User Satisfaction Assessment of Final Project Supervisor Monitoring Information System Using User Experience Design Method

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Abstract

Completing the final project takes a guiding process n the final project where the concept of final project guidance itself is an effort to help students to provide direction, assistance, suggestions, and criticisms that arise from the preparation of the final project by the supervisor. However, sometimes the guidance process is not optimal. Lecturers or students themselves can cause this. The difficulty for lecturers to help students during tutoring is the limited communication time that is too narrow on campus and the difference in busy schedules between students and supervisors. Managing the time for the final independent project is also an obstacle that causes the completion of the final project to be delayed. Some students tend to be less active in carrying out guidance if the supervisor does not provide a fixed guidance schedule or does not provide a target time for students to complete the revision of the final project from the supervisor. So, it is necessary to build an information system for monitoring the final project supervisor to monitor the existence of supervisor. This study uses the User Experience Design Process to increase user satisfaction in interacting with the product. And at the final stage, a Usability Testing evaluation is carried out to test the product's usefulness. The results of this study are in the form of an assessment of how satisfied and comfortable a user is with a product, system, and service using an interface.

Keywords: User Experience Design Process, Satisfaction, Usability Testing, Interface

1. INTRODUCTION

Tanjungpura University (UNTAN), under the auspices of the Ministry of Education, Culture, Research, and Technology, has nine faculties and approximately eighty study programs, which have their respective levels of knowledge and expertise. The development of a university cannot be separated from the success of the work units under it and the Informatics study program. The Informatics Study Program under the auspices of the Faculty of Engineering certainly plays an important role in advancing UNTAN in its field. Such as

UNTAN's motto, "Building a Digital Ecosystem Towards Cyber Universities" [1]. But it is undeniable that the Informatics study program also has several issues that must be resolved, and one of them is not optimal for the guidance hours of the student's final project. Guidance hours are very important for final project students because of one of the steps and ways to complete lectures on time. If the final project student guidance hours are not optimal because they are not monitored or monitored by the presence of lecturers on campus, then this is an obstacle for students to complete their studies. If students are hampered in completing the study period, it will prolong the student's study period, resulting in an unbalanced ratio of lecturers and students and poor accreditation of majors affiliated with the university. In completing the final project, the final project guidance process is needed where the concept of final project guidance itself is an effort to help students to provide direction, assistance, advice, and constructive criticism in systematically compiling the final project.

Based on the observations and interviews with the head of the informatics department of Tanjungpura University and several lecturers and students, this problem has a very high level of urgency if it is not resolved. From this problem came an idea in the form of designing an information system for monitoring final project supervisors, which is expected to optimize the number of hours of student final project guidance [2]. So that students do not need to worry if their contact with the lecturer is not responded to quickly or from the lecturer's side. There is no need to reply one by one to the guidance students through short messages. The final project supervisor monitoring information system is web-based [3] and implemented to overcome previously discussed problems. A web interface prototype [2]–[4] is needed to build an information system. Design and Build a Monitoring Information System for Final Project Supervisors in this study designed using User Experience. User Experience assesses how satisfied and comfortable a person is with a product, system, or service, like using an interface. Sometimes, users experience difficulties during the interaction process [2], [5], [6]. If users feel satisfied and comfortable applying the information system built, the information system's implementation runs well.

The final project supervisor monitoring information system or can, called SIMDPTA, used in this study is usability testing involving users [7]. Users in SIMDPTA are lecturers and students who have different user roles and behaviors. From the lecturer's side, lecturers will manage their respective profiles and are given authentication in the form of login protection to the information system. Meanwhile, from the student side, they can only see the lecturer's profile and the status of the lecturer's whereabouts, but there is a convenience for students that students can search and screen according to their respective supervisors so that they do not need to search one by one. Testing was carried out to determine how much ease the information system can be used by the user so that it can be accepted in the operating environment [8], [9].

