at the lecturer's secretariat, in this study it still has shortcomings in the face-to-face attendance system.[7]. Designing Realtime Lecturer Attendance Applications with the Rapid Application Development (RAD) Method Using a Web-Based Fingerprint, producing a fingerprint management system that is integrated with teaching schedules and realtime lecturer status has provided assistance to leaders to obtain lecturer attendance information quickly and accurately[8]. The WEB-based Attendance Information System at Padang State Polytechnic, still has shortcomings, namely having to have an internet network and have a compatible device with the browser used.

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From several previous studies that have been described above, the author takes the research method or frame of mind that will be explained in the next chapter.

2. Research methods

A. Research Stages

This research was conducted by using the low fidelity prototype method, to design and test and analyze the resulting responses.

There are several steps that must be done in order to achieve maximum results[9]. The following are the stages or steps of the research:

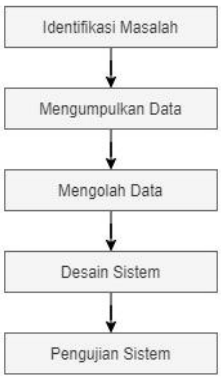

Fig 1. Framework

Based on the research framework in Figure 1 above, it can be described as follows:

1) Identification of problems
   At this stage the author begins by determining what problems should be taken, the completion of the attendance system.
2) Collecting data
   At this stage data collection was carried out directly asking students and employees regarding the management of the lecturer attendance system that is currently running.
3) Processing data
   The data that has been obtained, is processed and then the advantages and disadvantages are taken into consideration to create a lecturer attendance website.
4) System Design
   In this system design stage, the writer uses the PHP programming language and MYSQL database.
5) System Testing
   The testing phase is the testing phase of the system using a questionnaire test created using a Likert scale.

B. System planning

1) Class Diagram System Design
   Class Diagram is a description of the relationship between classes or tables used in the system[10]. In Figure 2 below is a class diagram of the lecturer attendance system database flow.

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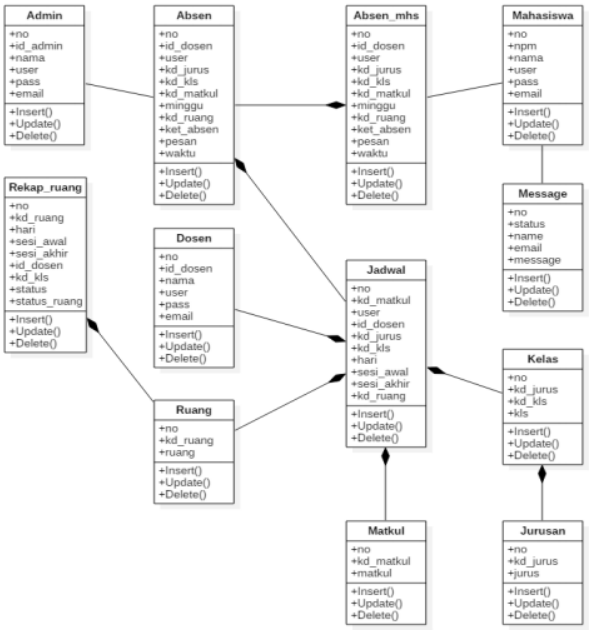

Fig 2. Class Diagram System Design

2) Use Case Diagram

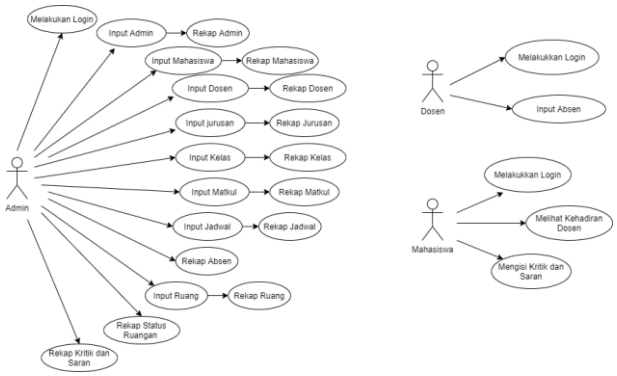

Fig 3. Use Case Diagram

In Figure 3 is a use case diagram of a system where there are 3 actors, namely admin, lecturers, and students. Seen on each line directs the interactions that can be carried out by the three actors in achieving the business processes of the application system.

C. System Testing

At this stage, the system model is tested repeatedly which aims to find errors that occur and then make repairs to the system until it is according to user needs[10].

