

# Android Based 7 Summit Sembalun E-Ticket Application

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**Abstract** Sembalun Village, as one of the villages that already has infrastructure in the tourism sector, hopes to take advantage of developments in information technology for use in tourism services in the village. Sembalun Village, Sembalun District, East Lombok Regency has many tourist attractions, one of which is the 7 Summit Sembalun. According to ticket sales data for 2022, it is known that public interest is increasing over time, so an application is needed to manage ticket sales. E-ticket applications can help in this business sector by reducing transaction times faster, summarizing documents easily, providing detailed information, and minimizing errors when inputting data. The current ticket sales system for the 7 Summit Sembalun still uses the old or manual method as with conventional ticket sales. The method used in this research is the waterfall method. The waterfall method is a methodology for designing and building software systems; namely, the design process gradually flows downwards (similar to a waterfall). Based on the discussion explained in the previous chapters, through unit testing, it can be concluded that the "E-Ticket 7 Summit Sembalun Application Based on Android" can be concluded. This application makes it easy for users to book tickets without fear of running out of tickets. With this application, 7 Summit Sembalun climbers can now buy tickets without having to queue at the counter. With this application, the management of 7 Summit Sembalun can cut transaction times faster, summarize documents easily, provide detailed information, and minimize errors when inputting data.

**Keywords:** 7 Summit Sembalun E-Ticket Application Based on Android, Waterfall, 7 Summit.

## 1. Introduction

Currently, the use of technological developments is increasingly rapid, as well as information technology continues to develop and change people's habits towards the digital era so that various jobs are greatly facilitated for people. Today's smartphones are not just a communication tool; there are many uses for smartphones today, ranging from business, games, payments, and so on. These technological developments can change people's lifestyles in all fields, such as culture, economy, social, and education. Sembalun Village, as one of the villages that already has infrastructure in the tourism sector, hopes to take advantage of developments in information technology for use in tourism services in the village. Sembalun Village, Sembalun District, East Lombok Regency has many tourist attractions, one of which is 7-Summit Sembalun. According to ticket sales data for 2022, it is known that public interest is increasing over time, so an application is needed to manage ticket sales. E-ticket applications can help in this business sector by reducing transaction times faster, summarizing documents easily, providing detailed information,

and minimizing errors when inputting data. The current Sembalun 7-Summit ticket sales system still uses the old or manual method as with conventional ticket sales.

Starting with this background, this research was carried out to build an application that can help sell tickets. In this case, researchers built an Android-based application that can make it easier to sell tickets to buyers or consumers through an Android-based mobile application. Making this Android-based e-ticket application is a solution to the problems above. It is hoped that this application will make management easier and specifically make ticket sales easier. In making this e-ticket application, the author used the Android Studio application.

Android Studio is an Integrated Development Environment (IDE) for Android application development, based on IntelliJ IDEA. Apart from being an IntelliJ code editor and powerful developer tools, Android Studio offers more features to increase your productivity when creating Android applications. This page contains a basic introduction to Android Studio features. For a summary of the latest changes, see the Android Studio release notes. By default, Android Studio will display your project files in the Android project view, a view organized by modules to provide quick access to your project's main source files. The structure of an Android project on disk is different from the flat representation.

To see the actual file structure of this project, select Project from the Project dropdown menu. You can also customize the project file view to focus on specific aspects of your application development. For example, selecting the Problems view of your project view will display links to source files that contain known coding and syntax errors, for example, a missing XML element closing tag in the layout file.

Based on the background of the problems above, I feel interested in conducting thesis research to help facilitate the ticket service process for the 7 Summit Sembalun tourist attraction. As well as providing solutions to deal with these problems by providing a proposal to build a ticket service application. By taking the theme of this thesis research with the title "Android Based 7 Summit Sembalun E-Ticket Application." With the hope that the management of 7 Summit Sembalun can provide good service by improving the quality of existing services.

## 2. Materials and Methods

Design Methodology Methodology is a unity of methods, procedures, work concepts, rules and postulates used by a science, art or other discipline (Jogiyanto, 2005). In developing the "7 Summit Sembalun E-Ticket Application Based on Android" a method is needed that will be used in developing this system. In this research, the author used the waterfall method. In developing this system, there are several stages that will be passed, starting from system requirements to the formal software testing stage. Most of the methodologies created are only intended for the system design stage, but many can also be used for the system analysis stage (Jogiyanto, 2005).

