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## Web-Based Satisfaction Survey Application for The State Polytechnic of Tanah Laut

Khairul Anwar Hafizd <sup>1</sup>, Herpendi <sup>2</sup>, Fathurrahmani <sup>3</sup>, Muhammad Sabani Ackbar <sup>4</sup>

<sup>1,2,3,4</sup> Teknologi Informasi, Politeknik Negeri Tanah Laut

Email : hafizd@politala.ac.id<sup>1</sup>, herpendi@politala.ac.id<sup>2</sup>, fathurrahmani@politala.ac.id<sup>3</sup>,  
muhammad.ackbar@mhs.politala.ac.id<sup>4</sup>

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### Abstract

#### Article Info

Received 01 July 2022

Revised 30 July 2022

Accepted 29 August 2022

The State Polytechnic of Tanah Laut is a college located in Tanah Laut Regency, established on September 25, 2009. The college currently offers three majors: Informatics Engineering, Agricultural Industrial Technology, and Automotive Machinery, as well as one study program in Accounting. The current system at The State Polytechnic of Tanah Laut is semi-computerized, with many processes still relying on paper, such as the questionnaires used in the Learning Development Center and Education Quality Assurance Center (P4MP). The P4MP questionnaires are currently filled out using soft files in Microsoft Excel instead of paper sheets, but the process is still difficult for lecturers, students, and education staff and requires a significant amount of time for data recording. To address these issues, an application can be developed to assist in the process of filling out P4MP questionnaires at The State Polytechnic of Tanah Laut. The application will be web-based and designed using ERD (Entity Relationship Diagram), DFD (Data Flow Diagram), Flowchart, and will use the programming languages PHP and MySQL as the database.

Keywords: Application, Questionnaire, Web

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### 1. Introduction

Higher education refers to the level of education that comes after secondary education. It includes diploma, bachelor, master, doctoral and specialist educational programs that are organized by colleges. Information technology plays an important role in the teaching and learning activities, work, and other aspects of higher education. Lecturers and education staff also play a crucial role in building better tertiary institutions, such as the Tanah Laut State Polytechnic.

The Tanah Laut State Polytechnic is a tertiary institution located in Tanah Laut Regency, established on September 25, 2009. The college currently offers three majors: Informatics Engineering, Agricultural Industrial Technology, and Automotive Machinery, as well as one study program in Accounting. The current system at the Tanah Laut State Polytechnic is semi-computerized, with many processes still relying on paper, such as the questionnaires used in the Center for Learning Development and Education Quality Assurance (P4MP). P4MP questionnaires are used to determine the level of interest of the target audience in a certain topic and to find the appropriate approach for that audience. There are currently 11 questionnaires in P4MP, including Governance, Cooperation, Academic and Student Services, Human Resource Management, Financial Management, Facilities and Infrastructure Management, Education Process, Research Process, Community Service Process, Outcome and Achievement of Tri Darma. These questionnaires are filled out by three different groups of respondents: lecturers, educational staff, and students, with different numbers of questionnaires and questions.

Currently, the completion of P4MP questionnaires at the Tanah Laut State Polytechnic is done using soft files in Microsoft Excel, instead of paper sheets. However, the process is still difficult for lecturers, students, and education staff and requires a significant amount of time for data recording. To address these issues, an application can be developed to assist in the process of filling out P4MP questionnaires and recording the data at the Tanah Laut State Polytechnic. This application will be web-based, and it can be accessed using any device such as a laptop, computer or smartphone. The author proposes the title "Web-Based Satisfaction Survey Application for The State Polytechnic of Tanah Laut" to make the process of recording questionnaire data more efficient.

## 2. Method

### 2.1 Research Framework

The following is a research framework for the Web-based P4MP Questionnaire Application at The State Polytechnic of Tanah Laut can be seen in Figure 1.

