Kontigensi: Jurnal Ilmiah Manajemen
Vol 9 , No. 2, November 2021, pp. 660 - 671
ISSN 2088-4877

Developing Management Application for State Properties at State Islamic Institute of Palopo

Diah Asdiany[1], Khaidir Mubarak Putrasyam[2], Dodi Ilham[3]
[1,2,3] Institut Agama Islam Negeri Palopo
E-mail :diah_asdiany@iainpalopo.ac.id

ABSTRACT

This study aims to: (1) Obtain an information system for monitoring the use of State-Owned Goods inventory at IAIN Palopo (2) The system built can be a solution in managing and monitoring the use of State-Owned Goods inventory. The type of research used is Research and Development (R & R&D), with the Waterfall Model development model consisting of five stages, namely Requirement Analysis and Definition, System and Software Design, Implementation and Unit Testing, Integration and System Testing, and Operation maintenance. The results of this study are in the form of an information system that can facilitate data management and monitoring the use of State Property at IAIN Palopo.

Keywords: information systems, inventory use services, waterfall model.

INTRODUCTION

Information technology today is growing very rapidly, so it is necessary to predict the design of information systems in the future. For example, today's computer technology is so advanced that theories emerge that were previously unimaginable. The computer technology available today was unimaginable just a few years ago. Convenience is one of the advantages of globalization, which means the integration of various sciences such as education and technology. The contribution of thought from the world of education led to modernization in all areas of life in modern world society. In this case, the availability of technology has increased the quality and effectiveness of education itself. The four pillars of education initiated by UNESCO are "knowing and learning, learning to do, learning to be, and learning together."

Along with that, the need for information is experienced by every university; in the capacity of user-generated content (content created by consumers and producers), universities either directly or indirectly compete to present themselves in the form of producers of professional and capable educational services. Produce superior products in the form of alumni according to their vision and mission. Each university is also required to be more responsive (fast and responsive) in displaying and managing services to meet the needs of its service users (customer value) as quality assurance and a benchmark for the competitive advantage of universities.

IAIN Palopo, as an Islamic higher education institution, has a significant role in improving human resources, one of the university's public responsibilities. Implementing trusted human resources in all disciplines requires a reliable workforce to manage the education process. However, this can be managed professionally. In

addition, IAIN Palopo is a manifestation of the obsession of the Islamic community in Tana LUWU in particular and South Sulawesi Province, in general, to have an independent and reliable State Islamic University complete Islamic studies devote themselves to the interests of Muslims in Indonesia. Surrounding areas and the benefits can be felt by the individual city of Palopo and environmental factors.

Starting from this point of view, one part of the efforts to improve the quality and professionalism of IAIN Palopo is the improvement of facilities and infrastructure. In the process of achieving the success of a university, facilities and infrastructure include supporting factors. It can be achieved if the existing facilities and infrastructure meet the requirements and are accompanied by good and optimal management as stipulated in the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 3 of 2020 concerning National Higher Education Standards.

IAIN Palopo is one of the institutions, which must focus on its facilities and infrastructure because the facilities and infrastructure here include physical assets that have potential or value for the institution. one of his duties is to maintain campus facilities such as maintaining and repairing campus facilities so that they can be used and function properly. Untrusted users are one of the problems in maintaining campus facilities. The user's lack of a sense of responsibility causes damage to the loss of assets owned; this condition is certainly detrimental to the institution as the manager of state assets or is said to be State Property (BMN).

Data management of facilities and infrastructure at IAIN Palopo is the responsibility of the Subdivision of Administration, Public Relations and Housekeeping as one of the work units at IAIN Palopo where the data processing of facilities and infrastructure is specifically monitoring the use of campus facilities such as; buildings, meeting rooms, halls, auditoriums, official vehicles, and other inventory items, still use working papers written manually. However, this data collection system has many weaknesses because it is considered ineffective and inefficient; for this reason, technology that can handle the need for monitoring the use of BMN is urgently needed. Good and optimal.

From these problems, it is deemed necessary to create a Web-based BMN Inventory Service Information System. The system is designed using the PHP programming language and MySQL as the database. This kind of information system has been widely used because it is considered quite easy to use and access and is effective for data management.

Research purposes

1. The general objective is to obtain an information system for monitoring the use of state-owned inventory at IAIN Palopo, especially the borrowing of campus facilities by the academic community and the public, such as buildings, other buildings, and vehicles.
2. Special Purpose
   a. Get a system design that fits user needs.
   b. The system built can be a solution in managing and monitoring the use of state-owned inventory in the form of campus facilities within the scope of IAIN Palopo.

Literature review

1. Inventory

Inventory is the process of managing physical assets owned by the office in carrying out its operational activities. For this reason, the existence of inventory is very important for the continuity of an agency. If one or several facilities and infrastructure are damaged, it can hamper the running of higher education services. Another factor is the lack of a system for inventorying office supplies (Andi, 2007).

2. State Property

The definition of State Property in Article 1 number 10 of Law Number 1 of 2004 concerning State Treasury refers to the extent of State Property. Therefore, all goods purchased or obtained at the expense of the State Budget or

derived from other legitimate acquisitions are called State Property.

