

Android-Based Boarding House Management Information System

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Abstract:

With the density of the population in Indonesia, boarding house greatly helps minimize the growth of urban planning space, especially in big cities to be the choice for most people because of the higher cost of buying or renting a house. Because of the large interest in boarding house, it creates a business opportunity for people to do business that provides huge profits that always flow every year. For this reason, it is necessary to manage a good boarding house business management by changing the manual method into a system. The system is built so that it can help implement boarding house management become more effective and can be a solution to existing problems. Data collection method in this study is to use the interview method conducted with the boarding house owner in Tebet 22 in Jakarta to find out how the boarding house management is currently running. The final result of this study is Android-Based Boarding House Management Information System.

Keywords —management, boarding house, information systems, boarding house business

1. INTRODUCTION

The magnitude of interest in boarding house creates a business opportunity for entrepreneurs to make boarding house a long-term business that provides big profits. The development of business in the service sector will continue to grow rapidly as market needs grow. Entrepreneurs will try to improve the quality of services and boarding house facilities to achieve the profit targets and satisfaction of boarding house tenants. For this reason, a good boarding house business management is needed. With the good management of boarding house, it is expected that the interests of boarding house will run according to the objectives.

However, many boarding house management experience difficulties in their implementation, the obstacles faced are recording of boarding house assets such as rooms, facilities, and tenant data being done manually, recording bills and boarding house payments that are done manually, and communication between owners and tenants because the residence of the boarding house owner is far apart from the tenant.

The limitation of the problem of this research is focused on making Android-Based Boarding House Management Information System on the side of boarding house owner and boarding house tenant of the boarding house as well as managing and presenting data based on the features made.

The purpose of this study is to make the process of boarding house management

centralized in one application, create features to facilitate boarding house owner in managing the boarding house and create features to make it easier for the boarding house owner to communicate with boarding house tenants.

2. THEORY AND METHOD

2.1 Definition of Management^[1]

Management can be defined in many ways. Here are some management definitions.

1. Management is a process when a group of people works together directing others to work towards the same goal (Massie and Douglas).
2. Management is a process of working together with and through others to achieve organizational goals effectively and efficiently use limited resources in a changing environment (Kreitner).
3. Management is the coordination of all resources through the process of planning, organizing, directing, and controlling in order to achieve certain specified goals (Sisk).
4. Management is creating an effective environment so that people can work in formal organizations (Koontz and O'Donnell).
5. Management includes activities carried out by one or more people to coordinate activities carried out by others and to achieve goals that cannot be achieved by just one person (Donnelly, Gibson, and Ivancevich).
6. Management is planning, organizing, directing, controlling, activities of members of the organization, and activities that use all organizational resources to achieve the goals of the organization that has been determined (Stoner, Freeman, and Gilbert).
7. Management is planning, organizing, directing, and controlling human resources and other resources to achieve organizational goals effectively and efficiently (Jones and George). According to Mary Parker Follet, management is the

art of achieving something through other people (the art of getting things done through the others).

From the definitions above, management in this module is defined as follows. Management is the process of planning, organizing, directing, and controlling activities to achieve organizational goals effectively and efficiently by using organizational resources.

2.2 Definition of Boarding House^[2]

The boarding house is a temporary residence by paying every month for people who need a place to live in certain periods of time and needs. In a boarding house, a tenant rents a room, rather than the whole house. They share facilities such as the kitchen and bathroom with the other tenants. A boarding house is occupied, or intended to be occupied, by at least six tenants at any time.

2.3 Definition of Firebase^[3]

Firebase is BaaS (Backend as a Service) which is currently owned by Google. Firebase is a solution offered by Google to facilitate Mobile Apps Developer. The many features offered by Firebase allow apps developers to develop applications easily.

2.4 Definition of Code Igniter^[4]

Framework – framework can be interpreted as a collection of libraries (classes) that can be derived or can be used directly by the modules or functions that will be developed.

While the definition of CodeIgniter is an open source application in the form of a framework with the MVC model (Model, View, Controller) to build dynamic websites. Using PHP CodeIgniter will make it easier for developers to create web applications quickly and easily compared to making it from scratch. MVC (Model View Controller) is a software approach that separates logic applications from presentations. This is used to minimize scripts from web pages since presentation scripts (HTML, CSS, Javascript, etc.) are separated from PHP scripting, the general term familiar is to avoid spaghetti code.