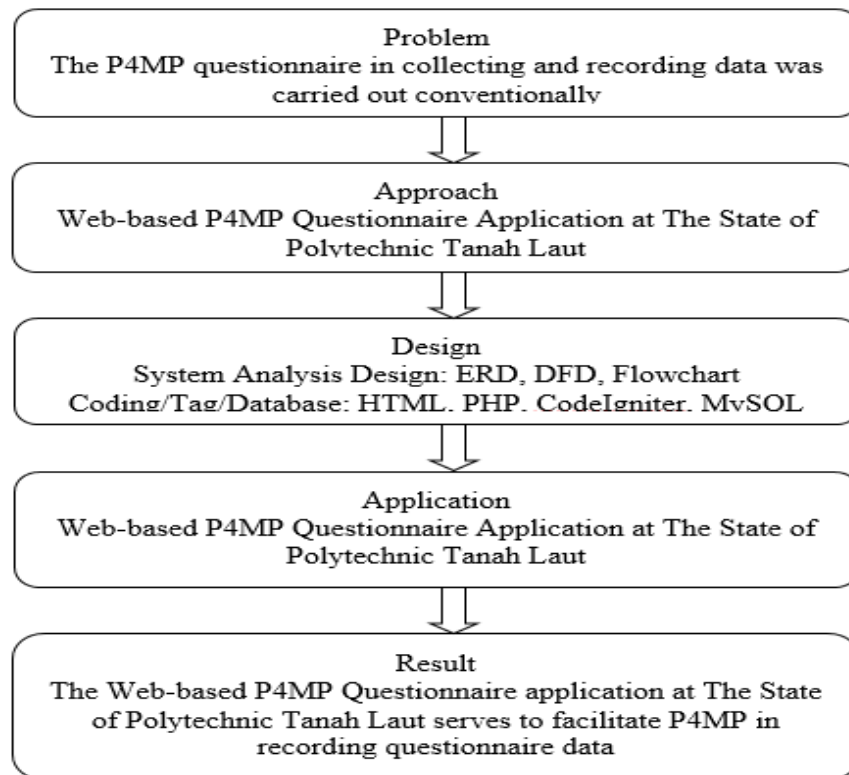


Figure 1. Research Framework

Explanation of the framework Web-Based P4MP Questionnaire Application Research at The State Polytechnic of Tanah Laut:

#### a. Problem

Questionnaires are usually in the form of sheets that are used to find out how far the target audience is interested in the theme raised [1]. The P4MP questionnaire is currently in the form of a soft file in Microsoft Excel, no longer in the form of sheets of paper, however, its use is still constrained because it takes quite a long time for P4MP officers to collect and record data. because it is still done conventionally.

b. Approach

Based on the approach to achieving goals or results, by building a Web-based P4MP Questionnaire Application. An application is a program that is ready to be used that is made to carry out a function for application service users as well as the use of other applications that can be used by a target to be addressed [2]. Website can be interpreted as a page that is available on a server that can be accessed using the internet network which contains various information from a particular content [3].

c. Design

The Web-based P4MP Questionnaire application at Tanah Laut State Polytechnic will be built using the Entity Relationship Diagram (ERD) design which is the initial database modeling [4], Data Flow Diagrams (DFD) describe the flow of data in the system in a structured and clear manner [5] and flowcharts are used to represent or design programs and represent components in programming languages [6]. Writing using the programming language Hyper Text Markup Language (HTML) and Hypertext Preprocessor (PHP). The database used is MySQL, a database is a medium for storing data so that it can be accessed easily and quickly [4]. The system development method uses the waterfall method.

d. Application

Based on the place suggested in implementing the Web-based P4MP Questionnaire Application at The State Polytechnic of Tanah Laut.

e. Results

Based on the objectives or solutions to existing problems, namely by building a Web-based P4MP Questionnaire Application at The State Polytechnic of Tanah Laut with the aim of making P4MP questionnaire filling and recording more effective so as to save time.

## 2.2 System Development Method

The research design carried out in this research is to use the waterfall method which can be seen in Figure 2.

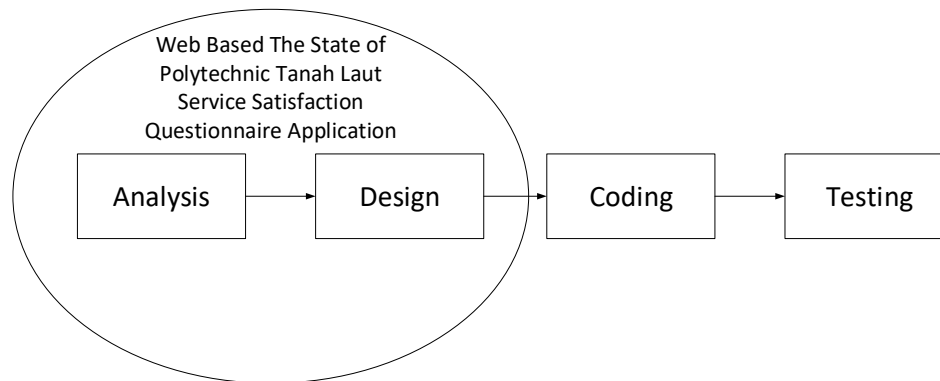


Figure 2. Waterfall Method

The steps involved in designing and implementing the P4MP Questionnaire Application are:

a. Analysis of Software Requirements

The process of gathering requirements is carried out intensively to specify application requirements so that they can be understood as needed by the user. The specification of the P4MP questionnaire application requirements at this stage needs to be documented.

b. Design

The P4MP questionnaire application design is a multi-step process that focuses on the design of the P4MP questionnaire application including data structure, software architecture, interface representation, and coding procedures. This stage translates application requirements from the needs analysis stage to

a design representation so that it can be implemented into a program at a later stage. The design of the P4MP questionnaire application is described using DFD and at this stage it also needs to be documented.

c. **Generating Program Code**

The design must be implemented into the P4MP questionnaire application using PHP, HTML, CodeIgniter, CSS, JavaScript and using the MySQL database. The result of this stage is the application according to the design that was made at the design stage.

d. **Testing**

Testing the P4MP questionnaire application uses Black Box from a logical and functional perspective and ensures that all functions have been tested. This is done to minimize errors and ensure the resulting output is as desired.

e. **Support or Maintenance**

It is possible that the application will change when it is sent to the user. Changes can occur due to errors that appear and are not detected during testing or the P4MP questionnaire application must adapt to a new environment. The support or maintenance phase can repeat the development process starting from specification analysis for changes to existing P4MP questionnaire applications, but not for creating new P4MP questionnaire applications.

### 2.3 Method of Collecting Data

a. **Literature Study Method**

The method of literature study is carried out by the author by reading literature, analyzing, concluding, citing readings from articles and journals on the internet and studying documents related to supporting the development of the web-based P4MP questionnaire application.

b. **Interview Method**

A form of research method by asking several questions to sources on the author's research object. The resource person for making the P4MP questionnaire application was the Chairperson of the P4MP The State Polytechnic of Tanah Laut, namely Mrs. Fatimah, S.Sc., M.P.

### 3. Results and Discussion

The following is an implementation of the Web-based P4MP Questionnaire Application at The State Polytechnic of Tanah Laut:

1. **Login Page**

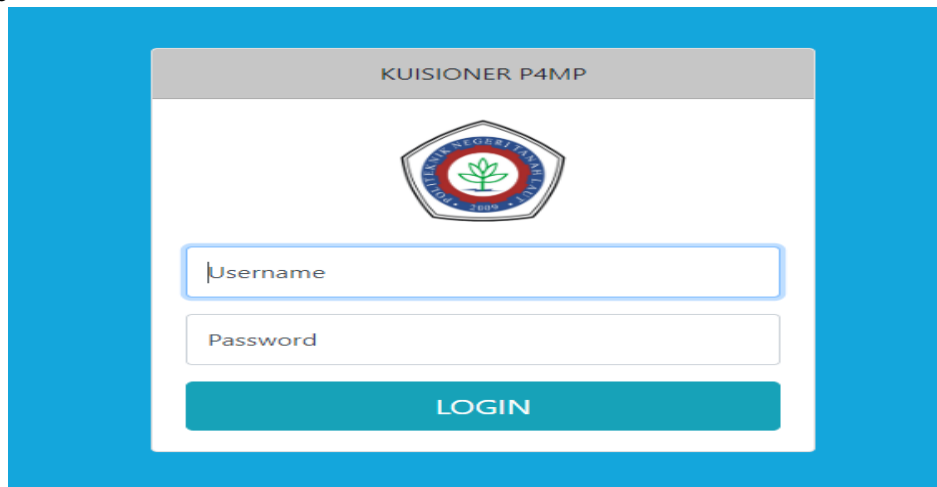


Figure 3. Login Page

Figure 3 is the initial display when you want to enter the application. The image displays a login form where we will enter a username and password which will later be directed to the respective home page according to the user level.

