ENHANCEMENTR MODEL FRONTEND & BACKEND DEVELOPMEN OF SERVICE AND COMPLAINTS SYSTEMS AT UNIVERSITAS PEMBANGUNAN PANCA BUDI MEDAN

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ABSTRACT

The University Quality Assurance Center is a work unit at Pembangunan Panca Budi University which has duties and functions in the field of Quality Assurance which provides direct services to students, lecturers and the public for complaints of academic and non-academic violations. Students, lecturers and the community need a service or facility to make it easier to submit questions and complaints related to academic and non-academic violations which of course hope to get answers directly from those who are experts in their fields. So far, The client application (Mobile Flutter) sends a request in HTTP Request Header format and the backend application (Web CodeIgniter) sends a response in JSON format, which then this JSON formatted data will be decoded and consumed by the mobile application. In sending requests, the mobile application also sends a token that is generated using the JWT (JSON Web Token) library which functions as an identification of the validity of the request sent. Without tokens, any system can send data and requests to our backend applications and that is very dangerous. For this reason, the token is generated when the user logs in at the start of the application. The token contains user data which is encrypted with a certain algorithm.

INTRODUCTION

Students, lecturers and the community are service users at tertiary institutions, therefore tertiary institutions are required to provide the best service to their students, especially related to learning facilities and infrastructure, such as lecture halls, laboratory rooms, library rooms, sports facilities, places of worship, internet service. Good educational services are one of the factors in the formation of a campus that is superior and has high sales value and produces quality graduates. However, it cannot be denied that higher education services will never be without deficiencies. Dissatisfaction with service users at tertiary institutions will sooner or later be felt, be it by students, lecturers and employees in the tertiary environment. Complaints and dissatisfaction with tertiary services need to be conveyed to the management of tertiary institutions, so that they become input and strategies for dealing with them.

Complaints from students, lecturers and the public are a form of participation to play a role in building their environment as well as a form of monitoring the performance of tertiary institutions. Complaints and aspirations of students and lecturers can be used as input to evaluate policies and regulations that have been made or regulations that have been implemented to find out existing problems effectively (Nuraeni, 2018). lecturers and the community is a form of participation to play a role in building the environment as well as a form of monitoring the performance of tertiary institutions. Complaints and aspirations of students and lecturers can be used as input to evaluate policies and regulations that have been made or regulations that have been implemented to find out existing problems effectively (Nuraeni, 2018). lecturers and the community is a form of participation to play a role in building the environment as well as a form of monitoring

the performance of tertiary institutions. Complaints and aspirations of students and lecturers can be used as input to evaluate policies and regulations that have been made or regulations that have been implemented to find out existing problems effectively (Nuraeni, 2018).

Universitas Pembangunan Pancabudi is one of the private tertiary institutions that upholds the National Higher Education Standard SNPT No 3 of 2020 to be precise on Continuous Improvement. In accordance with UNPAB Governance in 2021, UNPAB's University Quality Assurance System (SPMI) is carried out by a unit called the University Quality Assurance Center (PPMU). One form of SPMI Implementation on Continuous Improvement is in the form of a Complaint Service, namely an Evaluation of Dissatisfaction with services or academic and non-academic violations. In realizing these sustainability improvements PPMU has created an online complaint system via the Google form link: https://docs.google.com/forms/d/e/1FAIpQLSeKwYP0jSULEeqktRE_q8HuVK3Q9M0nDFjOGJ27juZZJ67Lg/viewformwhich is pasted on the lecturer portal: https://dosen.pancabudi.ac.id/ and student portal: https://mahasiswa.pancabudi.ac.id.

When viewed from the current academic and non-academic violation service complaint management system, not all of the features on the Google form can meet that need Based on this, the authors feel the need to build a Mobile-Based application that is flexible, namely data communication between Backend and Frontend applications using the API (Application Programming Interface) method in the format of HTTP Header and JSON (JavaScript Object Notation). The client application (Mobile Flutter) sends a request in HTTP Request Header format and the backend application (Web CodeIgniter) sends a response in JSON format, which then this JSON formatted data will be decoded and consumed by the mobile application. In sending requests, the mobile application also sends a token that is generated using the JWT (JSON Web Token) library which functions as an identification of the validity of the request sent. Without tokens, any system can send data and requests to our backend applications and that is very dangerous. For this reason, the token is generated when the user logs in at the start of the application.

LITERATURE REVIEW

Complaints

The definition of a complaint can vary when referring to the context in which the complaint is used. In relation to the administration of government services, the definition of complaints is found in many regulations, one of which is in Presidential Regulation Number 76 of 2013 concerning Complaint Management, in Article 1 number 8 it is explained that Complaints are submissions of complaints submitted by complainants to public service complaint managers for implementing services that not in accordance with service standards, or neglect of obligations and/or violation of prohibitions by the organizers.

If we describe the definition, there are 3 (three) points that can be drawn, namely:

1. Submission of complaints about services that are not in accordance with the Public Service Standards;
2. Submission of complaints about neglect of obligations by service providers;
3. Submission of complaints about violations of the prohibition by service providers.