2. METHODS

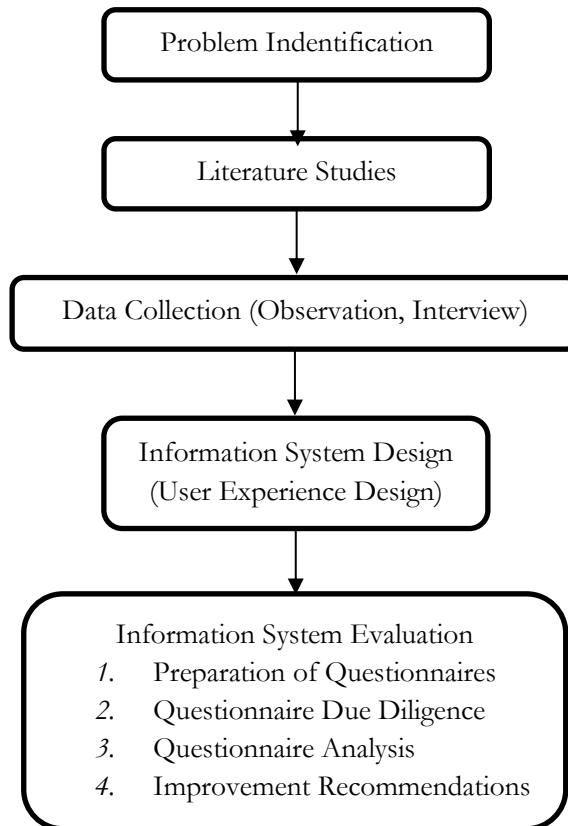The research methods used in this study are as follows:

Figure 1. Metodologi Penelitian

2.1. Problem Identification

Based on what was discussed in the previous chapter, problem identification is used to determine what will be done in this study. Seeing the benefits of an information system for monitoring final project supervisors, it is appropriate for one agency to build an information system for the initial stage. And it is still rare to evaluate the information system that has been designed. The evaluation was carried out to find out how the information system model is used in the context of the Informatics department. This evaluation will greatly benefit the developer as one of the foundations of information systems development. In addition, the

results of the evaluation of the information system from users also affect the extent to which the interface is accepted by its users.

2.2. Literature Studies

Done to add references used in completing this study. Of course, to increase the researcher's understanding of UI Design, UX Design Process, Usability Testing, and all related evaluations about Usability Testing and other documents related to research [10].

2.3. Data Collection

In addition to observation, in this stage, the researcher interviewed the head of the informatics department of Tanjungpura University to take as much information as possible related to the issues raised, not only that the researcher asked the head of the department for advice as a leader regarding the ideas made to solve the problem. Researchers also interviewed some lecturers in the informatics building to explore information as a reference for data and corroborate the data owned by researchers.

2.4. Perancangan Sistem Informasi

At this stage, the information system interface design is carried out following the User Experience Design method :
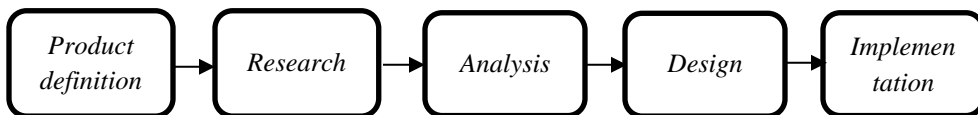

Figure 2. User Experience Design method

1. Product definition, The product to be made is a Prototype of the Final Project Supervisor Monitoring Information System, which aims to find out information on the whereabouts of lecturers majoring in Informatics without asking administrative staff, or lecturers in the informatics building. Several stages are carried out, namely, understanding the situation of the environment around the Informatics department, collecting ideas from several users, and uniting ideas from other users for getting detailed needs.
2. Research, The basic stage in conducting user research is planning users, namely Lecturers and Students, and conducting research such as interviews or surveys.

3. Analysis, From the interview or survey process, a biography of the target user can be obtained, including needs, problems, and what the user wants.
4. Design: The results of this design will be tested on how potential users respond to the design created. A prototype is a draft version or product that will bring the representation as close as possible to the user, both from the website and its user interface, before coding begins
5. Implementation, At the design implementation stage, a Live Release is carried out on information system products that have been made to be tested on potential users or users.

