

ASCENT ONLINE BOOKING INFORMATION SYSTEM MOUNTS IN EAST JAVA BASED ON ANDROID

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ABSTRACT

Mountain climbing activities in East Java itself have been carried out by everyone or have been carried out by all groups. For the registration itself is still using manual registration. Because of this, an Android-based online booking application system was created that makes it easier to register for climbers, and also a web application that makes it easier for admins to validate registration. In the web application itself, there is a scheduling method, namely the Shortest Processing Time (SPT) method, so that the admin is easier to filter data that must be validated first. Based on the results of functional testing, it can be seen that, the program runs in accordance with the registration procedure from users using Android to the validation stage from the admin, from the test results it can be stated that the system is feasible to test functionally and error handling testing.

Keywords: Booking Online, Shortest Processing Time(SPT), Android, Web

1. INTRODUCTION

Mountain climbing activity is one of the challenging adventure activities, sometimes it is also a very extreme activity for some people. Likewise the climbers in Indonesia or abroad itself, there are also many climbers who climb to find peace for themselves. In mountaineering activities in East Java, most of them still use the manual registration system, namely registrations who register write their registration letters to the climbing post.

Hikers who want to climb the mountains in East Java are currently still using the manual registration system, namely by registering directly at the registration post. At the registration post, there are also queues to register, sometimes queuing also takes a long time on certain days. On big days or holidays, there are certainly many climbers who register themselves to be able to climb to the top of the mountain. The registration post must also calculate the number of daily quotas for climbers to climb the mountain, especially during big days, there must be many who climb to devote certain moments, and as climbers also don't know how many climbers are climbing at that time.

With this android-based booking information system, it is a form of offer for climbers because they no longer need to register and are afraid of running out of quota to climb, so with this system whenever and wherever the climbers can immediately make a booking. Based on the explanation above, it aims to create an android-based online booking information system for mountain climbing in East Java. The existence of this information system, will be very helpful for climbers to register or book mountaineering.

2. BASIC THEORY

2.1 Information System

Android is one of the operating system platforms favored by the community because of its open source nature so that it allows users to develop. Android is a new generation of Linux-based mobile platform that includes an operating system, middleware, and applications (Safaat, 2012).

2.2 Booking Online

Online booking is part of the activities of someone who places an order or reservation for a product or service through online media.

2.3 Android App

Android is a Linux-based mobile device OS that includes an Operating System, Middleware, and Applications. Android is an OS purchased by Google Inc. from Android Inc. Android provides a live environment or Run Time Environment called Dalvik Virtual Machine (DVM) which has been optimized for devices with small memory systems.

2.4 Web Service

Web services are application components that communicate using open protocols. Web services are built to allow web applications to work together. With web services, web applications can publish their functions to the world.

2.5 Shortest Processing Time (SPT)

Shortest Processing Time (SPT) is a method that prioritizes the completion of the production process based on the shortest processing time. The purpose of this method is to achieve maximum utilization of the machine. But the weakness of this method is to delay postponing a job that has a long time, so that if the due date of the work is very close, then the work will be completed far on the desired due date.

3. RESEARCH METHODOLOGY

3.1 Problem Analysis

So far, the climbing registration process is still using manual registration, namely by registering directly at the climber's registration POS. Sometimes on certain days, registering will also take a long time and not only that, the quota provided by the guards on the climbing mountain.

3.2 Data Analysis

The data used in writing in this study is mountain information data starting from the entry price, the quota provided every day, and also information about mountain climbing in East Java.

3.3 Main Function of Software

Referring to the results of the study on the manual reporting system via telephone technology, the program needs to implement the following main functions:

1. Can do registration.
2. The program is able to store information reported by the user, namely the public.

3.4 Flowchart

Flowchart is a graphical depiction of the steps and sequences of procedures of a program. Flowcharts help analysts and programmers break down problems into smaller segments and help analyze other alternatives in operation. Flowcharts usually make it easier to solve a problem, especially a problem that needs to be studied and evaluated further.

