Development of Website Public Complaint System Polibatam V2.0

Muchamad Fajri Amirul Nasrullah [1], Sinarti[2], Metta Santiputri[3], Vicky Leonardo Manurung[4]

[1]Program Studi Teknik Multimedia dan Jaringan, Politeknik Negeri Batam, Batam
[2]Program Studi Akutansi Manajerial , Politeknik Negeri Batam
[3]Program Studi Teknik Informatika, Politeknik Negeri Batam
4Program Studi Teknik Informatika, Politeknik Negeri Batam
Email: [1]fajri@polibatam.ac.id, [2] sinar@polibatam.ac.id , [3] metta@polibatam.ac.id , [4]vickyleonardo23@gmail.com

Abstract – **T**he development of technology at this time, every agency certainly tries to improve the quality of its services. The Complaint Application is an information system that aims to provide aspirations for the performance of an agency. In this case the researchers took the case of the Batam State Polytechnic, where the campus wanted to realize Bureaucratic Reform at the Batam State Polytechnic by making a website-based Polibatam Complaint Application. Initially, the website was completed in the fourth semester during the implementation of Project Based Learning. In this case, the researcher conducted research to create a V.0 Complaints application with improvements from a website that had been built previously so that a website-based Public Complaint Application design was needed that was easy to use and could see responses to aspirations and complaints. The method that the researcher uses in designing the Polibatam V2.0 Complaint Application is the Waterfall model with MySql as the Database Management System, as well as PHP, JavaScript as the programming language to be used and Laravel as the PHP Framework. The completed application is then tested using the black box testing methodology, which allows all functionalities to be executed and implemented in accordance with the previously created functional requirements.

Keywords – *public complaint system, laravel, polibatam, website*

I. INTRODUCTION

In the current era of globalization, information technology has become one of the main needs in everyday life. Providing information today is not as difficult as in the past, which only got information from television or newspapers [1]
. Then along with the development of technology that has become increasingly varied, currently information is expected to be faster and more efficient than before [2] and is also expected to be used as a facility that can channel people's aspirations and complaints [3]. Seeing the importance of information in the development of technology, that is what underlies the creation of the Website-Based Polibatam Complaints Website.

Initially the Polibatam Complaints Website was designed for Project Based Learning (PBL) activities in semester 4 which became the V1.0 Complaints Website. In the process, the Polibatam V1.0 Complaints Website has been completed, but when demonstrating the website to the management, there are additions to its features. Some of the added features are the Reporting account verification feature, the importance of this reporting account verification is to avoid false reports.

Furthermore, adding an email notification feature for officers when a report has been received, the importance of this email notification is to make it easier for officers to monitor reports, so that no reports are missed. Furthermore, the reporting feature is added to be able to respond to the officer's response. In addition to adding features, the Polibatam V2.0 Complaints Website also changes the system, the system change is that the response given by the unit will be sent first to management for verification.

If the response is valid then management will then send it to the reporter and if the response is not valid then the response will be returned to the relevant unit. The Polibatam V2.0 Complaint website also changes the unit system owned by Polibatam, where on the V1.0 website the unit part cannot be changed, so on the V2.0 Complaint website improvements are made so that the system owned by the website becomes dynamic.

II. RESEARCH METHODOLOGY

A. Data Collection Method

Method of data collection by conducting a question and answer session with internal supervisory unit *(SPI)* Polibatam as the project owner of the Polibatam Complaints Website. Interviews were conducted to obtain information about the system to be developed and how to handle complaints.

B. System Development Method

Development using the waterfall model is one type of application development model and is included in the classical life cycle, which emphasizes successive and systematic phases [4]. The waterfall model research methodology is described and depicted in Figure 1 as follows [5].
Needs Analysis, this phase serves to understand user needs for the system, information system boundaries about system requirements are obtained through interviews, surveys or discussions [6]. System Design, which is to describe the system based on the results of the needs analysis, this phase serves to provide an overview of what will be done and how it will look. Implementation, is the stage where the implementation of the system design that

has been built previously, starting from the approval system for responses to notifications via email.
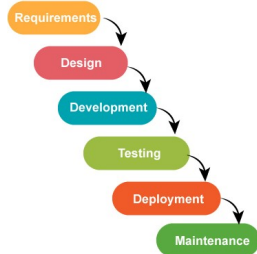

Figure. 1 Waterfall Model.