2.5. Information Systems Evaluation

At this stage, an evaluation will be carried out on the information system interface using Usability Testing with a questionnaire method.

1. Preparation of Questionnaires, The preparation of questionnaires is carried out by referring to the indicators obtained from the stages of the literature study. The questionnaire was designed using a google form to make it easier for respondents.
2. Preparation of the Questionnaire, The purpose of this stage is to obtain data that will later be used for validity and reliability tests and ensure whether the google form created can run properly before being distributed.
3. Distribution of Questionnaires, Dissemination of Questionnaires Through WhatsApp Groups to Lecturers and Students because it follows the information system's users.
4. Questionnaire Evaluation, Reassessing whether the testimonial stage is as expected or not.

3. RESULTS AND DISCUSSION

3.1 Information Systems Design

At this stage, the process of designing a prototype interface is carried out according to the needs that the user has conveyed through a questionnaire that has been distributed. The following are the steps to create the interface design that is carried out:

- Defining User Persona, Persona is the most important document created to analyze users. Personas are the foundation for user documentation, which extends personas for deeper insights [2].
  1. Name – using a username
  2. Lecturer Status - a reference for students regarding the existence of lecturers

3. WhatsApp Number – contact person in the form of a lecturer's cellular number
4. Email – contact person in the form of lecturer's electronic mail
5. List of guidance students – in the form of groups of guidance students who have been organized
6. Set up TA guidance – a form of final project guidance service arrangement.
7. Demographics – references to targeted based groups
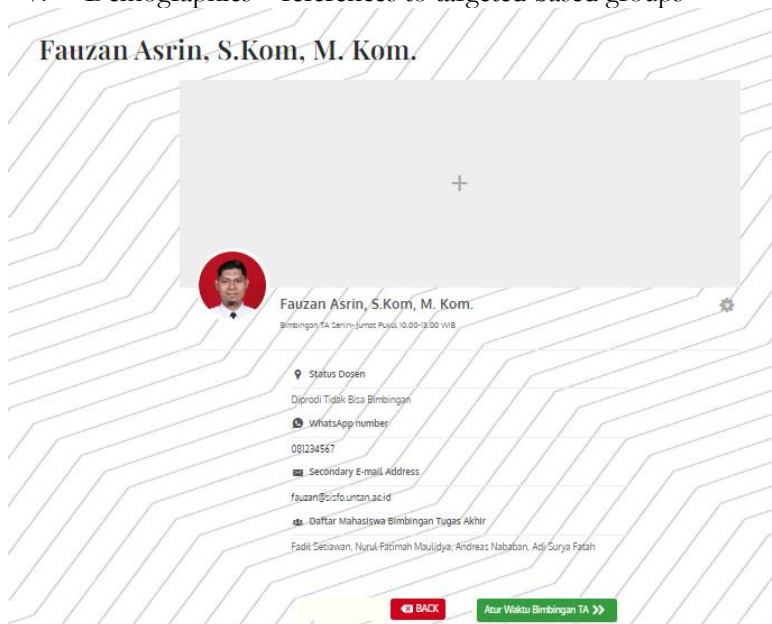
Gambar 3. User Persona Dosen

Create CJM (Customer Journey Maps), Customer journey maps that describe the relationship and interaction between customers and the organization. For each step, the customer journey map addresses the user's state of mind in

