



Computer Technician Application Design in Household Based Part (BRT) Using the SDLC Method

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ABSTRACT

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Along with the times, technological advances also have new standards and the best servants. Currently doing repairs to facilities on campus there are still many using manual reports so that the lack of the best service for facility improvement. Making computer technician applications in the household (BRT) at Universitas Nasional can assist technicians in receiving reports quickly and practically, so that technicians can immediately improve facilities, especially lab facilities at Universitas Nasional. The results of this application can make a booking and without having to take care of a complicated administration and the user can receive a notification when it has finished doing service or repairs. The application is made using flatfrom android so it's easy and fast because everyone must use an android smartphone. By making this, it is expected to make it easier for technicians in the household section to do the work and users can easily report damage.

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1. Introduction

In the use of information technology, it is very much in need today that has a rapid development [1]. The number of orders for the improvement of facilities, especially in the computer lab so that the accumulation and work takes a long time [2]. The application of computer technicians in the household section (BRT) is an effort to help national university technicians to get reports and make reports easy. Thus reducing time consuming in administration and reducing paper usage [3]. This application is based on Android so it is easy to use because everyone must use a smartphone that is Android [4]. So that work can reduce time consuming and save costs [5].

In designing this application using the SDLC method so it is easy to make developments [6-8]. SDLC is a cycle that is used in making applications or information systems [9]. So that when making developments is not so difficult.

In making this application using a database that is Firebase. Firebase is an application platform that helps in application development [10-12]. Firebase provides flatrom with a number of features available on Google [13]. By using firebase, it will be synchronized in realtime to every connected client so that it is easy to communicate [14] [15].

In making this application based on Android. Android is a smartphone-based operating system [16-19]. Android is an operating system that is open source or free. Later this application will be implemented by technicians at national universities [20]. So that it can be simplified, and efficient in doing computer lab repairs without taking up administration that takes time.

2. Research Methods

A. Research Stages

This research stage is the step of the author in making a journal





Fig 1. Research Flowchat

In Figure 1 is a flowchat drawing of the study phase from the first literature study that is looking for journals or books that are used as a reference, designing applications, implementation of testing whether the application is running properly, and testing and analysis aims whether the application is in accordance with the functions and needs.

B. SDLC

The SDCL (System development life cycle) method is a method used to build or design applications easily and efficiently.

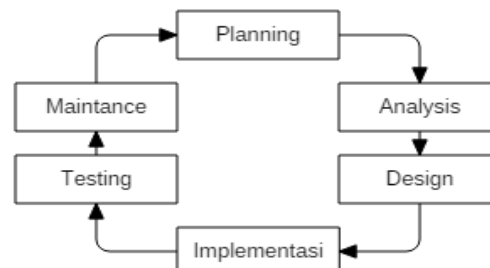


Fig 2. SDLC cycle

Figure 2 is the cycle in the SDLC method. SDLC method is a method used to design, maintain information systems. In this SDLC, there are several stages of designing information systems, namely:

a. Design

The design is the initial stage of the SDLC at this stage aims to identify and analyze what information systems to be made.

b. Analysis

Analysis is a research of the information system that wants to be made and to analyze what kind of system you want to make, so that it's easy in making information systems.

c. Design

Design is a stage that aims to design the appearance so that it can analyze so that it can be used by users.

d. Implementation

Implementation is testing the test by the maker of whether the system is running as planned and checking whether there are errors in the information system created.

e. Testing

Testing is the stage that testers test by the user whether the information system created can provide convenience and is easy to use by users or users.

f. Maintance

Maintance is the stage for developing an information system if an update to the information system has been made.

C. FireBase

Firebase is a flatfrom application that helps in creating or designing high quality applications. Firebase has data storage in the JavaScrip Object Notation (JSON) format used in data storage. FireBase also has several facilities, namely:





a. Firebase Cloud Messaging (FCM)

This facility is a service provided by FireBase to provide messages and updates between one user and another.

b. Real-Time Database

A database service facility for application developers that enables synchronous application data and is stored in the Cloud Phase Phase.

c. Firebase Storage

This facility is a facility provided for application developers to input data such as: images, audio, text, video and others.

d. Firebase Notification

User notification facility to give messages on the android application. So as to make it easy to be notified that there are messages from the application made.

