1. Korespondensi Penulis
   a. Pengiriman Naskah

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Andri Sahata Sitanggang <andri.sahata@email.unikom.ac.id>

ARTICLE
1 message

Andri Sahata Sitanggang <andri.sahata@email.unikom.ac.id>   Wed, Aug 15, 2018 at 10:03 PM
To: Editorial Team <jardcs.editor@gmail.com>

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   b. Penerimaan Naskah

15/8/2018   Universitas Komputer Indonesia Mail - [JARDCS] [24255] Acknowledge Submission

Andri Sahata Sitanggang <andri.sahata@email.unikom.ac.id>

[JARDCS] [24255] Acknowledge Submission
1 message

Editorial Team <jardcs.editor@gmail.com>   Thu, Aug 15, 2018 at 10:10 PM
To: andri.sahata@email.unikom.ac.id
Cc: Aprianti Putri Sujana <aprianti.putri.sujana@email.unikom.ac.id>

Dear Aprianti Putri Sujana, Andri Sahata Sitanggang

We are happy to inform you that after positive referee reports your paper
"Application of E-Transport Through Android-Based Tiketing Applications
in Krakaline Shuttle Bandung" has been accepted for publication in Journal
of Advanced Research in Dynamical and Control Systems (JARDCS).

Please send by Email the Latex or Word file of the final version of your
paper according to the Journal format as soon as possible.

Your cooperation is greatly appreciated.
Yours sincerely,

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c. Review Naskah

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[JARDCS] Revision
1 message

Editorial Team<jardcs.editor@gmail.com>   Mon, Sep 10, 2018 at 09:16 PM
To: Andri Sahata Sitanggang <andri.sahata@email.unikom.ac.id>

Dear Apranti Putri Sujana, Andri Sahata Sitanggang, Andino Maseleno:

We have reached a decision regarding your submission to Journal of Advanced
Research in Dynamical and Control Systems(JARDCS), "Application of E-Transport
Through Android-Based Tiketing Applications in Krakaline Shuttle Bandung"

Our decision is to: Revision

Please revise this paper until Sep 16, 2018.
Journal of Advanced Research in Dynamical and Control Systems(JARDCS).

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Andri Sahata Sitanggang <andri.sahata@email.unikom.ac.id>   Sat, Sep 15, 2018 at 3:40 PM
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e. Acceptance Letter

M Gmail   **Andri Sahata Sitanggang <andri.sahata@email.unikom.ac.id>**

(Acceptance Letter)

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To: " Andri Sahata Sitanggang andri.sahata@email.unikom.ac.id

Thank You For Making Revisions To Articles That Have Been Sent To Our Journal.
We Attach The Following Acceptance Letter File.

Sincerely,
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USA

1 Attachments

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Journal of Advanced Research in Dynamical and Control Systems
ISSN 1943-023X

Date: 20-December-2018

Dear Aprianti Putri Sujana, Andri Sahata Sitanggang, Andino Maseleno:

We glad to inform you that your research manuscript entitled "**Application of E-Transport through Android-Based Ticketing Applications**" has been accepted for publication in Journal of Advanced Research in Dynamical and Control Systems (Scopus Indexed Journal). Your paper will be published in Volume 10, Special Issue-13, December 2018.

This letter is official confirmation of acceptance of your research paper.

Yours Sincerely,

Editorial Office

Journal of Advanced Research in Dynamical and Control Systems

f. Publish Artikel

Andri Sahata Sitanggang <andri.sahata@email.unikom.ac.id>

[JARDCS] Editor Decision
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To: Andri Sahata Sitanggang<andri.sahata@email.unikom.ac.id>

Dear Aprianti Putri Sujana, Andri Sahata Sitanggang, Andino Maseleno.
We are happy to inform you that after positive referee reports your paper
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Krakaline Shuttle Bandung " has been accepted for publication in Journal of
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Your cooperation is greatly appreciated.

