

## Requirement Gathering of IT Del Rector Dashboard Information System Website

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### ABSTRAK

Dasbor Rektor adalah salah satu solusi dan alat digital yang dirancang untuk membantu Rektor dan staf untuk melacak dan menganalisis kemajuan akademik dan mengidentifikasi bidang-bidang yang mungkin memerlukan perbaikan. Oleh sebab itu, studi ini menganalisis pengumpulan data-data yang diperlukan saat pembangunan sistem informasi dashboard rektor IT Del serta meneliti bagaimana dashboard rektor membantu rektor IT Del dalam mencari informasi dan mengambil keputusan untuk meningkatkan kualitas IT Del dari beberapa informasi seperti informasi data mahasiswa, data akademik, data dosen, informasi fakultas dan prodi. Hal ini dilakukan karena rektor masih menggunakan cara manual dalam menerima dan membaca informasi, yaitu dengan cara menerima berupa file atau buku. Dalam menyelesaikan penelitian ini peneliti melakukan wawancara secara langsung kepada staf ahli rektor sebanyak dua kali. Pada wawancara pertama, diajukan 10 pertanyaan untuk mengetahui informasi dasar dan menganalisis gambaran dasar dari sistem informasi yang akan dibangun. Wawancara kedua dilakukan untuk memastikan fungsi-fungsi dan fitur-fitur apa saja yang akan ada pada website Sistem Informasi Dashboard Rektor IT Del. Untuk memudahkan rektor dalam mendapatkan informasi secara cepat, dibutuhkan sebuah website untuk membantu menampilkan informasi yang dibutuhkan oleh rektor. Membuat sistem informasi ini akan membuat rektor secara mudah dalam mengambil keputusan secara cepat dan tepat untuk memajukan IT Del.

Kata Kunci: Sistem informasi, Dashboard Rektor, Pengumpulan Kebutuhan

### ABSTRACT

*The Rector Dashboard is one such digital solution and tool designed to assist Rectors and staff to track and analyze academic progress and identify areas that may need improvement. Therefore, this study analyzes the collection of data needed when building an IT Del rector dashboard information system and examines how the rector's dashboard helps the IT Del rector in finding information and making decisions to improve the quality of IT Del from some information such as student data, academic data, lecturer data, faculty, and study program information. This is done because the rector still uses the manual way of receiving and reading the information, namely, by receiving files or books. In completing this research, the researchers conducted interviews directly with the rector's expert staff twice. In the first interview, 10 questions were asked to find out basic information and analyze the basic description of the information system to be built. The second interview was conducted to ascertain what functions and features will be on the IT dean's dashboard information system website. To make it easier for the rector to get information quickly, a website is needed to help display the information needed by the rector. Creating this information system will make it easy for the rector to make quick and appropriate decisions to advance IT Del.*

*Keyword: Information system, Rector's Dashboard, Gathering Requirements*

## I. INTRODUCTION

IT Del is a campus in Laguboti, North Sumatra, that has been in operation since 2001. The Del Institute of Technology is led by a rector, Dr. Arnaldo Marulitua Sinaga, ST., M.InfoTech (Institut Teknologi Del, 2023). This campus has successfully graduated hundreds of students who have worked for several companies. But even so, improvements are still needed in several fields so that this campus can become more advanced. Therefore, a digital tool or website is needed to assist the Rector in making decisions.

In general, the rector will obtain information in the form of soft copy documents obtained from the secretary or expert staff of the rector himself. However, with this, Mr. Arnaldo Marulitua Sinaga, ST., M.InfoTech, as the rector, also sometimes finds it difficult to make decisions in the developmental stage that will be carried out on the IT Del campus. So that the IT Del rector's dashboard was created so that the rector could quickly obtain information related to academics and activities that was more specific and complete. Moreover, the rector will find it easier to make decisions by looking at the developments and information listed on the dashboard that will be built. This is because the rector's dashboard that will be built provides a graph or diagram showing the required data, where the data will become evidence of progress reports that occur in IT Del.

The Rector Dashboard is one such solution and a digital tool designed to assist Rector and staff to track and analyze academic progress and identify areas that may need improvement. The Rector's Dashboard usually includes data visualizations or diagrams. In this diagram, the data displayed is about students, lecturers, achievements, registration, and so on. information that is needed by the person. Therefore, this dashboard is needed by the IT Department on campus. This dashboard will be used by the Rector of IT Del, namely Dr. Arnaldo Marulitua Sinaga, ST., M.InfoTech.

The urgency of gathering needs is highly recommended and very important. Previous research, making requirements gathering must explain how to make and maintain cooperation agreements with clients and stakeholders about what must be done in making the system. In gathering system requirements, the things that will be used by the system are what features will be used, the information collected will be used in making the system, and who are the users involved or who use the system.

