

Covid-19 Self Reporting Information System in Educational Environment Based Website

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ABSTRACT

This research aims at facilitating the recording of employees and lecturers in the UNIKOM campus environment, who are infected with Covid-19. Using the UNIKOM Covid-19 Task Force Information System, recording and reporting will be more efficient and safer, and there is a more accurate tracing process compared to manual recording. In this research, the development of the system used the system development life cycle (SDLC) waterfall method and descriptive analysis. The results of this study are in the form of websites that can help the data input process or self-reporting of employees and lecturers infected with COVID-19 especially in the UNIKOM environment only.

Keywords: Covid-19, Education, Information System, SDLC, Website

1. INTRODUCTION

At January 30, 2020 COVID-19 was designated as a Public Health Emergency of International Concern (PHEIC) or public health emergency that unsettled the world by WHO. COVID-19 spreads rapidly, especially with a history of close contact with people who have been infected or COVID-19 patients (**Lin et al, 2019**). Covid-19 is indeed a dangerous disease outbreak and has a high level of transmission as well but on the other hand, it has a rapid impact on the development of information technology such as storage, processing and data processing which has reached the level of need so that all institutions are helped to advance, utilize it, and mitigate or eliminate identity threats, especially during the COVID-19 pandemic (**Maolana & Sastradipraja, 2021**)

During a pandemic, efficient data recording and reporting are more emphasized, when data processing can be replaced with an information system based on data self-reporting employees and lecturers who are indicated to be exposed to Covid-19. It is useful for Covid officers in the campus environment in tracing because data can be accessed quickly, safely, and accurately. The previous reporting process still use manual methods, which is less effective considering the number of employees and lecturers who are afraid if they report manually or directly. This condition certainly has a bad impact on the campus environment and can cause clusters in the campus environment (**Alviana & Kurniawan, 2021**).

The development of information technology today has facilitated human life with various technological products. Technology can have a very positive impact on humans in increasing interest and beneficial for long-term plans, especially in pandemic situations where all activities are forced to hurry without meeting in person (**Kurniawan et al, 2020**). Based on some of the above problems, an ODP reporting system of employees and lecturers who had been exposed to Covid-19 was needed that could facilitate the recording and reporting process. Then the author created a self-reporting system for the potential of contracting the corona virus in the Indonesian Computer University environment. The creation of this system is expected to facilitate the recording and reporting process for every lecturer and employee who has symptoms or is exposed to covid in the university environment.

2. DESIGN METHOD

The methods used in this study were descriptive analysis of interviews and analysis of document related to employee and lecturer data so that it was built a reporting system that could be used easily and with no difficulty when users use it (**Soendari, 2012**).

As for the system development method used was the System Development Life Cycle (SDLC) waterfall method, of which stages can be seen in Figure 3.1 (**Kurniawan et al, 2020**). The SDLC waterfall method itself is part of the implementation of development with the target of having good results and in accordance with the napa desired by the users of the service (**Ardiansyah et al, 2021**).

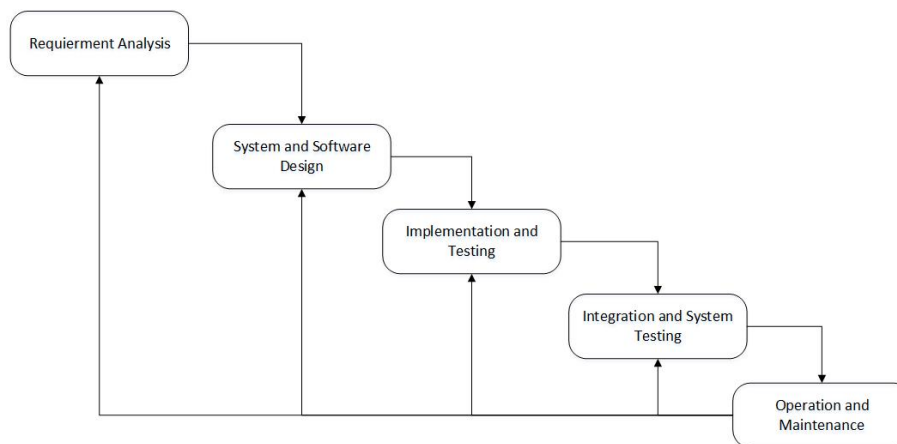


Figure 1. Waterfall Method

Figure 1 shows that there are 5 stages in building the system as follows:

1. The first stage is Requirement Analysis, when collecting data and the needs for complete analysis as well as defining what needs must be achieved by the system are conducted. This data can be the result of discussions and surveys.
2. System and Software Design as the second stage of designing software design includes the estimation process before the creation of the system. System design can be created in Flowchart, Mind Map, or Entity Relationship Diagram (ERD).
3. The third stage is implementation and testing, where all designs that have previously been made are implemented into the system, then tested for the initial stage.
4. In the Integration and System Testing stage, pre-made systems are combined and tests are conducted to find out whether the system is in accordance with its design and function or not.

