Perancangan Aplikasi Web Kredit Mikro Menggunakan UML (Unified Modeling Language) Dan Framework PHP Codeigniter

Simon Surya Keban
Magister Manajemen Sistem Informasi, Universitas Gunadarma, Indonesia
E-mail Simon.keane13@gmail.com

Abstract

Community Based Water Supply and Sanitation Program (Pamsimas) is a program that aims to support and increase access of drinking water facilities to local people. One of the Pamsimas programs in increasing the capacitation of KPSPAMS or infrastructure for water supply and sanitation is Micro Credit. In certain areas reporting and storing data are not monitored and effective, where it is difficult to monitor and store complete data reports. The purpose of this research is to design a microcredit web application using the UML (Unified Modeling Language) design tool and the PHP Codeigniter Framework in Jakarta Pamsimas Program. The result of this research is Micro Credit Program web application that can be used by community facilitators and District Coordinators in inputting KPSPAM data that follows the Micro Credit program in the payment process.

***Keywords:** Codeigniter, Microcredit, PHP, UML, Application*

1. Introduction

In accordance with the National Medium-Term Development Plan (RPJMN) 2015 – 2019, the Government of Indonesia has committed to achieving the target of 100% access to adequate drinking water and sanitation for all Indonesians by 2019. The Community-Based Water Supply and Sanitation Program (Pamsimas) has become one of the programs that aims to support the improvement of residents' access to drinking water and sanitation facilities, especially in rural and suburban areas. To support the financing of drinking water development as outlined above, Pamsimas' Central Project Management Unit (CPMU) has collaborated with Water.org in order to increase the capacity of KPSPAMS to be able to access microcredit from financial institutions. This collaboration is marked by the existence of a Cooperation Agreement (PKS) which was signed on July 17, 2018 and will end on December 31, 2020. Through this collaboration, it is targeted that as many as 3,000 KPSPAMS can access microcredit from financial institutionswithin the period up to 2020.

The main obstacle is the absence of storage and reporting media to record the process of the KPSPAM PAMSIMAS village Microcredit program because it has been using the manual method. So that it will have an impact on the inaccuracy of existing data and the microcredit program report process

With the development of technology today, where internet technology as a medium of communication and dissemination of information is a need for every community, by utilizing this technology, the lack of information and monitoring of the KPSPAM Microcredit Program can run well so as to make it easier Reporting process.

2. Bibliography Review

2.1. Microcredit

(Pamsimas,2017) Rural SPAM Financing activities through Microcredit of Financial Institutions are carried out through KPSPAMS capacity building activities in order to meet the requirements for accessing microcredit from financial institutions. Strengthening activities are also carried out to financial institutions so that they can provide microcredit to KPSPAMS. This strengthening activity is carried out to potential KPSPAM and are

interested in accessing microcredit in 33 provinces. Strengthening activities are carried out in stages, starting from increasing the capacity of Pamsimas actors and companions at the provincial level, district level, and village level.

KPSPAMS strengthening activities aim to obtain KPSPAMS who are interested in expanding services with funding through access to mikro credit to financial institutions. The KPSPAMS was then strengthened so that it could access microcredit to financial institutions. KPSPAMS identification activities are carried out by DFMA/Co-DC, Community Facilitator for Community Empowerment (FM-CD), and Community Facilitator for Technical Water and Sanitation Facilities (FM-WSS).

2.2. Previous research

(Akbar, Ardiansyah, and Utomo 2016) Information System is a man-made system that generally consists of a set of components-based and manuals that are made in such a way and provide output information to the user. (Setiawa n & Mulyani , 2017) An information system in an organization can be said to be a system that provides information for all levels in the organization. This system stores, retrieves, alters, processes and communicates information receivedusing information systems or other system equipment. While the purpose of the information system is to collect data, store and inform users who need it.