BMN are all products purchased at the expense of the State Revenue and Expenditure Budget or obtained from other authentic purchases, according to Government Regulation Number 27 of 2014 concerning Management of State Property (BMN). Purchase and development goods are examples of products obtained at the expense of the State Revenue and Expenditure Budget.

Because BMN is one of the assets of the central government, it must be managed properly to provide the maximum benefit for the welfare of the people. According to PP No. 27 of 2014, BMN management is a series of activities starting from planning, procurement, use, maintenance, and security, and ending with destruction and extermination, where all these activities are well organized and accompanied by activity development. Supervision and control.

3. System Definition

According to Jogiyanto (2018), the system combines elements interconnected and interact to achieve a certain goal. Furthermore, this system describes events and objects from real objects. For example, places, objects, and creatures that exist and are real.

Meanwhile, according to Murdick, RG (2018), a framework consists of a system or handling diagram to find common goals by working on products or information at a certain time to provide ideal information or data.

4. Information Systems

An information system within an organization integrates daily transaction processing needs, supports operations, is an organizational strategic and administrative activity, and provides the necessary reports to certain third parties (Jogiyanto, 2005).

5. Understanding Unified Modeling Language (UML)

According to Muslihudin (2016), UML (Unified Modeling Language) stands for Standard Modeling Language. When creating a model using UML concepts, we must follow the rules that the elements created are interrelated and must comply with existing standards. UML conveys context, not just diagrams. Modeling languages are used for the following purposes:

a. Design software;

b. communication refers to the communication between business processes and software.

c. Details the system for analyzing the process flow that will be done by the system

d. Document existing systems for future development needs.

6. Website

Website is one of the internet media that combines various documents. A website's documents are called pages, and links allow users to navigate from one page to another (hypertext) and move between pages stored on the same server and servers worldwide. Pages are accessed and read through Netscape, Navigator, Internet Explorer, Mozilla Firefox, Google Chrome, and other browser applications (Judge, 2004).

There are several similar previous studies when conducting a literature review, including:

1. Design and Build a Web-Based Asset Management Information System for Optimizing Asset Tracking in Industrial Engineering UNDIP (Sriyanto, Ari Arvianto 2016) is a study that designs a system that is expected to be able to complete the deficiencies in the current system and produce a more orderly asset management administration. The objectives to be achieved in the research are to identify the asset management process currently running in the Industrial Engineering Study Program, design a new asset management system business process that is more efficient, and produce a prototype in the form of a website-based asset management information system. The system design process starts with analyzing current procedures, evaluating current system weaknesses, analyzing new system requirements. The minimum specification requirements for the system consisted of the minimum requirements for software such as;

Windows XP operating system, Xampp version 1.7, MYSQL database, and using a web browser. At the same time, the minimum requirement for hardware (hardware) is a PC with a 40 GB hard drive, 1GB RAM, 1.65 GHz processor, keyboard, monitor, and mouse. Based on the system design, the system can store data online and in real-time due to the new website-based system for asset management. The data reporting process can be done easily based on the asset category, and supervision from the Head of the Study Program is carried out directly through the system.

2. The Design of a Management Information System for Reporting Study Facilities and Infrastructure at the Faculty of Computer Science, Universitas Brawijaya, (Danniar, Satrio, Fajar 2018) is a research that provides solutions in reporting facilities and infrastructure used in organizing activities lectures at the Faculty of Computer Science. The solution is a mobile-based information system for maintenance and management of facilities and infrastructure reporting for reporting users and a website for operators of equipment employees. A mobile-based system makes it easier for the academic community to report complaints against facilities and infrastructure by simply using a device anywhere and anytime. The software development method uses the waterfall model. The results and discussion section describes system modeling using the Unified Modeling Language (UML), such as case diagrams, sequence diagrams, and class diagrams. The system testing process uses the black-box method of validation testing, usability testing, and time comparison.

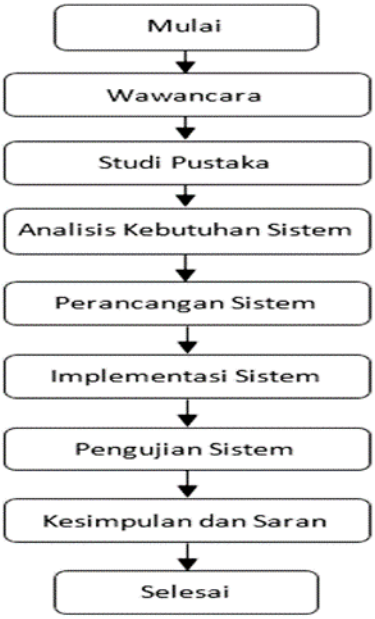
3. The design of a web-based information system for office asset inventory management at PT. MPM Finance Bandung (Johni S. Pasaribu) is a research conducted to develop an information system that can support the collection and processing of inventory data, facilitate the reporting and storage of inventory data, and minimize the potential for human error. The method used to develop this information system is the waterfall model. The resulting output is an application that helps manage data collection, aggregation, and reporting of company assets and the location of their assets.