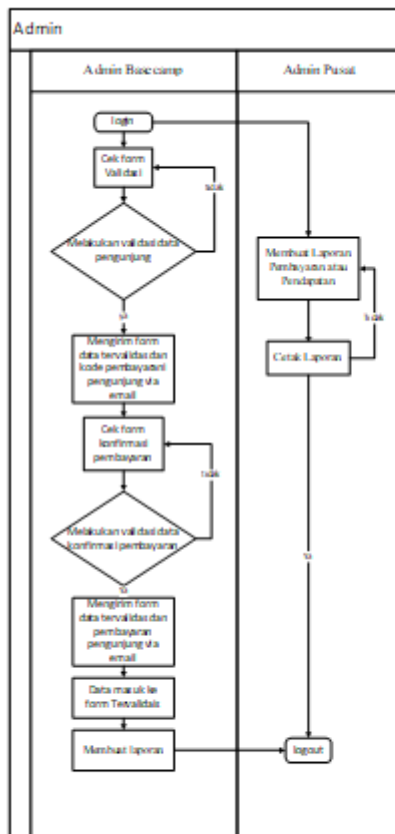


Figure 1. Flowchart System Admin

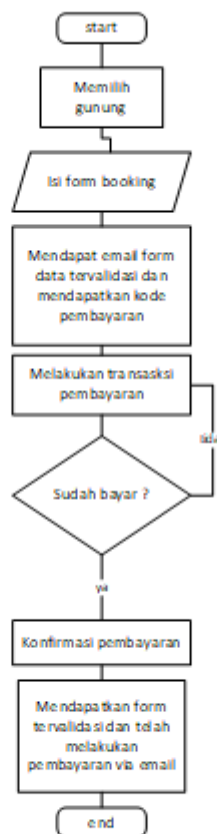


Figure 2. Flowchart System User



Figure 3. Flowchart Location Coordination System

3.5 Context Diagram

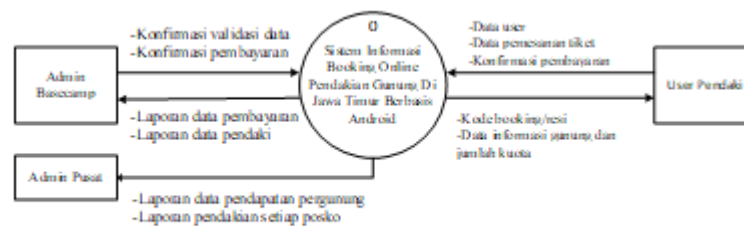


Figure 4. Context Diagram (CD)

3.6 Data Flow Diagram (DFD)

DFD (Data Flow Diagram) is a system design tool that is used to describe the analysis and design of a data flow-oriented system, which is a process created to describe where the data comes from and where the data comes out of the system, where the data is stored, what process that generates the data. Data Flow Diagram level 0 or DFD 0 is a DFD that describes the processes that exist in the context diagram. The following is an overview of the DFD 0 of the system to be created.

