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Implementation Financial Records System for Pepper Farmers in Bangka Using Website and Mobile Applications

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Abstract

The pepper plant is a main commodity for farmer in the Bangka city because it has a reasonably high selling power and a distinctive taste also long history. Still, many problems occur because Bangka Belitung has a national and international role, resulting in less and less influence on the economic conditions of pepper farmers, wrong one factor is the lack of use of information technology by pepper farmers in the current era, both for marketing and for financial records. This study aims to build a financial recording system for pepper farmers based on websites and android applications to make it easier for farmers to produce financial documents and become a financial report for farmers and outsiders. The technique used in this research is the waterfall method, which will facilitate the development of an information framework. This research aims to make applications for pepper farmers in the Province of Bangka Belitung Islands and help financial management. Pepper farmers can utilize information technology for their interests in the industrial era 4.0 and improve information technology expertise in increasing the well fare of pepper farmers.

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1. Introduction

One of the spices categories is the pepper plant, which is a product of the plantation sub-sector. The pepper plant is one of the plants from the State of Indonesia that is taken into account in world trade[1]. Since the 1990s, Indonesia has dominated the world's pepper exports followed by India, Brazil, Vietnam, and China; however, in 2001-2013, Vietnam began to shift Indonesia's position as the world's old leading exporter [2]. One of the main producing and exporting provinces of pepper, especially white pepper in Indonesia, is in the Bangka Belitung Islands. The pepper plant is a mainstay commodity for people in the Province of Bangka Belitung Islands because it has a reasonably high selling power and distinctive taste [3]. However, many problems occur because Bangka Belitung has a national and international role, resulting in less impact on pepper farmers' economic conditions. One of the factors is the level of pepper price fluctuations and disturbances originating from illegal mining that has been carried out in Bangka Belitung Archipelago Province. As well as the lack use of technology in the current 4.0 revolution era.

The majority of pepper farmers in the Province of Bangka Belitung Archipelago, in terms of purchasing materials such as fertilizers, seeds, equipment when applying for loans, or being asked how much capital and profit they receive is minimal about this knowledge. This means that there is no record of how much farmer expenses and revenues are because one of the most critical management is financial management. The way is to manage finances with accounting knowledge, which is then synergized with mastery of information technology[4]. Some pepper farmers keep financial records simple and even without financial records carried out by the farmers, so farmers still don't understand how the expenditures spent are comparable to the margins when they harvest the pepper.

However, in general, the recording of financial reports is still done manually, namely by recording transactions to a notebook and manually calculating the transaction data to produce financial statements in simple bookkeeping. However, this is inefficient, the large number of transactions that occur every day requires recording, calculating sales, and making reports that take a lot of time. Farmers in Indonesia have the skills and desire to increase agricultural production. Still, many problems occur, especially in the effectiveness of implementation and recording in the farming sector, therefore it is necessary to use technology to accelerate the production and sales process in agriculture [5],[6].

According to [7], [8] that financial statements are reports that describe the financial condition of an entity; our financial statements can monitor the development of an object. Information obtained in financial reports is used not only by owners or

management but also by other parties who use it, such as investors, creditors, government, and even the general public.

Furthermore, according to the applicable accounting standards in Indonesia, it consists of 5 types of reports: income statements, changes in entity reports, changes in financial position, cash flow statements, and notes to financial statements.[9],[10]. This study aims to build a financial recording system for pepper farmers based on websites and android applications to make it easier for farmers to produce financial records and become a financial report for farmers and outsiders. With this financial recording system, farmers are expected to increase their productivity and capability in the financial sector and take advantage of the Internet and mobile applications that are widely used today. With this commercial recording application, farmers have added value and ability in the field of information technology and can compete with other farmers.