Testing is the stage where testing the website that is being developed, to find out whether the website that has been developed is in accordance with the design and also ensures that there are no errors or bugs in the features that have been developed [7]. Maintenance is a process that is carried out after the system is used by users [8], [10],[11]

in this phase maintenance will be carried out on the website to update or repair. When the system has been completed, the system testing process will be carried out using the Black Box Testing method[9]

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C. System Overview

This Complaint System uses the website as a means of complaint. When the reporting user makes a report, the complainant needs to fill out the report form that has been provided. After filling out the report, the reporter can then send the report so that it is stored in the database. After the report is sent, the report will go to the admin officer for further verification of the report whether it is correct or not and if the report is correct then the admin can forward the report to the unit or management.

If the report is deemed necessary, the admin can forward the report to the unit and if the report is deemed necessary for investigation, the report can be forwarded to the management section. After the report gets to the unit, the unit can respond to the incoming report, when responding to the reporter, the response must first be verified by management, if management feels that something is lacking in the response that has been given, then management can return a response to the unit. the related response to be corrected immediately and if management feels that the response given is correct then management will forward the response that has been made by the unit to the reporter.

If the report goes to the management section, management can verify the incoming report, if it is true that the incoming report requires an investigation then management can carry out an investigation process, but if it turns out that the incoming report does not require an investigation then management can forward the report to the related unit to immediately response to the report.
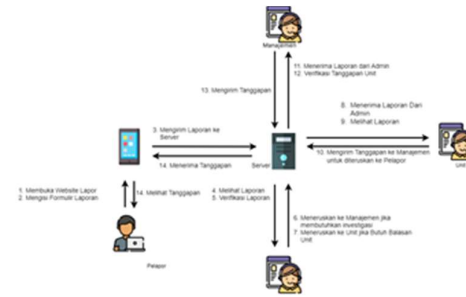

Figure. 2 System Overview.

D. System Comparison

Table 1. System Comparison

No	Complaint App Version 1	Complaint App Version 2
1	Register.	Register.
2	-	The system sends an email to the complainant to verify the account.
3	Login	Login
4	The reporter fills out the report	The reporter fills out the report
5	-	The system sends an email to the admin if a report comes in
6	Admin sees incoming reports	Admin sees incoming reports.
7	Admin can reject incoming reports.	Admin can reject incoming reports
8	The report is forwarded by the admin to the management for further management to forward the report to the related unit.	The report will be verified by the admin, if the report does not require investigation then the report will be forwarded to the unit, and if the report needs investigation then the report will be forwarded to management.
9	-	The system sends an email to the unit when a report comes in.
10	-	The system sends an email to management when a report comes in.
11	Units can provide immediate response to the complainant.	The unit provides a response which will then be verified by management, if the response is valid then the response will be sent to the reporter, and if the response is not valid then the response will be returned to the unit for correction.
12	Management can send a direct response to the complainant.	Management can send a direct response to the complainant.
13	-	The system will email management when a response comes in.
14	-	The system will email the unit when a response is returned by management.
		The system will email the unit when a response is returned by management.
15	-	The reporter can provide a response to the response given by the officer.

The Polibatam Complaint Website version 2.0 is a development of the Polibatam Complaint Website version 1.0, in table 1 below, a comparison of the 1.0 and 2.0 systems is shown. Changes that occurred on the website version 2.0 were the addition of a new feature for sending account verification emails and messages to the reporter and admin, then also adding feature updates related to management such as viewing, responding and verifying responses from the unit before being sent back to the complainant. Shown in Table 1.

III. RESULTS AND DISCUSSION

A. Implementation and Result

The stages when using the Polibatam Complaints website are first by opening a browser and then accessing the website address of the Polibatam Report. The first page that will appear is the login page. Users can register as a reporter, officers can log in using an existing account. If the username and password entered on the login page are correct, the user has successfully entered the Polibatam Report system. The first step, we have the login page used by the reporter and officer, when the user successfully enters the username and password it will be forwarded to the dashboard page of each user. If the complainant does not have an account, the complainant can create an account on the account registration page.

After logging in, the complainant will enter the reporting dashboard page. The first page that will be found is the report form page as shown in Figure 3. When the reporter has made a report, the reporter can see a list of reports.

Figure 3. Report Detail

After submitting a complaint, the reporter can view the status of the complaint on the report list page. If the report is rejected by the officer, the reporter can display the reasons for the refusal given by the officer as shown in Figure 4. And if the report has been received and has been responded to by the officer, the reporter can see the officer's response.

Figure 4. Report List

In Figure 5 the admin dashboard page is displayed, when the admin logs in, the initial page that will appear on the admin is the report information page. After seeing that there are reports that have been submitted, the admin will then open the list of incoming reports in Figure 4.