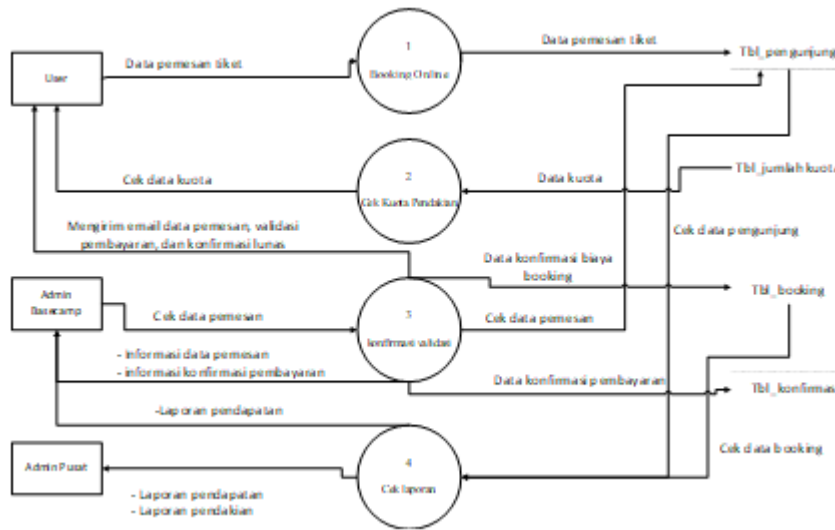


Figure 5. DFD Level 0

DFD Level 0 to DFD level 1 itself is a continuation process from the context diagram, in level 1 the data is explained in more detail.

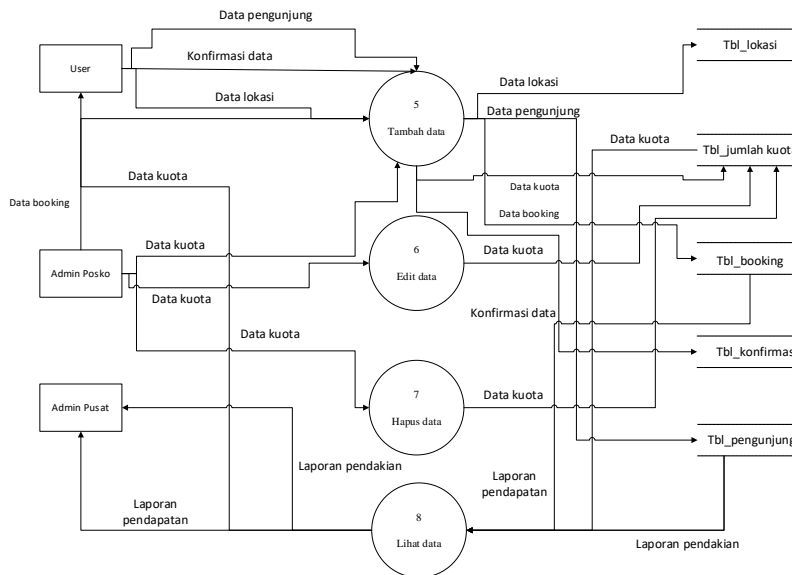


Figure 6. DFD Level 1

3.7 Entity Relationship Diagram (ERD)

ERD (Entity Relationship Diagram) is a graphical representation of an information system that shows the relationship between tables in a system. ERD describes the relationship between attributes where the attribute has a function to describe the characteristics of the entity, the content of the attribute has something that can identify the contents of one element with another.