These areas [2], [3], [5]:
1. Goals - What do they want to achieve in this step?
2. Expectations - How do they think this step will work? Beyond the influence and products of competitors have a great impact on this.
3. Process - How do they hope to achieve their goals? See the difference between the process they selected and the best process.
4. Experience - If the user had to assess this stage, what would they say?
5. Problem - What do users like about this stage?
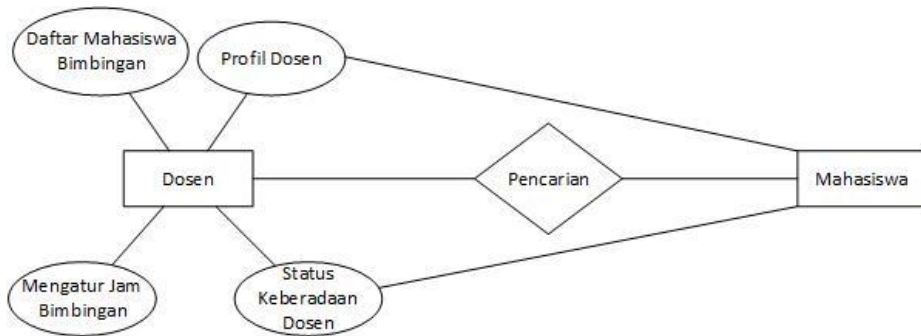6. Ideas - What users don't like about this stage

Figure 4. Customer journey maps users

Interface Design, Main Menu Display is the first display that appears when the user opens the Final Project Supervisor Monitoring Information System through the website. This display has three main menus: the Home menu, Lecturer Login, and View lecturers. The Main Menu view can be seen in Figure 5 [11].

Figure 5. Main Menu

In the main menu of SIMDPTA majoring in informatics, users (students) do not need to log in to see a list of lecturers' names and their status of existence. Students can access this page through the following URL https://informatika.untan.ac.id/simdpta/ Students can monitor the latest status of lecturers through the URL above without contacting informatics lecturers. It can be seen in figure 6.
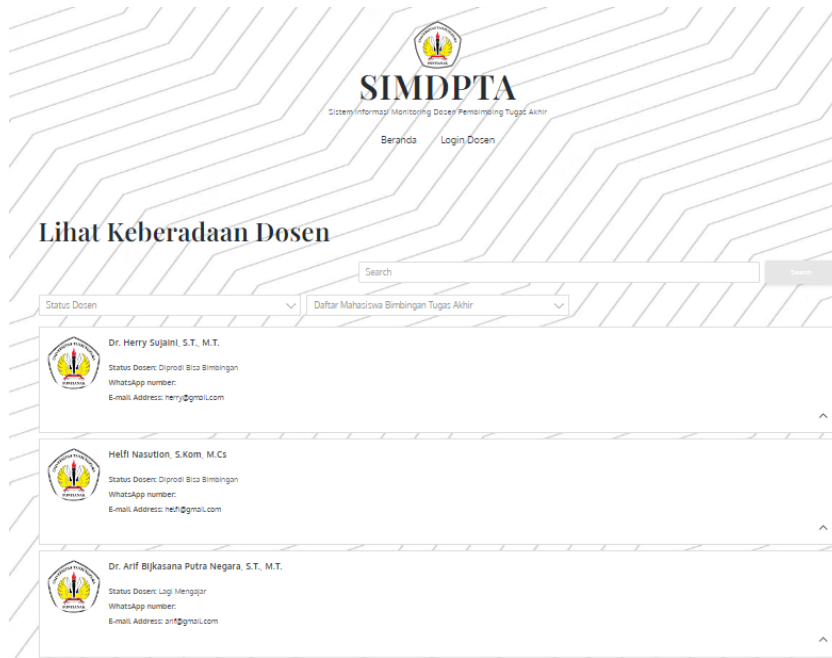
Figure 6. View Lecturers Menu

3.2   Evaluation of Information Systems

In this study, researchers used a Nielsen model questionnaire as a parameter in measuring usability. The Nielsen model questionnaire consists of five components: learnability, efficiency, memorability, errors, and satisfaction[12]. Measurement was carried out by distributing questionnaires to 25 lecturer respondents and 50 final project student respondents, with the object of the final project supervisor monitoring the information system. In this study, the results of answering the lecturer questionnaire were targeted at 25 people, but only 14 lecturers answered the questionnaire. At the same time, the answers from targeted students of 50 people who answered the questionnaire were only 27 people [13]. The full answers respondents were 41 people. The following is a draft questionnaire question distributed [14].