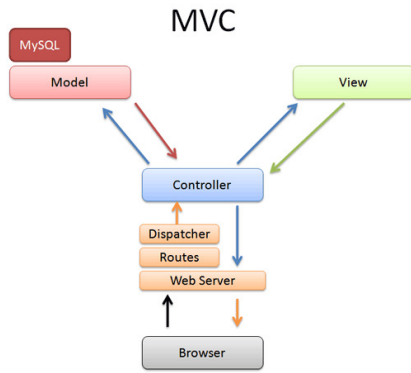


Figure 1 MVC in Code Igniter

2.5 Definition of Nginx^[5]

Nginx is a high-performance open-source software as an HTTP and reverses proxy server. Nginx quickly provides static content with efficient use of system resources. It can deploy dynamic HTTP content on a network using FastCGI handlers for scripts and can function as software that is very capable of load balancing. Nginx is built in a modular manner and is thus able to support various features such as Load Balancing and Reverse Proxying, name and IP based Virtual Hosts, Fast CGI, direct access to the cache, SSL, Flash Video Streaming, and a number of other standard features. Nginx can be run and available for Unix, Linux, variants of BSD, MacOS X, Solaris, and Microsoft Windows.

2.6 Method of Problems Analysis

The method used for problem analysis is the PIECES method which consists of:

1. Performance

Problem:

In the continuity of the activity of most boarding house, data recording is currently done manually using a notebook, so that the data input process takes a long time.

Solution:

Data recording/input is presented based on form in a mobile application, so the recording process becomes easy and fast.

2. Information and Data

Problem:

Existing data is stored but not properly organized, such as data stored in many places and possible loss of data making it difficult to make a final report. Lack of timely delivery of information.

Solution:

There is a feature that manages information and data according to its function.

3. Economics

Problems:

Visit costs and time spent by the boarding house owner if there is a complaint problem at the boarding house facility.

Solutions:

There is a Complaint feature with an image upload facility so the boarding house owner can check the problems that occur without making a visit so as to save costs.

4. Control

Problems:

Control of rental payments and room availability is still not monitored.

Solutions:

There is a bill notification feature in the form of a reminder and bill history can control the payment of boarding house tenant and information on room availability.

5. Efficiency

Problems:

There is no place for communication between boarding house owner and all boarding house tenants, so the accuracy of information delivery is not efficient.

Solutions:

There is an announcement feature and chat feature as a place for communication between boarding house owner and boarding house tenant.

6. Service

Problems:

There is no standard procedure or complaint reporting form for boarding house facilities, this is an obstacle in handling the complaint.

Solutions:

There is a Complaint feature, so boarding house tenant can report problems that occur,

and boarding house owner can check and monitor existing complaints.

2.7 Method of collecting data

1. Observation
Observation is a research where the researchers make observations directly on the object of research.
2. Interview
By asking questions and answers to the parties related to research. Interviews will be conducted here for boarding house owner and boarding house tenant.
3. Literature Study
Literature study is a method of data collection carried out by reading journals, literature, and references of previous research related to the research being conducted.

3. RESULT AND DISCUSSION

3.1 Research Flow Diagram

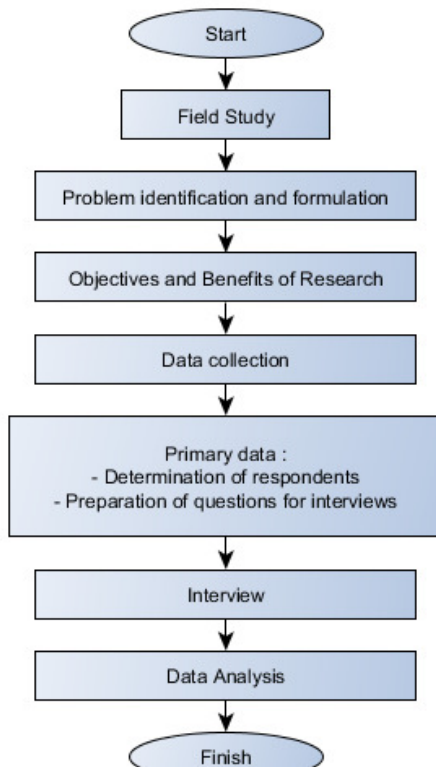


Figure 2 Research Flow Diagram

3.2 Use Case

The system is described in the use case diagram that can present the results of planning that has been done before. Each use case describes the interaction between actors and the system, there are 2 primary actors and 1 secondary actor.