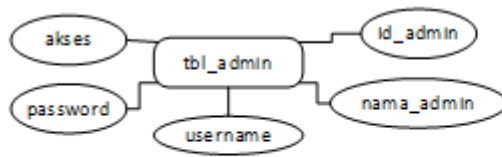


Figure 7. ERD Admin

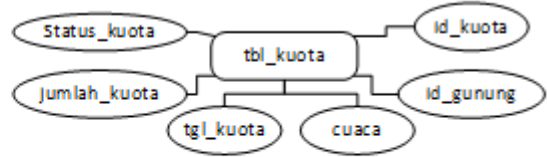


Figure 8. ERD Quota

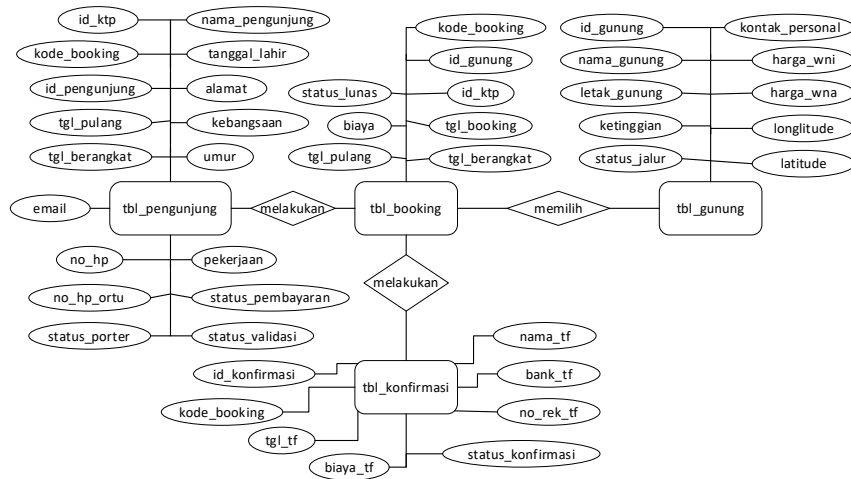


Figure 9. ERD Booking Online

3.8 Interface Implementation

Interface implementation is the overall system view of the Android mobile application interface and also the web admin.

3.8.1 Mobile App

Here are some views of the mobile application, which include: display of notifications, report filling forms, and my location page. As in the image below:

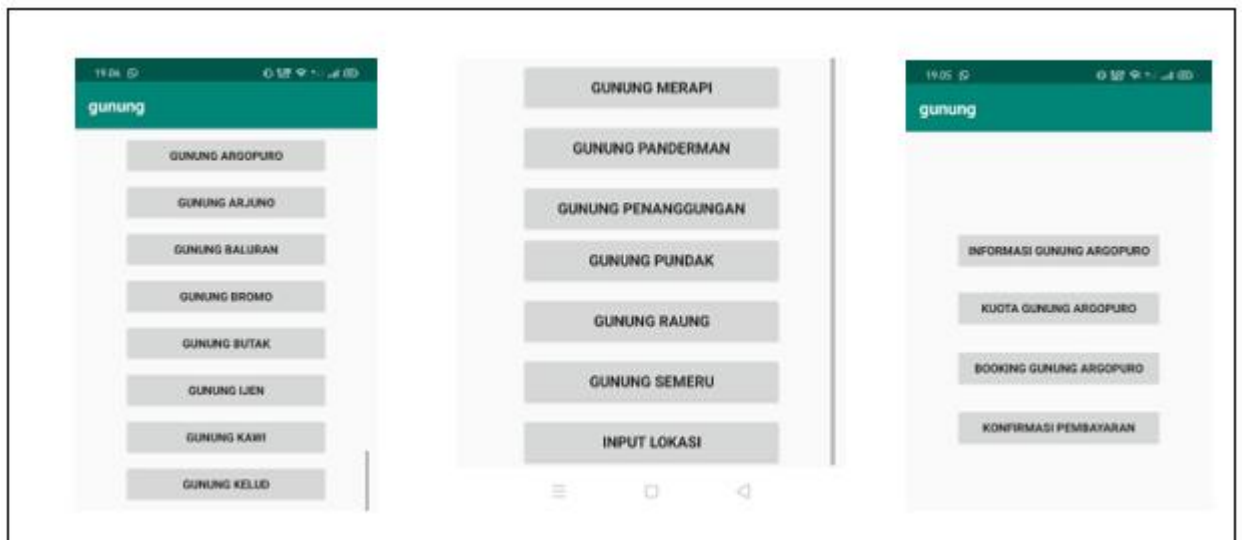


Figure 10. Mobile App

3.8.2 Admin Web View

The admin web dashboard page serves to display a web admin page that manages all validations carried out by the climbing post admin.