Yours sincerely,
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Application of E-Transport through Android-Based Ticketing Applications

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Abstract-Application is a software consisting of input, process and output to produce information containing functions in providing solutions to problems that occur in society. The application that will be applied to the Krakaline Shuttle is an android based ticketing application and using the prototype development method, where the application is made through 3 stages, namely first identifying the needs of the society, the second, building the prototype, and the third testing the prototype. This application consists of processing ticket reservations, schedules, payments, drivers, fleets and reports. Android-based ticketing application aims to make it easier for society to use travel services at Krakaline Shuttle.

Keywords: Application, Reservation, Ticketing.

1. Introduction

Why are Android-based smartphones more popular than ordinary cellphones? This is because the needs of the people who are always developing and require technology to adjust it so that the use of smartphones is not only limited to the use of communication which is only limited to the telephone or via message/text. The word mobile turns into a smartphone when functions or uses have a big impact, such as being used for Internet connections, taking pictures /photos, listening to music, entertainment and even typing like a computer. The following are data on smartphone and cellphone users in Indonesia in 2016 in table 1.

Table 1: Smartphone and Non Smartphone Users

Age	Smartphone	Non smartphone	Both
9-15 Years	77.00%	44.30%	21.30%
16-25 Years	79.20%	44.60%	23.80%
26-35 Years	68.60%	53.10%	21.70%
36-45 Years	57.90%	63.00%	20.90%
46-55 Years	54.10%	61.20%	15.30%
56-65 Years	34.30%	72.90%	7.10%

Source: A survey of indicators of ICT in Households and individuals of the year 2016, Balitbang SDM

It can be ascertained that every year the number of smartphone users will increase. Thus, society activities more use smartphones. This activities like buying and selling transactions, social networking, sending and receiving data, entertainment and more. With the condition of the society, business people trying to be able to create services in the form of applications that can be accessed with a smartphone. One of the business actors is a travel service provider, the problem that occurs is how to provide travel services in the form of services specifically for booking travel services through the application. Society will be more interested in using travel services through applications in smartphones than if they have to come directly to the travel location. This study aims to help travel business people in making applications called ticketing information systems based on android applications. One application will be carried out at the Krakaline Shuttle, located on Jl. Dipati Ukur, LebakGede, Coblong, Bandung City, West Java 40132. The problems that occur are the absence of applications, which causes difficulties in booking tickets, processing departure schedules, fleet data processing, driver data processing and report processing. The presence of this application will also make it easier for people to make reservations/cancellations online, manage customer satisfaction, pay, and access various facilities provided by the travel. Therefore applications become very important in improving services, information, revenue for travel service owners.

A. Formulation of the problem

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To make it easier to describe the functions contained in an Android-based ticket application, then the problem formulation is given as follows:

1. How to make travel services to the public as users include services, ticket reservations, cancellations, pay-ments and improving Krakatau Shuttle services through customer satisfaction data in the application.
2. **How to provide facilities to facilitate travel data manage administration includes services such as customer order data processing, driver data management, fleet data processing, travel schedule processing, report processing.**

2 The Material and Method

2.1. Material

In building this application, a theoretical study is needed to explain the components in an android-based ticketing application.

2.1.1. Application

According to Nazrudin Safaat H, the application is a subclass of computer software that utilizes the ability of the computer directly to perform a task needed by the user [1].
An application is a set of special instructions on a computer that are designed so that we can complete certain tasks [2].

2.1.2. Ordering Information System

Reservation information system is an information system used to assist users in managing the process of data related to reservations (orders). With the ordering information system, service providers can more easily serve consumers and improve service quality which leads to increased customer satisfaction of users of reservation services and increased business income for reservation service providers (companies or organizations)[3].

2.1.3. System

The system that is a combination of a bunch of components that both human and/or non-human that mutually support each other and arranged into a unified whole to achieve a shared goal or purpose, final results[6].
System is a framework that organizes human resources and computer in changing the input into the output function for an enterprise

2.1.4. Information

Information according to the data that has been organized so that gives meaning and value to the recipient. There is information that the data is processed into a form that is more useful and more meaningful for those who receive it. We can say that data is the raw material, while the information is material or material that has been so ready to use, so the source of information is the data[7].