Based on the previous research above, the difference with the research that the researcher proposes is the focus of research on designing a service system to monitor the use of BMN within the scope of IAIN Palopo by adjusting the policies that apply internally.

METHOD

A. Research Stages

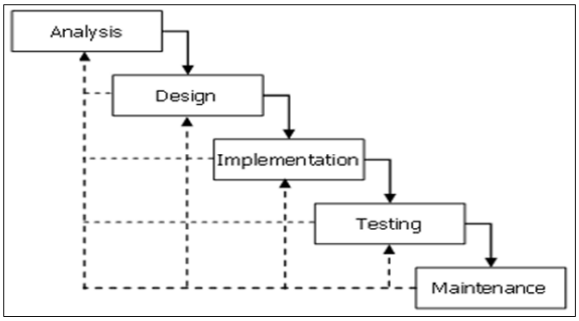
This research has several stages: the problem formulation stage and data collection, the software development stage called the system development life circle (SDLC), and report generation. The stages of problem formulation and data collection used observation, interviews, and literature studies, while the stages of software development used the SDLC waterfall model. The stages carried out in this study are depicted in the diagram in the following figure:



Research methodology flowchart

Waterfall Model

Waterfall Model or waterfall model is one of the software development cycle models or called Software Development Life Cycle (SDLC), which consists of sequential stages starting from requirements analysis, design, implementation, testing, and maintenance so that progress interactions will not continue to the next stage with the assumption that the previous stage has not been completed (Mishra & Dubey, 2013). Figure 1 is a description of the stages of the waterfall model.



Waterfall Model (Bassil, Y., 2012)

B. Software Development Stages

1. System Requirements Analysis

The needs analysis of the framework begins with gathering information which is completed by the interview method. Based on these interactions, data on the requirements of the framework depend on the issues at hand and are depicted in the following table:

Table 1. Problem Analysis

Problem	Recording the use of BMN is done conventionally by writing on the blackboard.
	There is no regular BMN usage list report because BMN usage transactions are only recorded on the blackboard.
	The academic community must contact the administration section to find out information on the availability of BMN before making a letter of application for the use of BMN.
Influence	BMN data in the administration section.
	Administrative staff in recording the availability of BMN.
	An academic community that wants to use campus facilities (BMN).
Impact	There is no performance report on the use of BMN.
	The academic community is not aware of the availability of campus facilities (BMN).
Solution	Build a system that can be used to control campus facilities (BMN) that can be accessed by the academic community online.

After analyzing the business process modeling steps or requirements, the system identifies actors to determine which actors will interact with the system under development. Table 2 below is an explanation of the actors involved.

Table 2. Actor Identification

Actor	description
Admin	The actor holds all access to the features contained in the application. Set the role of each user and their access rights.

Operator	Actors from administrative division employees are assigned to manage campus facility data (BMN) and transactions for their use.
Leader	Actors from top-level management are given to the Chancellor, Vice-Chancellors, Head of Bureau, and Head of Internal Supervisory Unit. This actor is involved in monitoring records and data in real-time.
Employee	Actors from the entire academic community have been given access rights by the Admin, who can monitor the status of campus facilities (BMN).

There are four main activities in the analysis of process requirements according to Sommerville, namely:

a. Feasibility study

It is a feasibility study of an order based on a proposed plan or project. Referring to the solution to the problem that has been formulated, there are 2 (two) software that makes it possible to implement the solution, namely WEB Application or Desktop Application. The WEB application was chosen because it is easier to access and use in various operating system versions.

b. Requirements Elicitation, Analysis, and Specification

After the potentials and problems are found, detailed and limited, and the type of product has been determined, the next step is to collect different data from written concentrates that can be used as material and reasons to plan appropriate and successful steps to be taken. Taken to create items that are relied upon to solve problems. As previously stated. Based on the data that has been collected from the client and written about the main elements of the product, as well as the product to be used, the next step is to conclude product details which include determining usability and programming details according to client needs.

c. Requirements Validation

Validation is carried out together with the user to see whether the product specifications produced are by the needs and can be accepted by the user. If deficiencies or discrepancies are found between the details that patterned with the wishes and needs of the client, then improvements will be made.

2. System Design

The design process will translate various system requirements into a software design before the coding process. This section will describe the data structure, software architecture, interface representation, and object-oriented notation/diagrams.