3. Results and Discussion

In order to facilitate the processing of attendance at the Universitas Nasional , the attendance processing application was made using the low fidelity prototype method.

3.1 Result

a. Admin Dashboard

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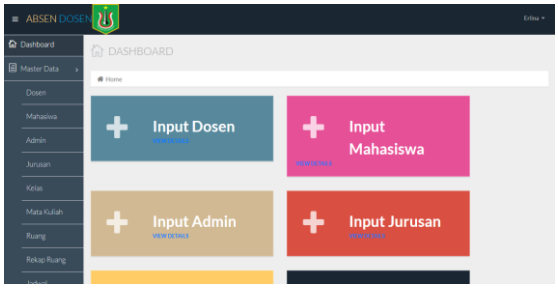

Fig 4. Admin Dashboard

In Figure 4 is the admin dashboard display, admin or secretary can do the data input process. The data that is inputted by the admin, namely, lecturers, students, admin, majors, classes, rooms, rooms, courses, schedules and messages from students. The admin can also see the recapitulation results on this lecturer attendance system such as recapitulation of lecturer attendance, schedules, students, classes, courses, rooms, rooms and classes.

b. Lecturer Attendance Form

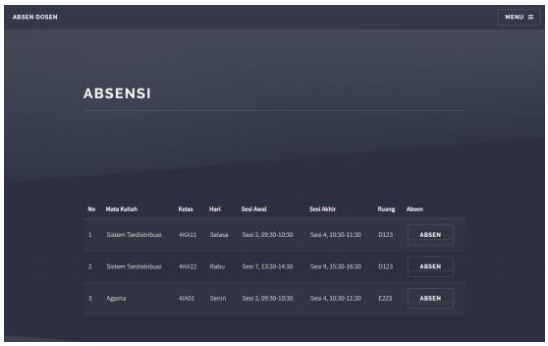

Fig 5. Lecturer Attendance Form

In Figure 5 is a lecturer attendance form, on this menu the lecturer can do absences according to the learning schedule, then the admin can validate the lecturer attendance, and students can see the lecturer attendance on the student homepage form.

c. Contact Us Students

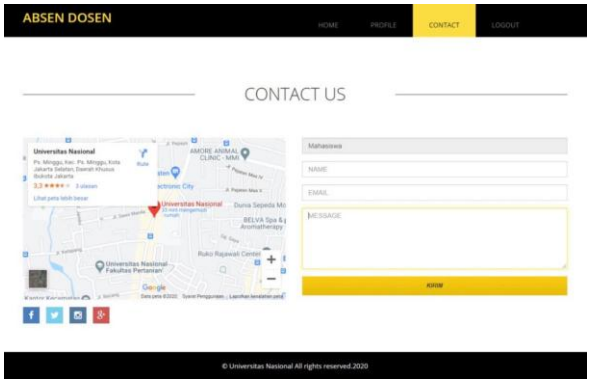

Fig 6. Student Contact Us

In Figure 6 is the contact us form found on the student page, which functions to provide criticism and suggestions to the admin or secretary of service.

3.2 Testing

At this stage, testing the website is carried out using a questionnaire test consisting of 5 questions distributed to 50. The questionnaire is made using a Likert scale from a scale of 1 to 5.

Likert scaleis a calculation method used for research purposes on whether a respondent agrees or not to a question. To calculate the maximum score for each answer, by multiplying the score by the total number of respondents, that is, the score multiplied by 50 respondents. The maximum score can be seen in Table 1.

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Table 1.
Maximum Score

Jawaban	Skor	Skor Maksimum (Skor * Jumlah Responden)
Sangat Setuju	5	250
Setuju	4	200
Cukup Setuju	3	150
Kurang Setuju	2	100
Tidak Setuju	1	50

After that, you can find the percentage of each answer using the formula:

$$Y = \frac{TS}{\text{Skor Ideal}} \; x \; 100\%$$

Y = Percentage Value
TS = Total score of respondents = ∑ score x respondents
Ideal Score = Score x Number of Respondents

The score criteria for percentage can be seen in Table 2

Table 2.
Score Criteria

Kategori	Keterangan
0%-20%	Tidak Setuju
21%-40%	Kurang Setuju
41%-60%	Cukup Setuju
61%-80%	Setuju
81%-100%	Sangat Setuju

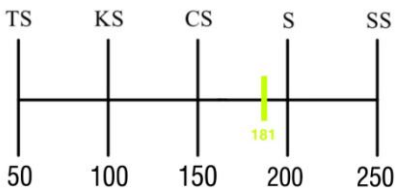
The following is the result of the percentage of each answer whose value has been calculated. This questionnaire has been submitted to 50 respondents.

a. First question

Do you agree that the interface display on this lecturer presence system has an attractive appearance?