In 2015, a research was conducted on THE DESIGN OF THE SUBMISSION INFORMATION SYSTEM. WEB-BASED CREDIT ON PT. BPR Kredit Mandiri Indonesia Bekasi Branch by Ganda Wijaya and Melza Sari STEMIK Nusa Mandiri Jakarta (Ganda Wijaya, Melza Sari 2015). Based on the results of ongoing research, based on the analysis carried out, the current credit application system at PT. BPR Kredit Mandiri Indonesia is already running well, but still uses a manual system in the kr edit application processwhich requires customers to come directly to the bank. It is certainly not effective and efficient. Importing credit applications by the Account Officer who enters customer data again takes a long time and is also prone to errors inthe data input process.

In an earlier study in 2016 with the title DESIGNING A WEB-BASED STUDENT MICROCREDIT INFORMATION SYSTEM (Lasminiasih, 2016). In this study, researchers used a descriptive method, namely by collecting data and information at the Center for Business and Entrepreneurship at Gunadarma University. In collecting data, researchers conducted direct observations of the administration and finance departments and conducted by direct interviews with the finance and administration departments of the Gunadarma University Business and Entrepreneurship Center. The analysis tool used is a flowchart (flow chart) which is a graphical representation of an algorithm or procedure for solving a problem. DFD (Data Flow Diagram) is a diagram that uses notation to describe the data flow of a system, whose users are very helpful to understand logically, structured and clearly.

In 2020, a study was conducted with the title WEB-BASED CREDIT MANAGEMENT INFORMATION SYSTEM AT THE GEMILANG TEMBILAHAN PEOPLE'S CREDIT BANK, (Muhammad Budiman, Usman and Ilyas, 2020). In this study, researchers used the PIECES method, which is an analytical method to obtain more specific problem points in several aspects such as Performance, Information, Economy, Control, Eficiency and Services. System design using UML modeling by determining Use Case Diagrams, Activity Diagrams, Sequence Diagrams and Class Diagrams. The result of the research conducted is that credit customers can conduct computerized testing and the credit application process can be done quickly and accurately.

3. Research Methodology
3.1. System Development Model

In the development of the system methodology used is to use UML. UML (Unified Modeling Language) is a language based on graphs/images to visualize, specify, build, and document an OO (Object-Oriented) based software development system. UML itself also provides standards for writing a blue print system, which includes the concept of business processes, writing classes in specific program languages, database schemas, and components needed in a software system. In making this design, Use Case Diagrams, Sequence Diagrams, Class Diagrams will be used.

a) Use Case Diagram

This diagram is used to model all business processes based on the perspective of the system user. Use case diagrams consist of diagrams for use cases and actors. Actor represents the person who will operate or the person who interacts with the application system.

b) Sequence Diagram

Sequence Diagram is a combination of Diagram Class anddiag ram Object which has an overview of a static model. But there are also those that are dynamic, such as the Interaction Diagram.The sequence diagram is one of the Interaction diagrams that explains how an operation is performed; whatmessage g sent and when it was implemented.

c) Class Diagram

The class diagram illustrates the static structure of the class within the system. a class represents something that is handled by the system. classes can relate to others in a variety of ways: associated (connected to each other), dependent (one class depends/uses another class), specialed (one class is a specialty of another class),

In implementing this system, a PHP framework is used, namely the Codeigniter Framework. Codeigniter is a web framework for the PHP programming language created by Rick Ellis in 2006. Codeigniter has many features (facilities) that help PHP developers to create web applications easily and quickly with MVC architecture patterns, namely modeling, view, and controllers.

1) View

View is a user interface page that appears on the user.

2) Controller

A controller is a set of action instructions that associate a model with a view.

3) Type

A model is a part of the handler that deals with data processing and manipulation.

Some of the advantages of this framework are:

1) It is open source and free.
2) It has a small size compared to other frameworks.
3) Applications that use this framework can run quickly.
4) Well documented.