The programming view uses the UML (Unified Modeling Language) diagram documentation. Use case diagrams can describe an interaction between one or more actors and the system to be created. This diagram provides an outline of how the instructions from the user for a job to be done by the software through the cycle in it. Starting from the instructions then handled, until it gives the desired result by the user. As shown in the following use case diagram:

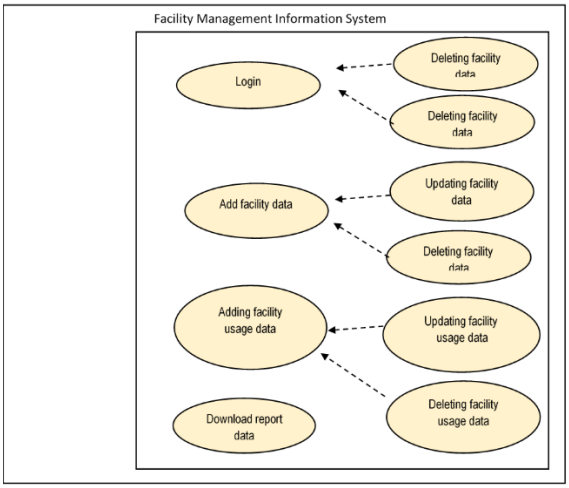


Figure 1. Use Case Diagram 1

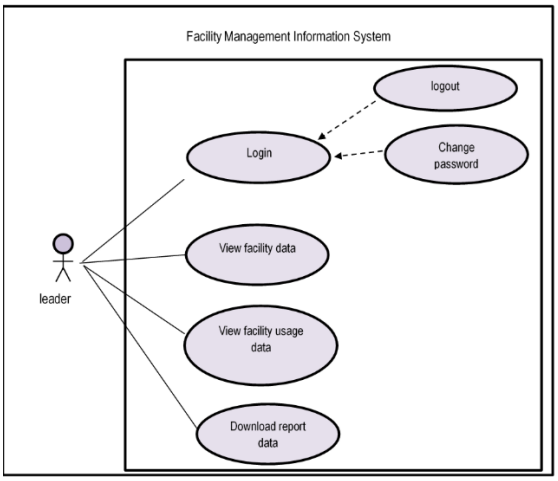


Figure 2. Use Case Diagram 2

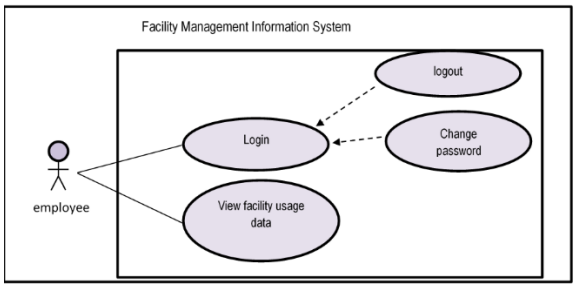
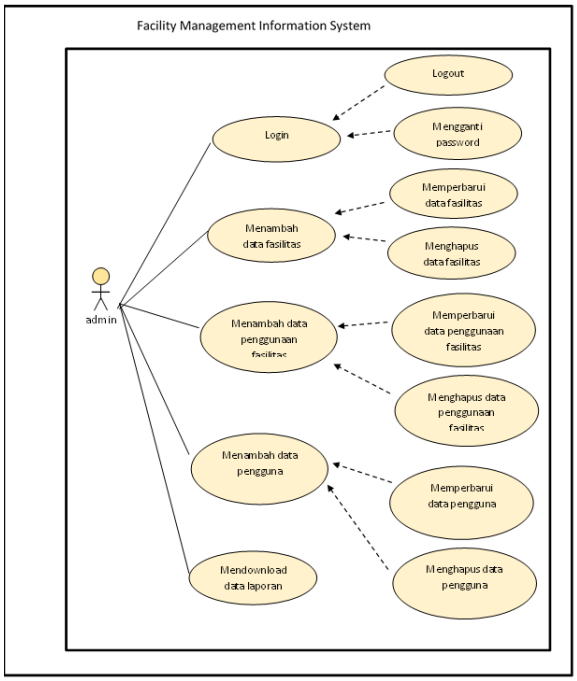


Figure 3. Use Case Diagram 3



Picture 1. Use Case Diagram 4

3. Implementation

At this stage, the design is translated into a machine-readable form, namely machine language. The resulting program code is still provided in the form of small modules combined in the next step. This section shows screenshots of the created system. Finally, the resulting design is translated using the Bootstrap framework, which uses Twitter's CSS styles mixed with PHP and MySQL.

4. Integration and Testing

After merging the modules that have been made, testing is carried out to determine whether the software made is by the system requirements based on the system design designed in the previous stage.

The testing process is carried out after the product combination is complete. Testing is an important part of the product progress cycle. The reason for this test is to ensure that the resulting product is of reliable quality, which can introduce pre-formed details. Testing is carried out using White-Box and Black-Box testing to be more specific in running the product and assessing each capacity in the product whether it can function properly and achieve its goals or not.

5. Maintenance

System maintenance is the last stage in the waterfall model. Maintenance in correcting errors found in the system testing stage.

RESULT and DISCUSSION

This research creates a data framework item in which the product improvement model uses the Waterfall System Development Life Cycle (SDLC). The Waterfall SDLC process is a precise and sequential old-style model of building programming. The stages in the cascade interaction model need investigation, planning, implementation, and testing.

a. System planning

Framework configuration is done so that the framework that is created can suit the client's needs. This stage ends by investigating the framework's requirements and continues with the prerequisites of displaying a usage graph. The demonstration of the prerequisites is carried out using the Unified Modeling Language (UML) with the following explanation:

1) Flow chart

Flowcharts have an important role in inferring the usefulness of programming projects that affect many individuals at once. What is more, utilizing the interaction flowchart of a program will be clearer, concise, and reduce the chance of errors. The use of flowcharts in writing computer programs is also a wonderful method of relating special and non-special needs. The attached image outlines the work cycle flow chart for the service data framework for BMN IAIN Palopo.