Table 3.
Results of the First Question Questionnaire

Pertanyaan	Jawaban	Skor	Responden	Jumlah Skor	Nilai Presentase (%)
1	Sangat Setuju	5	16	80	(181:250) x 100 = 72,4%
	Setuju	4	5	20	
	Cukup Setuju	3	23	69	
	Kurang Setuju	2	6	12	
	Tidak Setuju	1	0	0	
Jumlah			50	181	



Based on the percentage value of the first question, it can be concluded that 72.4% of respondents agree that the interface in this application is interesting.

b. Second question

Do you agree that the information displayed on the lecturer attendance system is informative enough?

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Table 4.
Results of the Second Questionnaire

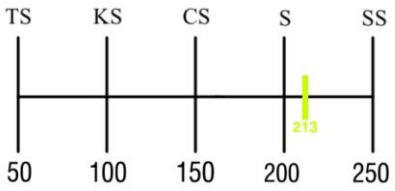
Pertanyaan	Jawaban	Skor	Responden	Jumlah Skor	Nilai Presentase (%)
1	Sangat Setuju	5	14	70	(194:250) x 100 = 77,6%
	Setuju	4	20	80	
	Cukup Setuju	3	12	36	
	Kurang Setuju	2	4	8	
	Tidak Setuju	1	0	0	
Jumlah			50	194	

Based on the percentage value of the second question, it can be concluded that 77.6% of respondents agreed that the lecturer attendance system was quite informative.

c. Third Question
Do you agree that this lecturer attendance system can make it easier for the Universitas Nasional lecture process?

Table 5.
Results of the Third Question Questionnaire

Pertanyaan	Jawaban	Skor	Responden	Jumlah Skor	Nilai Presentase (%)
1	Sangat Setuju	5	24	120	(213:250) x 100 = 85,2%
	Setuju	4	16	64	
	Cukup Setuju	3	9	27	
	Kurang Setuju	2	1	2	
	Tidak Setuju	1	0	0	
Jumlah			50	213	



Based on the percentage value of the third question, it can be concluded that as many as 85.2% of respondents strongly agree that the lecturer attendance system can facilitate the Universitas Nasional lecture process.

d. Fourth Question
Do you agree that this lecturer attendance system application is easy to use?

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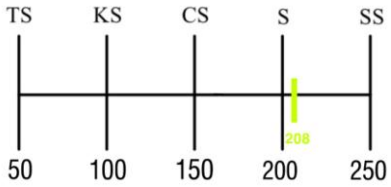
Table 6.
Fourth Question Questionnaire Results

Pertanyaan	Jawaban	Skor	Responden	Jumlah Skor	Nilai Presentase (%)
1	Sangat Setuju	5	18	90	(208:250) x 100 = 83,2%
	Setuju	4	22	88	
	Cukup Setuju	3	10	30	
	Kurang Setuju	2	0	0	
	Tidak Setuju	1	0	0	
Jumlah			50	208	

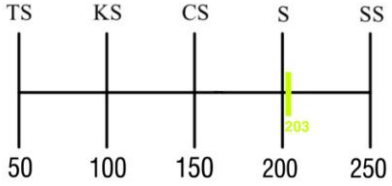


Based on the percentage value of the third question, it can be concluded that 83.2% of respondents strongly agree that the lecturer attendance system is easy to use.

e. Fifth Question
Do you agree that this lecturer attendance system application needs to be developed?

Table 7.
Results of the Fifth Question Questionnaire

Pertanyaan	Jawaban	Skor	Responden	Jumlah Skor	Nilai Presentase (%)
1	Sangat Setuju	5	17	85	(203:250) x 100 = 81,2%
	Setuju	4	20	80	
	Cukup Setuju	3	12	36	
	Kurang Setuju	2	1	2	
	Tidak Setuju	1	0	0	
Jumlah			50	203	



Based on the percentage value of the third question, it can be concluded that 81.2% of respondents strongly agree that the lecturer attendance system is good enough.
The results of each statement are calculated to find the overall average. Then will be compared with Table 1. To draw conclusions. The calculation of scale processing can be seen in Table 8.