5. Operation and Maintenance is the final stage of the waterfall model. The system that has been completed is run and maintenance is carried out. Maintenance can be in the form of fixing errors that were not found at the previous stage.

If all stages have been run, the last system will be maintained. This process allows developer to make improvements based on errors that were not detected at the previous stage and therefore development is carried out.

3. RESULTS AND ANALYSIS

The new system to be created is a system that records self-reporting of potential Covid-19 infections in a web-based UNIKOM environment. The depiction of the design and modeling of the system is made using a Use Case Diagram, a behavioral picture of the system to be built. Behavior here can be interpreted as an interaction between one actor and another actor **(Nurhadi & Indrayuni, 2021)**. And also using activity diagram modeling, this workflow picture (workflow) can also be called the activity of the system and user **(Aris et al, 2016)**.

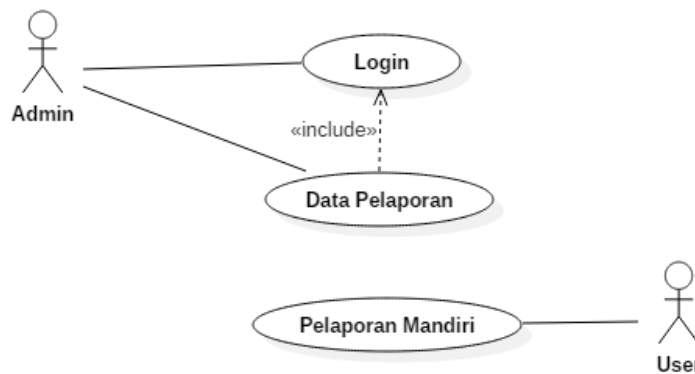


Figure 2. Use Case Diagram

Figure 2 is included to describe interactions between actors in the covid-19 self-reporting system. There are 2 actors involved, namely the admin and user, and each actor is connected to each other with actions that can be done with the system **(Alviana, 2020)**.

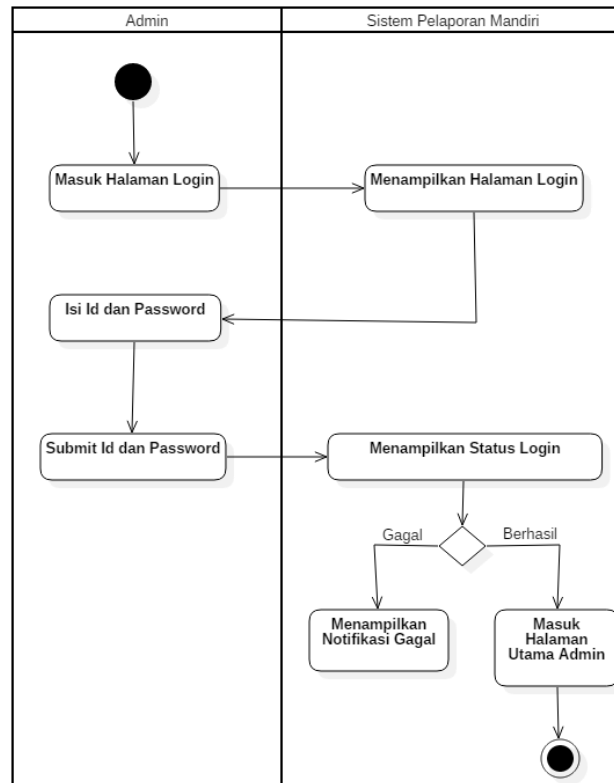


Figure 3. Admin Diagram Activity

Figure 3 is an activity diagram of the admin process entering the covid-19 self-reporting system. When the admin accesses the system address, the system will display the login page there and the admin will then be asked to fill in the username and password. If the data are entered correctly then the system will enter on the admin main page containing self-reports inputted by lecturers and employees who are exposed to covid-19.