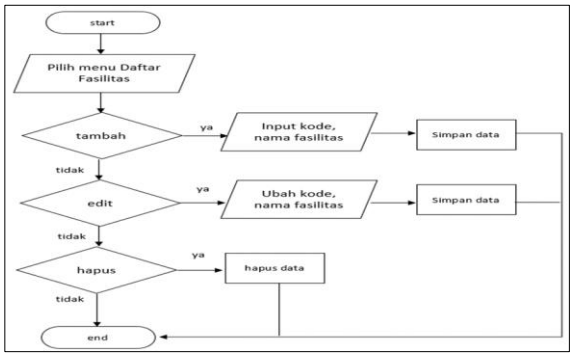


Figure 5. Flowchart List of facilities

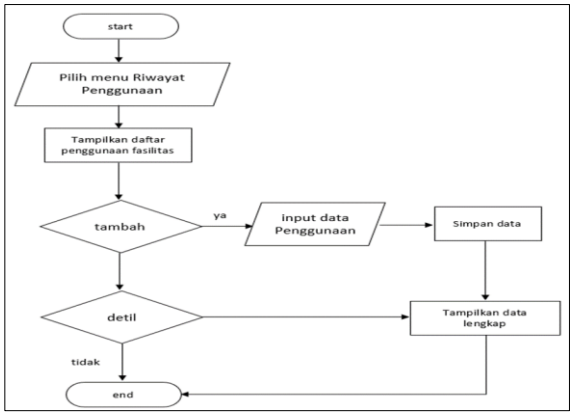


Figure 6. Flowchart of Manage Facility Usage History

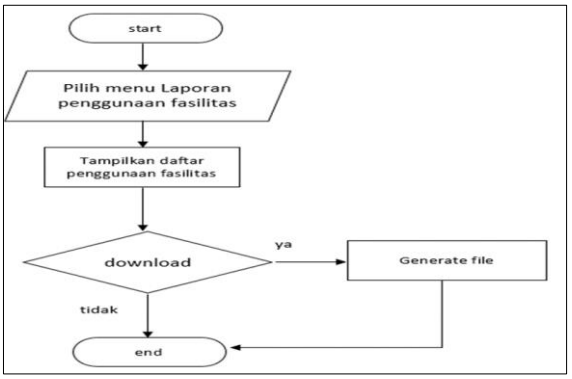


Figure 7. Facility Usage Report Flowchart

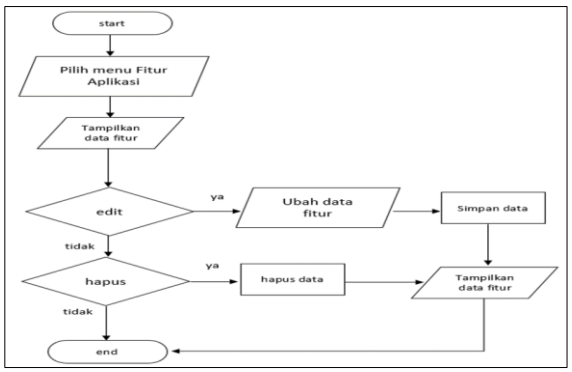


Figure 8. Application Features Flowchart

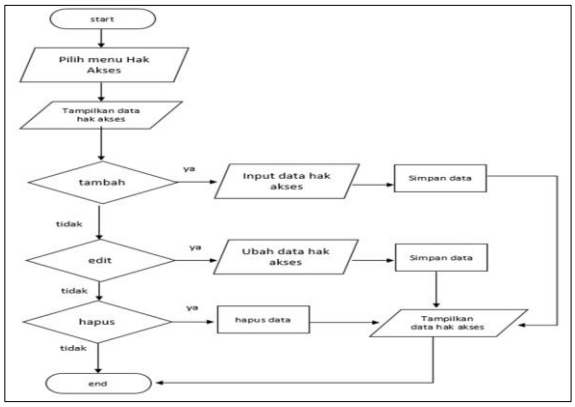


Figure 9. Flowchart of Access Rights

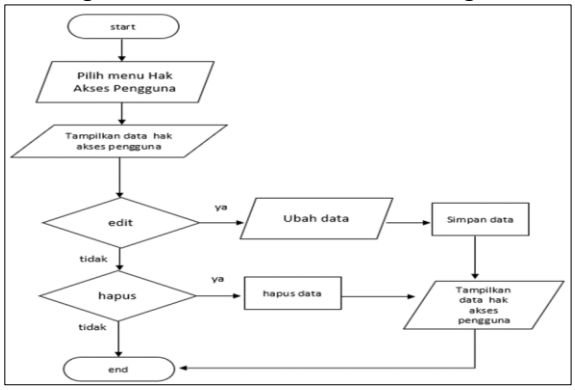


Figure 10. Flowchart of User Access Rights

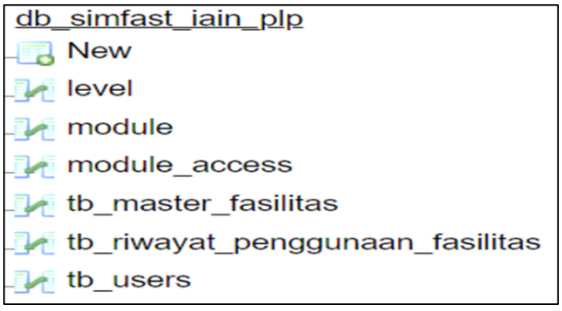


Figure 12. Table Diagram

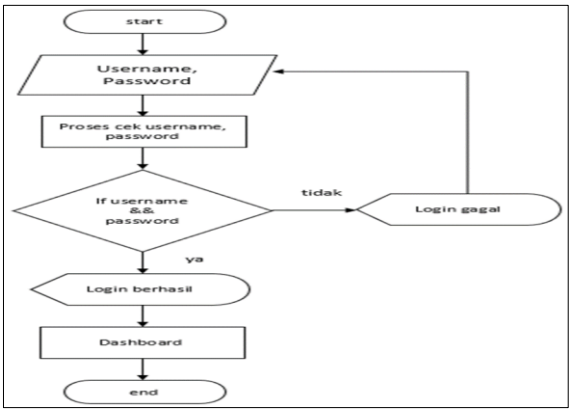


Figure 11. Flowchart Login

2) Class Diagram