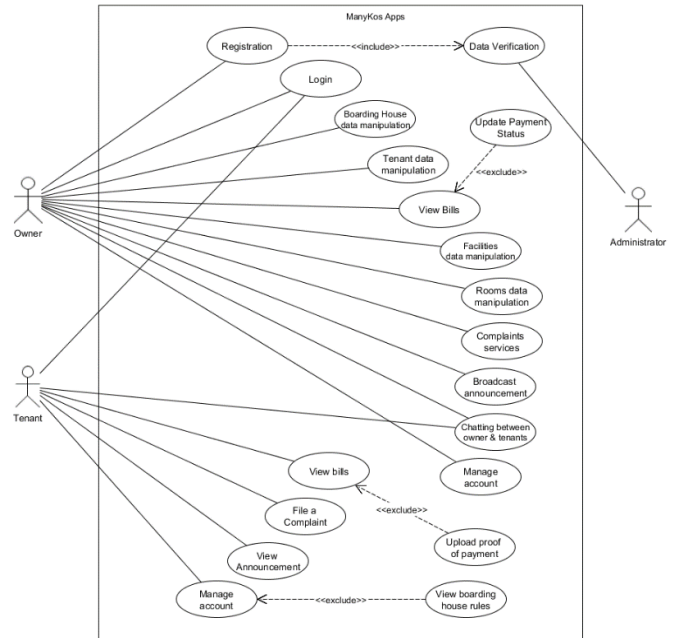


Figure 3 Use Case

3.3 Architectural Infrastructure Design

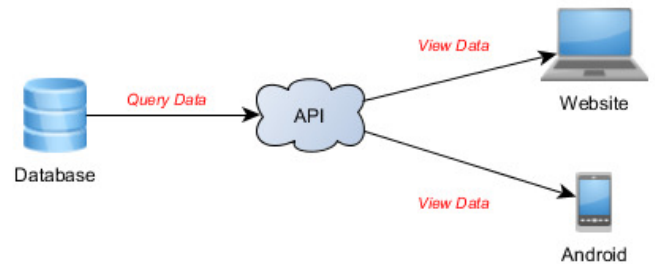


Figure 4 Deployment Diagram

3.4 Application Interface

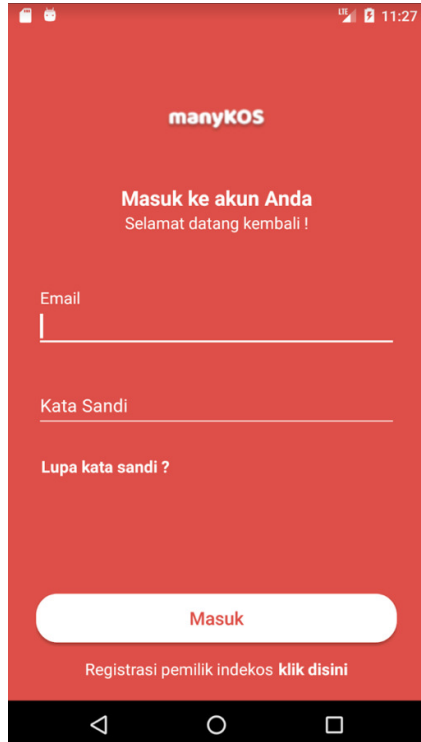


Figure 5 Login Page

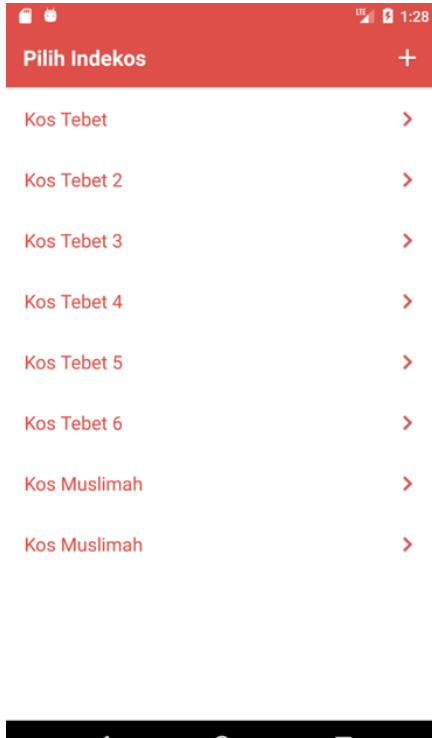


Figure 6 Boarding House Page



Figure 7 Owner Dashboard Page

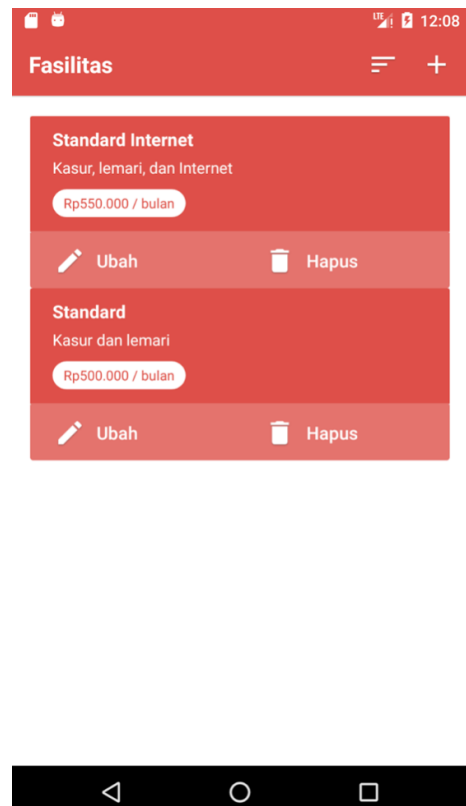


Figure 8 Facility Page

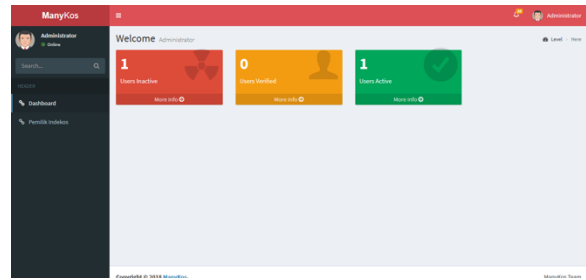
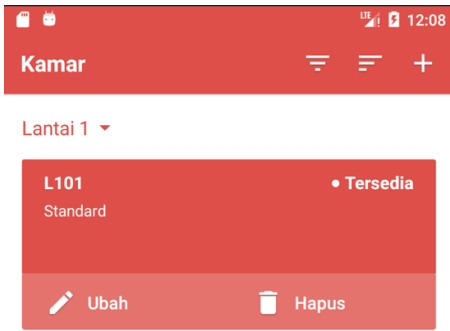


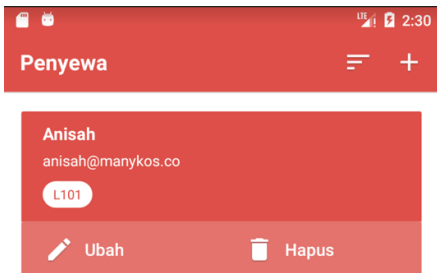
Figure 11 Admin Dashboard

3.5 Test Results

Application testing uses Black Box Testing method, which focuses on functionality testing. Testing by running a positive case and negative case on the features contained in 3 Android versions with the most number of users 5.0 Lollipop, Marshmallow 6.0, and Nougat.

3.5.1 Test Case Results

No	Feature	Sub Feature	Result		
			5.0	6.0	7.0
1	Bill Payment	- Bill payment page - Edit bill payment page.	pass	pass	pass
2	Boarding House Tenant	- Boarding house tenant page - Create tenant page - Edit tenant page - Delete tenant page	pass	pass	pass
3	Facilities	- Facilities page - Create facilities page - Edit facilities page - Delete facilities page	pass	pass	pass
4	Room	- Room page - Create room page - Edit room page - Delete room page	pass	pass	pass
5	Complaint	- Complaint page - Create complaint page - Edit complaint page - Delete complaint page	pass	pass	pass
6	Announcement	- Announcement page - Create announcement page	pass	pass	pass



7	Chat	- Sending message - Receivemessage	pass	pass	pass
8	Notification	-Notification list page	pass	pass	pass

3.5.2 Analysis Results

Based on application testing that has been done, it can be concluded below:

1. The business process running well in accordance with the planning.
2. Testing process in 3 Android versions has given expected results.
3. All functions running well with no errors or bugs.

The conclusion of an analysis of the test results is that application running well in accordance with the application prototypes.

4. CONCLUSION

Some conclusions obtained in the development of the Android-Based Boarding House Management Information System are below:

1. Android-Based Boarding House Management Information System can be a solution for boarding house owner by using an android mobile application in processes such as facilities, rooms, tenants data, and recording bills.
2. Android-Based Boarding House Management Information System can help and assist boarding house owners in monitoring bills and rooms.
3. Android-Based Boarding House Management Information System can make boarding house tenant easier to communicate with boarding house owner with complete features.

The suggestions that can be given for further research are as follows:

1. Application can be further developed on iOS platform.
2. Features in the application can be developed again such as paid feature segmentation.

Acknowledgment

Praise and gratitude to Lord, we can complete the research on the "Android-Based Boarding House Management Information System" well and on time.

We do not forget to thank the Faculty of Computer Science, Mercu Buana University and especially Mr. Yudo Devianto, S.Kom, M.Kom as the final task supervisor.

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