Figure 5. Officer's Response

After opening the list of incoming reports, the admin can then see the details of the reports that have been entered, and if the admin wants to forward the incoming reports, and if the admin wants to reject the report, the display of the reject report page is shown in Figure 6.

Figure 6. The Reason The Report Was Rejected

Next is the unit dashboard, when the unit logs into the system, the initial page that will appear is the report information that comes from the admin. When the unit sees that a report has been submitted, the unit will then open the incoming report list page, the incoming report list page. Once on the incoming report list page, the unit can view the details of the incoming report. After viewing the details of the incoming report, the unit can provide a response to the incoming report. After providing a response, the response will go to the management for further verification of the response that has been given by the unit. If the response is not appropriate, the response will be returned by

management to the unit and if it is appropriate, it will be forwarded to the reporter.

When management finishes logging into the system, management will enter the start page of the management dashboard, on the management dashboard page you can see information on reports that have been entered, reports that are being investigated, and responses that require verification, incoming report pages, and management as well. can see the report being investigated as shown in Figure 7.
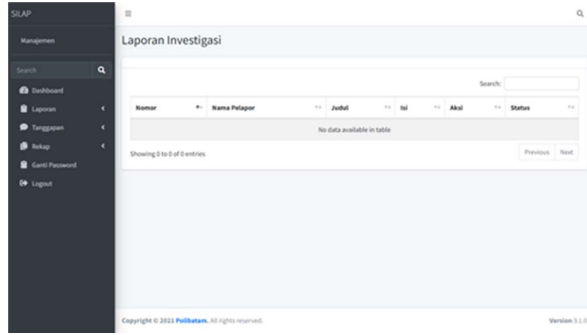

Figure 7. Investigation Report Page

B. Application Testing

Testing the Polibatam Complaint Application as a complaint website is carried out by testing based on its functional needs[13],[14],[15]

. This test is carried out to see the functions that have been created. The testing method used is the Black Box Testing method so that the tests carried out will focus on the functionality of the system that has been built

No	Usecase	Testing Scenario	Testing Data	Result	Validation
1	Register.	Enter name, email, phone number, username, password.	- Nama: Vicky Leonardo - Email : vickyleonardo23@gmail.com - No hp: 081234567789 - Username: Vicky Password: xxx	The account was successfully registered and the system was successful	√
2	Login Reporter	Enter the registered and verified username and password.	- Username : Vicky Password : xxx	Successfully logged in and redirected to the dashboard page.	√
3	Make Report	Include title, location, content, date of occurrence, unit of destination,	- Title : UKT - Location : Kampus - Subject : kekurangan biaya - Date : 15/06/2022 - Unit: Subbagian Akademik dan Kemahasiswaan - File : contoh.png	The report has been saved successfully and the notification email is sent to	√
		supporting files.		the admin officer.	
4	Reporter Gives Feedback	The complainant opens the complaint list, and opens the response page from polybatam and fills out the response form.	- Feedback : Tolong Konfirmasi lebih lanjut.	The response was successfully sent to the officer.	√
5	Login Admin	The officer enters the registered Username and Password	- Username: Admin - Password: xxx, - Username: sbak - Password: xxx, - Username: manajemen - Password: xxx.	Successfully logged in and redirected to the dashboard page.	√
6	Admin Reject Report	Admin opens the incoming report menu.	Give reasons for refusal on reports that have been previously made by the complainant.	The report status changed successfully and added the reason for the rejection of the report.	√
7	Admin forward report	Admin opens the incoming report menu.	Reports that have been made previously can be forwarded to the unit if it requires a reply from the unit, forwarded to management if it requires investigation.	The report was successfully forwarded and a notification email was sent to the officer.	√
8	Unit Gives Feedback	Unit opens report list page, view report details, fill out feedback form	Enter feedback	Saved response, waiting for management verification, notification email to management successfully sent.	√
9	Report verifica	Management	Reports that have been previously	Report saved,	√

		opens management dashboard page, opens report list, view report details	given will then be verified, if the unit requires a reply, the management will send a report to the unit, and if an investigation is needed, the report will be investigated.	email successfully sent to unit officer.	
1 0	Response verification management	Management opens the login feedback page, views the details of the response.	Responses from previously signed units will be verified.	The response was successfully sent to management.	√

IV. CONCLUSION

Based on all the development stages that have been carried out to create a Polibatam Complaints Website, it can be concluded that: The system has been built starting from an analysis in the form of an overview of the system, functional requirements, non-functional requirements and based on data collection that has been carried out. Based on the test results, it can be concluded that the Polibatam complaint website can run according to the needs that have been submitted by the Polibatam internal supervisory unit (SPI).

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