This application is used to help farmers in facing the industrial era 4.0 and to make it easier to do financial bookkeeping in planting pepper such as purchase records, both cash, and credit, sales of both money and debt, assets, capital and information about pepper that is useful for pepper farmers. The primary purpose of this financial recording application is for farmers to master bookkeeping, finance, and know the capital needed and the price of pepper when sold to make a profit. This application is also expected to help pepper farmers in financial management and make pepper farmers able to use information technology for their interests in welcoming the industrial era 4.0. Everyone must be able to master the field of information technology expertise.

This study refers to research [11][12] the result is that the application using android is feasible to use,but what distinguishes this research from the previous use of web-based applications, while this research in addition to web-based applications also uses mobile-based forms and this application is used for pepper farmers in carrying out financial records for pepper farmers when planting pepper from the start, until the harvest so that it can be seen that the capital issued and the results obtained after harvesting is profitable or even detrimental based on the records carried out by pepper farmers in Bangka.

2. Research Methods

Making this financial recording application uses the waterfall method, which will facilitate the development of this information system. The Waterfall method in the event of information systems is widely used because it facilitates development step by step starting from planning, analysis, testing, and system implementation can be seen in one unit as in Figure 1. Information systems where of hardware, software, and telecommunications networks that combines that use by people to build and use to

collect, create, and distribute data or can be called information, usually in organizational settings [13].

The methods and stages of design, development, and implementation of an information system using the waterfall method so that the sustainability of the system that has been provided can be sustainable [14]. The next phase of digitizing system development of information system data using the waterfall method website-based that will show in Figure1[15],[16].

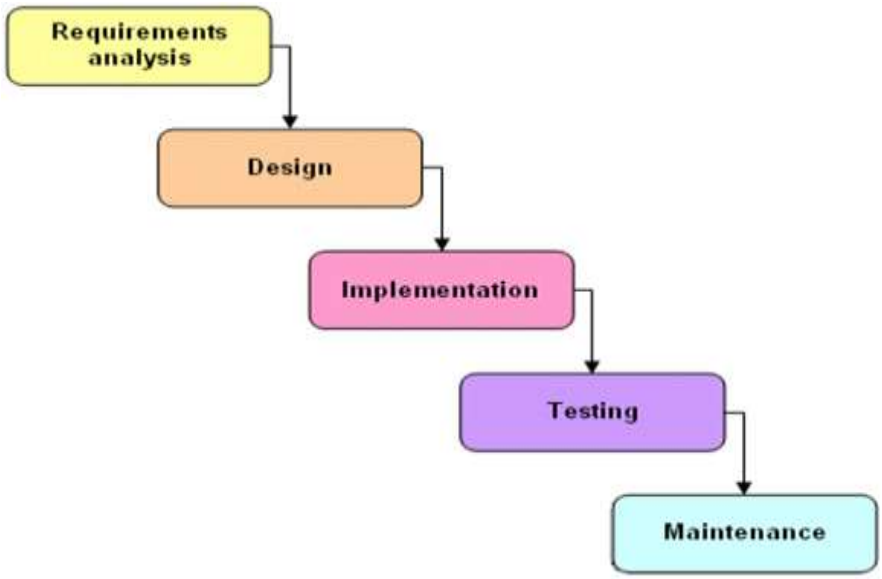

Figure 1. Waterfall Method

The waterfall method in this study is described as follows [17] [18] :

1. Planning Phase and Requirement Analysis
    a. Define and collect data related to pepper, farmer, accounting
    b. Make a data collection schedule and planning for database
    c. Gathering related information and preparation data
    d. Analyze the requirements needed on system, data that it can be accessed via the Internet.
2. General System Design Stage
    a. Prepare design applications that contain Data about pepper, farmer, income, expenses and financial reports
    b. Design a database structure to be used on a digitizing system on the website and application
    c. Detailed System Design Stage
    d. Design of a digitizing system interface websites
    e. Application and website design.
    f. Database design for data storage digital and accessing using Internet

3. Implementation Stage
    a. Making an application for farmer
    b. Digitalization data from data land, reporting, data and others related pepper

4. Testing Stage
    a. Verifying and experimenting the system.
    b. Make documentation
    c. Install the system
5. Maintenance Phase
    a. There are requests for modifications and changes

Design of the Financial Recording System

To build this website and mobile financial application using PHP and MySQL and Android Studio and design a display that is easy to use by pepper farmers so that pepper farmers can use this commercial recording application efficiently and adequately. The mobile app uses the Android Studio, which can be used on an Android-based smartphone to make it easier for pepper farmers because, currently, most people have used an Android-based smartphone. The menu in this financial recording application must be complete so that pepper farmers are interested in using this application and facilitating the management of financial data for pepper farmers.

