

# An Android-based on House sales Monitoring System in Housing Area

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**Abstract.** Problem in marketing will be shown up when there are two or more buyers booked the same block and number of a house and they paid the booking fee and each of those buyers coordinated with different salespersons, and the claims of who booked the house first will come up as the result. To solve that problem, an android-based on House sales Monitoring System needed to be developed. The Android-based application will be developed in this research aims to help the monitoring of house sales and provides the information of booked houses, has not been booked, and provides buyers data. Software development Life Cycle (SDLC) will be used as a system development methods. The result of this research is an application software helping sales and marketing in monitoring the house sales. based on the WhiteBox testing, there are no logic error in the application and it run well.

**Keywords:** Marketing Staff, Houses, Application, Android, Monitoring

## 1 Introduction

The flagship program of 2014 – 2019 period by government is to provide and build a million houseng for the community belonging to the category of Low Income Society throughout the territory of Indonesia. To strengthen the government's flagship program, the minister of Public Work and Public Housing has published the role of Ministry number. 48/PRT/M/2015. The existence of this ministerial regulation and other facilities to assist in constructing and building of the houses was responded positively by the developers especially subsidized housing by the government.

Residential developers in building houses have hundreds even thousands of houses in one residential area and have some marketing staff as their salesperson. Marketing staff makes offers ranging from land that has been clustered with block and house number that has been determined by the developer and then they market it. In marketing the houses, marketing staff will have coordination with the marketing headquarter to find out the data and information about the houses that have been sold, haven't sold and booked. The coordination that they do is using telephone and whatsapp. The coordination result in the form of data and information such as customer data, houses data and so on, and it recorded in the general ledger in the marketing headquarter. So far, marketing staff tell the block and house number to other staff using media communication whatsapp group and then write it manually at the office. Using group whatsapp has the disadvantage that the information of house data that has been booked and hasn't been booked are not updated automatically and the information tend to be sink because of the overwritten with the new messages in the group. There is weakness from the

communication side using media group whatsapp and manual recording in the office often causes the occurrence of one house with the same block and house number being booked by different customers, causing disputes between customers who want to buy a house with the same block and house number and they have made a booking by paying the booking fee, but haven't been record because of manual recording. In addition to the data of customers who have been booked is not record well, this is because the media whatsapp is essentially only used as a media communication and not the place to record a particular activity.

Research related to Android application in supporting and facilitating the user is the web based Laundry transfer service application on android platform [1]. In this application laundry operators will get convenience such as customer data and the location of the customer's residence with a neat recording and laundry data can be record well then on the side of the customer will be facilitated, they don't need to come to the laundry, they just need to use the android application then the laundry staff will pick up and deliver customers' cloths [2]. The android application in supporting to find tourist locations in Yogyakarta will make it easier for the tourits so that they don't need to be bothered by asking about the tourist site because it is equipped with a GPS feature that will guide tourits to the destination[3]. Another research on creating an android-based car service recording application. In this research discussed about the problem of car service carried out in a separate place from the administration of the workshop so that when the car was checked by the mechanics regarding the damage and replacement of spare part in the workshop then mechanic submit to the administration waiting for the approval so that the car which should be directly in-service must wait a while until approval from the administration. This research gives solution to the problem, the mechanics do not have to bother by coming to the administration, they just simply open an android application then record all the requirements on the application thus saving mechanics time and can be directly working on the car service[4].

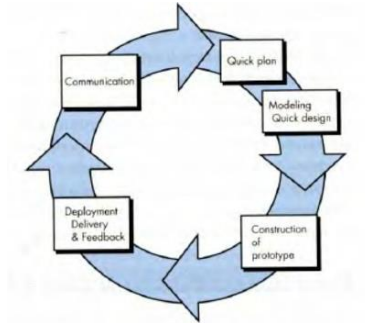
Based on the background above the author wants to do reserach on the monitoring system of houses sales android-based. Android application that will be developed using a system development method of Software Development Life Cycle (SDLC) with the prototyping model where there are steps Communication, Quick Plan, Modeling Quick Design, Construction of Prototyping, dan Development Delivery and Feedback [5]. Android application will be developed aims to help, facilitate and support the marketing staff in the marketing and sales of house in the housing especially to minimize or eliminate two or more customers who want to book a house with the same block and number so as to avoid the occurence of disputes between customers.

## 2 Methodology

The application design of supporting sales or marketing of house that will be developed throught several stages of the development of house sales monitoring system with prototype model and has several stages including Communication, Quick Model, Modeling Quick Design, Construction of Prototyping, dan Development Delivery and Feedback. This step can be seen in **Figure 1** as follows[5].