### 2.1. Needs Analysis

The requirements gathering process is carried out intensively so that the proposed new system can run well. The hardware and software requirements with minimum configuration are as follows:

#### a. Software Analysis

The software used to build the 7 Summit Sembalun Application is:

1. Firestore Database, which is a system database management service provided by Firebase.
2. Android operating system version 10 or later.
3. Visual Studio Code as Coding Editor.
4. Java Development Kit (JDK) version 11 or later.
5. Dart programming language.
6. Flutter framework version 3.
7. Android Software Development Kit (SDK) provided by Android Studio.

b. Hardware Analysis

1. 1 Laptop Lenovo T510
2. Intel Core i5 processor
3. 4GB Ram 4. SSD/HDD 128 storage
4. Keyboard
5. Original Android smartphone device.

2.1. Research Methods

The method used in this research is the waterfall method. The waterfall method is a methodology for designing and building software systems; namely the design process gradually flows downwards (similar to a waterfall)

1. Analysis (Needs Analysis)

The requirements gathering process is carried out intensively to specify software requirements in order to understand what kind of software users need.

2. Design (Design)

A multi-step process that focuses on the design of a software program, including data structures, software architecture, interface representation, and coding procedures.

3. Implementation (Coding)

The design must be translated into software; the result of this stage is a computer program according to the design that was created in the previous stage.

4. Testing

Testing focuses on the software, logically and functionally, to ensure that all parts have been tested. This is done to minimize errors and ensure the output produced is as desired.

5. Maintenance

It does not cover the possibility that software will experience problems when it has been sent to users due to errors appearing and not being detected during testing or the software having to adapt to a new environment. The support and maintenance **stages** can continue the development process starting from the analysis of specifications for changes to existing software. there is, but not to create a new program.

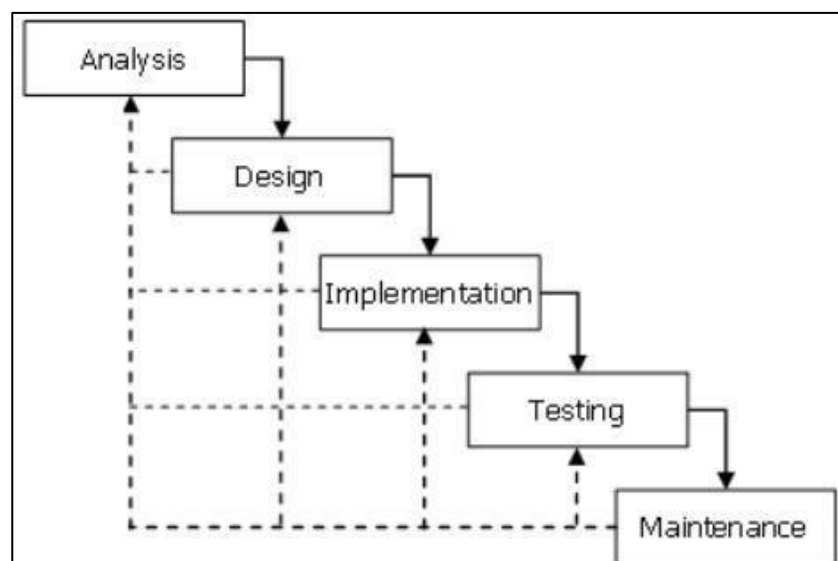


Figure 2.1 waterfall method

Thus, the waterfall method is considered a more suitable approach for new system creation projects and also software development with a low level of risk and a fairly long development time. But one of the most fundamental flaws is equating hardware and software development by eliminating changes during development. In fact, errors are discovered when the software is run, and changes will occur frequently. The advantage of using the waterfall method is that the process is more structured, which ensures that the software quality is good and maintained. From the user's side, it is also more beneficial because it can plan and prepare the necessary data and process needs from the start. Scheduling also becomes more certain because the schedule for each process can be determined with certainty. So that the target for completing program development can be clearly seen. With a definite sequence, you can also see the development of each stage in a certain way.

## 2.2. Data Collection

Methods In the process of preparing this research, data is needed as a source for writing and analyzing problems that will be discussed in the following chapters. The research methods used are:

### a. Observations

Observation is an investigation carried out systematically and deliberately using the senses, especially the eyes, regarding events that are taking place and can be analyzed at the time the event occurs.