Figure 2. Design of Financial Recording Application for Pepper Farmers

3. Results

With this financial recording application, financial management for pepper farmers is more emphasized on the concept of modern business management that has used information technology, especially the use of the Internet and Android-based smartphones so that pepper farmers master bookkeeping, financial management and can find out the capital issued. This is because it prevents farmer losses with a value unknown to pepper farmers on Bangka Island. Financial recording application was built to make it easier for farmers to record income and expenses and be accessed at www.bukulada.com.
Farmers can access www.bukulada.com to use the financial recording application built by logging in and registering via www.bukulada.com to use it and have their dashboard. To view the main page, log in, registration, and farmer dashboard can be seen in the image below.

Figure 3. Main Menu of Financial Recording Application

In Figure 3 is the main page of the financial recording application with the Pepper History Menu, Types of Pepper, Pepper Education and Login which is used by farmers to enter the farmer dashboard.

Figure 4. Login for Dashboard Application

This is the page of Login for farmer to using the financial application and enter the dashboard for farmer.

Figure 5. Menu of Register for Farmer

This menu is for farmers to register, who will then receive a username and password to use the financial recording application. Farmers who have registered to the form can log into the commercial recording system.

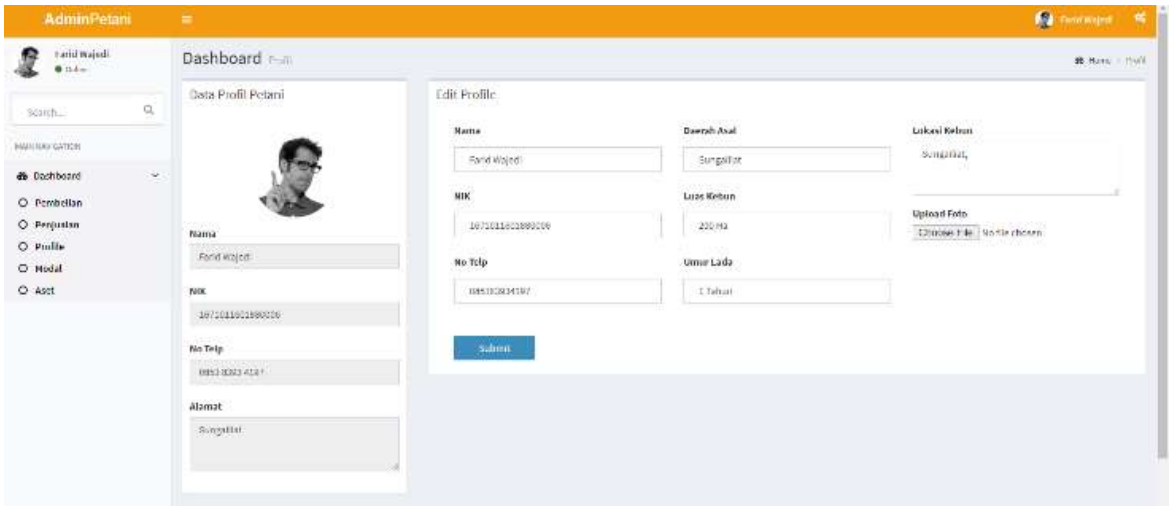

Figure 6. Menu of Pepper Farmer Profile

In Figure 6 can be seen from the form for filling in farmer data, which will be filled in by the farmer from the name, NIK, Phone Number, Area of Origin, Plantation Area, Plantation Location and Photo Upload. Pepper farmer data will be stored in the financial recording system to make it easier to consult in using a commercial recording system or in other matters.

