



# Making a Mobile Application for Information on Islamic Banking Loans Oengan Java 2 Micro Edition

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b></p> <p>Received Aug 26 , 2022 Revised Jun 09, 2022 Accepted Jun 30, 2022</p> <hr/> <p><b>Keywords:</b></p> <p>Application, Mobile Loan Information , Java 2 Micro Edition</p>	<p>Everyone who wants to borrow money either for business capital or for personal needs will definitely borrow from the bank. Borrowing money from public banks is commonplace, but borrowing money from Islamic banks is only used by some people who know about Islamic banks. The difference from borrowing money from a commercial or Islamic bank lies in the specified usury. To make it easier for customers to find out what sharia loans are like, they can use cellphones (HP). That's why this sharia loan information application via mobile phone was made. For the design process, the J2ME application software will be used and the KToolbar will be used. The design of handheld devices software is designed based on the displays needed. The display consists of menus that will make it easier for users to search for sharia loan information. It's very easy to use, just choose what type of loan you want. After that, enter the input in the form of a number and then by pressing the Wrung button, the output will automatically display the calculation results from the input. J2ME (Java 2 Micro Edition) technology is used because this technology is platform- and device-free. In addition, the memory used is very small, so it doesn't take up too much memory on existing cellphones and the installation process is so easy.</p> <p style="text-align: right;"><i>access article under the <a href="https://creativecommons.org/licenses/by-nc/4.0/">CC BY-NC</a> license.</i></p>



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## 1. INTRODUCTION

The use of electronic equipment can be applied in various ways. These various things include the use of electronic equipment in the information sector. In the field of information, electronic devices can be used to display various kinds of information, one of which is loan information. This loan information is a Java program that is used on mobile phones with a Java platform, while the J2ME (Java 2 Micro Edition) software from SUN Microsystems is used to create the program. This program will be structured according to the Java language that is often used in general, the loan information program will be simulated on the SonyEricsson W810L cellphone. With loan information on a Java-based mobile phone, it will make it easier to understand loan calculations without having to consult directly with the bank. It is from these observations that an application can be made "Java-Based Islamic Banking Loan Information with J2ME on Mobile".

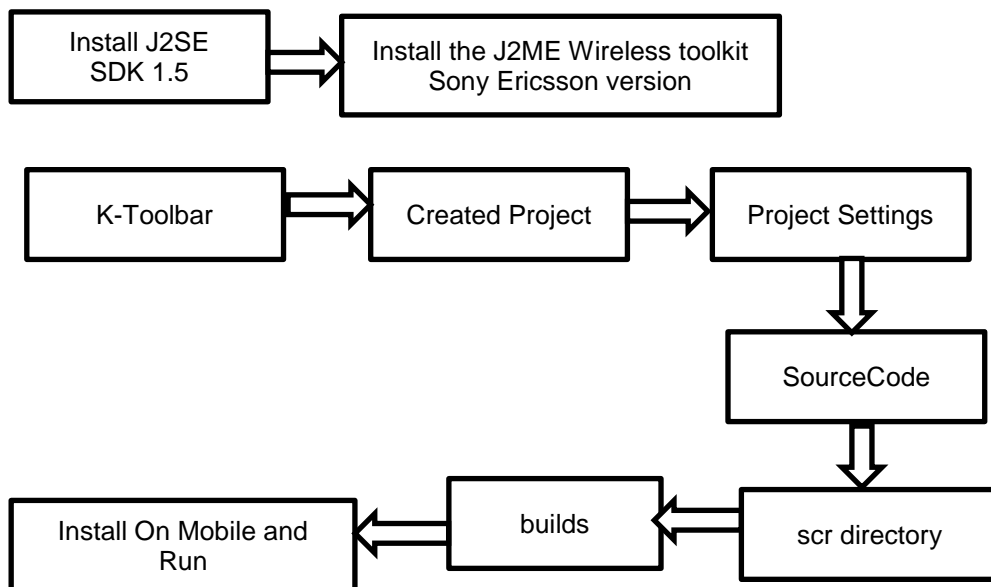
## 2. RESEARCH METHOD

### 2.1 Design Method

The design of handheld devices software is designed based on the displays needed. The display consists of menus that will make it easier for users to search for sharia loan information. The design method used to build Information Applications. This Java-Based Islamic Banking Loan with J2ME uses an object-oriented design method using the UML (Unified Modeling Language) language. This language is used because it is a process-independent language, that is, a language that is mutually independent of the processes in it. The main reason why using this type of UML modeling is because UML can create models for all types of software applications, where these applications can run on any hardware, operating system and network.