### b. Interview

The interview method is a technique for collecting data and information. The use of this method is based on two reasons, first, with interviews the researcher can explore what actions are known and deep within the research subject, but what is hidden deep within the research subject. Second, what is asked of the informant can include things that are cross-temporal in nature, relating to the past, present and future.

### c. Literature

review Literature study is all efforts made by researchers to collect information that is relevant to the topic or problem that will be or is being researched. This information can be obtained from scientific books, research reports, scientific essays, theses and dissertations, regulations, decrees, yearbooks, encyclopedias, and other written and electronic

sources.

d. Time and Place of Research

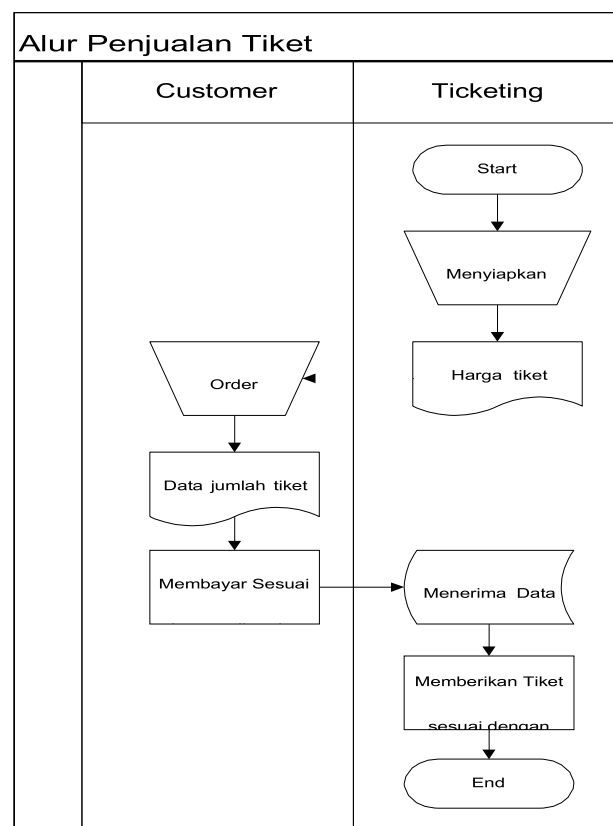
1. Research Time This research was carried out for 3 months, namely from April to June 2023.

2. Research Place This research was carried out in the management environment of 7 Summit Sembalun. East Lombok Province. West Nusa Tenggara.

2.3. System Design

a. Running System

The running system contains the results of analysis based on the survey results at the 7-Summit Sembalun. The running system describes the flow of documents related to ticket sales, which are carried out manually.