2.1.5. Technology

Technology is a function that has the potential to increase efficiency and effectiveness in various fields is also a great opportunity to improve the needs of the community in the form of services [8].

2.1.6. Android

Android is an operating system for mobile device based Linux which includes operating system, middle-ware and application. The android application who developed using Java and easily scaled them out to a new platform[9]

2.1.7. Mobile

Mobile is a portable electronic device that functions as a telephone, which can move in a large area. The word mobile means moving [1].
Mobile according to Rangsang Purnama is a term for applications that run on mobile devices. By using mobile, it makes it easy to do various kinds of activities ranging from entertainment, buying and selling transactions, studying, doing office work, browsing and others [4].

2.1.8. Mobile Application

The following types of mobile applications are often used by the public[1]
1. **Messaging**
   Example : SMS, MMS, Instant Messaging.
2. **Mobile transaction**
   Example: SMS alert, MMS alert, report analysis.
3. **Mobile workplace**
   Example: Email, Calendar, CRM, Instant Messaging
4. **Mobile music and videos**
   Example: Monotone, RTTTL, Midi, mp3, wav, mp4, screensaver, picture message, A2DP.
5. **Mobile games**
   Example: Monochrome Games, Java Games, Symbian Games.

2.1.9. Mobile Application Area

To give an explanation about the usability of mobile applications. Give the function [1].
   a) **Business-to-Customer**
      1. **Personalize e-commerce applications. Example: Comparing the price of goods.**
      2. **Digital goods business. Example: Selling Java MIDP, Video, MP3, ringtone applications.**
      3. **Improvised existing services. Example: Marketing according to user profile.**
   b) **Business-to-Business**
      1. **Mobile supply chain management.**
      2. **Mobile e-commerce.**
   c) **Business-to-Employee**
      Mobile Sales Marketing.
   d) **Government and Public services**
      1. **The police checks the SIM data of the car owner.**
      2. **The nurse checks the patient's medical data.**

2.2. Method

In this study, it will produce an android-based ticketing application on Krakaline Shuttle travel services. Application made using prototype development [5]. The prototype development method is a method that pays more attention to the needs of the user system. Overall, it will refer to user satisfaction. The following is a picture that describes researchers in building ticketing applications.
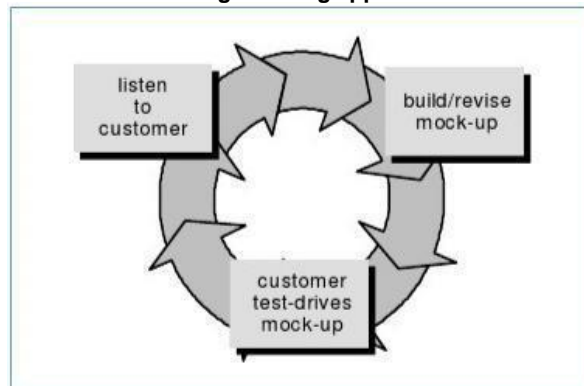

Fig. 2: Roadmap Research

The prototype development method consists of three stages, namely gathering needs, system design and testing of the results that have been made. These processes can be explained as follows:

1) **Listen to customer**
   The prototype development method starts with gathering needs. Developer and customers meet and define all objectives for making software, needs identification, interview, observation and collecting documents [10– 12].

2) **Build/revise mock-up.**
   The next process is application design, where this process represents every aspect of the software that can be seen by the user (form of input, form of output and functional system).

3) **Customer test drives mock-up**

The prototype is evaluated by the customer/user to improve the functionality of the software being built. This is done so that the application can be applied without any functional errors [13-15].

3. Result and Discussion

The application that is built provides functions to the society as users of travel services on the Krakaline Shuttle and to travel service providers Krakaline Shuttle. Functions can be divided into 2 parts, frontend and backend.