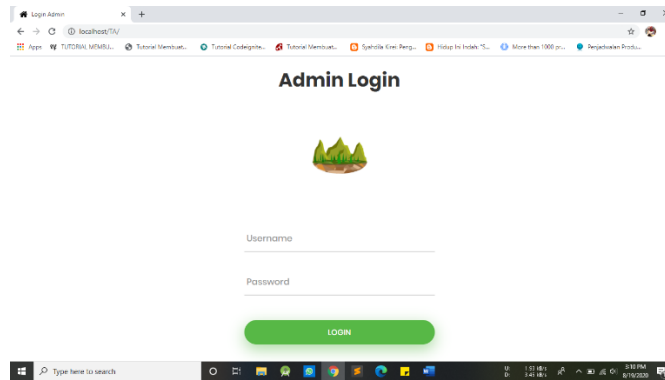


Figure 11. Dashboard Login Admin

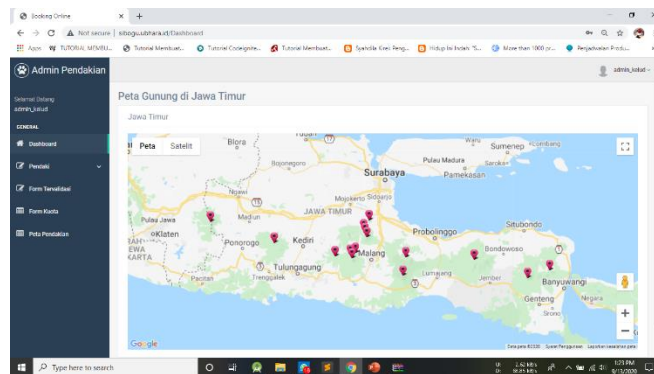


Figure 12. Dashboard Web Administrator

4. RESULTS AND DISCUSSION

The command center application for emergency calls for criminal incidents or traffic problems based on Android uses the black-box testing system testing method with application compatibility and functional testing techniques.

4.1 Functional Testing

In testing with this functional testing technique, it is done by testing whether the flow of the Android program is in accordance with the user's needs or not and testing whether the web program and the SPT method are in accordance with the needs of the admin or not.

And here are the results of functional testing on web admins and android users:

Table 6.1. Web Admin Testing Test Results

No	Tested	System Output	Status
1	Click login menu	Go to dashboard page	Ok

2	Click the next button on the validation form page	Validation form page appears	Ok
3	Click the payment confirmation form menu	The payment confirmation form page appears	Ok
4	Click the validated form button	A validated form page appears	Ok
5	Click the next button on the from quota page	The quota form page appears	Ok
6	Click the hiking map menu	Go to climbing map page	Ok
7	Click logout	Back to login page	Ok

Table 6.2 Android User Functional Testing Results

No	Tested	System Output	Status
1	Click all mountain selection menu	Enter the main page of the mountain	Ok
2	Click the mountain information menu	Enter the mountain information page	Ok
3	Click on the mountain quota menu	Go to the mountain quota page	Ok
4	Click on the mountain booking menu	Go to the mountain booking menu page	Ok
5	Click the payment confirmation menu	Go to the payment confirmation menu page	Ok
6	Click the location input menu	Enter the confirmation input menu pages	Ok

4.2 Compatibility Testing

There will be several performance tests on the web admin system in the form of browsers and booking applications on android-based mobile phones. The test this time is whether the application on the web and android runs as desired.

The following are the tests that will be carried out:

1. Comparison of web applications using the Shortest Processing Time method with web applications without using the Shortest Processing Time method.

Table 6.3 Table Comparison of Shortest Processing Time Method.

Browser	Shortest Processing Time (SPT)	
	Using the spt method	Not use method spt
Google Chrome	The schedule has been sorted starting from the shortest process.	validation schedule is still random
Internet Explorer	The schedule has been sorted starting from the shortest process.	validation schedule is still random
UC Browser	The schedule has been sorted starting from the shortest process.	validation schedule is still random
Mozilla Firefox	The schedule has been sorted starting from the shortest process.	validation schedule is still random

By using the Shortest Processing Time method in the application, it will make it easier for the admin to validate the users who carry out the fastest ascent, because it filters directly, if the process is fast then that comes first.

If you don't use the Shortest Processing Time method in the application, it will be difficult for admins to validate users, because during registration, who registers first, then yes, it will be validated first without filtering who will climb the fastest. So it will be detrimental to the climbers who make the fastest ascent.