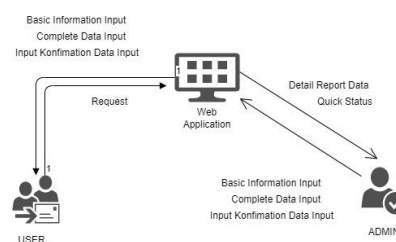## 3. Results and Discussion

a. Application Design

Figure 1. Web Application Design

Figure 2 is a picture of the proposed web design where some information about the Microcredit Program inputted by oleh User FM (Community Facilitator) and DC (District Coordinator) can be viewed and known by the Admin as material for a report to the leadership. The admin makes a request or request to the web server then the web server sends the data that has been inputted by the User in accordance with the Admin's request.
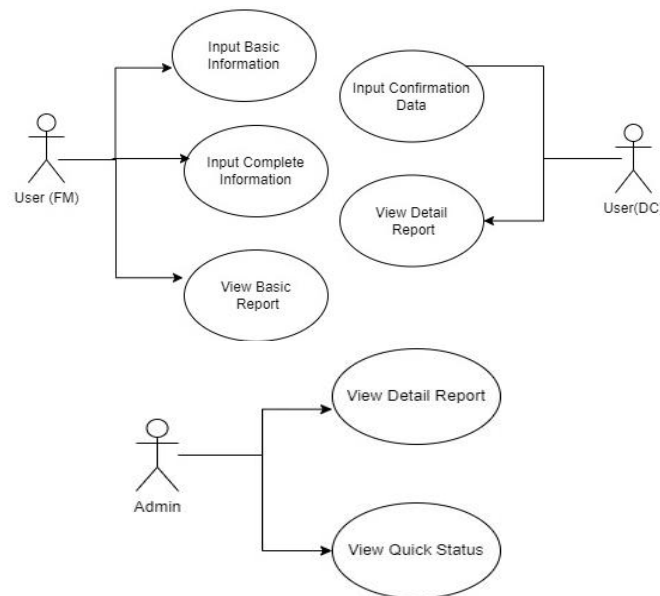
b. Use Case Diagram

Figure 2. Use Case Microcredit web application

The proposed Use Case Diagram for the Microcredit web is that the user sees the Home page, inputs general data, confirmation data and complete data from districts that take the Microcredit program for KPSPAM financing Pamsimas. Actor admin monitors and downloads input data for report materials, to enter the administrator page, the actor admin must first log in.

c. Sequence Diagram

The sequence diagram shows the design of the interaction and the series of messages sent between objects in the application to be built.

Figure 3. Sequence diagram of the application

d. Class Diagram

The class diagram shows the design of the class structure to be constructed consisting of the name, attributes, and operations that will occur on the class. The class designed for the application to be built consists of 6 classes.
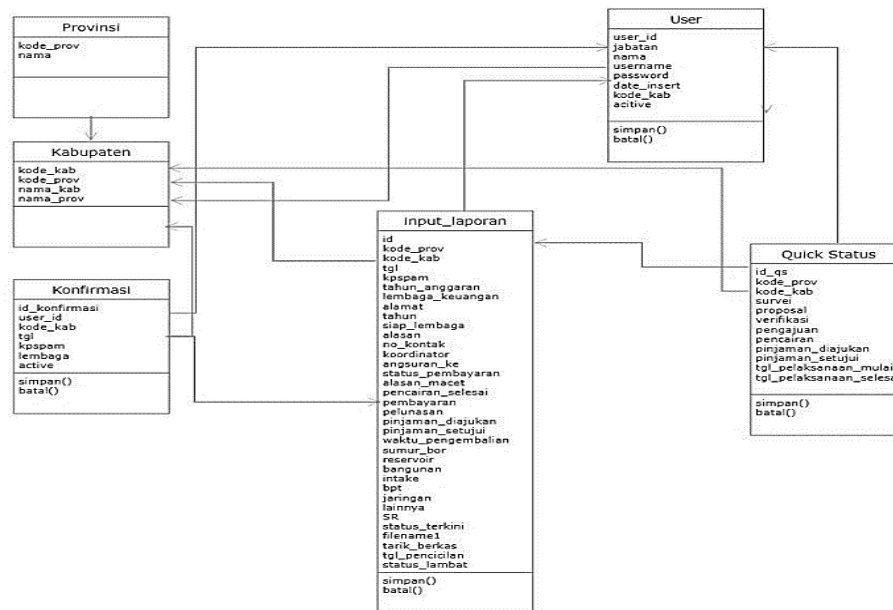