Table 1. Lecturer Questionnaire

No	Question
1	Do You Agree that the SIMDPTA Home Display above is quite Attractive?
2	Do you agree that the layout/display of the menu is easy to see?
3	Is the Lecturer View Menu Display above Attractive Enough?

No	Question
4	Do you agree that the Lecturer's Login Display is Quite Attractive?
5	Do you agree that the Lecturer's Login Display is Quite Attractive?
6	Do you agree that the login feature makes it easier for lecturers to log in without registering an account?
7	Do you agree that the account feature makes it easy for lecturers to manage their accounts? Such as changing passwords, email, name, privacy information, etc.
8	Do you agree that the profile edit feature makes it easier for lecturers to manage their whereabouts information?
9	Do you agree that the set guidance hours feature makes it easier for lecturers to get information on the number of hours of the final project guidance service to be recapitulated both weekly and monthly

Table 2. Student Questionnaire

No	Question
1	Do You Agree that the SIMDPTA Home Display above is quite Attractive?
2	Do you agree that the layout/display of the menu is easy to see?
3	Do you agree that the layout/display of the menu is easy to see?
4	Do you agree that the Lecturer's Login Display is Quite Attractive?
5	Apakah Anda Setuju Pemilihan Warna SiMDPTA menarik?
6	Do you agree that the see lecturers feature makes it easier for you to see information about the existence of lecturers?
7	Do you agree that the lecturer search feature helps you to find out the status of information on the whereabouts of lecturers, lecturer guidance hours, no way, etc.?
8	Do you agree that the five categories of lecturer status help you sort to see information on the whereabouts of your supervisor?
9	Do you agree that sorting by student name of the final project guidance /your name makes it easier for you to find two of your final project mentors?

Feasibility Test Kuisioer, After deployment, the validity of the questionnaire can run well through a google form, and the results show the dominance of the answers agree and strongly agree when combined, meaning that the validity shows very well. Then all the statements on the questionnaire are reliable and reliable as a research tool.

Analysis of Questionnaire Results: After the questionnaire is given to respondents, a recap of the results that have been distributed is then carried out. The Usability testing results on lecturers and students were 41 respondents describing the distribution of answers to each question in the usability testing questionnaire [15]. The following are the examiner's results using questionnaires and recapitulation of the results based on two user categories: lecturers and students.
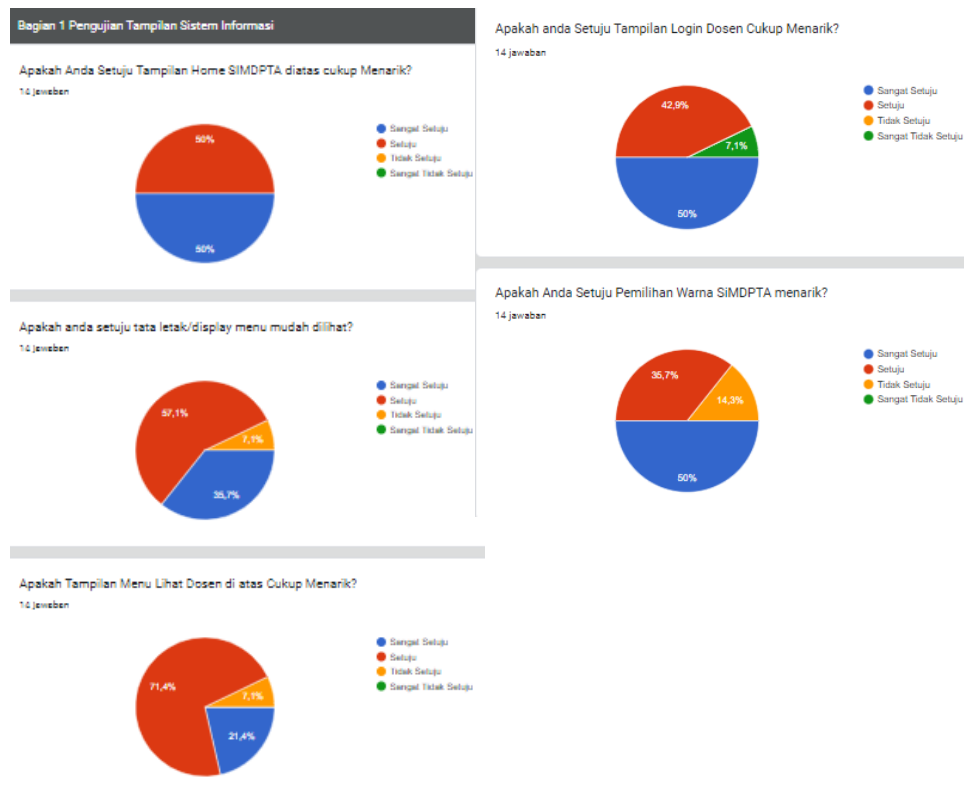
1.   Lecturer Interface Display Test Results