In this study, the urgency of collecting requirements is very important because the IT Del rector needs technology and information to see the development of the IT Del campus. This is very important for campus leaders because it will facilitate decision making in developing and improving the quality of the IT Del campus.

Requirements gathering is a process of understanding what will be built and why something is built (Jama software, 2022). Requirements gathering is often considered a part of software application development. The most important thing in the requirement gathering process is the overlapping sub-processes, namely:

- Requirements elicitation is the process of requesting and collecting high-level requirements from all relevant stakeholders.
- Requirements documentation is the arrangement of inputs from the requirements elicitation process into any format required by the organization.
- Requirements understanding refers to the process of obtaining a clear and comprehensive understanding of the needs and expectations of the project.

The requirement gathering that has been carried out is interviewing sources directly. Ask a few questions according to the data needed to build the website sources directly. Ask a few questions according to the data needed to build the website. Provide MOM to the client in order to accommodate the client's needs. Requirement gatherings are held once a week so that the client can ensure how far progress has been made and to keep it in line with the client's needs.

Currently, the information system has become one of the media that most people often use to convey information. One very important information system is an information system built for campus leaders. The Rector's Dashboard Information System is an information system that will display the process of monitoring data and information taken from universities (M.Ropianto, 2017). by implementing a dashboard information system which is expected to become an information system that supports the performance of leaders in monitoring the IT Del campus. The system that is planned to be built in this article is an information system that displays information needed by leaders such as information on students, lecturers, faculties, and others.

There are several solutions that can be considered when building an IT Del Rector dashboard website, namely the importance of determining targets, the type of data to be displayed and special features to be included. By providing registration data, retention, student and lecturer data, graduation rates and other info in real time, admins can make decisions in building information systems on the IT Del dashboard.

The reason the developer built the IT Del Rector dashboard is to improve the operational quality of IT Del. This dashboard aims to reduce the time and effort required for manual data entry and analysis, so that the Rector can focus on more important tasks. The Rector's dashboard solution can make it easy for users to access IT Del information such as student and lecturer demographic data, registration data, faculty and study program information, as well as student graduation data (MIHAELA MUNTEAN, 2010).

The dashboard is also designed with strong security measures in place to protect data, including encryption, access control and regular security audits. It is expected that the user interface design can be used responsively and visually appealing so that users can easily access information. After testing all the features on the IT Del dashboard website, the site can be launched and made available to the IT Del campus. Overall, the Del Rector's IT

dashboard can help the Rector to make decisions in several fields(Matviyuk, 2023).

## II. LITERATURE REVIEW

In this literature review, not much was found to support this article. However, there are several articles that are similar and can support this article.

The article (J. Jameson, 2022) only focuses on discussing the influence of digital leadership in higher education. However, this article only discusses the academic sector. The researchers in this article only base it on descriptive and narrative analysis, so the accuracy and precision are not quite right. The research method that should be used is interviews to find out more about the influence of digital leadership on leadership. And what is needed by the user to get the function of the application to be built.

An article by (Ehlers, 2020) discusses digital leadership in higher education. However, this article does not describe the requirements gathering stages. This article relies solely on rich empirical research based research on the topic of leadership in Education. And the concept of digital leadership is not emphasized in this article. This keeps this article from demonstrating the influence of digital leadership in higher education. Preferably, researchers collect data directly from users, namely to campus leaders or students, so that it is clearer what exactly the effect of the application is on leadership.

Articles by (Mat Rahimi Yusof, 2019) focus on developing measurement models and identifying school leadership functions and behaviors in using digital leadership. This study does not provide much information about the specific context or setting in which the research took place. So it is difficult to interpret these findings. In addition to this, this article lists some of the functions identified in this study but does not provide much about how specific what has been observed. This creates ambiguity in the data that has been collected.

This article by (Lindqvist, 2019) focuses on how school leaders practice innovative use of digital technology in schools. In this article, the use of technology does not only focus on leaders but on the learning process. This article aims to explore and discuss the possibilities and challenges of using technology. With technology, school leaders can see the possibilities in working methods and create a beneficial environment for schools. However, this article does not clearly state the background of this research. Not only that, data collection was only collected through questionnaires filled out by principals, which may not be fully representative of the larger population. And this research does not tell whether this research can help school leaders in improving digital leadership.

And finally, the article by (Ratajczak, 2022) focuses on digital leadership in universities but discusses in detail how systematic it is. This article discusses a lot about what digital leadership is, but without explaining what is a clear definition of the term "digital leadership" or "leadership in the digital era", this can cause confusion for the reader. The focus of this research is only on identifying areas of potential Action so that it can be limited in providing

concrete recommendations on how leaders can lead digital transformation. This article also does not explain clearly how researchers collect data, this section should be an important part.