3.1. Frontend

This section has functions including :
1) Register
   Stages Consist of :
a. Customers choose or press the "Register" button.
b. Then the system will display a register page.
c. Passengers fill in the input in the register form.
d. The system validates input.
e. The customer presses the "Register" button.
f. The system performs storage through the database.
g. The system will display the main page.
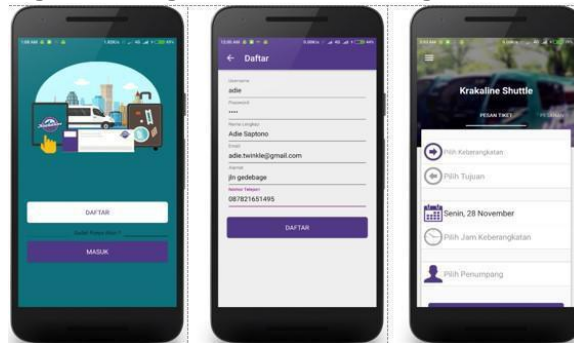The process of describing these stages can be seen in Figure 2.

Fig. 2.: The Registration Process

2) Login Process
   Stages consist of:
a. The customer enters a username and password.
b. The customer presses the "Enter" button.
c. The system authenticates whether the input data is valid by checking the user table and displaying the application's main page
For the application of these functions can be seen in figure 3

Fig. 3: Login Form

3) Ticket Booking.

   Stages consist of :

a. **The system checks the login status.**
b. **The customer selects departure, destination, number of passengers and date of departure.**
c. **Customers choose departure hours.**
d. **The system retrieves data such as the date and time of the customer's departure. And the system will check whether customer choices are still available or not.**
e. **The system displays a list of available departure hours.**
f. **Customers select the departure hour list provided.**
g. **The customer presses the "Order Ticket" button**
h. **The system displays a select seat page.**
i. **Customers choose seats according to the number of passengers and press the check button.**
j. **The system displays an order confirmation page.**
k. **The customer presses the "ORDER NOW" button.**
l. **The system displays alert dialog terms and conditions.**
m. **The customer presses "The Agree" button.**
n. **The system saves input data into the database with the status "not yet paid and displays the order page successfully.**

In figure 4 the ordering process stage 1 explains how the customer chooses the ticket order by choosing the destination of departure and date of departure
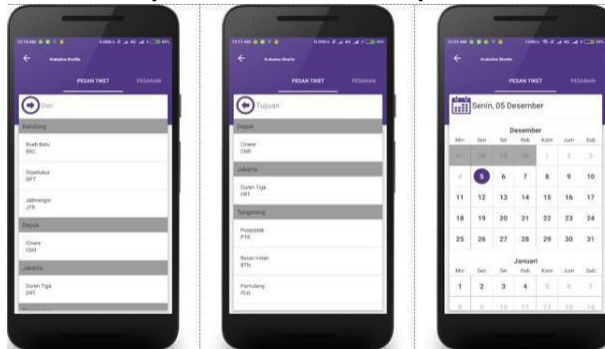

Fig. 4: Ticket Booking Process 1

In figure 5 ordering process stage 2 explains how the customer chooses the departure hour, who made the order, and confirms the ticket booking.
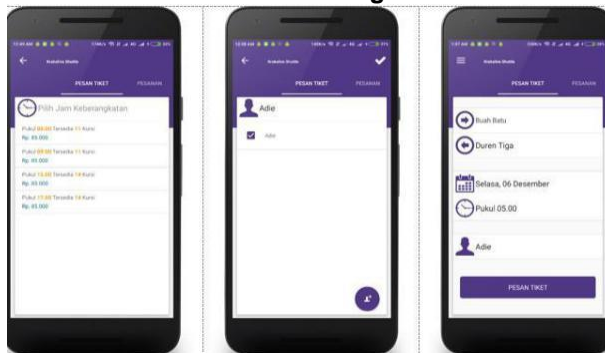