The class diagram is a class that describes the construction and clarification of classes, packages, and objects and their relationships with each other such as containment, inheritance, association, and others. In addition, the class diagram describes the relationship between classes in the framework that is being created and how they work together to achieve a goal. For example, the following figure illustrates the interrelationships between the graphs of the planned data frame for the service using the BMN IAIN Palopo.

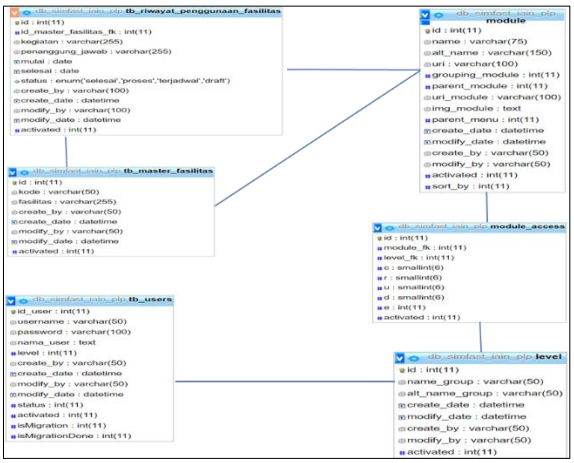
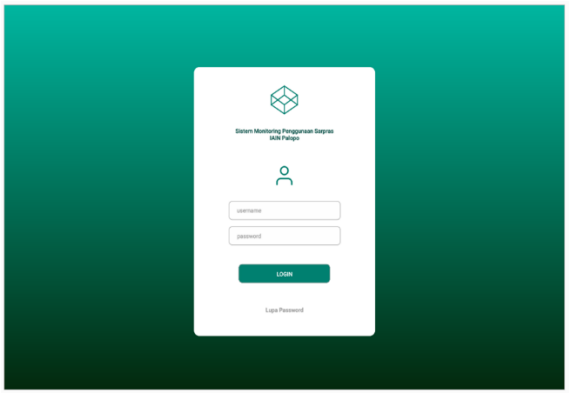
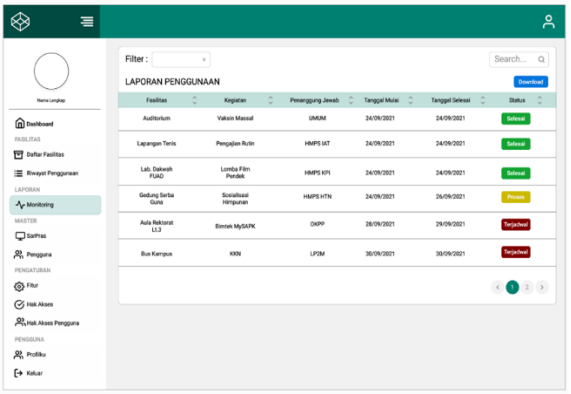


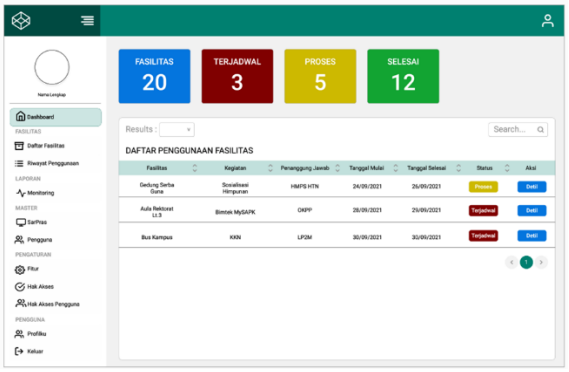
Figure 13. Relationships between diagrams