Effectiveness Goals

The criteria or measures regarding the achievement of goals are effective or not, as stated by SP Siagian (2008:77), namely:

1. Clarity of goals to be achieved, this is intended so that employees in carrying out their duties achieve directed goals and organizational goals can be achieved.
2. The clarity of the strategy for achieving goals, it is known that the strategy is "on the road" which is followed in making various efforts to achieve the specified goals so that implementers do not get lost in achieving organizational goals.
3. The process of analyzing and formulating a solid policy, related to the goals to be achieved and the strategy that has been set, means that the policy must be able to bridge the objectives with efforts to implement operational activities.
4. Careful planning, in essence means deciding now what to do by the organization in the future.

System

According to (Fat, 2012) the definition of the system is as follows: "The system is a real or abstract object (a set of things) consisting of parts or components that interrelated, connected, dependent, mutually supportive, which as a whole unite in one Unity to achieve certain goals efficiently and effectively.

Definition of System According to (Murdick, 1991) A system is a set of elements that make up a collection or processing procedures that seek a common goal or purpose by operating data or goods at a certain reference time to produce energy or goods information.

Definition of System According to (Lani, 1995), "System is a set of parts that are interconnected which as a whole constitutes a functional unit". Thus the system is a collection of several parts that are related and work together and form a unit to achieve a goal of the system. The purpose of a system is to achieve a goal and target within a narrow scope.

According to (Jogiyanto, 2005) the system is "parts that are closely related and form a unit that interacts with each other to achieve a goal". From different sources defines the system as "a collection of real or abstract objects (assets of things) consisting of parts or components that are interconnected, and mutually supportive, which as a whole unite in unity (unity) to achieve goals as a whole. efficient and effective". (Drs. Zulkifli Amsyah, 2000)

According to (Jogiyanto, 2005) In essence, a system has certain characteristics or properties, namely:

1. System components (component) Components, the system can be a subsystem or parts of the system. Each subsystem has the properties of the system to carry out a particular function and affect the overall system process.
2. Boundary system (boundary), Boundary system is an area that limits between a system with other systems or with the external environment. This system limitation allows a system to be seen as a system showing the scope of the system.
3. External environment of the system (environment), The external environment of the system is anything outside the boundaries of the system that affects system operation. The external environment of the system can be beneficial and can also be detrimental to the system.
4. Liaison system (interface), Liaison system is a media link or subsystem with other subsystems. With subsystems can integrate with other subsystems to form a single unit.
5. System input (input), system input can be in the form of maintenance input (maintenance input) and signal input (signal input). Maintenance input is in the form of a computer program, on a computer data is an input signal to be processed into information.
6. System processing (process), A system can have a processing section that will change input into output.
7. System output (output), system output is the result of processing the system and classifying input into output.
8. System targets (objectives), a system must have a goal or target. System goals really determine the required input and output that will be said to be successful if it hits the goals and objectives**.**

METHOD

In developing this Mobile-Based Online Community Complaint System at the Langkat Regency Communication and Informatics Service, the author feels the need to organize the entire research process into several stages or activities. Starting from describing the problem and determining the solution, collecting data, implementing solutions, to compiling the Final Project report. The preparation of the stages of this research aims to make each activity carried out more focused and effective in producing solutions that will later be implemented in organizing mobile-based online community complaint services at the Langkat Regency Communication and Informatics Office. In accordance with the purpose of a research result, namely to provide implications for policy making,

To describe the stages of the research to be carried out, the author has arranged the stages to be carried out in this research into a flowchart as follows:

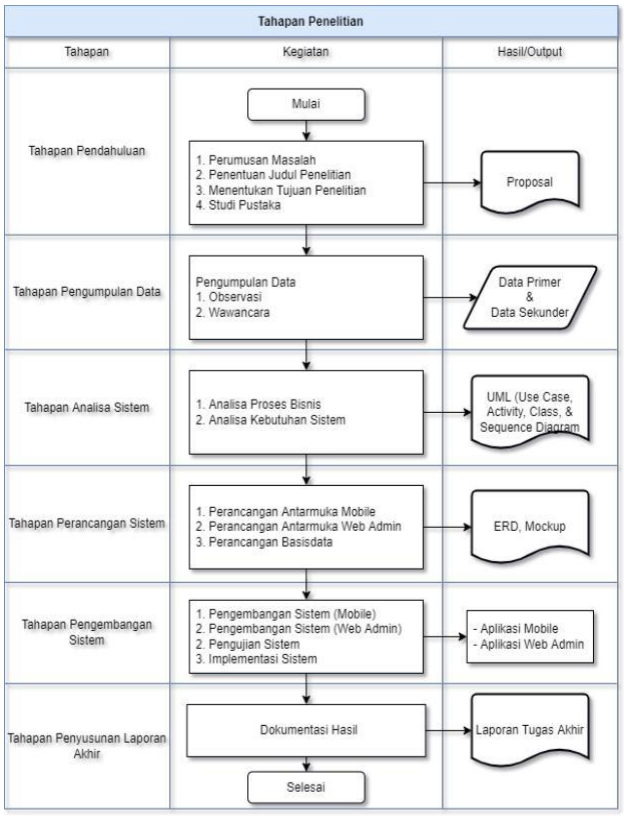

Figure 1. Research Stages.