Fig. 5: Ticket Booking Process 2

In figure 6 explains that the customer will choose a seat based on the amount that has been ordered, the customer looks back on the order that has been made, by reading the terms and conditions. After the customer agrees, the order has been successfully carried out.
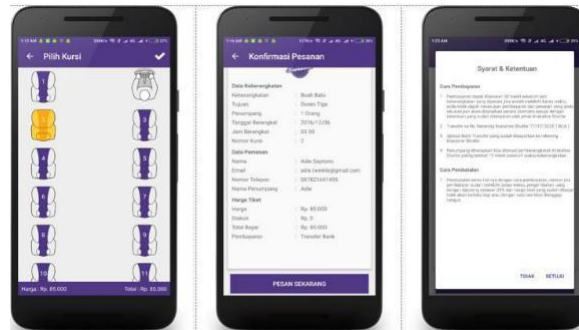
Fig. 6:Ticket Booking Process 3

4) Payment

Stages consist of :

a. **The system checks the login status.**
b. **Customers choose the order tab.**
c. **The system displays an order page.**
d. **Customers choose a list of items that have a status of "not paid".**
e. **The system displays the order details page.**
f. The customer presses the floating action button then presses the labeled button "Payment Confirmation".
g. **The system displays a payment confirmation page.**
h. **The customer uploads the proof of transfer by pressing the "Select The Picture button" .**
i. The system stores proof of transfer and changes the order status "unpaid" to "pending" on the database.
j. **The system displays a successful payment confirmation alert.**
k. **Display the "order" tab with the selected item list being "pending".**

Following is the ticket payment process in figure 7
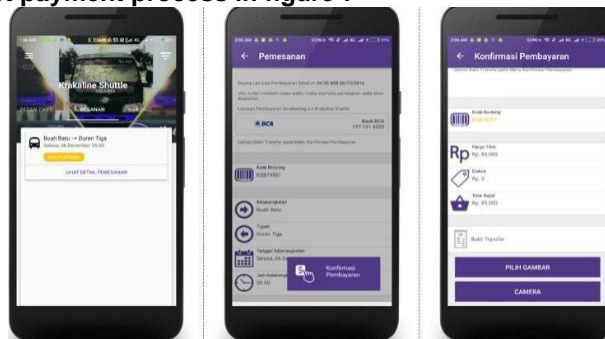

Fig. 7: Ticket Payment Process

In Figure 7, the customer must make a payment for the order that has been made, and the customer prepares proof of payment for the ticket booking.
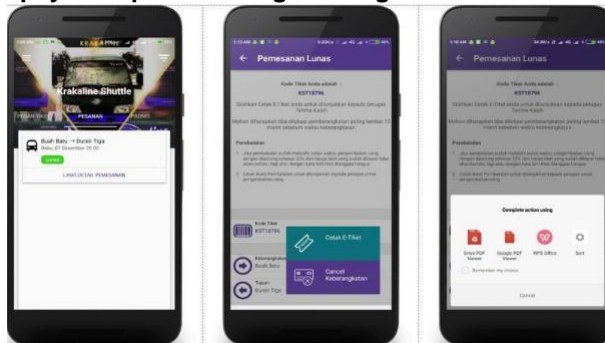Following is the ticket payment process stage 2 in figure 8

Fig. 8: Ticket Cancellation Process 1

*Corresponding Author Aprianti Putri Sujana, Email id : aprianti.putri.sujana@email.unikom.ac.id

In figure 8 explains that when a customer has made a payment, the system will show the payment status to be paid off. So that customers will get proof of payment in the form of printable PDF documents.

5) Ticket cancellation
Stages consist of :
a. The system checks the login status.
b. The customer selects the "order" tab and selects a list of ordered items that are "paid off".
c. The system displays a full order detail page
d. The customer presses the floating action button and then presses the cancel button.
e. The system displays a dialog alert "are you sure to cancel this ticket".
f. The customer presses the "yes" button.
g. The system changes the order data in the database and displays an alert dialog ordering successfully canceled
h. The system displays the "order" tab and displays a list of items that change to "Cancel".
Following is the process the customer will make a departure cancellation of the ticket that has been ordered, can be seen in figure 9.
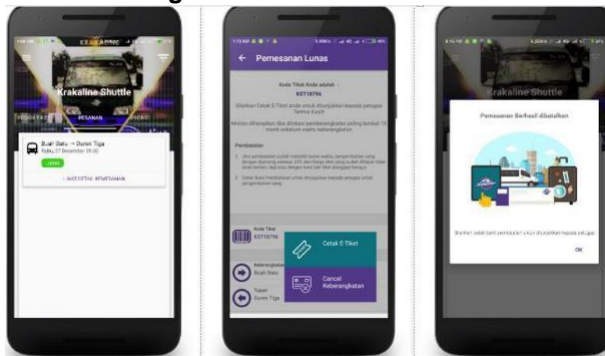

