

Analysis and Design Information System Personal Financial Management Based on Android

Riad Sahara^{#1}, Hendra Prastiawan^{*2}, Ahmad Adi Pratama^{#3}

^{1,2,3}*Faculty of Computer Science, Mercu Buana University*

Jl. Meruya Selatan, Kembanganm Jakarta Barat 11650, Indonesia

Abstract *Android Operating System is the most widely used operating system. It can provide great potential for software developers to create applications running on the Android Operating System on managing financial matter. Financial issues are a problem that every Android user can experience in which it creates an opportunity for application developers to create applications on financial management. With this financial design system is expected Android users can make financial records easily and can monitor their personal finances. It is expected that this design system can become a personal financial advisor to Andorid users and the community around.*

Keywords — *personal financial management, android, financial recording.*

I. INTRODUCTION

The development of information technology is currently increasing rapidly so difficult to avoid the relationship between human and technology. Given the current conditions, many parties who take advantage of profits ranging from the company to personal. the benefits offered are diverse, ranging from popping up websites - sales websites, operating systems, to other sophisticated tools. Not only profits but also can take advantage of the usefulness and effectiveness that is on offer from this information technology.

Currently, all developers strive to provide better facilities than ever before to improve the performance and facilities provided by the rampant development of information technology today. The development of information technology today requires all activities to run well (Wardhana, 2018). The information system that can help bring the message in real time to smooth business in each company (Ranggadara & Suhendra, 2018). One such example is Smartphones or Smartphones. Smartphones can also be used for implementation with a variety of applications that can help various needs ranging from simple to complex systems (Sahara & Ranggadara, 2018). Currently the smart phone is in used by the public and has been widely used various groups, sex, Education, to age. Smartphones do not stand alone but require software

to run commands that are instructed by the user or we call the Operating System, and currently the operating system that is being widely used is the Android Operating System. Based on data obtained from Wikipedia.com, Android already has levels starting from the beginning of the emergence of Android 1.5 (Cup Cake) SDK, Android 1.6 (Donut) SDK, Android 2.0 / 2.1 (Eclair) SDK, Android 2.2 (Froyo - Frozen Yogurt) Android 2.3 - 2.3.7 (Gingerbread), Android 3.0 - 3.2.6 (Honey Comb), Android 4.0-4.04 (Ice Cream Sandwich), Android 4.1 - 4.3.1 (Jelly Bean), Android 4.4 - 4.4.4 (KitKat), 5.0 - 5.9 (Lollipop), 6.0 - 6.9 (Marshmellow), 7.0 (Nougat), and the last update is 8.0 (Oreo). With the increasing development of information systems also resulted in increasing daily needs. This increase in demand can impact on increased spending. With less controlled expenditures it is possible to not be neatly recorded because the physical evidence as an expenditure memo can be lost at any time. Nominal expenditure can easily be lost from memory.

The financial calculation system that most people do is still done conventionally by recording on small memos stored in pockets or wallets that can be lost or damaged and also no financial advisor is needed now. With the Android Information System technology and financial problems, it can be expected to create a financial system that can assist in the recording of cash either through cash, debit card or credit card and also can provide good financial advice for users of such financial applications.

A. Problem Identification

The problem identification based on the background that has been described is as follows:

1. How to create a personal financial recording system design that provides basic financial statements and reports using the Android Operating System on a smartphone?
2. How to design a financial recording system that can serve as a financial advisor?
3. How to create an android-based app design featuring an easy-to-use interface?

B. Problem Limitation

In the discussion, the problem is limited so that the design of the system created is not widespread then the problem will be limited as follows:

1. The design of the system includes management of personal finances with only input master data incoming and master data outgoing and recording incoming and outgoing transactions completed monthly financial statements,
2. Automated transactions conducted in accordance with the data inputted in the master transaction,
3. The framework used is Fishbone Analysis,
4. The design of this financial application is personal,
5. The design of the system made does not discuss about the submission of development,
6. This research is limited to system design.

II. THEORY FUNDAMENTAL

A. Literature Review

The Literature review contains descriptions of theories, findings and other research materials obtained from reference materials for the basis of research activities. The descriptions in this literature review are directed to develop a clear frame of mind on problem solving that has been described, summarize and the author's thoughts on several sources on the topic discussed (Hasibuan, 2007).

Some related studies that have been done before that became the main reference researchers in conducting this research include:

- Research Meyta Nastiti and Andi Sunyoto in 2012 with Research Title "Designing Personal Financial Management Applications Based Android" with number ISSN: 1411-3201. This study discusses all the necessities of life that continue to increase resulting in difficulty in making financial details so difficult to do budgeting for next month. The method used in this study is SWOT analysis consisting of Strengths, Weakness, Opportunities and Threats where this analysis produces a financial application system that provides an attractive view with a small memory consumption (Nastiti & Sunyoto, 2012).
- Research Dadi Rosadi and Ussi Lousiani in 2012 with Research Title "Web-Based Financial Reporting Application" with ISSN number: 2442-4943. This research discusses the problem of financial detail at CV Indosains where the making of financial report and also financial documentation which not yet integrated well. The research method used using Object Oriented Analysis where this research produce application that can assist user in completing work and make financial report (Rosadi & Ussi, 2012).
- Research I Gusti Ngurah Anom Cahyadi Putra in 2016 with Title of Research "Designing Student-Based Financial Applications Mobile" with number ISSN: 1979-5661. This study discusses

how to implement an android-based financial applications that can facilitate students in making financial design in detail. Using the Logical Model system development method, this research produces a financial application that can be run without internet connection because it uses the internal storage concept (Cahyadi Putra, 2016).