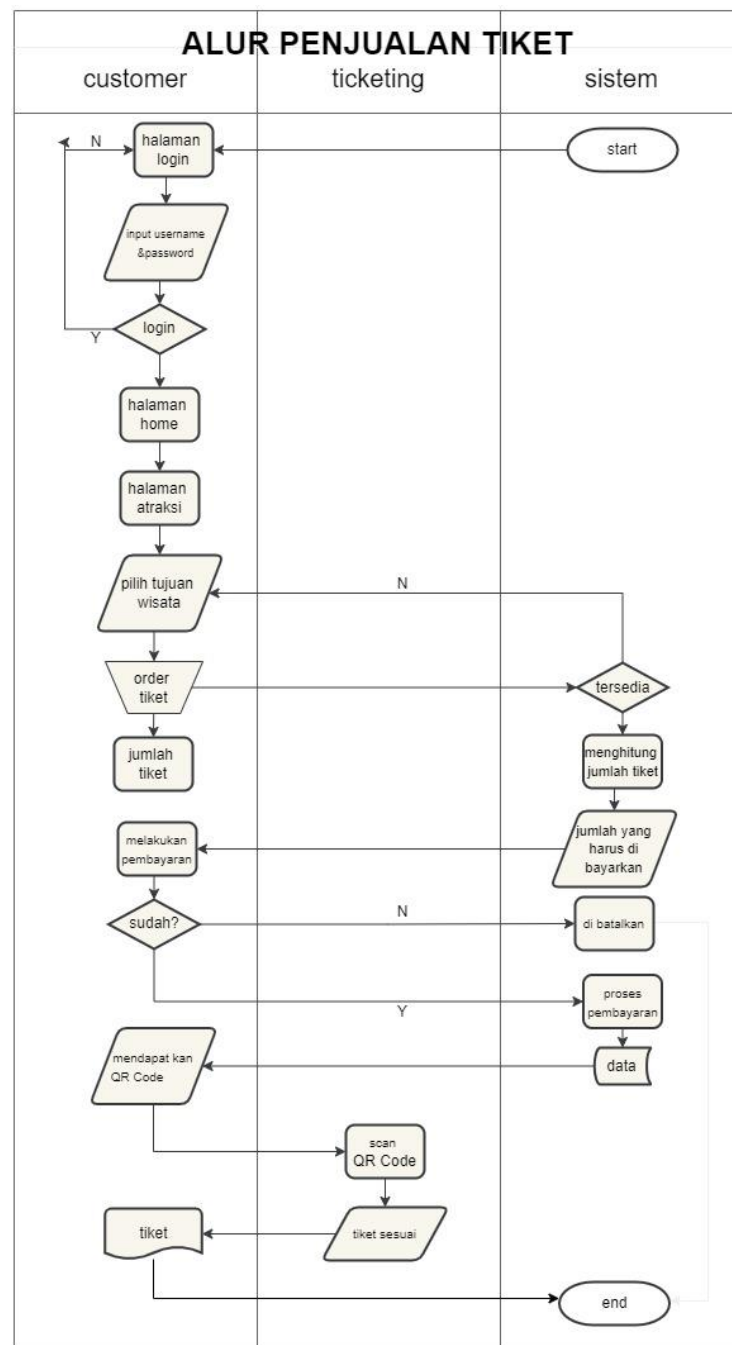


**Figure 2.2** Ticket Sales Process

Figure 2.2 explains the ticket sales process carried out by the 7-Summit Sembalun management. Sales are only carried out at the 7-Summit Sembalun location and served according to customer requests or orders.

b. Proposed System

The following is a proposed system that is used as a reference in working on the application. The ticket sales proposal system is depicted in Figure 3.2.



**Figure 2.3** Proposal System

Figure 3.2 explains the system flow in the e-ticket application. Starting with the customer placing an online order, entering the required data, then making an online payment to get a booking code. After getting the booking code, customers only need to show the code or print their own tickets at the location without queuing at the ticket sales counter.

### c. Use Case Diagram

### 3. Results

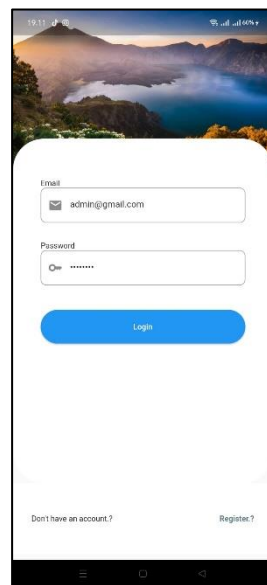
In this chapter, the author discusses processing results, which include manual calculation results and program explanations. The author displays a form of application that can be used, resulting from the system design and program design that were created in the previous chapter.

#### 3.1. System Design and Implementation

##### 3.1.1. Design Interface

##### 1. Login

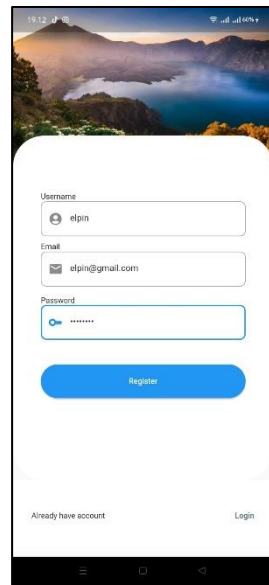
This login form will appear before going to the home menu display. This login form is the page used to enter the application. Admin enters username and password, then clicks the login button to enter the main menu. The login form design can be seen in Figure 3.1.



*Figure 3.1 Login page Design*

##### 2. Registration

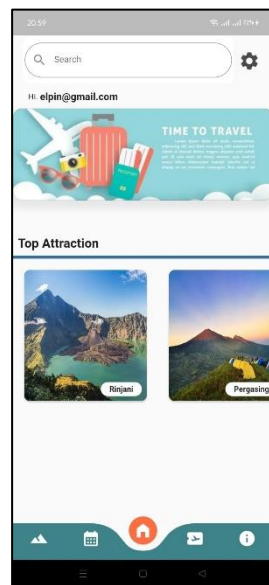
A registration form will appear when you click "Register Now" and will automatically be redirected to the registration menu to fill in the registration form. The design of the registration form can be seen in Figure 3.2.