D. Use Case diagram

Use case diagram is a diagram that aims to give a shadow or illustrate the concept of interaction between systems and systems

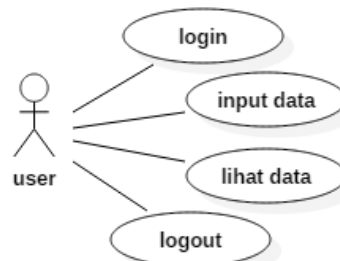


Fig 3. UseCase User diagram

Figure 3 is a variety of use cases from the point of view of the user who can input data and view data

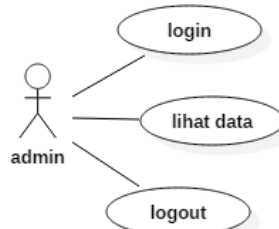


Fig 4. Admin UseCase diagram

Figure 4 is a variety of use cases from the corner of the admin field which can only see data.

3. Results and Discussion



BRT
Universitas Nasional



version 1.0

Fig 5. Image Loading BRT Application





Figure 5 is loading for access to the National University BRT application.

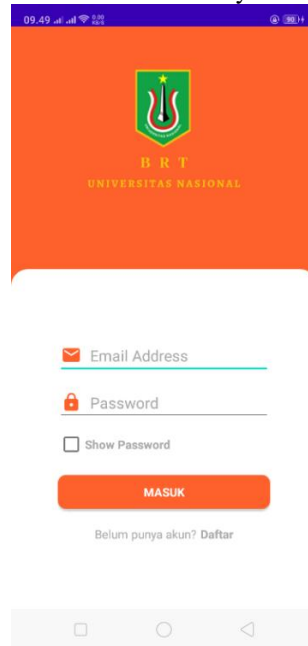


Fig 6. Image Access Login

Figure 6 provides login access for registered users and for differentiating between users and admins.

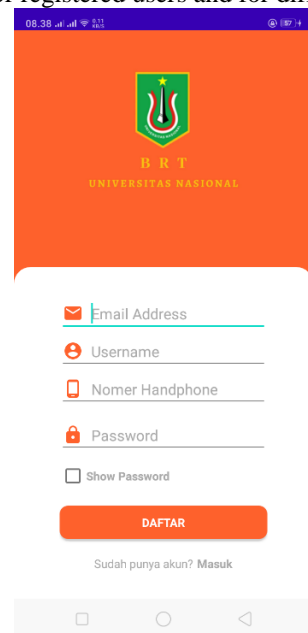


Fig 7. Image List

Figure 7 is the registration form if you do not have an account so you will be able to use the National University BRT application as a user.

A. User Display

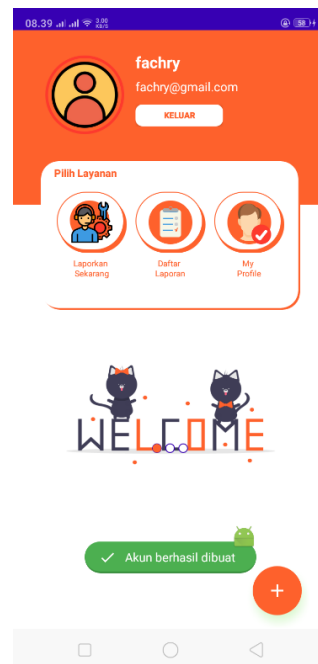


Fig 8. Image List

Figure 8 is the homepage display of the user interface.

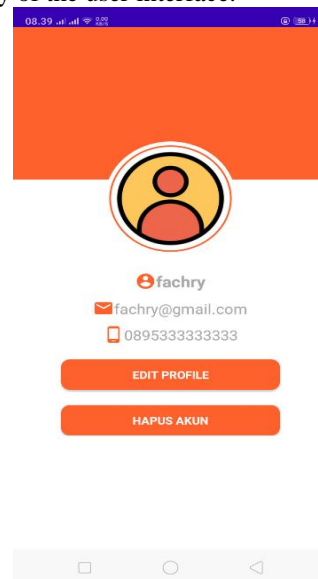


Fig 9. Image List

Figure 9 is a display on the profile menu that is intended to view personal data and if there are errors in filling out the registration form you can edit the profile.



Silahkan isi form berikut

Nama Laboratorium

Jenis Perangkat:

Laptop

PC

Proyektor

Printer

Jumlah Perangkat :

Tanggal Laporan

Kendala pada lab

Klik disini untuk konfirmasi Laporan

Fig 10. Image List

Figure 10 is a display to fill in the data to report if there is damage to the lab facilities at the national university.

Daftar Laporan

tanggal laporan : 22-04-2020

Jenis Perangkat :
1.laptop
3.printer

Jumlah Perangkat : 3

Status : pending

Fig 11. Image Input Data List

Figure 11 is a display of the data report interface that will be corrected by the user.