Figure 7. Lecturer Interface Display Test Results

From the results of testing the appearance of the lecturer interface above, a recap of the answers from 14 lecturer correspondents was obtained with the distribution of the questions given. The results obtained that the average correspondent answered each question related to the interface's appearance was Agree and Strongly Agree, although there were the highest dissenting answers at 14.3% and the most disapproving answers at 7.1%. It can be seen in Table 3.

Table 3. Recap of the results of testing the appearance of the lecturer interface

| No	Question	Scale in Percentages				Total
		STS	TS	S	SS	
1	Do You Agree that the SIMDPTA Home Display above is quite Attractive?			50%	50%	100%
2	Do you agree that the layout/display of the menu is easy to see?		7,1%	57,1%	36,7%	100%
3	Is the Lecturer View Menu Display above Attractive Enough?		7,1%	71,4%	21,4%	100%
4	Do you agree that the Lecturer's Login Display is Quite Attractive?	7,1%		42,9%	50%	100%
5	Do you agree that the Lecturer's Login Display is Quite Attractive?		14,3%	36,7%	50%	100%

2.   Lecturer Feature Test Results
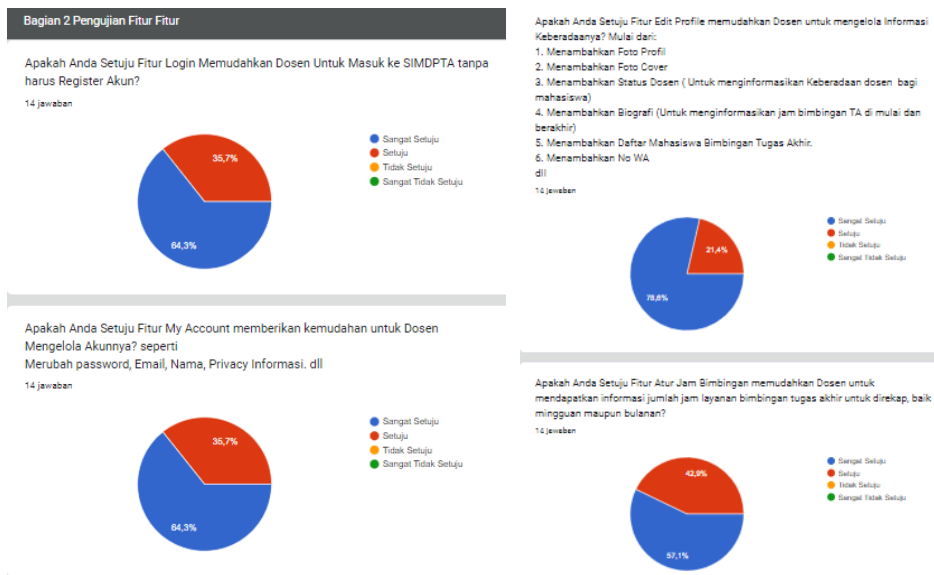
Figure 8. Lecturer Feature Test Results

From the results of the lecturer feature testing above, a recap of the answers from 14 lecturer correspondents was obtained with the distribution of the questions given. The result obtained that the average correspondent answers every question related to the interface's appearance is Agree and Strongly Agree with no other answer. It can be seen in Table 4.