Figure 4. Class Diagram Apps

e. Application interface design
1) Main menu interface design

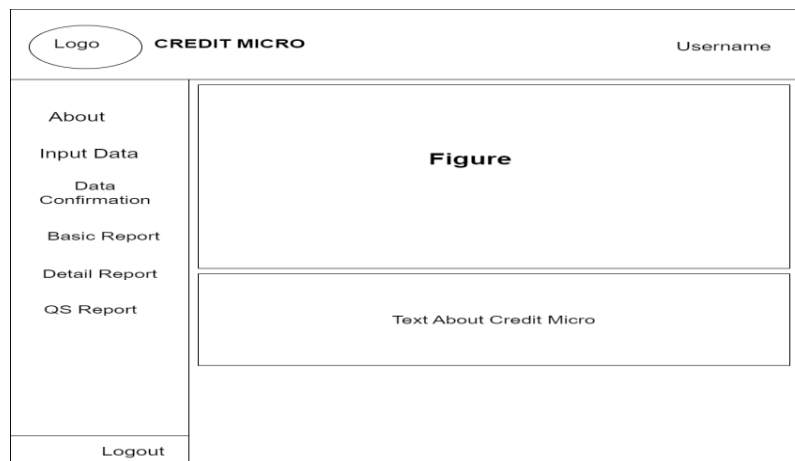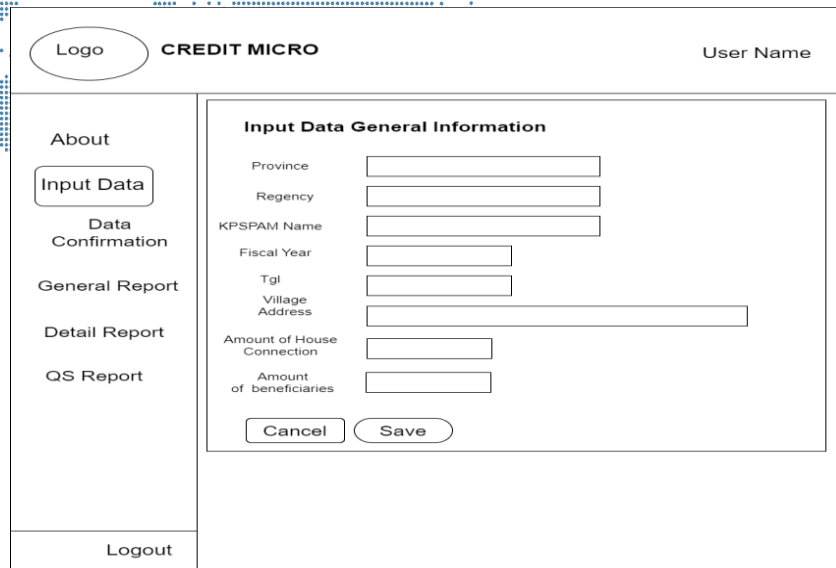In this design, text information about the Microcredit program and supporting images will be made.

Figure 5. Main Page Interface Design

2) General Information Input menu interface design

In the general information data input design, 8 inputs were made consisting of the name of the Province, district, KPSPAM, address, fiscal year, number of house connections and beneficiaries.

Figure 6. Input Menu Interface Design

3) Interface design of the Confirm data menu

In this design, it contains 7 input data that have been filled in by FM, namely the name of the Province, Regency, KPSPMA Name, Fiscal Year, Date, Village Address, and Activation Check box for approval.