Fig. 9: Ticket Cancellation Process 1

In figure 9 explains the customer chooses the order that has been ordered, and cancels the order by the customer with pressing the "cancel keberangkatan". After that, the customer has successfully canceled the order.

The following is the process of the customer going to print the proof if he has canceled the ticket booking, can be seen in figure 10.
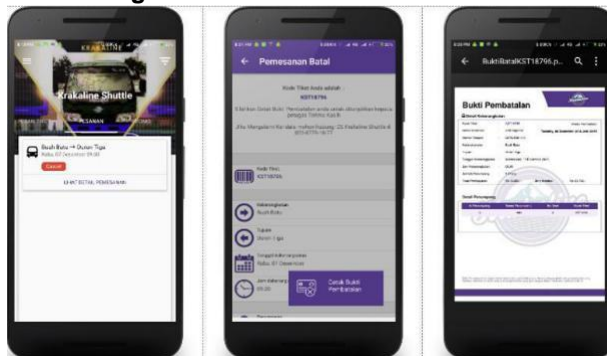

Fig. 10: The Process of Print Proof of Ticket Cancellation.

6) Customer Satisfaction
Stages consist of :
a. The system checks the login status.
b. The customer selects a complaints menu in the navigation bar.
c. The system displays a complaint page.
d. The customer presses the floating action button and then presses "the complaint button".
e. The system displays a page for complaints.
f. The customer fills out the complaint title and then presses the "add button".
g. The input data is stored in the database and displays a complaint page with a list of the complaint title items that have been made.
h. The customer chooses a list of items for the title of the complaint that has been made.
i. The system displays a chat page.
j. The customer fills the message and then press the send button.

k. The system stores messages made into the database.
Customers will complain about the services provided by Krakaline Shuttle, can be seen in Figure 11.
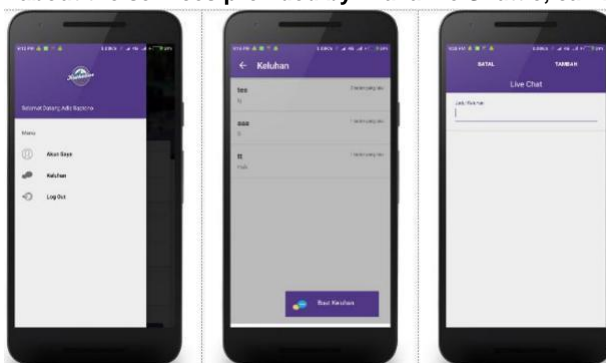

Fig. 11: Customer Complaint Process

Figure 11 describes the facilities obtained by customers through the complaints menu, customers can convey directly to Krakaline Shuttle for dissatisfaction with the services provided.

3.2. Backend

1) Management of Customer Order
   Data. Stages consist of :
a. The system checks the login status.
b. The system checks if there is an unverified order, the system displays a notification "The buyer has made a payment, please verify immediately".
c. CSO presses the verification button on the notification menu.
d. System Displays the order detail page.
e. CSO Selects the labeled status "Paid Off" or "No valid.
f. CSO presses the process button.
g. The system changes the order status with the selected status into the database, and sends a notification to the buyer.
h. The system displays the order page and displays a notification "The ordering data was successfully confirmed".
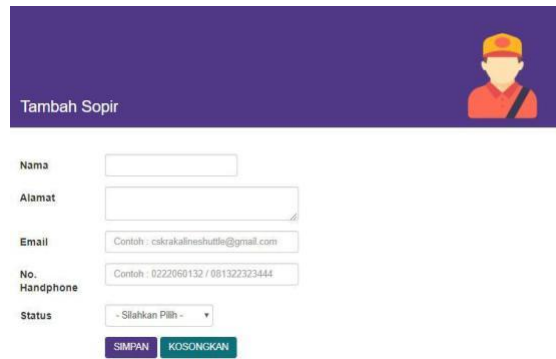The following is an implementation of the application and can be seen in Figure 12.