 A mobile app registration form with a scenic mountain background. The form includes input fields for Username (containing 'elpin'), Email (containing 'elpin@gmail.com'), and Password (masked with dots). A blue 'Register' button is positioned below the password field. At the bottom, there are links for 'Already have account' and 'Login'.

*Figure 3.2 Registration Form Page Design*

### 3. Home

Home On the home page, users can search and see the latest events and attractions. On this page, if the user wants to explore events or attractions, go directly to the events and attractions page. The home page design can be seen in Figure 3.3.



*Figure 3.3 Home Page*

### 4. Events

On the event page, users can see the latest event information and past event information. The event page design can be seen in Figure 3.6.



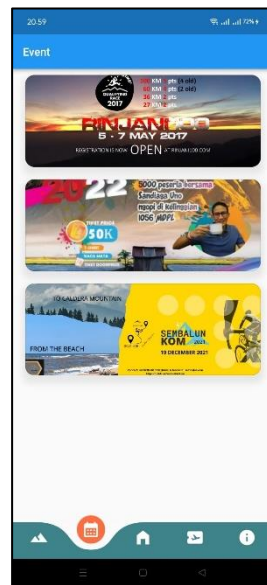


Figure 3.4 Event Page

## 5. Attractions

On the attractions page, users can see tourist information managed by 7 Summit Sembalun. The attraction page design can be seen in Figure 3.5.

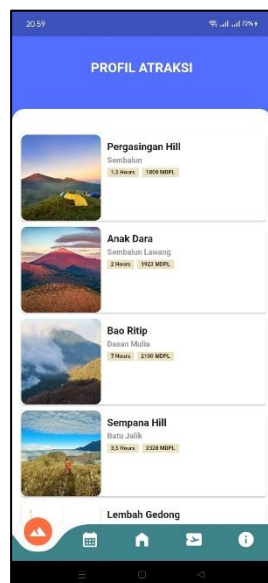
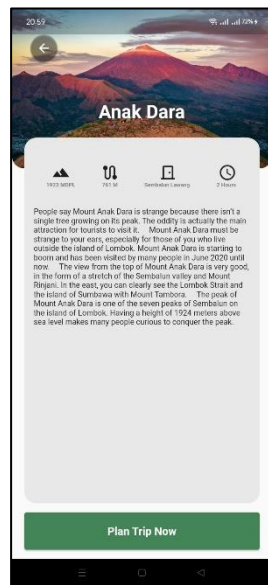


Figure 3.5 Attractions Page

## 6. Attraction Details

On the attraction details page, users can see more detailed tourist information and can book tickets. The attraction detail page design can be seen in Figure 3.6.



*Figure 3.6 Attraction Details Page*

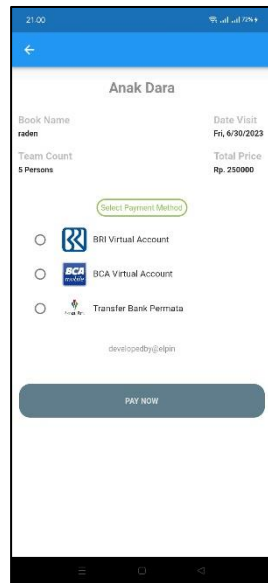
## 7. Ticket booking

form On the ticket booking page, the user fills in their name, address, cellphone number, check-in time, and number of tickets to book. The design of the ticket booking form page can be seen in Figure 3.7.

*Figure 3.7 Ticket Booking Page*

## 8. Payment Method

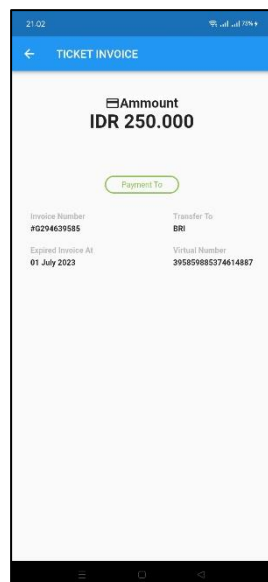
On the payment method page, users can choose the payment method they want to use. The payment method page design can be seen in Figure 3.10.