Stages of communication are performed between application developers and application users. This step is to discuss and identify the necessary needs in developing applications and problems that exist in the marketing process or sales of the house so that the application created can answer the needs and user problems. The purpose of this step is to define all the

needs that exist in the application so that the application is created according to the wishes or needs of application users.



**Fig. 1.** Prototyping steps

After finishing the planning in developing the application. The next phase is to create a draft by modelling the planning in the form of program documentation. Documentation of the program is the result of the implementation of the planning into the form of documents that programmers can understand.

At this stage the application developers will start implementing the program documentation files into the program codes. The program code to be used for developing the application using the java programming language, XML and with the Android studio editor.

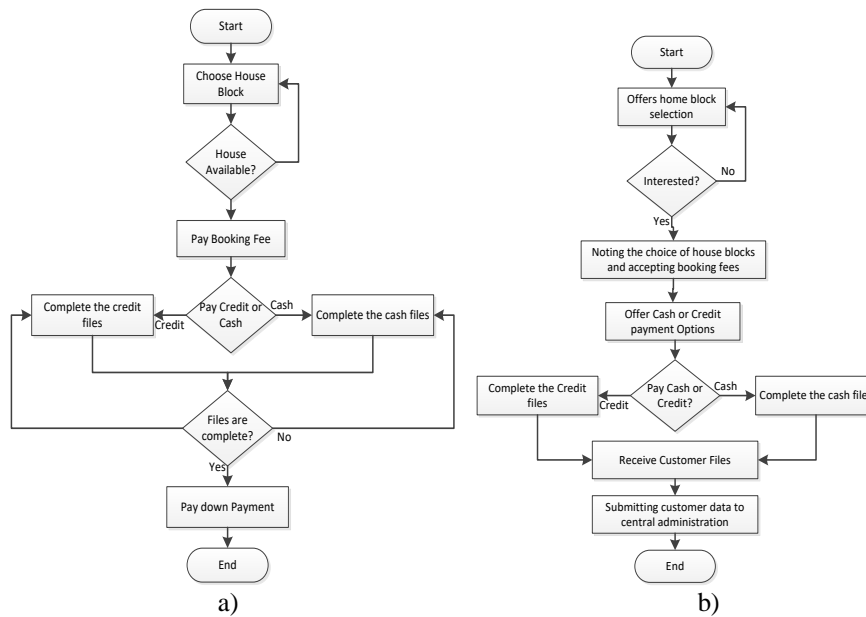
Good and according to the user's needs. The test is done by implementing it in an android smartphone and then try it directly. After completing of the overall testing and it run well then the next step is to send the application to be tried by the application users, in this case are sales or marketing housing and developers.

### **3 Result and Discussion**

#### **3.1 Communication**

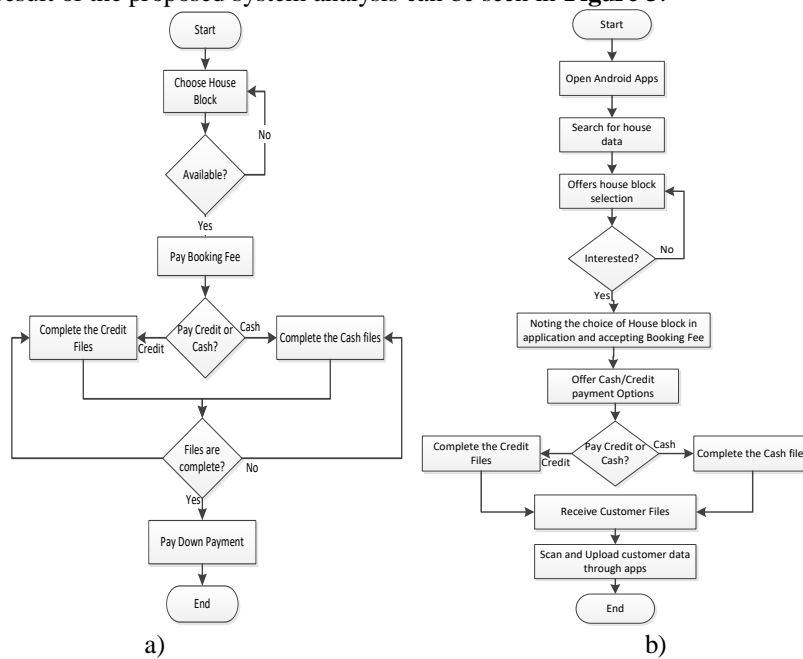
Communication is conducted to obtain data and information relating to a house reservation in a residential. Communication is done by observing at the residential marketing office and then conducting interviews with the marketing staff and costumers who will do the process of booking a house. The process of communication produces the current system analysis, analysis of the system to be developed, and identify the hardware and software needs of the system.