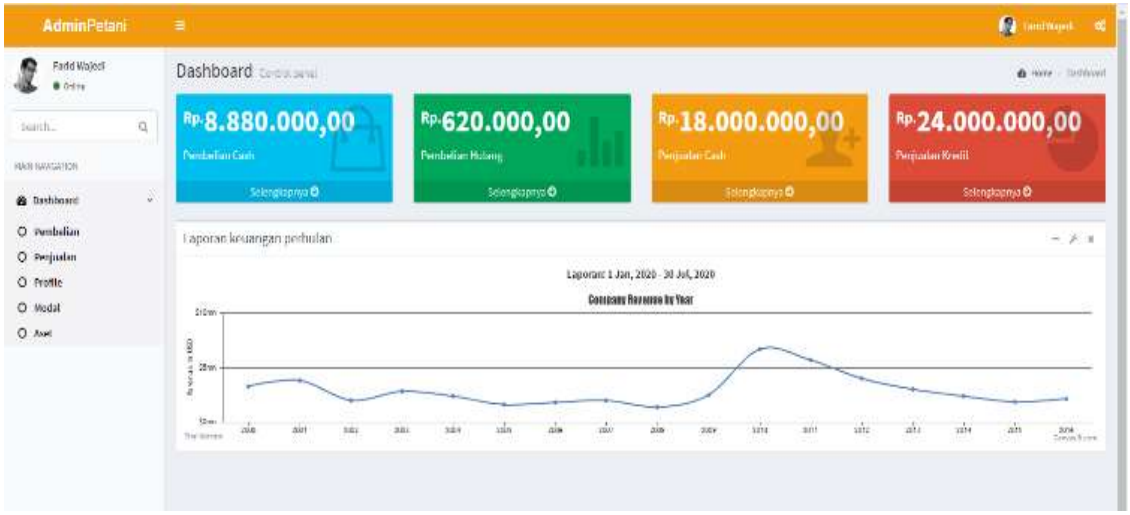

Figure 7. Dashboard Menu of Pepper Farmers

The Farmer's dashboard menu in the Financial Recording Application consists of a Purchase menu consisting of two Cash Purchases and Payable Purchases, Sales consisting in two parts, Cash Sales and Debt Sales, Farmer Profile, Capital, and Assets. On the dashboard menu, pepper farmers can fill in financial records during pepper

cultivation from start to harvest to know the amount of money that has been spent and the results obtained during pepper cultivation. The total value of purchases and sales issued by farmers can be seen in the box, making it easier to provide information on the full money that farmers spend.