*Figure 3.7 Payment Method Page*

## 9. Bills

On the billing page, users must make payment first in order to get the ticket they want to use. The billing page design can be seen in Figure 3.8.



*Figure 3.8 Billing Page*

## 10. Tickets

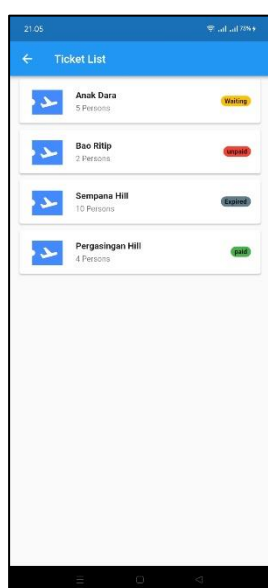
On the ticket page, users can see tickets that have been booked and can take screenshots to prevent lost tickets. The ticket page design can be seen in Figure 3.9.



*Figure 3.9 Ticket Page*

#### 11. Ticket List

On the ticket list page, this is done by the admin or counter guard. The design of the ticket list page can be seen in Figure 3.10.



*Figure 3.10 Ticket List page*

#### 12. About Application

On the application page, users can see about the application. Page design can be seen in figure 3.11.



*Figure 3.11 About Application page*

### 3.2. Figures, Tables and Schemes

**Table 1.**

| No | Pengujian         | Hasil        | Keterangan                                        |
|----|-------------------|--------------|---------------------------------------------------|
| 1. | Halaman Home      | [✓] Diterima | Halaman dapat diakses dengan baik dan jelas       |
|    |                   | [ ] Ditolak  | Halaman tidak dapat diakses dengan baik dan jelas |
|    | Tombol Bottom Bar | [✓] Diterima | Tombol bottom bar berfungsi dengan baik           |
|    |                   | [ ] Ditolak  | Tombol bottom bar berfungsi dengan baik           |
|    | Menu Event        | [✓] Diterima | Halaman dapat diakses dengan baik dan jelas       |
|    |                   | [ ] Ditolak  | Halaman tidak dapat diakses dengan baik dan jelas |
|    | Menu Kriteria     | [✓] Diterima | Halaman dapat diakses dengan baik dan jelas       |
|    |                   | [ ] Ditolak  | Halaman tidak dapat diakses dengan baik dan jelas |
|    | Menu Tentang      | [✓] Diterima | Halaman dapat diakses                             |

|    |                     |              |                                                   |
|----|---------------------|--------------|---------------------------------------------------|
|    |                     |              | dengan baik dan jelas                             |
|    |                     | [ ] Ditolak  | Halaman tidak dapat diakses dengan baik dan jelas |
|    | Tombol Logout       | [✓] Diterima | Tombol seting berfungsi dengan baik               |
|    | Tombol Logout       | [ ] Ditolak  | Tombol tidak logout berfungsi dengan baik         |
| 2. | Halaman Login       | [✓] Diterima | Halaman dapat diakses dengan baik dan jelas       |
|    | Halaman Login       | [ ] Ditolak  | Halaman tidak dapat diakses dengan baik dan jelas |
|    | Input Username      | [✓] Diterima | Teks username dapat diinput                       |
|    | Input Username      | [ ] Ditolak  | Teks username tidak dapat diinput                 |
|    | Input Password      | [✓] Diterima | Teks password dapat diinput                       |
|    | Input Password      | [ ] Ditolak  | Teks password tidak dapat diinput                 |
|    | Tombol Login        | [✓] Diterima | Tombol login berfungsi dengan baik                |
|    | Tombol Login        | [ ] Ditolak  | Tombol login tidak berfungsi dengan baik          |
| 3. | Menu Atraksi        | [✓] Diterima | Halaman dapat diakses dengan baik dan jelas       |
|    | Menu Atraksi        | [ ] Ditolak  | Halaman tidak dapat diakses dengan baik dan jelas |
|    | Tombol Readmore     | [✓] Diterima | Tombol login berfungsi dengan baik                |
|    | Tombol Readmore     | [ ] Ditolak  | Tombol login tidak berfungsi dengan baik          |
|    | Tombol Boking Tiket | [✓] Diterima | Tombol boking tiket berfungsi dengan baik         |
|    | Tombol Boking Tiket | [ ] Ditolak  | Tombol boking tiket tidak berfungsi dengan baik   |
|    | Input Nama          | [✓] Diterima | Teks nama dapat diinput                           |