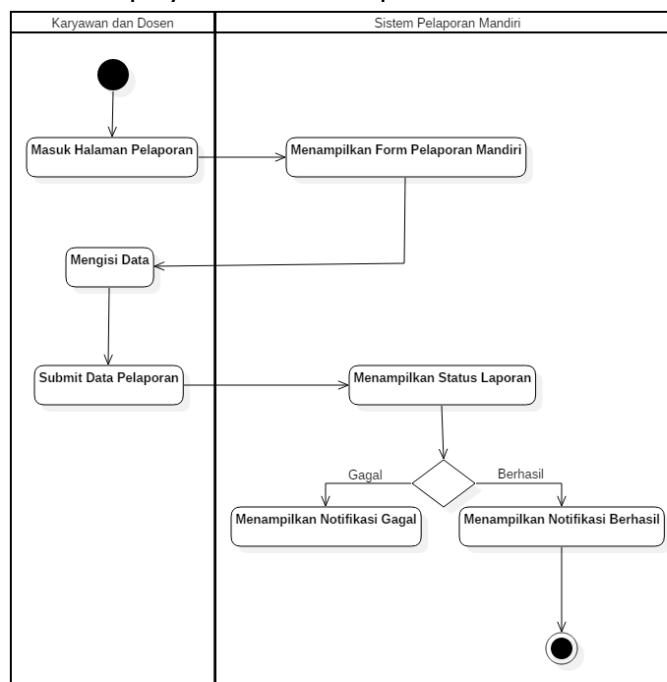


Figure 4. Self Report Diagram Activity

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On this page, namely in Figure 4, users who are lecturers and employees in the UNIKOM environment, can report independently if infected with covid 19. The focus on this page is that users can report data securely and can be considered for checking. Figure 4 is an activity diagram of the data input process or self-reporting from lecturers and employees exposed to covid-19, of which process includes the activity of the lecturers or employees who will fill in personal data, meeting history for the last 3 days and covid test results. Then users will be asked to click the report button so that the data that has been entered can be recorded by the system.

The results of the implementation of the design and scenario of the self-reporting information system can be seen in Figure 5, which is the main page view. In this page, it can be seen spaces which can be filled in data from employees or lecturers who have symptoms, are self-isolating or have been exposed to Covid-19. When the user has accessed the Covid-19 self-reporting page, she/he will be asked to fill in personal data, the latest conditions from the user, and after uploading swab or PCR results, the explanation of symptoms, contact history and activities before exposure. At the end, the user just click report to enter all the data that has been filled in.

Figure 5. Self Report Page

The self-reporting page as in Figure 5, can be accessed by everyone, especially those in the campus environment only.

Figure 6. Admin Login Page

Figure 6 indicates the login page, to be able to enter on this page only admin users who already have id and password to see self-reporting that has been filled in before.

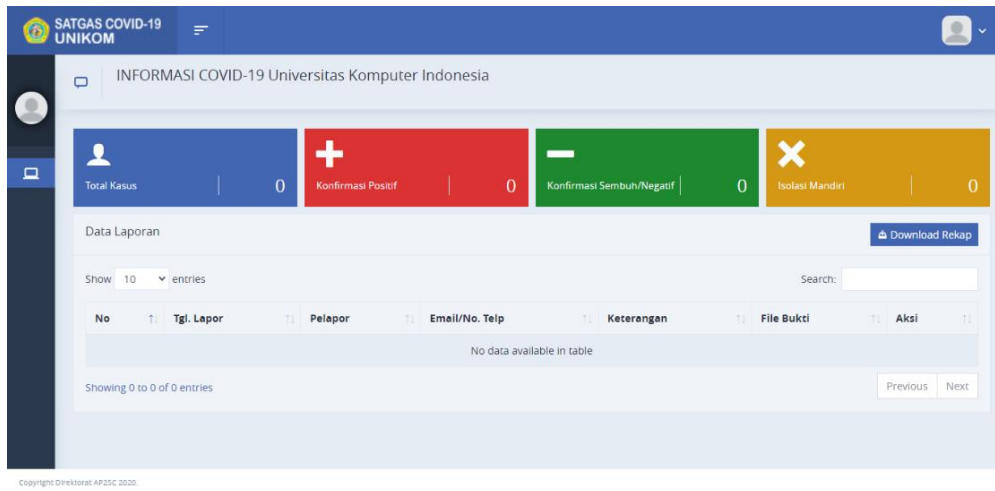


Figure 7. Dashboard Page

Figure 7 is the main page of the admin account containing information from self-reporting that has been filled in by employees or lecturers in the UNIKOM environment. The information contained on this page includes the total number of cases, confirmations from people who have tested positive for covid, the number of confirmations from people who have recovered or negative and the total of people who are undergoing self-isolation. All these reports can be seen on this page. In addition to looking at the total number, admin can also download reports that have been recorded by the system so that there is no need for manual recording again. Further, data confidentiality is more guaranteed because only the admin knows the data.

Table 1. System Testing

No	Tested Components	Test Scenarios and Results	
		Test Scenarios and Results	Results
1	Login Page	The system displays the main menu, if the password is incorrect there will be a notification	[√] Success [] No
2	Self Report Download	System displays Covid-19 self-report download process	[√] Success [] No
3	Self Report Page	System displays self-reporting data input page	[√] Success [] No
4	Button Report	The system successfully recorded self-reports	[√] Success [] No

Table 1 shows the test results of the system being built. Each component that is tested is successfully carried out.

4.CONCLUSIONS

From the self-reporting system for employees and lecturers exposed to covid-19 in the UNIKOM environment, it can be concluded that the self-reporting information system in the UNIKOM environment can facilitate the recording and reporting process. In addition to facilitating the ongoing process, with the Covid-19 self-reporting system, it also runs health

protocols and there is no longer a build up of similar reports that can reduce the effectiveness of reporting.

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