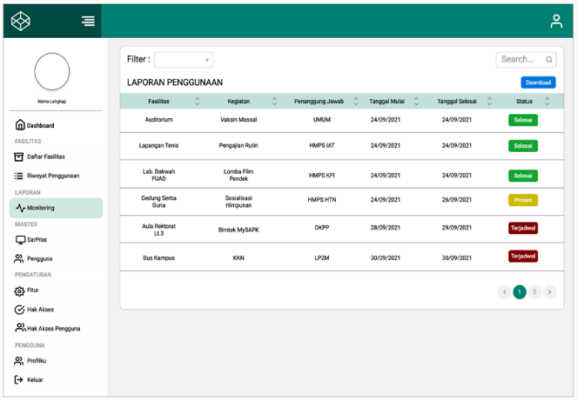
Kontigensi: Jurnal Ilmiah Manajemen
Vol 9 , No. 2, November 2021, pp. 660 - 671
ISSN 2088-4877

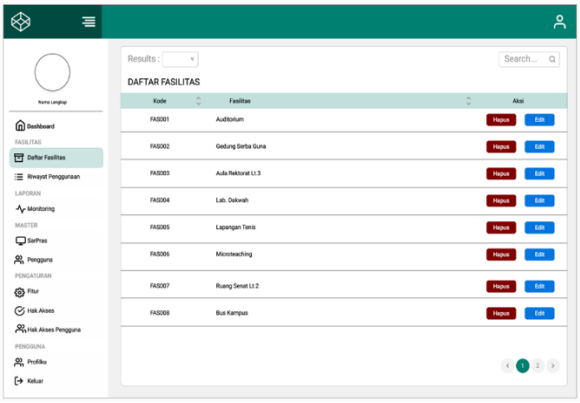
3). Application Interface Design

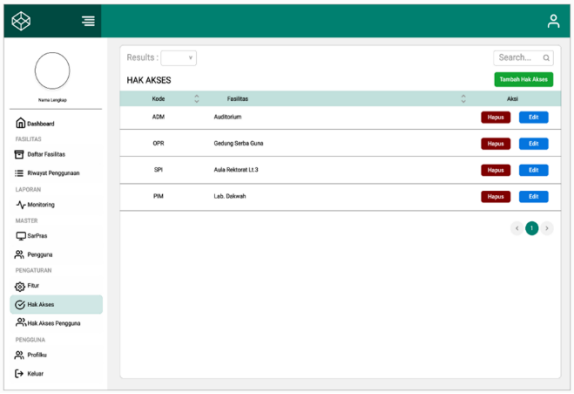


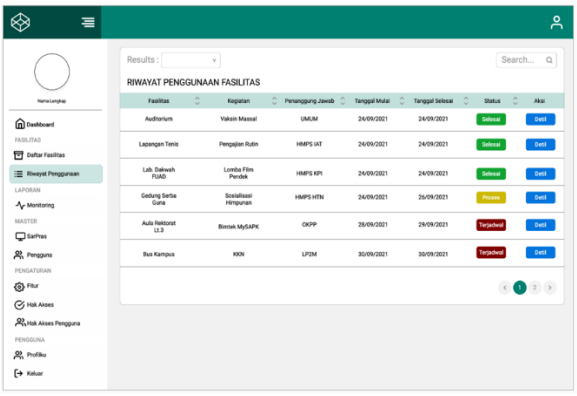




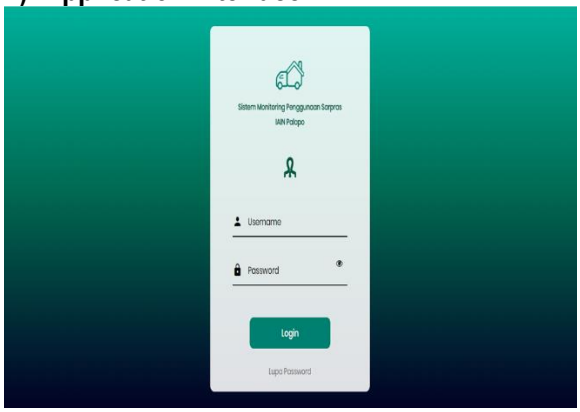




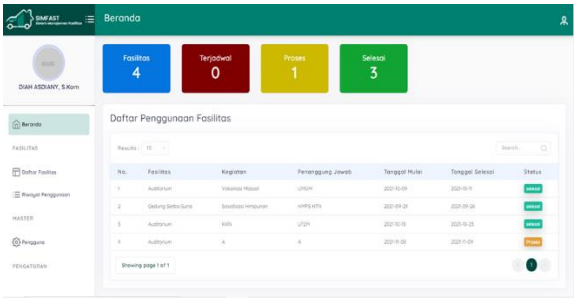


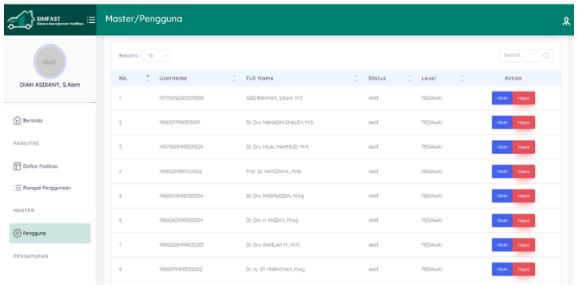


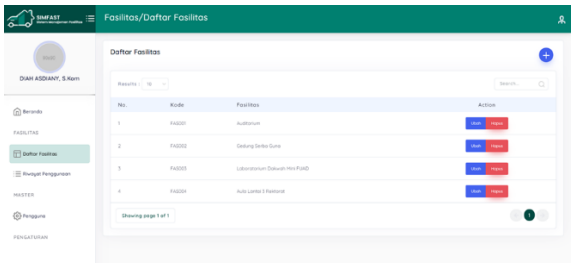
4). Application Interface

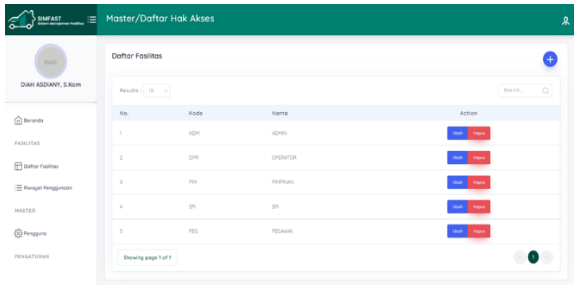


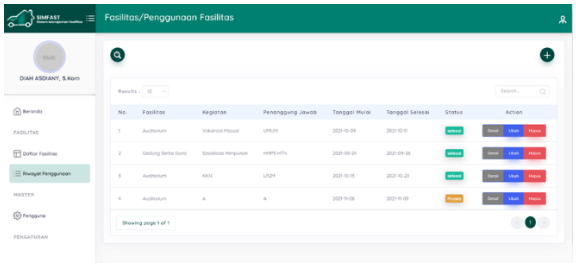
Kontigensi: Jurnal Ilmiah Manajemen
Vol 9 , No. 2, November 2021, pp. 660 - 671
ISSN 2088-4877











5). Validation Testing

The developer himself carries out validation Testing by performing test procedures on functions or menus. The functions tested in this section and the test results are described in the following table:

Table 3. Validation Testing Results

Actor	Test Function	Results
Admin	Login/Logout	Valid
Admin	Add user	Valid
Admin	Edit user	Valid
Admin	Delete user	Valid
Admin	Add access rights	Valid
Admin	Edit permissions	Valid
Admin	Remove access rights	Valid
Admin	Change password	Valid
Operator	Login/Logout	Valid
Operator	Adding facilities	Valid
Operator	Editing facilities	Valid
Operator	Removing a facility	Valid
Operator	Adding facility usage	Valid
Operator	Editing facility usage	Valid
Operator	Removing facility usage	Valid
Operator	Update facility usage status	Valid
Operator	Download facility usage report	Valid
Operator	Change password	Valid
Leader	Login/Logout	Valid
Leader	Change password	Valid

Leader	View a list of facility usage	Valid
Leader	View the list of facilities	Valid
Leader	Download facility usage report	Valid