|    |                          |              |                                                      |
|----|--------------------------|--------------|------------------------------------------------------|
|    |                          | [ ] Ditolak  | Teks nama tidak dapat diinput                        |
|    | Input Alamat             | [✓] Diterima | Teks alamat dapat diinput                            |
|    |                          | [ ] Ditolak  | Teks alamat tidak dapat diinput                      |
|    | Input Nomor Hp           | [✓] Diterima | Teks nomor hp dapat diinput                          |
|    |                          | [ ] Ditolak  | Teks nomor hp dapat diinput                          |
|    | Input Waktu Cek In       | [✓] Diterima | Teks waktu cek in dapat diinput                      |
|    |                          | [ ] Ditolak  | Teks waktu cek in tidak dapat diinput                |
|    | Input Jumlah Tiket       | [✓] Diterima | Teks jumlah tiket dapat diinput                      |
|    |                          | [ ] Ditolak  | Teks jumlah tiket tidak dapat diinput                |
|    | Tombol Boking            | [✓] Diterima | Tombol boking berfungsi dengan baik                  |
|    |                          | [ ] Ditolak  | Tombol boking tidak berfungsi dengan baik            |
|    | Tombol Metode Pembayaran | [✓] Diterima | Tombol metode pembayaran berfungsi dengan baik       |
|    |                          | [ ] Ditolak  | Tombol metode pembayaran tidak berfungsi dengan baik |
|    | Tombol Bayar             | [✓] Diterima | Tombol bayar berfungsi dengan baik                   |
|    |                          | [ ] Ditolak  | Tombol bayar tidak berfungsi dengan baik             |
| 4. | Menu Event               | [✓] Diterima | Tombol Event berfungsi dengan baik                   |
|    |                          | [ ] Ditolak  | Tombol Event tidak berfungsi dengan baik             |
| 5. | Scan Qr Code             | [✓] Diterima | Halaman dapat diakses dengan baik dan jelas          |

|  |  |            |                                                   |
|--|--|------------|---------------------------------------------------|
|  |  | [] Ditolak | Halaman tidak dapat diakses dengan baik dan jelas |
|--|--|------------|---------------------------------------------------|

T

Tabel 2. Pengujian Kuisioner

| No                     | PERTANYAAN                                                                        | JAWABAN |   |   |
|------------------------|-----------------------------------------------------------------------------------|---------|---|---|
|                        |                                                                                   | 1       | 2 | 3 |
| a. Dari Segi Manfaat   |                                                                                   |         |   |   |
| 1.                     | Aplikasi ini dapat meminimkan waktu dalam penjualan tiket.                        |         |   | ✓ |
| 2.                     | Aplikasi ini dapat memudahkan pengelola dalam melakukan penjualan tiket.          |         |   | ✓ |
| 3.                     | Aplikasi ini dapat membantu dan memudahkan pengelola dalam melakukan pengearsifan |         | ✓ |   |
| b. Dari Segi Kemudahan |                                                                                   |         |   |   |
| 1.                     | Aplikasi ini sangat mudah digunakan                                               |         |   | ✓ |
| 2.                     | Fitur dalam aplikasi ini sudah lengkap                                            |         | ✓ |   |
| 3.                     | Tampilan halaman aplikasi ini sangat bagus/menarik                                |         | ✓ |   |



|                       |          |          |          |
|-----------------------|----------|----------|----------|
| <b>Jumlah Jawaban</b> | <b>0</b> | <b>2</b> | <b>4</b> |
|-----------------------|----------|----------|----------|

#### 4. Discussion

The "7 Summit Sembalun E-Ticket Application Based on Android" has very limited functions; to build a good application, of course, it needs to be developed both in terms of benefits and working system. Here are some suggestions for those who want to develop applications that might add value to the application later.

a. This application does not provide a geolocation or Google Maps feature; it is recommended for future researchers to add a geolocation feature.

#### 5. Conclusions

Based on the discussion explained in the previous chapters, through unit testing, it can be concluded that the "7 Summit Sembalun E-Ticket Application is Android-based" can be concluded as follows:

a. This application makes it easy for users to book tickets without fear of running out of tickets.

b. With this application, 7 Summit Sembalun climbers can now buy tickets without having to queue at the counter.

c. With this application, the management of 7 Summit Sembalun can cut transaction times faster, summarize documents easily, provide detailed information, and minimize errors when inputting data.

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