Figure 7. Confirmation Menu Interface Design

4) Complete Data Input menu interface design

In this design, it contains 6 tabs, each of which has an input form, namely General Information, Proposal Preparation, Credit Submission, Implementation of Activities, Implementation and Payment Stages.
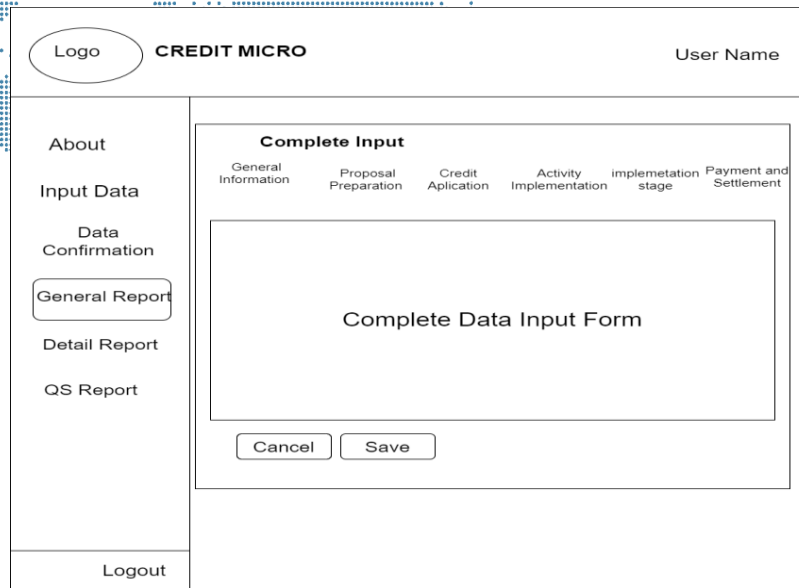
Figure 8. Complete data menu interface design

f. Application interface implementation
1) Implementation of login page
    Before logging in, it is confirmed that you have registered or registered on the mis.pamsimas.org/ hrm website.
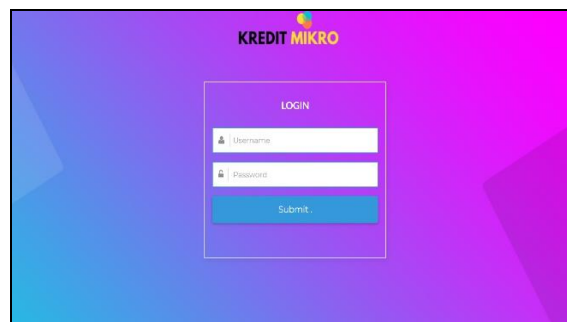

Figure 9. Implementation of the Login page

2) Implementai main menu interface
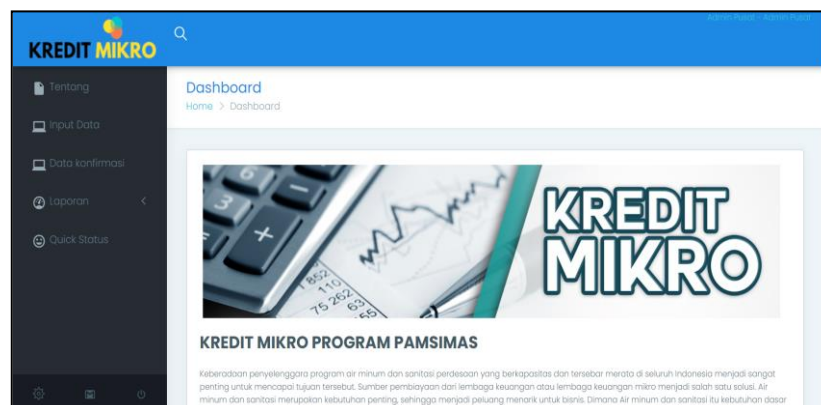   On the about page, it contains information related to the Pamsimas microcredit process and its porses flow.

Figure 10. Implementation of the main menu interface

3) Implementai General Information Input menu interface

General information form the user will fill in the name of the KPSPAM village that registered for the Microcredit program according to the existing files
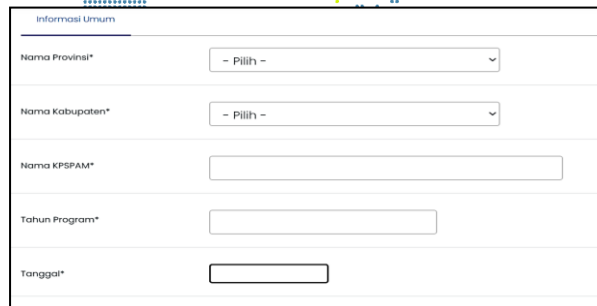