Daftar Laporan

tanggal laporan : 11-04-2020

Jenis Perangkat :
1.laptop

Detail Laporan

tanggal laporan : 11-04-2020

Email : test@gmail.com

Nama : dimas jayadi

No.HandPhone : 081381203211

Alamat : lab cvm

Jenis Perangkat :
1.laptop
2.pc

Jumlah Perangkat : 2

Kendala : layar rusak

Fig 12. Image List of Detailed Input Data



Figure 12 is a display of the data report interface that will be repaired by the user in detail from the hour of the input name, the number of devices that are damaged and the constraints in the lab.

B. Admin View

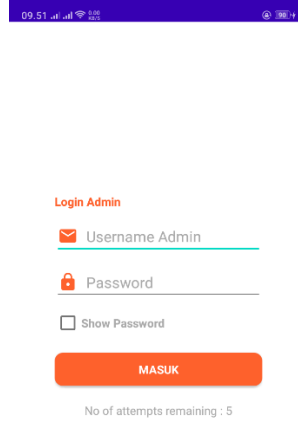


Fig 13. Image Login on Admin

Figure 13 is the login screen for the admin and can only be accessed by the admin.

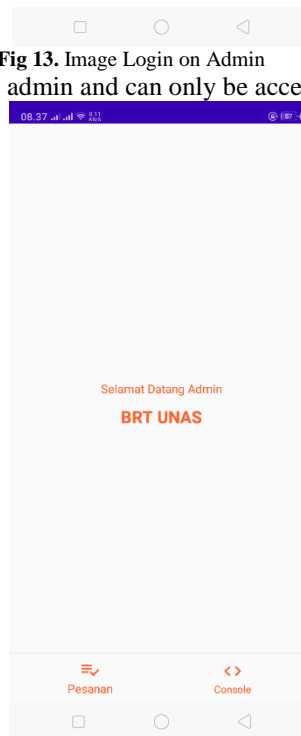


Fig 14. Image List of Detailed Input Data

Figure 14 is a display of loading login access for the admin so that it can differentiate users from the admin.

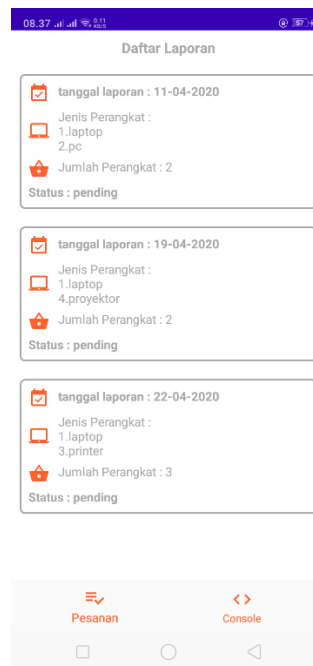


Fig 15. Admin Home Image

Figure 15 is a view of the admin homepage which directly displays report data so that the admin after logging in immediately knows the report from the lab so that it can be directly done.

C. Black Box Testing

Blackbox testing is a test that provides an overview and conclusions that provide a functional description of the program.

Table 1
Blackbox testing table on the report form

NO	Testing scenario	Results
1	Entering email does not match email profile data	Couldn't continue report
2	Entering username data does not match profile data	Couldn't continue report
3	Entering phone number does not match profile data	Couldn't continue report
4	Entering report date data does not match calendar	Couldn't continue report
5	Email field is empty	Getting an email report must be filled out
6	Username field is empty	Getting the username report must be filled in
7	Phone No field is blank	Getting a report Phone number must be filled in
8	Report date field is empty	Getting the report date, the report must be filled in
9	Device type checkbox is empty	Getting a report on the type of device must be filled
10	Fill in report data> 10 reports	No problems with the application
11	Fill in report data> 50 reports	No problems with the application
12	Fill in report data> 100 reports	No problems with the application
13	Fill in report data> 150 reports	No problems with the application
14	Fill in report data> 200 reports	Not getting problems with the application but the application performance is decreasing
15	Fill in report data> 250 reports	The application does not work or is not responding
16	Register> 10 users	No application problems
17	Register> 100 users	No problems with the application
18	Register> 150 users	No problems with the application
19	Register> 200 users	No problems with the application
20	Register> 250 users	Could not register

4. Conclusion

From the research conducted by the author, it is easier to work on the household (BRT) in receiving reports and the process of repairing computer laboratory equipment.



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