Employee	Login/Logout	Valid
Employee	Change password	Valid
Employee	View a list of facility usage	Valid

CONCLUSION

A. Conclusion

Based on the results of the research described in the previous chapter, it can be concluded that:

1. The design of the BMN inventory e-service aims to facilitate data management and monitoring of the use of State Property at IAIN Palopo. Therefore, there are two levels of users in this information system, namely Admin and User.
2. The designed information system has been through software testing by the developer and can be run according to its function.

B. Suggestion

Based on the conclusions above, the researcher suggests that future research developers should:

1. Develop other BMN data management features so that the designed information system is more complete.
2. Can integrate the BMN Inventory service system with the institute website to add features to the website.

REFERENCES

Anggraeni, Elisabeth Yunaeti dan Rita Irviani, 2017. Pengantar Sistem Informasi. Yogyakarta: ANDI.

Badiyanto dan Ardhana Yosef Murya Kusuma, 2018. Project PHP : Membangun Sistem Informasi Akademik dengan Framework Codeigniter. Yogyakarta: CV. Langit Inspirasi.

Jayanti, Ni Ketut Dewi Ari Jayanti dan Ni Kadek Sumiari, 2018. Teori Basis Data. Yogyakarta: ANDI.

Mulyani Sri, 2016. Analisis dan Perancangan Sistem Informasi Manajemen Keuangan Daerah: Notasi Permodelan Unified Modeling Language (UML). Bandung: Abdi Sistematika.

Setyawan, M. Yusril Helmi dan Munari Aip Suprapto, 2020. Panduan Lengkap Membangun SIstem Monitoring Kinerja Mahasiswa Internship Berbasis Web dan Global Positioning System. Bandung: Kreatif Industri Nusantara.

Yurindra, 2017. Software Engineering. Yogyakarta: Deepublish.