Figure 11. Implementation of the Information Input menu interface

4) Implementasi interface menu Confirmation

In this form, User (DC) will confirm the general information that has been inputted, whether it has been registered with the Pamsimas KPSPAM village.
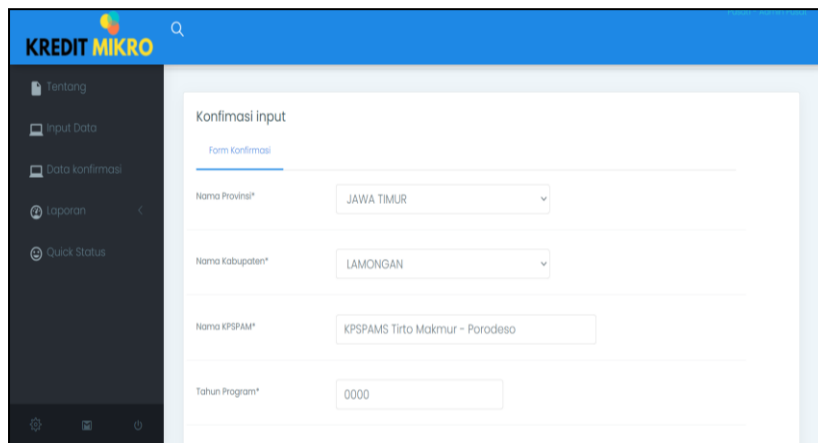

Figure 12. Implementation of the Confirmation Data menu interface

5) Complete Data Input Form Interface Design

After being confirmed by User DC, the complete input will be displayed and filled in according to the village file of the KPSPAM Pamsimas program.
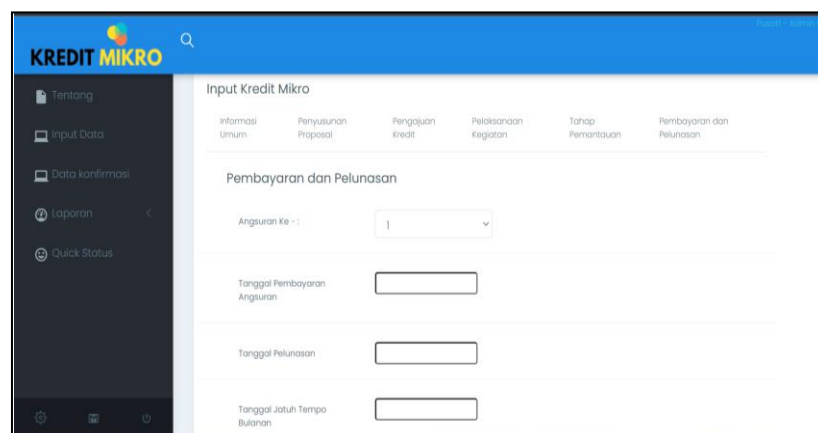

Figure 13. Implementation of the Complete Data Input Form interface

6) Implementasi interface menu Report
The data that has been filled in completely will appear in the Detail report below.
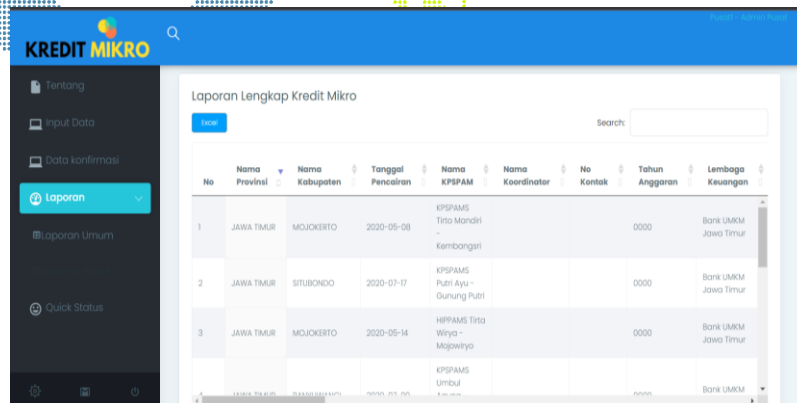