The system requirements that will be developed by the authors group them based on 3 (three) requirements, namely, application requirements, infrastructure requirements, and human resource requirements.

1. Application needs
   Application needs are the main points in organizing new system that will be used later. To meet the needs in the complaint handling process, application needs are divided into 2 (two) types of needs, namely functional requirements, which contain details of what functions must be carried out by this mobile-based online community complaint application later. Then the technical requirements, which contain system and platform specifications that will be used to build this application later.
2. Requirement type of application
   The type of application that was built was adjusted to requests from the results of interviews with the Langkat Regency Communications and Information Office who wanted a mobile-based community complaint application. The mobile-based community complaint application was chosen with the consideration that people would get notifications more quickly due to the push notification feature on the Android platform. Meanwhile, for ease of management, the complaints manager at the Langkat Regency Communications and Informatics Office will use a web-based application. The main consideration is that web-based applications that are opened via a PC / Laptop browser page have a wider view so that they can contain more information to be managed on one screen.
3. Functional requirements
   In terms of functionality, the application that is built must be able to perform several functions and things according to the following table.

Table 1. System functionality requirements

Application Based on platforms		Functionality
	1)	The application has authentication features (register, login)
Complaint Application	2)	Can submit complaints online
Mobile (Android)	3)	Users can choose a complaint category
	4)	Users can attach file attachments

RESULTS AND DISCUSSION

Public System

The built public complaint system will only be used within the Universitas Pembangunan Pancabudi work environment, not for complaints to the Langkat Regency Government in general. This public complaint system will be used to serve types of complaints related to general complaints, providing advice, and requests for information/data The mobile-based application that will be built is an Android system-based application, not an IoS operating system or other mobile operating systems. The mobile application that is built is still in the form of an APK file resulting from a build release, and published to the Google Play Store.

The techniques used in data collection are as follows:

Data collection is needed to further explore the problems raised in the preliminary stages, as well as to obtain data that will later be used in building this Mobile-Based Online Service Complaint System. Data collection was carried out using a method that is commonly used, given that there is no specific data related to statistics or comparison of numbers, the authors only use the method Interviews and direct observation to collect the necessary data and information.

Data Collection.

Entire data collection will be carried out at the University Quality Assurance Center Office. Observation is a data collection technique that is carried out through an observation, accompanied by records of the condition or behavior of the target object (Abdurrahman Fatoni, 2011). Then according to Nana Sudjana, observation is systematic observation and recording of the symptoms studied (Nana Sudjana, 1989). Observation techniques are systematically observing and recording the phenomena investigated. In a broad sense, actual observation is not only limited to observations made either directly or indirectly (Singarimbun Masri, 1995).

Based on some of the references above, there is a similarity in meaning where observation is an activity in which it requires direct observation by researchers to collect data and information needed in formulating solutions. Observations were made by observing and being directly involved in the process of handling complaints received by PPMU, during which the research was carried out.

Interviews are conversations and questions and answers that are directed to achieve a certain goal. This interview aims to gain knowledge about subjective meanings that are understood by individuals regarding the topic under study. In other words, through interviews, more detailed information will be found from each subject according to their respective positions and structures, because the interviewer directly meets the respondent, the response rate is also higher than using a questionnaire (Muri Yusuf, 2017). This will be very useful later in compiling business process flows that will be carried out in this online complaint service later. Subjects to be interviewed in this study are:

a. Ka. UNPAB University Quality Assurance Center.
b. Ka. UNPAB Academic Quality Assurance Division
c. Ka. Internal Quality Assurance Division

Through the observation and interview activities conducted in this study, it is hoped that it will produce some information related to the following matters:

a. Conditions of complaint service at PPMU.
b. Problems that arise during the complaint handling process are carried out using the Google form.
c. UNPAB ICT infrastructure and equipment conditions.
d. Human Resources (HR) needed to manage online complaint services.

Data Analysis Method

In this study, there are 2 (two) data analysis techniques, namely:
According to the title proposed in this study, the author will build a mobile-based online community complaint system which has so far been carried out using the Google form and through the medium of suggestion boxes and submission directly to PPMU. Therefore, in conducting an analysis of the running system, the author will observe the entire process that occurs from the time the complaint is received to the return report on the actions taken against the complaint.

Infrastructure needs

Infrastructure is the media used to present applications (delivery) to users, both the community and managers. The application infrastructure must be able to make the application accessible online using the internet network. Infrastructure requirements of course adjust to the application load. For the initial implementation phase, minimum infrastructure specifications will be used, which later when an evaluation is carried out, the optimal needs will be found. To meet these needs, the infrastructure needed is:

a. Servers, with a minimum specification of 4 core CPU, 8GB of RAM, and 100GB of storage.
b. Dedicated internet connection for accessibility and application connections of at least 10 mbps.
c. Internet connection for each management room at the Ministry of Communication and Informatics is at least 5 mbps.
d. PC/Laptops, printers and scanners to manage applications, upload and print documents from applications.

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