### 2.2 Design Diagram

In making the application, several supporting software are needed, with the program design as follows:



**Image 1.** Program Flow Design

Below will be explained each - each flow contained in the diagram above

- a. Install J2SE SDK 1.5  
J2SE SDK 1.5 is like a virtual system that functions to be able to run the Java platform on a computer system environment. To get the software can be downloaded directly on the internet site.
- b. Install the Sony Ericsson version of J2ME Wireless Toolkit  
J2ME Wireless Toolkit is a tool that provides an emulator environment, documentation and sample Java applications for small devices. The basis used by the J2ME Wireless Toolkit is CLDC and MIDP. J2ME Wireless Toolkit is a program that emulates the work of MIDP-enabled cell phones or so-called emulators. Therefore, it is not certain that a MIDlet that runs on an emulator will also run on a real cellphone, because it also depends on the capabilities and capacity of the cellphone used. The emulator used is a version of the Sony Ericsson W810i mobile phone.
- c. K-Toolbar  
K-Toolbar has an important role in J2ME, this role is to function as a project maker and all kinds of settings that will be used.
- d. Created Project

- Serves to create a project that will be created, after that several new directories related to this program will appear. The directories are bin, lib, res, src, project.properties.
- e. Project Settings  
J2ME application project settings can be set on the K-Toolbar. The settings window can usually be opened when creating a project or while working on a project. If using standard settings just press OK. If you want to adjust the settings to the needs of the application, the settings can be set yourself.
  - f. SourceCode  
These are written programs written in accordance with the application to be made. Source code is usually in the form of plain text which is then included in a certain directory.
  - g. scr directory  
The location of the placement of the source code files in the application in the form of text.
  - h. builds  
Build is used to run the emulator, by compiling the source code. The build will experience success when the K-Toolbar screen says build complete, if the source code fails to compile then what comes out on the K-Toolbar screen are error messages. If this happens, fix errors in the source code and recompile until the source code passes compilation.
  - i. Install on Mobile and Run  
After everything went smoothly and was able to run on the emulator. All that remains is to do the last process by running it directly on the cellphone.

### 3. RESULTS AND DISCUSSIONS

#### 3.1 Application Testing

System testing is a stage that aims to ascertain whether the software created can work effectively and efficiently as expected. Therefore it is necessary to test the system to be implemented. Before this application is implemented and implemented, the software must first meet the error-free requirements (free from any errors). Errors can occur as a result of language writing errors (scripts), errors during processing or logical errors. This error will appear when building the program before running or also when applying it to the desired mobile phone but not supported by the application itself.

- a. Application General Testing  
In the process of developing a sharia loan information mobile application with Java 2 Micro Edition (J2ME), many new things were found that were more diverse and very different from the initial limitations that had been applied, these included:
  - a) We need a menu display that is user friendly so that users can access it more easily and can avoid confusion in using the application.
  - b) The limit amount of money that is included in the capital loan and is adjusted to the maximum character displayed by the cellphone.
  - c) Limits The period of time determined in accordance with predetermined standards.
  - d) Limits on ratios or margins that have been set in accordance with predetermined standards.
- b. Testing Stages  
In making sharia loan information mobile applications with Java 2 Micro Edition (J2ME) through several test determinations, including:
  - a) Determination of the type of loan  
To limit the program, only two types of loans were selected, namely: Mudharabah and Murabahah. The selection of loans is based on the frequency of use of the user in making loans.
  - b) Determination of timeframes and ratios or margins  
The term of each loan is determined by bank regulations. While the ratio or margin is determined by standardization in general.

### 3.2 System Via Mobile

The procedure at the system testing stage is divided into several parts, namely: The menu selection procedure is a menu that displays several loan options and instructions provided by the mobile application, in the form of: Mudharabah, Murabahah, and Instructions. The procedure for calculating monthly installment costs is immediately calculated after entering all input data.

#### a. Mudharabah Loan Testing

The first test is to calculate mudharabah loans. For example, a loan case will be made where a customer wants to borrow money to increase business capital of Rp. 250,000,000, - and able to pay off within 24 months. After reviewing the customer from the bank, the bank determines a ratio of 21.32% and an administrative fee of 1% of the loan money. Installments must be paid monthly according to the person's monthly income and a predetermined ratio. Therefore, we will determine how much this month's installment will be if the customer's income this month is Rp.

3.250.000,-. Testing will be shown by some pictures. Figure 4.1 will show how to fill out the form.