Figure 14. Implementation of the Report menu interface

7) Implementation Quick Status menu interface

To see the Quick Status Report in real time, the results of the report will appear in the quick status table to monitor the extent to which the Microcredit stage process has been running.
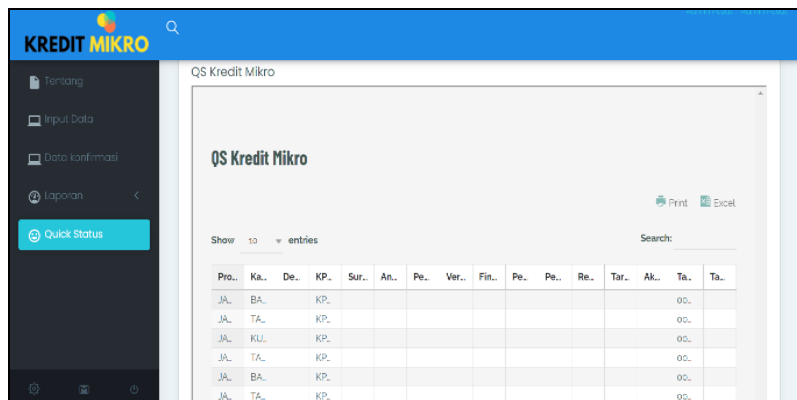

Figure 15. Quick Status Report menu interface

8) Testing

The results of testing conducted for 1 week from users and staleholders of related parties have been carried out, and from the results of the meeting. In making this application, it has been used and feedback according to the test results. Here are the test results based on the components created.

Table 1. testing

No	Component	Testing Scenario	Expected Result	Testing Result
1	Login Page	User and Admin access to login page via link	Succes Login and access to Main Page	Sucess
2	Main Menu Page	User and Admin Click Main Menu page	Access to Main Menu Page	Sucess
3	General Information Menu Page	User input data menu General Information Menu	General Information data saved successfully	Sucess
4	Confirmation data Menu Page	User input data Confirmation Data	Confirmation Data saved successfully	Sucess
5	Complete Data Menu Page	User input data Complete form Menu	Data saved successfully	Sucess
6	Detail Report Page	User Click Detail Report Menu	Detail Report Menu open successfully	Sucess
7	Quick Status Report Page	User Click Quick Status Report	Quick Status Report open successfully	Sucess

4. Conclusion

From the results of the discussion that has beendescribed, The Microcredit Application Web that is designed can meet the needs of the Project to be an alternative in conducting the KPSPAM infrastructure Microcredit program at related financial institutions. The results of the implementation into a web application can be a medium in monitoring the Microcredit program of the Pamsimas Program, which previously there was no information system application that records data and report processes. The results of feedback from this system are in accordance with the design that has been tidied up with related parties who need. In this system, the microcredit application process can be done quickly and accurately where the process can be monitored better.

References

[1]   Lasiminiasih, Sandhi P, Ali Akbar, Miftah Adriasyah, Rooswan B Utomo. 2016, Web-based Student Microcredit information system design. Journal of Information Systems (JSI), VOL. 8, NO. 1, April 2016

[2]   Dhaara Dimas Prasadhana, 2017. Analysis of the Credit Application System and the Implementation of Internal Control in the Provision of Micro Small and Medium Enterprises Credit to PT. Bank Rakyat Indonesia. TALISMAN (Scientific Journal of Accounting Students S1) , 2017

[3]   Miftahul, Janah. 2019. Design of Web-Based Special Activity Unit Organization Registration System at IAIN Bukittinggi. Journal of Informatics 6(2):185-192DOI: 10.31311/ji.v6i2.6126.

[4]   Muhammad Budiman, Usman, Ilyas, 2020.   We   b   Based   Credit Management Information System at the Gemilang Tembilahan People's Credit Bank. Journal of Software , Volume 2, Number 3 October 2020 : 123 –129

[5]   Ganda Wijaya, Melza Sari, 2015. Designing a Web-Based Credit Application Information System at PT. BPR Kredit Mandiri Indonesia Bekasi Branch. IJSE – Indonesian Journal on Software Engineering , 98-104

[6]   Sri Dharwiyanti, 2007, Introduction to Unified Modeling Language (UML), Computer Science.

[7]   Pamsimas, 2017. POB Rural SPAM Financing with Microcredit

[8]   Setiawan, R., & Mulyani, A. (2017). Design and Build an Information System for Art and Culture Student Activity Unit of Garut College of Technology.Journal of Algorithms, 14(2), 222- 22