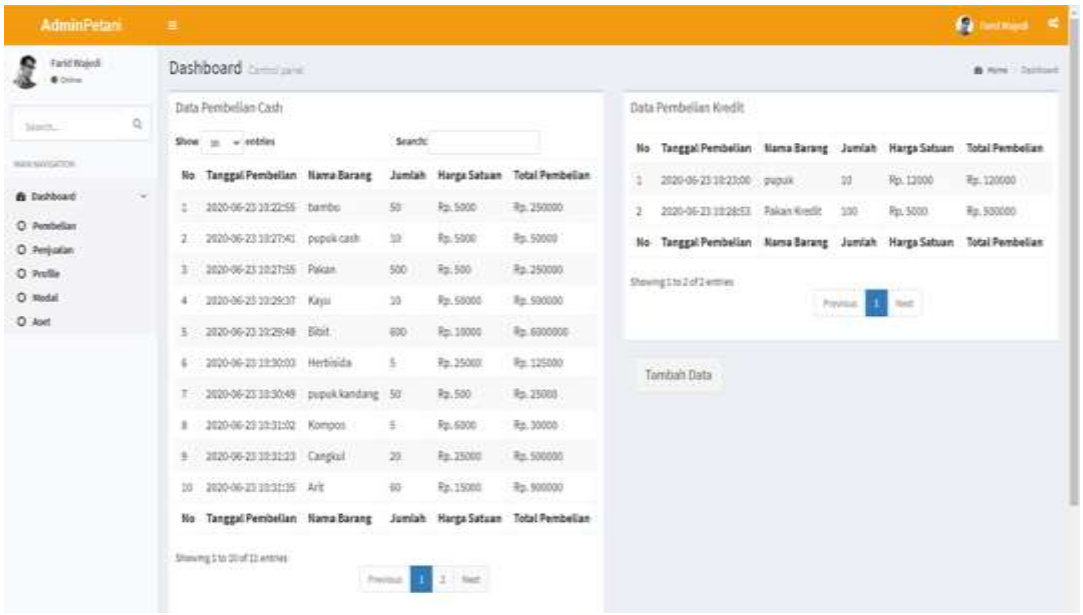

Figure 8. Purchase Menu

Furthermore in Figure 8, the Purchase menu, the farmer can fill in the name of the item purchased during pepper cultivation and consists of Number, Date, Name of Goods, Total Unit Price, and Total Purchase both in cash and debt. This will show the number of money that has been spent by the farmer and what items have been purchased so that the total money spent on purchases related to pepper cultivation can be found.

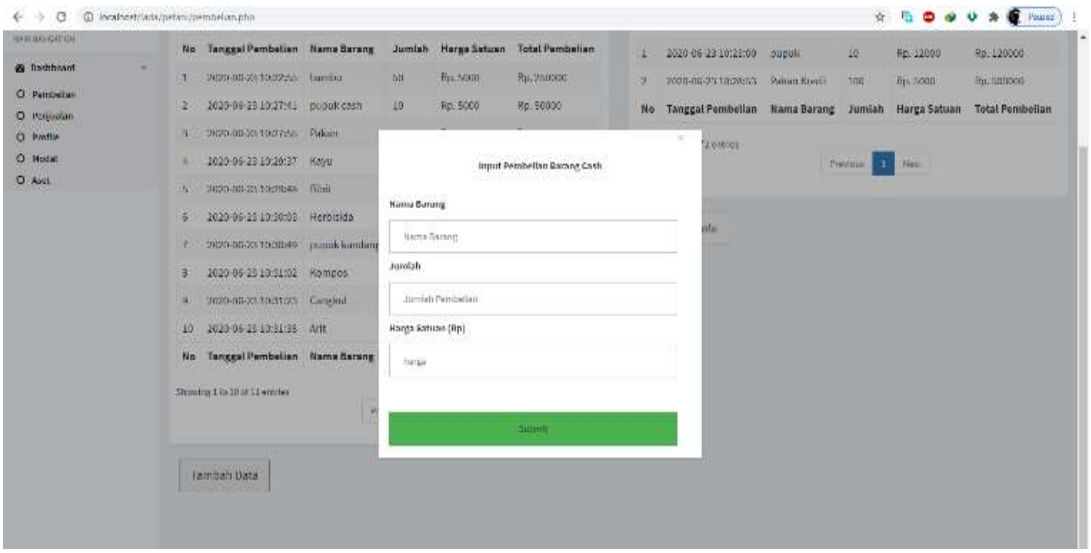

Figure 9. Purchase Data Input Menu

In Figure 9 can be seen from the form for filling out the purchase data which will be filled in by the farmer from the name of the goods, the quantity and the unit price so that it can be shown in the financial recording system.