The results of the current system analysis can be described as **Figure 2**. Figure 2 a) is the flow of buying house and figure 2 b) is current marketing flow.



**Fig. 2.** Current system flow, a) Buying house flow, b) Marketing flow.

The result of the proposed system analysis can be seen in **Figure 3**.

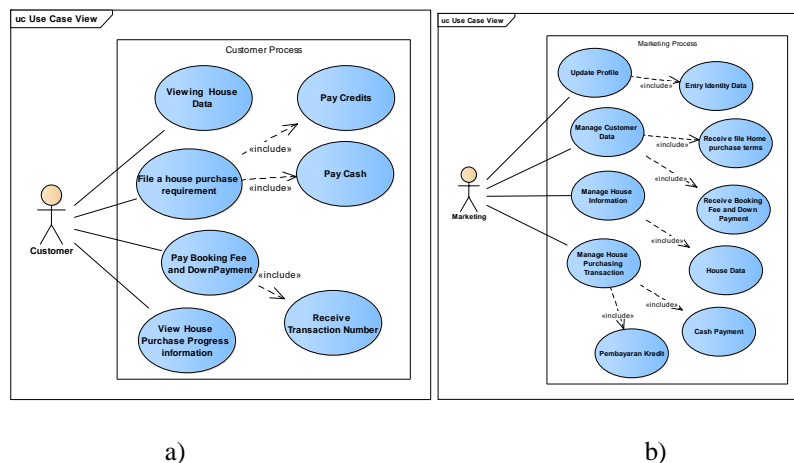


**Fig. 3.** Proposed system flow, a) Proposed customer flow, b) Proposed marketing flow.

### 3.2 Quick Plan

The stages of making rapid planning are done by modeling the system to be created. In this case will be modeled usecase, sequence, activity diagram, dan class diagram of various entities related to the system to be developed. Following results from the modeling usecase, sequence, activity diagram and class diagram.

**Usecase diagram.** Usecase diagram illustrates the customer's interaction of the system to be developed, this can be seen in **Figure 4**. Customers can do alot of things firstable they can see the information of sold, available and house has been booked. Secondly, seeing the purchase progress of the house did by customer. Usecase modeling for marketing staff is conducted to find out the interaction of marketing staff with the system to be developed. Marketing staff can do few things in the system, firstly marketing staff can change the profile. Secondly, they can manage the customer data such as adding new customer, update and delete customer data. Third, they can manage data and information of house that has been sold, available and booked. Fourth, they can manage the transaction of home purchases by adding new customer then upload files into the system.



**Fig. 4.** Usecase diagram, a) Customer usecase diagram, b) Staff marketing usecase diagram.

**Sequence diagram.** Sequence diagram is a sequence of actors in interacting with the system. Sequence diagram modeling is done to find out the actors in interacting with the system and system's respond. Sequence diagram consists of several actors such as customer and marketing staff. Customer sequence diagram can be seen in **Figure 5**, and the marketing staff sequence can be seen in **Figure 6**.

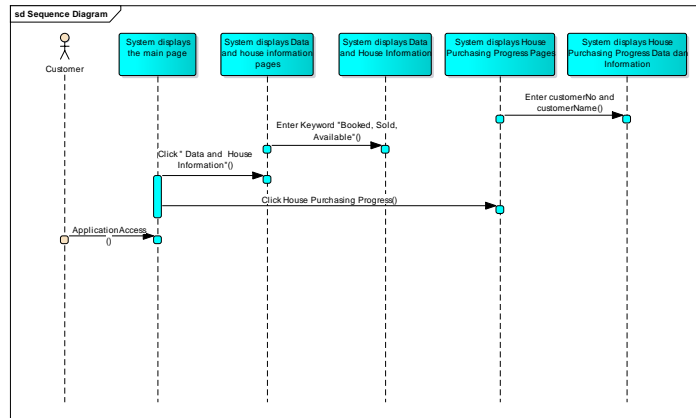


Fig. 5. Customer sequence diagram.

Customer sequence diagram conduct searching information about housing in the system and after the house is sought accordingly then the customer can contact the marketing to make a house reservation. Customers can see the progress of the house purchase through the system.