## 2. Dashboard Page

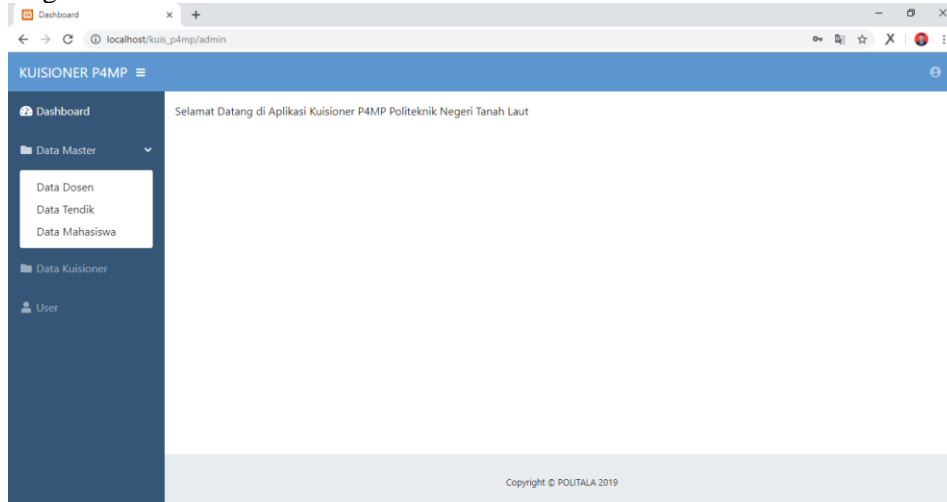


Figure 4. Dashboard Page

Figure 4 is the initial view or Admin Dashboard. The Admin Dashboard Form is used for the initial appearance of the application before selecting other items. The menu on the left is the menu of options for further action, namely master data which contains lecturer data, student data and student data, the last being questionnaire and user data.

## 3. Lecturer Data Page

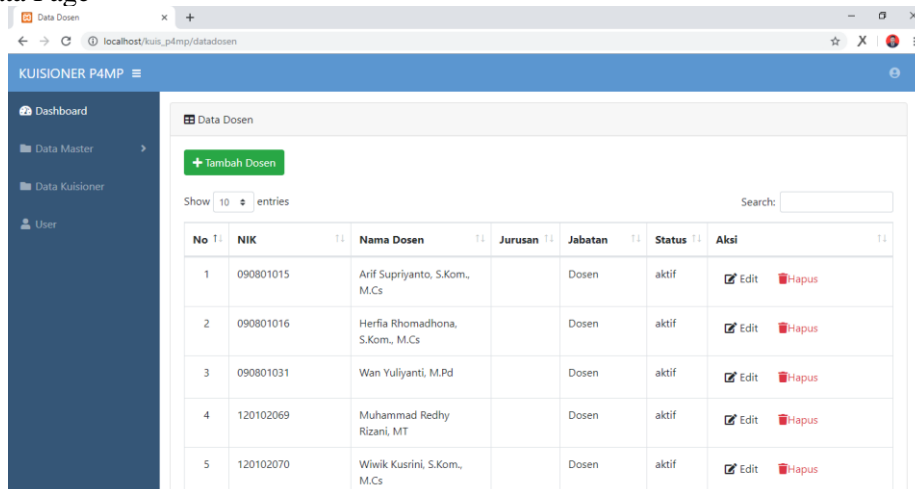


Figure 5. Lecturer Data Page

Figure 5 is a lecturer data page. The Lecturer Data Form is used to display lecturer data stored in the database. On the lecturer data form there is a menu for adding data, searching for data, changing data and deleting lecturer data. The data that appears is ID number, lecturer's name, major, position and status.