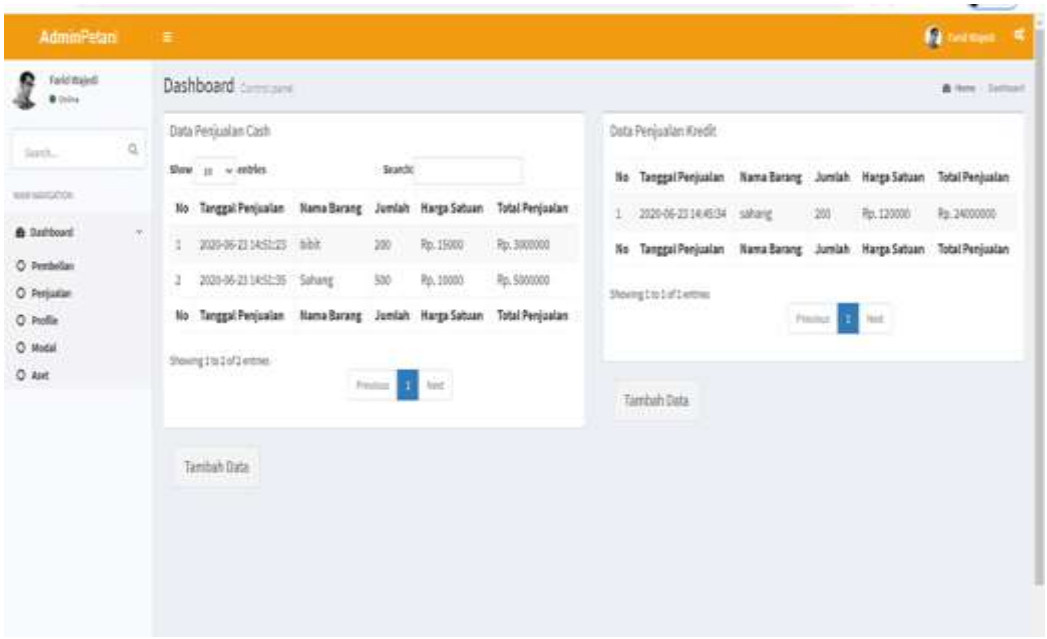

Figure 10. Sales Menu

The sales menu for farmers can see in Figure 10 where farmer can fill in the names of goods sold from their pepper garden in the form of pepper and pepper seeds and consist of Number, Date, Item Name, Total Unit Price, and Total Sales, both in cash and debt.

This will show the amount of money obtained by farmers and what items have been sold so that the total money earned to make sales of the pepper garden can be seen.

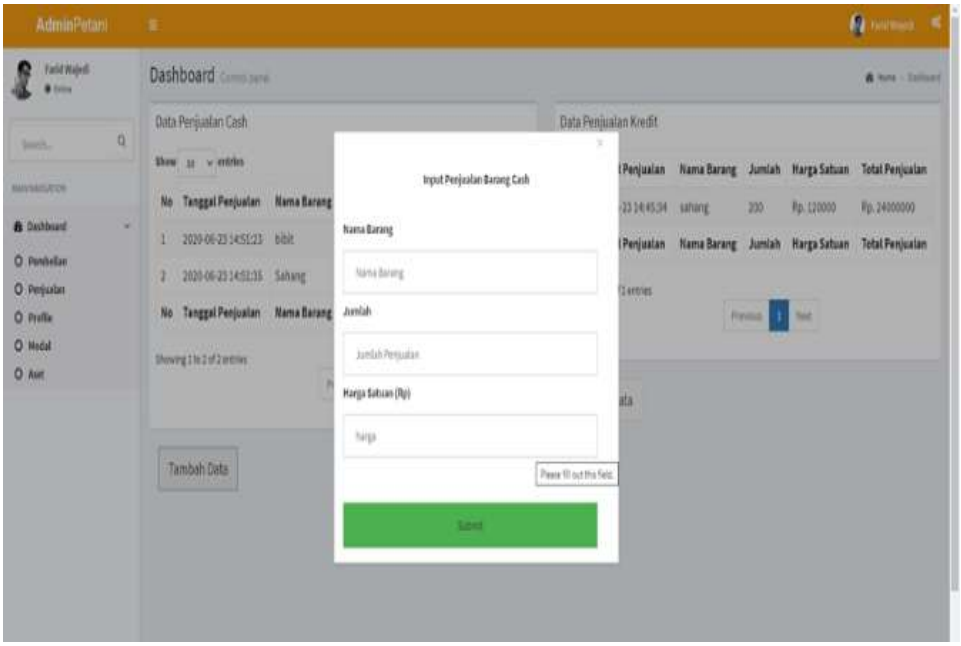

Figure 11. Sales Data Input Menu

Figure 11 shows a form for filling in sales data that will be filled in by the farmer from the name of goods, quantity, and unit price so that it can be shown in the financial recording system and will be stored in the financial recording system database.