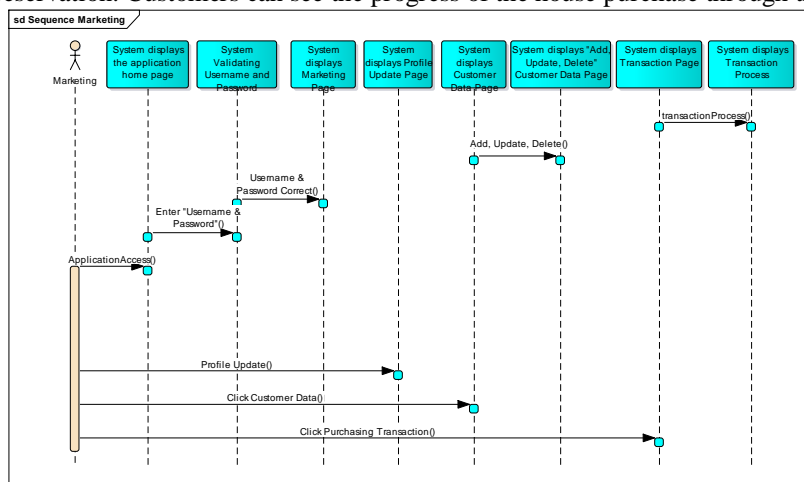


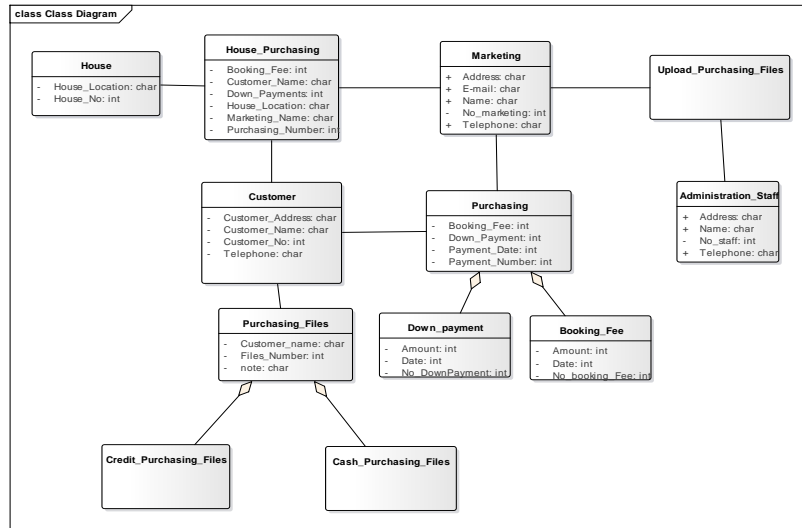
Fig. 6. Marketing staff sequence diagram.

Marketing staff sequence diagram modeling is to find out the marketing actor in interacting with the system and system's repond. And it's consists of several interactions such as login, profile updates, customer data updates and the process of house purchase transaction.

### 3.3 Modeling quick design

Quick model design is done to find out the process of quick design and can be understood by the user before implemeting in the form of application program. Quick model design includes class diagram design, and user interface design.

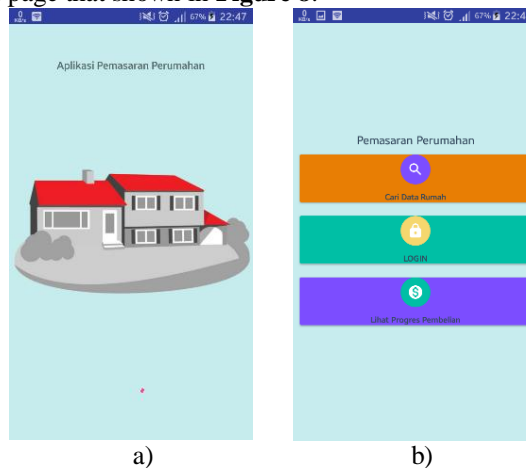
**Class diagram.** The design of the class diagram is done to connect between classes and relationships. **Figure 7** is the design of a class diagram that has been created.



**Fig. 7.** Class diagram.

### 3.4 Construction of prototyping

The development of the prototype in this research is a step to create an Android-based application program according to the design that has been done. Prototype construction includes marketing staff page that shown in **Figure 8**.



**Fig. 8.** Customers page, a) Application loading, b) Customers page.

Creating prototype for marketing staff is done to create an application so that marketing staff can add and change customer data, changing the status of house data and also marketing

staff can change their profile according to their wishes. The following image is the result of marketing staff prototype.

#### **4 Conclusions and Suggestions**

Developed application in this research is an application that is used to support marketing staff in order to coordinate the completion of administrative files easily as a requirement of buying a house both credit or cash . Developed application is able to prevent the occurrence of the same block and house number booked by some costumers. The application can also check house status information, house purchase progress and file shortage as administrative terms can be seen at any time. The advice on developing this application from the authors is the application to be developed has be able to view and monitor every house that has been sold, has been booked and available and used as a report for housing entrepreneurs so that they can see and supervise the developments of the house that they sell.

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