B. Finance

Y According to Safir Senduk there are 3 thoughts that must be owned as an employee, among others (Senduk, 2005):

- Whatever salary the company gives you does not guarantee that you can accumulate wealth. No matter how much you earn, it does not guarantee that you can accumulate wealth, which guarantees is how you manage your salary, including if the salary is indeed true to your current condition.
- Do not always make your condition at home whether you are a lot of dependents, a lot of debt, or extravagant as a reason to always ask for a raise. The company will only give you a salary according to your job description, not adjusted to the situation and conditions in your home. That is, if you feel that your salary is not enough to support your family with a lot of children, well, it's not your fault. After all, when you add a child, you do not ask permission first to the company?
- Being rich depends 100% on what you do with your finances, not always on what the company gives you. If you want to be rich, it all depends on what you do with the income and facilities you get.
- In PSAK No. 1 Year 2015, the financial statements are a structured presentation of the financial position and financial performance of an entity. The financial statements are the result of processing a number of transactions or other events classified by nature and function (Ikatan Akuntan Indonesia, n.d.).
- According Fahmi Understanding Financial Statements is an information that describes the financial condition of a business entity, and further from the information can be used as a description of the financial performance of the business entity (Fahmi, 2012).

C. Understanding Financial Statement

In PSAK No. 1 Year 2015, the financial statements are a structured presentation of the financial position and financial performance of an entity. The financial statements are the result of processing a number of transactions or other events classified by nature and function (Ikatan Akuntan Indonesia, n.d.). According Fahmi Understanding Financial Statements is an information that describes the financial condition of a business entity, and further from the information can be used as a description of

the financial performance of the business entity (Fahmi, 2012).

III. RESEARCH METHODOLOGY

A. Current System Analysis

Currently, systems running in personal financial records are already there that do so on mobile phones in conventional ways. The mechanism as follows:

1) Conventional

- Financial recording is done on a book or worse just rely on one's memory, it allows for the loss of data or the forgotten transactions made.
- Likely data leakage or large data loss due to lack of supervision that keeps data secure.
- The process of calculating balances by using a calculator or other tools.

2) Existing applications

- Programs on mobile phones only record on the parts that are often done only without considering the parts that are rarely done but have an important impact on the financial status.
- Usually on the existing programs rarely provide additional accounts used as a separator for recording transactions in more detail on each account.
- No automatic scheduling is done on the app.
- The absence of routine money scheduling is obtained.
- Not providing accounts that discuss users using credit cards.

B. Problem Analysis with Fishbone Diagram

Based on the current analysis, we can see some problems that make the current financial recording mechanism less effective and efficient, as follows:

- Browse;** From Human factor, there are some problems that is at the time of transaction, some users do not directly record it in application or it could be evidence of transaction wasted or discarded by user.
- Time;** Of time factor, there are some problems that is when the transactions are done regularly takes time to routine transactions input.
- Process;** From Process factors, there are problems such as when users have multiple accounts that are separated but related will complicate the process of data consolidation. An example is when the cash withdrawal located at the bank's bank will affect the amount of the balance contained in the Cash account.
- Data;** In terms of Data, the data is stored only in the memory of the android device only where during a disaster can result in history disappeared together with a mobile phone.
- Device;** In terms of the device is influenced from the Data Factor, where the device used is limited

to only 1 android device is used and does not provide a solution when the device is affected by the disaster.

- Monitoring;** At a very narrow time in the recording, the absence of a system that reminds to do the recording has been done. This is what can result in the forgotten or missed a transaction that can inhibit or miss a transaction.

C. Current System Flowchart

Users make input transaction data in cash account due to the existence of debit or credit activities and then input data of separate transactions in the bank account due to the effect of debit or credit activities on cash account.

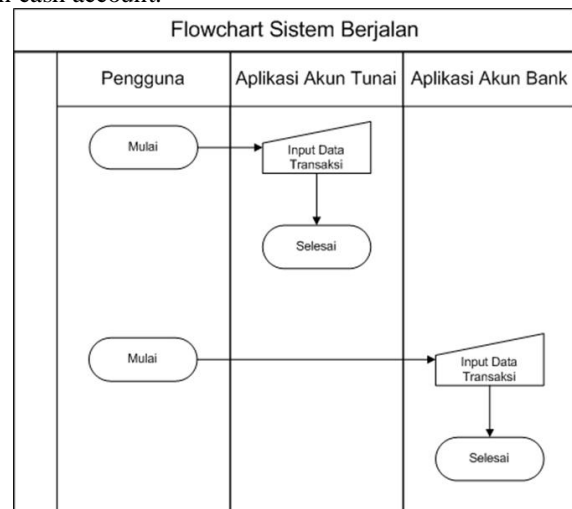


Fig. 1 Current System Flowchart

D. System Design Method

The methodology used in this research is Multimedia Development Life Cycle (MDLC), as for the stages as follows:

- Concept (Concept);** At this stage the first is to determine the purpose of the application is to facilitate users in doing personal financial records and can make as a financial advisor.
- Design (Design);** At this stage is done casting system design by using Unified Modelling Language (UML) in the form Use Case Diagram, Activity Diagram, Class Diagram, Sequence Diagram and create design to be built.
- Material Collecting;** At this stage is a process for gathering everything needed in system design.
- Preparation and Manufacture (Assembly);** This section is the process of preparing the look of the design of a personal financial recording system.
- Testing;** At this stage testing of the materials collected to produce a good system design.
- Distribution (Distribution);** At this final stage, the document of financial recording system is ready to be made as reference in making system

IV. RESULT

A. Proposed System Requirements

1) **Concept**

Based on the Current Analysis System, there are several proposed needs:

1. Initial need is a system that can perform personal financial records for both income and expenditure and the design of the application can display financial statements and can showing remaining money or financial balance.
2. Users can automate transactions based on transaction data entered in transaction planning.
3. The design of interactive applications in providing advice to users in order to manage their finances.
4. Application design can consolidate data from each account registered in the application design to avoid re-input.
5. Data stored not only in phone memory but also in cloud or server. These are useful at the time of the disaster on the device owned but still have back up data.

2) **Design**

Based on the results of the requirement analysis described above, it is known that the design that can be proposed in the design of this system are as follows:

a. Use Case Diagram

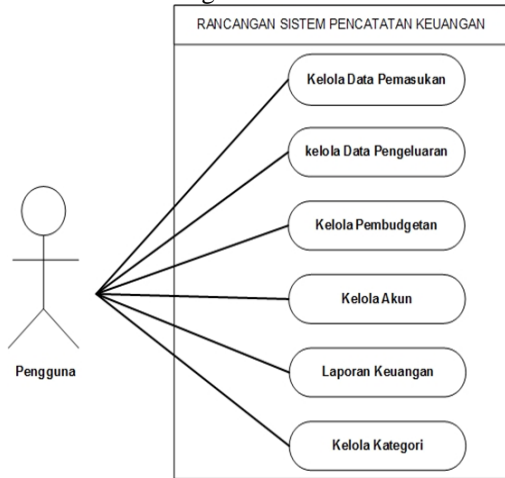


Fig. 2 Use Case Diagram

b. Class Diagram

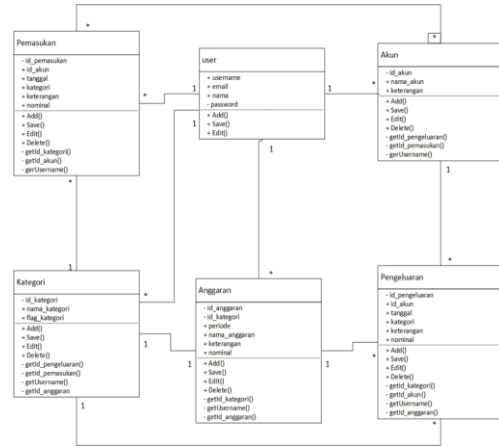


Fig. 3 Class Diagram

B. **Implementation**

1) **User Interface**

The following is the user interface design along with the description of the procedures of use of the Analysis and Design of Personal Accounting Information System.

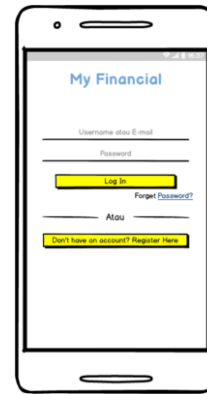


Fig. 4 Login Page

2) **Dashboard**

The dashboard view where the user can see the amount of balance or the remaining money owned by the user. On this page is also given a symbol for accessing other menus.



Fig. 5 Dashboard

3) **Financial Report**

The Financial report use as summary income and expenditure as reporting shown in application.



Fig.6 Financial Report

C. Hardware and Software Requirement

1) Hardware Requirement

Hardware requirements (hardware) as follows:

- a. Android 4.3 (Jelly Bean)
- b. Dual-core CPU 1.7 GHz.
- c. Adreno 320 GPU Display with 720 x 1280 resolution

2) Software Requirements

Software Requirements (software) as follows:

- a. Android Studio to create android apps with android emulator
- b. Minimum version of Android Android 4.3 (Jelly Bean)

V. CONCLUSIONS

The design of the Android-based Account Recording Application can be concluded that:

- 1) This design can make the recording of personal finance based on Android well so it can reduce the problem of Human Error.
- 2) With the budget menu, the design of this application is expected to provide advice about the user's financial condition, so that users are more vigilant in conducting expense transactions to be performed.
- 3) The design of this application using only data - data that is often used only. Display used is also a simple view, so it can facilitate the user in running this application.

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