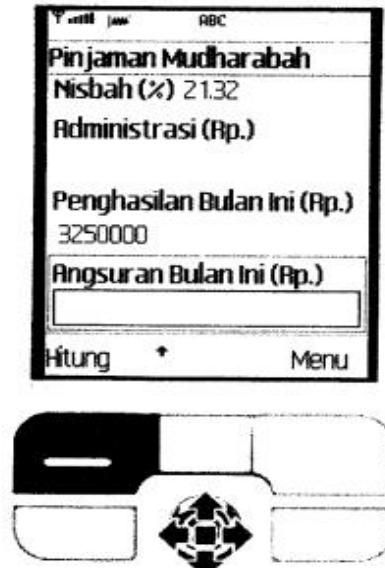


Figure 2 How to Fill in the Mudharabah Form

While the calculation results will be shown in this figure:



Figure 3. Mudharabah Calculation Results

Judging from the input entered, the result of calculating this month's installment fee is Rp. 11,109,566, - and an administration fee of Rp. 2.500.000,-. In mudharabah there is also a save function that can be used to save input that has been entered. This function will be useful when we use the mudharabah application again after we leave the application. The input will automatically be filled with the last input data that was previously entered. The save function is shown in Figure:

Figure 4. Save Function

b. Murabaha Loan Testing

The next test is to calculate murabahah loans. For example, a loan case will be created where a customer wants to borrow money to buy a house. The house costs Rp. 182,000,000, - and able to pay off within 60 months. After reviewing the customer from the bank, the bank sets a margin of 23.72% and an administrative fee of 1% of the loan money. Installments must be paid monthly according to a predetermined margin. Therefore we will determine how much installments each month. Testing will be shown by some pictures. Figure 4.4 will show you how t

Figure 5. How to Fill in the Murabahah Form

Judging from the input entered, the result of calculating the monthly installment fee is Rp. 3,752,840., - and an administration fee of Rp. 1.820.000,-. While the calculation results will be shown in Figure 5.

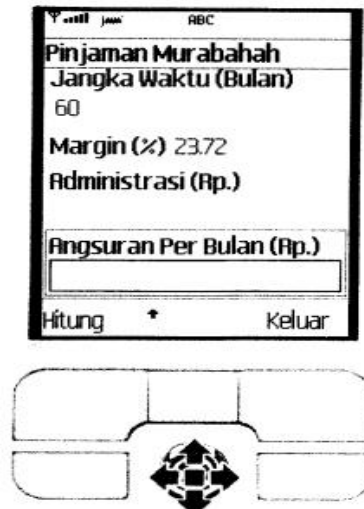


Figure 6. Murabaha Calculation Results

c. Clue Testing

In testing instructions, the instructions used are very simple. That simplicity lies in its main function which only functions to display text files written on notepad. For more details can be seen in the picture:



Figure 7. Sharia Instructions

### 3.3 Planning for Increasing Company Productivity

After testing the above, it is necessary to analyze the application of sharia loan information. In this test analysis will be used 2 (two) methods, namely:

a. Alpha Test

Alfa test is a system test carried out by users so that users can get feedback about the application, both in terms of format, appearance and level of friendliness (ease) of the application.

b. Black Box Test

Black box test is a system test that is carried out by observing the output of various inputs. The application will be said to be good if the output of the system is in accordance with the design that has been made.

This test analysis is attempted to see the system can run according to its initial purpose. Test analysis is needed to better understand the application being made and provide more accurate information.

### 3.4 Results of Analysis Using Alpha Test

The Alfa test method used is by listening to the assessment of users who have tried this application so that the advantages and disadvantages of the program will be known, both in terms of format, ease of operation, as well as input or output of the application. The conclusion from the alpha test obtained from users who have tried it has advantages and disadvantages. The advantages include:

a. Easy to operate.

Easy to understand.

b. Calculations are very accurate. In addition to having advantages, there are also disadvantages, including the lack of a menu of loan options, not in the form of a menu.

Does not support the type - the type of mobile phone other than Sony Ericsson.

The advantages and disadvantages above are the opinions of users who have tried it. For more details about the advantages and disadvantages of this application.

## 4. CONCLUSION

From the design, testing and analysis that has been carried out there are several conclusions that can be drawn as a result of the research, including: Making this application accessible via a Java-based mobile phone. Especially those that already support MIDP 2.0 and have a CLDC configuration. Making this application serves to simulate banking calculations, especially those related to Islamic loan calculations. There is a menu selection in this application, the selected menu is in the form of class (Mudharabah, Murabahah, Instructions) from the derivative of the sharia package. In the mudharabah calculation, there is a save function which functions to save the existing input parameters. Thus after logging out and logging in again the user only needs to enter this month's income input.

## REFERENCES

- (Bambang, H., 2003. The Essence - The Essence of Java Programming. Bandung: Informatics Bandung.  
Antonius, AH, 2004. J2ME Training Module and Future Mobile Application Platform Development. Yogyakarta: Yogyakarta State University Electronics Student Association.  
Suyoto, DR., 2005. Making Your Own Mobile Application. Yogyakarta: Gava Media.  
Shalahuddin, M. and Rosa, USA, 2006. J2ME Programming Fast Learning Mobile Telecommunication Device Programming. Bandung : Informatics Publisher.  
Setianto, D., 2006. Complete Guide to Programming Cellular Devices with J2ME. Yogyakarta: Ardana Media.  
Antonius, AH, 2004. Mobile Java Programming with MIDP.2.0. Yogyakarta: Publisher Andi.  
<http://forum.chip.co.id>