Table 4. Recap of lecturer feature testing results

| No	Question	Scale in Percentages				Total
		STS	TS	S	SS	
1	Do you agree that the login feature makes it easier for lecturers to log in without registering an account?			35,7%	64,3%	100%
2	Do you agree that the account feature makes it easy for lecturers to manage their accounts? Such as changing passwords, email, name, privacy information, etc.			35,7%	64,3%	100%
3	Do you agree that the profile edit feature makes it easier for lecturers to manage their whereabouts information?			21,4%	78,6%	100%
4	Do you agree that the set guidance hours feature makes it easier for lecturers to get information on the number of hours of the final project guidance service to be recapitulated both weekly and monthly			42,9%	57,1%	100%

1.   Student Interface Test Results
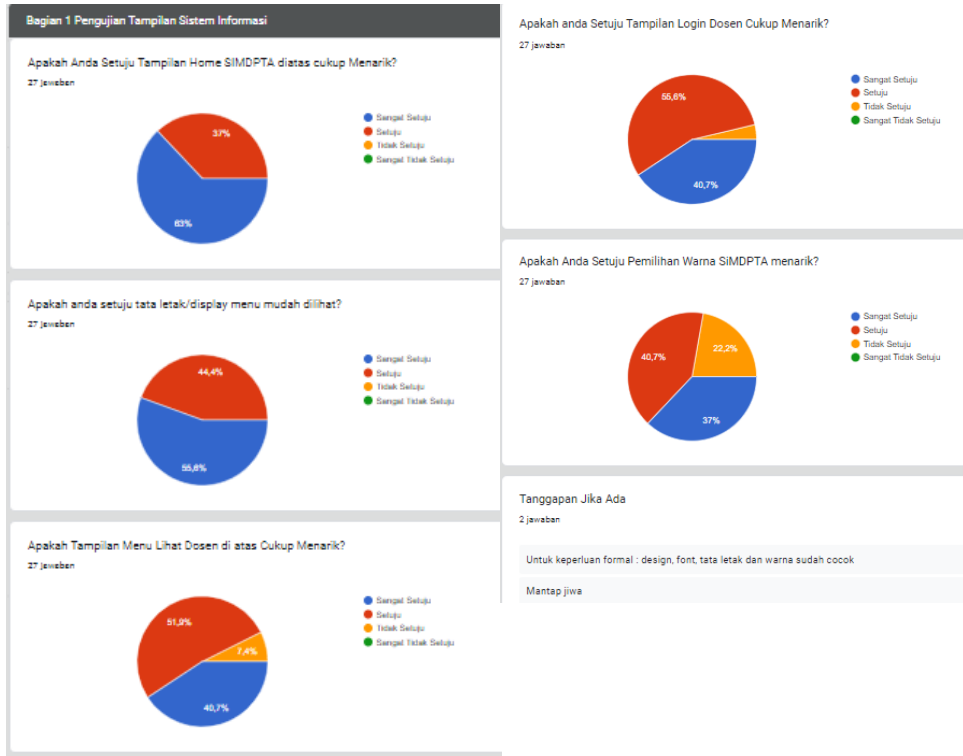
Figure 9. Student Interface Test Results

From the results of testing the appearance of the student interface above, a recap of answers from 27 lecturer correspondents was obtained with the distribution of the questions given. The results obtained that the average correspondent answered each question related to the interface's appearance was Agree and Strongly Agree even though there were dissenting answers at most 22.2%. It can be seen in Table 5.