#### 4. Education Personnel Data Page

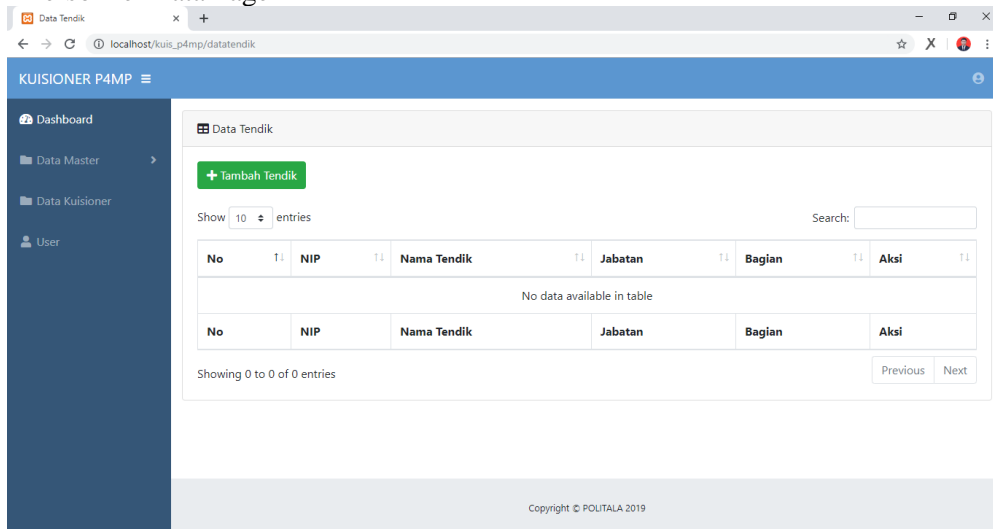


Figure 6. Education Personnel Page

Figure 6 is an education personnel data page. The Education Personnel Data Form is used to display educational staff data stored in the database. On the educational staff data form there is a menu for adding data, searching for data, changing data and deleting student data. The data that appears is employee ID number, staff name, position, section.

#### 5. Student Data Page

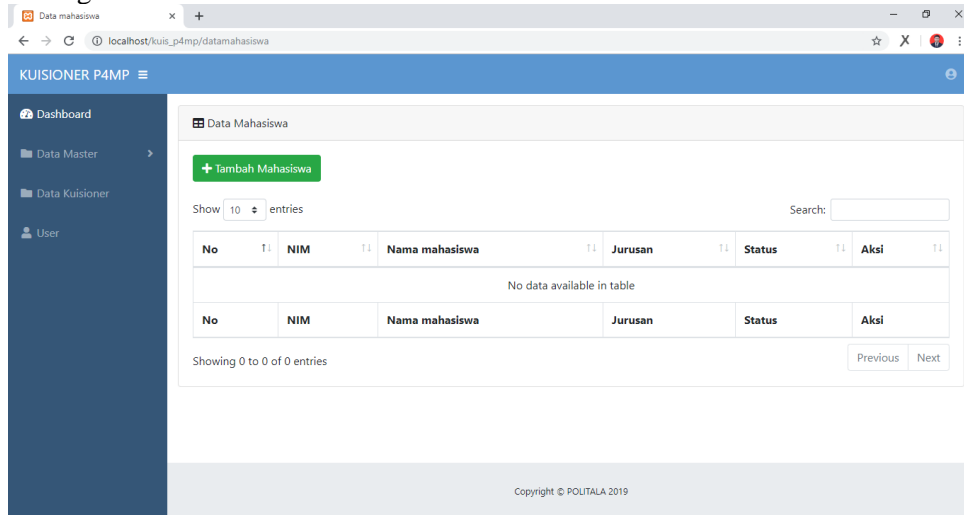


Figure 7. Student Page

Figure 7 is a student data page. The Student Data Form is used to display student data stored in the database. On the student data form there is a menu for adding data, searching for data, changing data and deleting student data. The data that appears is student ID number, student name, major and status.

## 6. Questionnaire Data Page

No	Pertanyaan	Aksi
1	Pemimpin Politala dapat dipercaya dalam segala tindakan dan perkataan	<a href="#">Edit</a> <a href="#">Tidak Aktif</a>
2	Pemimpin Politala dapat memberikan dorongan dan arahan untuk mencapai visi, misi dan tujuan Institusi	<a href="#">Edit</a> <a href="#">Tidak Aktif</a>
3	Peimpin Politala memberikan solusi yang inovatif dalam menyelesaikan permasalahan di unit kerja	<a href="#">Edit</a> <a href="#">Tidak Aktif</a>
4	Perencanaan yang disusun sesuai dengan tujuan institusi	<a href="#">Edit</a> <a href="#">Tidak Aktif</a>
5	Perencanaan yang disusun realitas dengan kondisi Institusi saat ini	<a href="#">Edit</a> <a href="#">Tidak Aktif</a>

Figure 8. Questionnaire Data Page

Figure 8 is a questionnaire data page. The questionnaire data form is used to display questionnaire data stored in the database. In the questionnaire data form there is a menu for adding data, searching for and changing questionnaire data. The data that appears is a questionnaire question and if we click the inactive button, the status of the question becomes inactive and will not appear on the questionnaire when the respondent wants to answer the questionnaire.