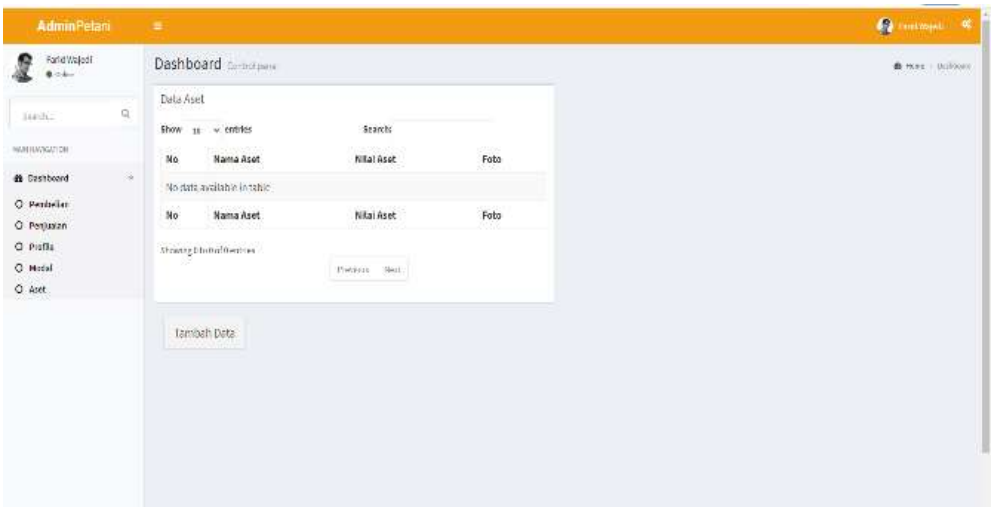

Figure 12. Asset Menu

In the Asset menu, farmers can fill in the name of the assets they own, and it can be in the form of a pepper garden or other assets.

Android-Based Financial Recording Application
This application will also be based on android so that it can be used on android-based smartphones to facilitate the use of financial recording applications. Because almost some people already have an Android-based smartphone and can also use it so that it will make it easier to employ this financial recording application.

Figure 13. Mobile Display of Financial Recording Application

In Figure 13, you can see the Financial Recording Application's Appearance on an Android-based smartphone with a menu that has been adjusted to financial management, which consists of the History of Pepper, Types of Pepper, Consultation, and log in. With this mobile application, farmers will be able to access this financial recording application via an Android-based smartphone making it easier to access it. They can be done anywhere and anytime as long as they are connected to the Internet.

Figure 13. Mobile Display of Farmer Dashboard

In Figure 13 is the interface for dashboard in mobile phone when using the mobile application so in make farmer easily using the application using the smartphone based android.

4. Conclusion and Suggestion

This recording application is expected to be able to assist farmers in making financial records to facilitate the calculation of profit and loss, recording purchases and sales made during pepper cultivation so that it becomes a complete database for farmers and other parties who need this data. With this financial recording application, financial management for pepper farmers is more emphasized on the concept of modern business management that has used information technology, especially the use of the Internet and Android-based smartphones so that pepper farmers master bookkeeping, financial management and can find out the capital issued. The primary purpose of this commercial recording application is that farmers can master accounting, finances, and know the money needed and price of pepper when it is sold to make a profit. This application is also expected to help pepper farmers in financial management and make pepper farmers able to utilize information technology for their interests in welcoming

the industrial era 4.0, where everyone must be able to master the field of information technology expertise.

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