Table 5. Recap of student interface y test results

No	Question	Scale in Percentages				Total
		STS	TS	S	SS	
1	Do You Agree that the SIMDPTA Home Display above is quite Attractive?			37%	63%	100%

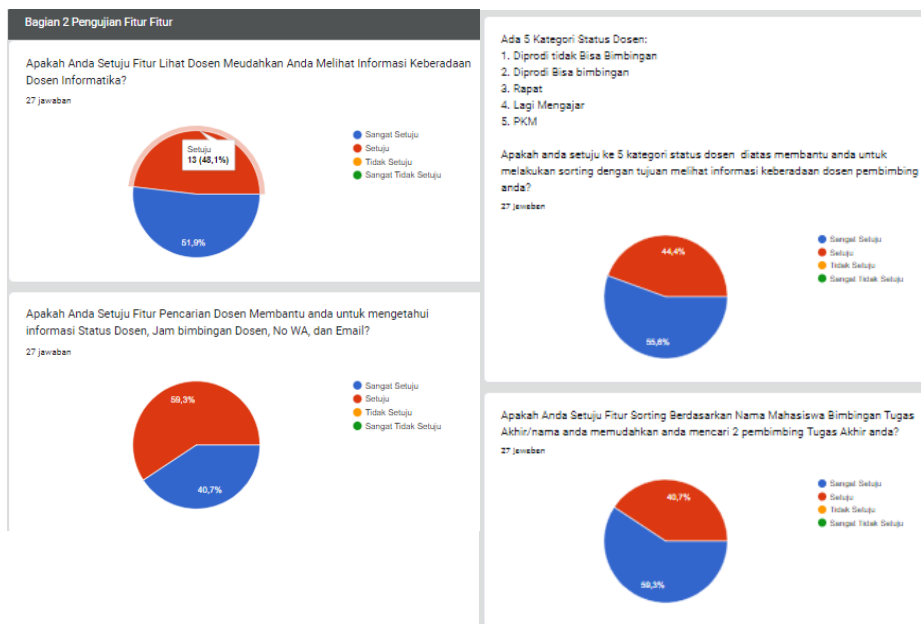| 2	Do you agree that the layout/display of the menu is easy to see?		44,4%	55,6%	100%
3	Do you agree that the layout/display of the menu is easy to see?	7,3%	51,9%	40,7%	100%
4	Do you agree that the Lecturer's Login Display is Quite Attractive?	3,7%	55,6%	40,7%	100%
5	Apakah Anda Setuju Pemilihan Warna SiMDPTA menarik?	22,2%	40,7%	37%	100%

1.　Student Feature Test Results

Figure 10. Student Feature Test Results

From the results of testing the student features above, a recap of the answers from 27 lecturer correspondents was obtained with the distribution of the questions given. The result obtained that the average correspondent answers every question related to the feature's appearance is Agree and Strongly Agree. There is no other answer than that. It can be seen in Table 6.

Table 6. Recap of student feature test results

No	Question	Scale in Percentages				Total
		STS	TS	S	SS	
1	Do you agree that the see lecturers feature makes it easier for you to see information about the existence of lecturers?			48,1%	51,9%	100%
2	Do you agree that the lecturer search feature helps you to find out the status of information on the whereabouts of lecturers, lecturer guidance hours, no way, etc.?			59,3%	40,7%	100%
3	Do you agree that the five categories of lecturer status help you sort to see information on the whereabouts of your supervisor?			44,4%	55,6%	100%
4	Do you agree that sorting by student name of the final project guidance /your name makes it easier for you to find two of your final project mentors?			40,7%	50,3%	100%

Improvement Recommendations

The Final Project Supervisor Monitoring Information System that was built was following user expectations, so no improvements have been made quickly until there is input from the user again. It's just that question no 5 in Table 1 and Table 2 became a quick fix and has been done well.

4. CONCLUSION

The information system design uses the UX Design Process method, which consists of the following steps, the definition of the product created, researching the surrounding environment with observation and interviews, analyzing the needs of the interview and observation results, designing a prototype, and finally testing the information system. Evaluation of Usability Testing conducted using the questionnaire method. The distribution of questionnaires is given to lecturers and students. Forty-one respondents answered, with the condition that they must be from the department of informatics Tanjungpura University. After the data in the form of a questionnaire is filled and collected, the data processing stage will be carried out. And the results of data processing make recommendations and improvements for information systems better because the orientation is the user. The Final Project Supervisor Monitoring Information System that was built was following user expectations both in terms of its interface and the usefulness of the information system that was built so that it could be applied in the environment of the informatics department of Tanjungpura University.

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