Fig. 12: Order Management

2) Management of Driver
   Data Stage consist of :
a. The system checks the login status.
b. CSO selected the driver's menu.
c. The system displays the driver's page
d. The CSO fills in the fields and then press the save button
e. The system checks valid whether or not the input data and stores the input data into the database then displays a notification "Driver data saved successfully" and displays data in the driver table.
The process of managing driver data can be seen in figure 13.

1793

Fig. 13: Management of Driver Data

3) Management of Fleet
   Data. Stages consist of :
a. **The system checks the login status.**
b. **CSO selected the fleet menu.**
c. **The system displays the fleet page.**
d. **The CSO fills in the fields and presses the save button**
e. **The system checks valid whether or not the data input and stores input data into the database then displays a notification "Fleet data successfully saved" and displays data in the fleet table.**
The process above can be seen in Figure 14.

Fig. 14: Management of Fleet Data.

4) Management of Travel
   Schedule. Stages consist of :
a. **The system checks the login status.**
b. **CSO selected the schedule menu.**
c. **The system displays a schedule page.**
d. **The CSO fills in the fields and then press the save button.**
e. **The system checks whether the input data is valid and saves input data into the database then displays a notification "Schedule data saved successfully" and displays data in the schedule table.**
f. **If there are CSO who want to create a promo service, the CSO Clicks on the "Promo Departure Schedule" checkbox.**
g. **The system displays the promo field schedule for departure.**
h. **CSO fills out the promo field on the departure schedule and then press the labeled button "Save".**
i. **The system saves input data to the database and sends promo notifications to all clients and displays notifica-tions "Schedule data has been saved successfully". The CSO process managing the departure schedule can be seen in Figure 15.**

Fig. 15: Departure Schedule.

5) Report Management

　　Stages consist of :

a. **The system checks the login status.**
b. **CSO chooses report options as needed and then selects the start date and end date period. After that the CSO presses the submit button.**
c. **The system checks whether there is data input with the one in the database and displays the selected report table.**
d. **CSO customers press the print button.**
e. **The system displays a print preview in pdf format.**
f. **The CSO prints a report and the CSO presents a report to the Manager.**
The report management process is shown in Figure 16.

Fig. 16: Report Management.

3.3. Implementation

　　Implementation is a stage of application or application of the system that has been made, so that it can be directly used in accordance with the purpose of making the application.

3.3.1.　Implementation of Software

　　The software used in making the ticket reservation applications at Krakaline Shuttle among others :
a. **Microsoft Windows 10.**
b. **Android Studio 2.1.2.**
c. **PHP 5.5.9.**
d. **XAMPP 3.2.1.**
e. **Notepad++.**
f. **Postman.**
g. **Connectify.**

1795

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h. Google API Library.
i. Genymotion.

3.3.2. Implementation of Hardware

The hardware used in making the ticket reservations application at Krakaline Shuttle among others:
a. Processor Intel® Core™ i3 - 2367M CPU@ 1,40 GHz.
b. Memory 6GB or more.
c. Hard disk 500GB or more.
d. Video Memory 2048 MB DDR3.
e. Mouse, keyboard, monitor, and printer.
f. Device Android minimal version OS 4.1 (Jelly Bean).
g. Application PDF for Android.
h. Google Play Service Latest Update for Android.

4. Conclusion

The application made provides a function directly to the public in using travel services at Krakaline Shuttle, which facilitates online ticket purchase transactions and helps Krakaline Shuttle in improve services through an Android-based ticketing application

Acknowledgment

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