## 7. User Data Page

No	Username	Level	Aksi
1	dosen	dosen	<a href="#">Edit</a> <a href="#">Hapus</a>
2	p4mp	p4mp	<a href="#">Edit</a> <a href="#">Hapus</a>
3	mhs	mahasiswa	<a href="#">Edit</a> <a href="#">Hapus</a>
4	tendik	tendik	<a href="#">Edit</a> <a href="#">Hapus</a>
5	ti	Teknik Informatika	<a href="#">Edit</a> <a href="#">Hapus</a>

Figure 9. User Data Page

Figure 9 is a user data page. The Data user form is used to display user data stored in the database. On the user data form there is a menu for adding data, search for and change user data. The data that appears is the username and level.

## 8. Time Data Page

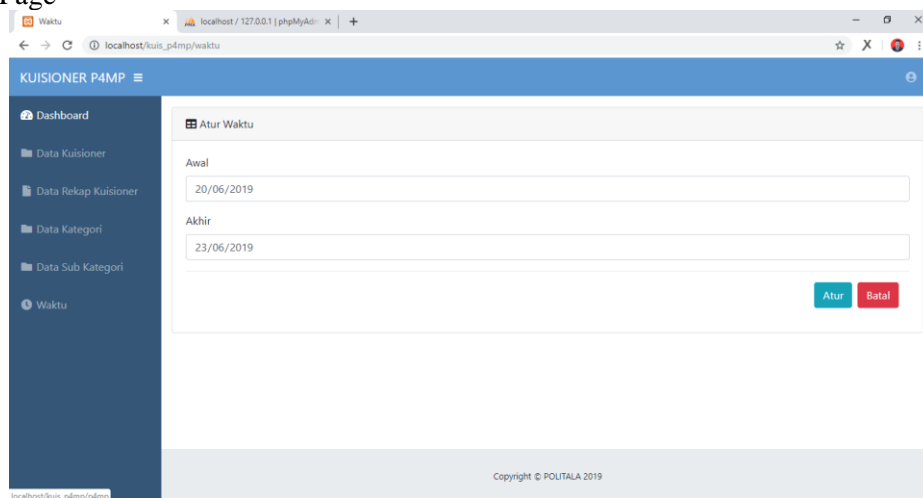


Figure 10. Time Data Page

Figure 10 is a time data page. The time data form is used to display data when filling out the questionnaire. The time data form has a menu to change the time data for filling in the questionnaire.

Black Box testing can find out the function of the software by demonstrating that the function can run perfectly or there are errors which can be in the form of incorrect or missing functions, interface errors, data structure errors or accessing external data, initialization and termination. Black Box testing is not concerned with control structures but focuses more on results or information domains [7]. Black Box testing is based on testing the Web-based P4MP Questionnaire Application at The State Polytechnic of Tanah Laut, as shown in Table 1:

Table 1. Black Box Testing

System Features	Expected Result	Test Result
Login	System enter to dashboard page	Success
Manage Lecturer Data	System can manage lecturer data, like create, update and delete	Success
Manage Education Personnel Data	System can manage education personnel data, like create, update and delete	Success
Manage Student Data	System can manage student data, like create, update and delete	Success
Manage Questionnaire Data	System can manage questionnaire data, like create, update and fill	Success
Manage User Data	System can manage user data, like create, update and delete	Success
Manage Data Timing	System can manage data timing	Success
Logout	System returns to login page	Success



#### 4. Conclusions

The State Polytechnic of Tanah Laut has developed a web-based P4MP questionnaire application. It can be summarized that:

1. This application is designed using Entity Relationship Diagram (ERD) as the database design, Data Flow Diagrams (DFD) and Flowcharts for system flow design.
2. The programming languages used to build this application are PHP and MySQL, and the CodeIgniter framework.
3. The application is able to provide the results of questionnaire assessments in the form of tables or graphs for different types of questionnaires such as Administration, Governance, Human Resource Management, Financial Management, Facilities and Infrastructure Management, Research Process, and PKM Process.
4. These graphs can display the IPL (Service Achievement Index) for each existing questionnaire, with a range of 0-5.
5. In addition to recording questionnaire data, the application can also display all the results of the questionnaire assessments for evaluation.

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