2. Scheduling System Test

In this scheduling system test, it is a test if a user or climber cancels during registration. For cancellation, the user will cancel by contacting the basecamp directly. If the data has been validated, the user cannot cancel through the available application programs, but by contacting the manager directly. The manager himself will immediately confirm the cancellation, which is to delete participant data from the system directly. And notifications to the user will be sent via email.

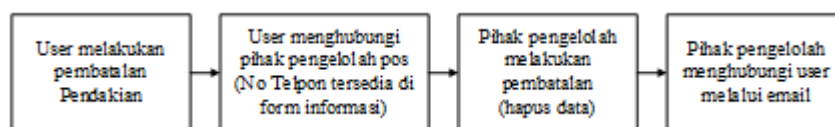


Figure 6.22 Booking cancellation flow

For the payment itself, if the user has made a payment, the money already paid cannot be withdrawn. But this depends on the manager of the mountain climbing.

3. Broadcast System Test

In this weather broadcast system test, whether the admin system has sent a good broadcast to the user and whether the postal broadcast is running properly. The output results of the broadcast system test on all mountains in the system are all "Sent Data".

4. Monitoring System Test per Posts

The postal monitoring system test is a system test that displays the nodes of each climber leader, to find out where the coordinates of the leader's position are. For the results of the monitoring system test at all the command posts in all climbing mountains, the system produces "Show" output, which means it displays all monitoring activities carried out by the web admin.

5. Android App Test

In this test, the performance of the android application will be seen on various versions of android from various mobile phones. And also see if this application does its job well or not.

Table 6.6 Android Application System Test Results

Android Device		Xiaomi Mi A2	Realme 5	Oppo A39	Oppo F11	Asus Max Pro M1
Android Version		10	10	5.1	10	9
Page View	Main selection of Mountains	Look and run well	Look and run well	Look and run well	Look and run well	Look and run well
	Main Booking	Look and run well	Look and run well	Look and run well	Look and run well	Look and run well
	Mountain Information	Look and run well	Look and run well	Look and run well	Look and run well	Look and run well
	Mountain Quota	Look and run well	Look and run well	Look and run well	Look and run well	Look and run well
	Mountain Booking	Look and run well	Look and run well	Look and run well	Look and run well	Look and run well
	Payment Confirmation	Look and run well	Look and run well	Look and run well	Look and run well	Look and run well
	Coordinate Input	Look and run well	Look and run well	Look and run well	Look and run well	Look and run well

The explanation from the table above is that the android application from the android version 5.1-10.0 can display its appearance well and run as expected.

5. CONCLUSIONS AND SUGGESTIONS

5.1 CONCLUSION

1. An android-based online booking information system application for mountain climbing in East Java has been created. In this information system there are two applications, namely web applications for admins and android applications for users.
2. This application uses the Shortest Processing Time (SPT) method on the web admin system, where this method is useful for sorting during validation.
3. An android-based online booking information system for this user provides facilities for making online bookings, seeing available quotas, confirming payments, making it easier for climbers to make online bookings.
4. This online booking information system provides a web application for admins, namely validating user data, confirming payments, adding available quotas, and also validating data that are actually valid.
5. Testing / testing carried out on an android-based online booking information system for mountain climbing in East Java uses the Black Box type of testing, where Black Box testing focuses on the functional requirements or requirements of the software created. Testing this online booking information system uses test data in the form of input data from the user, so that from the test it can be seen the response of the system when inputted wrong data and correct data.

5.2 SUGGESTION

Based on the results of research and discussions that have been carried out, there are several suggestions for further research, namely:

1. This online booking information system still does not support online payment systems. So payments still have to be made manually even though confirming the payment has gone online.
2. For admin users, the officers at the climbing post, it is necessary to maintain the system that has been made so that the system can be maintained properly.
3. For further improvements, when the admin adds quotas to be added directly in one to three months, not manually, that is, inputting quotas one by one each month.
4. The author hopes for other researchers to be able to develop and improve the application program system that has been designed. Both in terms of processes and designs that are still simple and the shortcomings that exist in this application.

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