## III. METHODOLOGY

### a. Data Collection

This type of research is descriptive qualitative research, i.e., data is collected in the form of words, not numbers. Qualitative research is research that is used to examine the condition of scientific objects, where the researcher is the key instrument (Dr. Nursapia Harahap, 2020). This study aims to get a clearer and more complete picture and more complete information, making it easier for researchers to find out the needs of the application being built.

Therefore, researchers must determine how to collect the data that they want to develop in this article. The interview method is used by researchers to collect data. Interviews are communications between two or more parties that can be carried out face-to-face, where one of the roles is to ask questions in order to obtain information and the other party is a source of information (Edi, 2016). Before conducting interviews, the researcher must determine the research location where the research will be conducted. In addition to determining the location, researchers must compose appropriate questions to obtain valid information.

### b. Data Analysis

In this case, the research location is on the IT Del campus. This research was conducted on February 3, 2023. In the first interview, the researcher gave 10 questions that would be answered by the client and discussed how the client wanted this website to be formed. In the second interview, the researcher only gave five questions. This is due to the fact that interview 2 was conducted only to complete the missing data from interview 1. This research study focused on gathering information system requirements for IT Del Rector's Dashboard. Gathering the needs of informants The information system dashboard of the Rector of IT Del allows the Rector to obtain information about the IT Del campus in several sectors and relevant information in the academic field in order to make decisions easier.

## IV. RESULT AND DISCUSSION

From the interview, information was obtained about all the information needed by researchers to build the IT Del Rector Dashboard Information System. In addition, it is also about the constraints experienced by the rector when getting reports manually. The report received by the rector is a softcopy sent by expert staff or the rector's secretary. Therefore the client or expert staff from the rector of IT Del want an information system that can report all activities or information needed by the rector in monitoring developments on the IT Del campus. Expert staff from the IT Del rector gave a reference for researchers as a basis for making this information system and as an initial description of what is desired by the client. The image provided by the client as a reference can be seen in Figure 1 below.

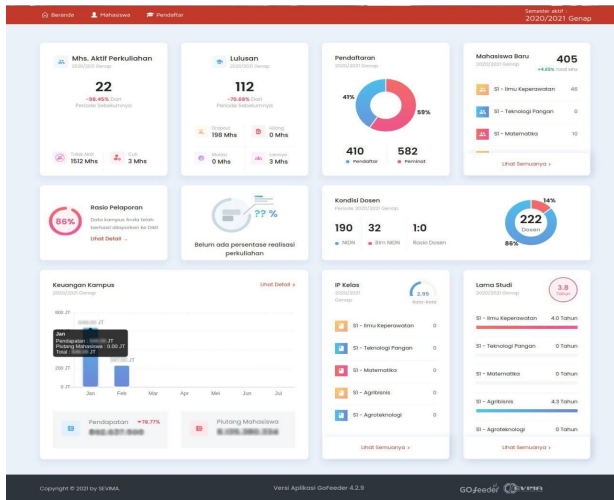


Figure 1: UI Reference

In order to obtain this information, the following are a number of questions submitted by researchers when collecting data from clients. Questions and answers during the first interview can be seen from table 1 below.

Table 1: Questions & Answers in Requirement Gathering

No	Question	Answer
1	How did the Rector of IT Del get the information before?	The rector obtains information from the rector's Secretary and experts by sending files to the rector. In other words, the rector obtains information manually, and needs to download progress report files or files to be able to read this information.
2	What are the difficulties for the Rector to get information?	The rector must read manually, or just read from the file that has been sent and that has been downloaded before.
3	According to you, is it necessary to make this information system?	The rector's dashboard is very necessary, so that the rector can get information quickly, without downloading, opening or reading many documents. And can get some information at once on one website.
4	How do you imagine the website that will be built?	Recommend that you focus on the function and content of the dashboard

No	Question	Answer
		that will be created. What only the data/information that the rector needs to know about development and decision making.
5	What types of information does the Rector need?	The information that the Rector really needs on this Dashboard is in fields related to academics.
6	What information needs to be included on the website to be made?	Information that needs to be included on the website that will be made is: number of students, number of new students, number of applicants, information on the average GPA class, information on length of study for each study program, number of graduates each year
7	What data does the Rector really need?	The data that the Rector really needs is: student data, lecturer data, faculty & study program data
8	What functions need to be in this dashboard?	The desired function is CRUD (create, read, update, delete) data and provide feedback, so that the Rector can comment on or provide input/decisions on information that has been CRUD by the admin.
9	Was there a rector's dashboard before?	There was no previous Rector's dashboard information system.
10	Can we ask for a book/file to be a reference in completing the required data when creating this rector dashboard?	Books or files provided by the client to the researcher are as follows: <ul style="list-style-type: none"> <li>- File of organizational structure layout</li> <li>- Strategic plan book</li> <li>- 2022 report book.</li> </ul>