Table 8.
Processing Scale

No Pertanyaan	Nilai Presentase	Keterangan
1	72,4%	Setuju
2	77,6%	Setuju
3	85,2%	Sangat Setuju
4	83,2%	Sangat Setuju
5	81,2%	Sangat Setuju
Total Persentase	72,4%+77,6%+85,2% +83,2%+81,2% = 399,6%	Setuju
Rata-rata	399,6% : 5 = 79,92%	

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4. Conclusion

From the results of research on "Designing the Universitas Nasional Lecturer Presence System Using the Web-Based Low Fidelity Prototype Method" that has been done, the authors can conclude:

a. With the construction of this lecturer attendance processing application, it can record attendance and monitor lecturer attendance and evaluate the attendance of lecturers at the Universitas Nasional Information System Study Program.
b. Can quickly help academics in recapitulating and can minimize errors in recapitulation.
c. The selection of features and system design is tailored to the needs and usability to support the smooth running of the lecture process.
d. The results of the questionnaire test obtained an average value of 79.92% in the very good category, so the lecturer presence system was feasible to use.

5. Reference

[1] A. Kala'lembang and M. Islamiyah, "The Application of Lecture Attendance Processing Using the Prototype Method at STMIK Asia Malang," J. Ilm. Technol. Inf. Asia, vol. 12, no. 2, p. 147, 2018.
[1] A. Kala'lembang and M. Islamiyah, "Aplikasi Pengolahan Presensi Perkuliahan Dengan Metode Prototype di STMIK Asia Malang," *J. Ilm. Teknol. Inf. Asia*, vol. 12, no. 2, p. 147, 2018.
[2] D. Purnomo, "Model Prototyping Pada Pengembangan Sistem Informasi," *JIMP-Jurnal Inform. Merdeka Pasuruan*, vol. 2, no. 2, 2017.
[3] R. C. Saragi Napitu, I. A. Ramadhani, and F. Firman, "Perancangan Sistem Absensi Berbasis Web pada Program Studi PTI UNIMUDA Sorong," *J. PETISI (Pendidikan Teknol. Informasi)*, vol. 1, no. 2, pp. 1–7, 2020.
[4] M. I. Hanafri, Triono, and I. Luthfiudin, "Rancang Bangun Sistem Monitoring Kehadiran Dosen Berbasis Web Pada STMIK Bina Sarana Global," *J. Sisfotek Glob.*, vol. Vol.8, no. No.1, pp. 81–86, 2018.
[5] F. Marlianto, D. Sulistiyarini, and F. Sabirin, "Pengembangan Aplikasi Kehadiran Mahasiswa Berbasis Web Pada Program Studi Pendidikan Teknologi Informasi dan Komputer," *INVOTEK J. Inov. Vokasional dan Teknol.*, vol. 20, no. 2, pp. 97–106, 2020.
[6] L. Arum, K. Thyas, F. I. Komputer, and U. Gunadarma, "PERANCANGAN SISTEM KEHADIRAN DOSEN DI UNIVERSITAS GUNADARMA," pp. 113–119.
[7] D. Setiawan Putra and A. Fauzijah, "Perancangan Aplikasi Presensi Dosen Realtime Dengan Metode Rapid Application Development (RAD) Menggunakan Fingerprint Berbasis Web," *J. Inform. J. Pengemb. IT*, vol. 3, no. 2, pp. 167–171, 2018.
[8] A. G. Mulia, "Sistem Informasi Absensi berbasis WEB di Politeknik Negeri Padang," *Jtii*, vol. 05, no. 01, pp. 11–17, 2020.
[9] R. A. Fitri Andini, Med Irzal, "PERANCANGAN DAN IMPLEMENTASI SISTEM ABSENSI ONLINE BERBASIS ANDROID DI LINGKUNGAN UNIVERSITAS NEGERI JAKARTA Anantassa Fitri Andini, Med Irzal, Ria Arafiyah Program Studi Ilmu Komputer, FMIPA UNJ," *Sist. Inf.*, vol. 1, no. 1, pp. 1–10, 2017.
[10] Suendri, "Implementasi Diagram UML (Unified Modelling Language) Pada Perancangan Sistem Informasi Remunerasi Dosen Dengan Database Oracle (Studi Kasus: UIN Sumatera Utara Medan)," *J. Ilmu Komput. dan Inform.*, vol. 3, no. 1, pp. 1–9, 2018.
[11] T. Hidayat and M. Muttaqin, "Pengujian Sistem Informasi Pendaftaran dan Pembayaran Wisuda Online menggunakan Black Box Testing dengan Metode Equivalence Partitioning dan Boundary Value Analysis," *J. Tek. Inform. UNIS JUTIS*, vol. 6, no. 1, pp. 2252–5351, 2018.