As previously discussed, the focus of the research is to investigate the required data and investigate what kind of website to build to address the client's problem. Based on



these results, users or rectors who will use this website can only see the information displayed on the information system and provide input or comments on website pages. Meanwhile, from the side of the admin or expert staff/rector's secretary, the website to be built has a CRUD function to create, read, update and delete data or information that will be displayed on the user or rector's page. On this website the admin can add the data needed by the rector, and can make changes and delete data or information.

From the results of interviews with the client, the researcher provides a view in the form of an interface display design on the main page that can represent the results desired by the client and what features are on the website to be built. Here is one interface that can represent multiple functions. Figure 2 is a display of the main page of the rector's dashboard. On this page a pie chart will be displayed representing the information that will be displayed to the rector. Such as information about the number of active students on the IT Del Campus, the number of applicants to the IT Del campus each semester, the number of students for each study program, the length of study for each study program, and the number of graduates from the IT Del campus each year.

These data are added, edited, and deleted by the admin or the rector's expert staff. The data to be displayed is final data but subject to change. The diagram displayed on this dashboard will change according to data changes made by the admin. Data that is final, is data that will be read by the user or the rector to make a decision.

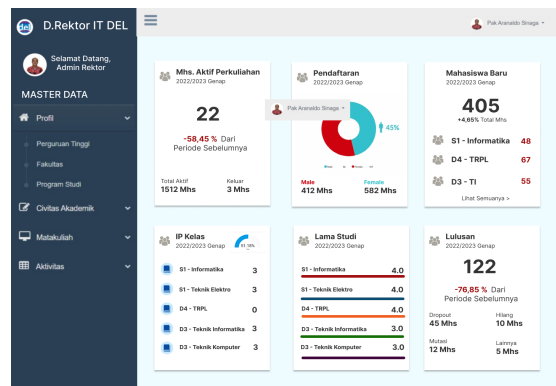


Figure 2: Main page view

In addition to displaying information, on the admin side, it can perform CRUD from the information needed by the Rector. Figure 3 is one of the interface CRUD functions of the website to be built.

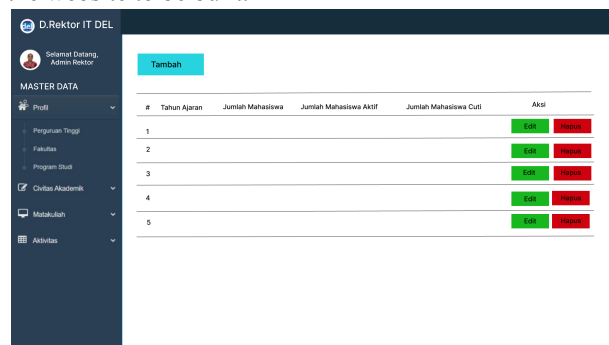


Figure 3: CRUD page views

To add data, you can fill in the form shown in Figure 4 below. on this form page, the admin will complete the information to be added. After completing the information that will be displayed, the admin must click the Save button to save the data that has been entered in the form.

Figure 4: CRUD form page display

## V. CONCLUSION

The web-based IT Del Rector Dashboard information system was built using the PHP (Hypertext Preprocessor) programming language and the Laravel 9 framework. The IT Del Rector Dashboard information system website also uses MySQL as a database medium to store data and implement virtual system development methods. Before implementing this information system, a requirement gathering was carried out first and a design draft was carried out with the Figma application. The results of the interviews with the client, are summarized with the design that forms the basis for the implementation or development of the IT Del Rector's Dashboard information system. The information system is expected to make it easier for IT Del campus leaders or rectors to obtain the information needed to improve the quality of the IT Del campus. This system also includes some important information needed such as information about the number of students, about lecturers, about the achievements of each study program and faculty, as well as information about the length of time each study program has graduated. With this, it is hoped that the IT Del campus leaders or the rector can make decisions quickly and accurately.

This system is also equipped with a comments feature, where the rector can provide comments about the information provided, as material for consideration and improvement. This information system is the initial stage in managing decisions that will be taken by the rector. For this reason, the development, improvement and addition of features as well as suggestions and criticism from all parties are expected to create a better and structured information system to improve the quality of the IT Del campus. In this way, the purpose of creating this website will be achieved, namely to assist the rector in providing the information needed by the rector, so that the rector can make decisions regarding the development and quality of the IT Del campus and can correct previous mistakes.

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