



UNIVERSITAS  
**MERCU BUANA**

**THE ANDROID-BASED APPLICATION FOR GENERAL  
INFORMATION AT TERMINAL 3 SOEKARNO-HATTA  
INTERNATIONAL AIRPORT INDONESIAN**

*TUGAS AKHIR*

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**PROGRAM STUDI TEKNIK INFORMATIKA  
FAKULTAS ILMU KOMPUTER  
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**JAKARTA**

**2019**



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INFORMATION AT TERMINAL 3 SOEKARNO-HATTA  
INTERNATIONAL AIRPORT INDONESIAN**

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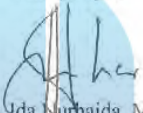
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Di Terminal 3 Bandara Internasional Soekarno-Hatta, penyampaian informasi saat ini masih bersifat konvensional, yakni dengan menampilkan informasi pada layar 55” yang ditempatkan di area Bandara yang biasa disebut dengan istilah Digital Signage. Dalam mendukung era digitalisasi, penyampaian informasi dapat memanfaatkan teknologi internet. Internet dapat membantu pengguna mempermudah dalam mendapatkan informasi. Aplikasi informasi yang dibuat memanfaatkan internet untuk memberikan informasi kepada pengguna, dibuat untuk membantu sistem yang ada dalam memberikan informasi kepada pengguna dan juga sebagai inovasi digital dalam memberikan informasi. Terdapat beberapa informasi pada aplikasi seperti jadwal penerbangan, daftar maskapai, serta informasi tenant-tenant yang berada di Bandara. Aplikasi ini menggunakan system cloud computing untuk memudahkan dalam melakukan perubahan informasi Bandara, sehingga para pengguna mendapatkan informasi secara real-time.

Kata kunci: Digital Signage, Aplikasi Mobile, Cloud Computing

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## ABSTRACT

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*At Terminal 3 of Soekarno-Hatta International Airport, the present information is still conventional, by displaying the information on the screen 55 "which is placed in the area of the airport commonly referred to as the term Digital Signage. In support of the era of digitalization, information delivery can utilize Internet technology. The Internet can help users to easily get information. The application of information created utilizing the Internet to provide information to the user, is created to assist the existing system in providing information to users and also as a digital innovation in providing information. There are some information on applications such as flight schedules, airline listings, and tenant-tenant information located at the airport. The application uses a cloud computing system to facilitate the change of airport information, so users get real-time information.*

Key words: *Digital Signage, Aplikasi Mobile, Cloud Computing*



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## KATA PENGANTAR

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Penulis

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# THE ANDROID-BASED APPLICATION FOR GENERAL INFORMATION AT TERMINAL 3 SOEKARNO-HATTA INTERNATIONAL AIRPORT INDONESIAN

Dicki Agus Setiawan, Ida Nurhaida, Desi Ramayanti & Herry Derajad Wijaya

## Introduction

Technology has evolved rapidly over the past few years with a profound impact on society. One of the most used technology today is smartphone and internet, which is transforming the people way of life and supporting them in many things include information. (III& Sankarana-rayanan, 2013) At Terminal 3, people they look at a screen board 55' display at the airport to get information, which is called digital signage. Digital signage is a device for managing digital content that has been programmed to be able to display a sequence of information or messages. (Suranata & Wardana, n.d.) Digital signage is like multimedia. Multi-media is the use of several media to convey information. Combinations can include text, graphics, animations, images, videos and sounds. (Wijaya & Devianto, 2019). In support of the era of digitalization, information delivery can utilize Internet technology. The Internet can help users to easily get information.. Application of information created utilizing the Internet to provide information to users, created to help existing systems in providing information to users and also as a digital innovation in providing information.

Recent years have not found yet the researches related to Android-based information at the airport. However, there are some journals which contain how to run the application. This information system is able to provide information displayed at the airport and able to save the database through an Android smartphone. Providing information anywhere and anytime is a primary advantage of mobile-based applications. (Siddieq & Nurhaida, 2019).

This study requires support-ing data related to airport information. Besides, it will be conducted by the observation method, called 'survey' to know how the current system is running, which will be improved later on.

## Android

Android is an operating system that consists of middleware and basic applications. The Android operating system base is the updated Linux kernel 2.6 for mobile devices. Android is an operating system for smartphone communication devices. (Informatika et al., 2011). The improvement of Android application using Java programming language contains concepts of Object-Oriented Programming (OOP). In addition, the development of Android applications requires the Software Development Kit (SDK) provided by Android. This SDK offers the way for programmers to access the Application Programming Interface (API) on Android. (Rolly & Hakiem, 2015). Android has a large developer community that develops applications and extends the device utility which is written in a version of Java programming language. (Maw, Myint, & Lwin, 2019).

Android provides an open platform for developers to create their apps to be implemented by various mobile devices. Initially, Google INC bought Android Inc.; considered as a new comer who created software for mobile phones. Then, to develop Android, the Open Handset Alliance was established which was regarded as a consortium of 34 hardware companies, software and telecommunications including Google, HTC, Intel, Motorola, Qualcomm, T-Mobile and Nvidia. (Listyorini & Widodo, 2017). In the site, many developers who try to make Android a better operating system (Bhargave, Jadhav, Joshi, Oke, & Lahane, 2013)

## Cloud Computing

In the progress of this application, it is used as a cloud computing system in data storage to facilitate the developers in providing information for the users. Cloud computing is a collaboration of computer technology ('computing') and Internet-based development ('cloud'). *Cloud* is a metaphor of the internet, as well as the clouds, are often depicted in computer network diagrams. Like the clouds in the computer's network diagram, cloud in Cloud Computing is also an abstraction of the hidden complex infrastructure. It is a computing method in which the capability of information technology is presented as a service so that users can access it via the Internet ("In the Cloud") without knowing what's inside. The expert of Cloud computing can also control over the technological infrastructure. (Fajrin & Karanganyar, 2012).

Based on the characteristics of Cloud Computing with its service model, it enables to access information by users quickly and easily in providing technological infrastructure resources, so that the use of resources and system will be efficient. (Vanitha T N, 2013).

## Application Development

This application conducts the Systems Development Life Cycle (SDLC) as an application method development. SDLC is a pattern to develop a software system consisting of stages, namely system planning, analysis, design, testing, implementation and management.

One of the models owned by SDLC is the waterfall technique. In the research phase, developers, in general, always use the waterfall method to develop the application. (Rahim, 2017).

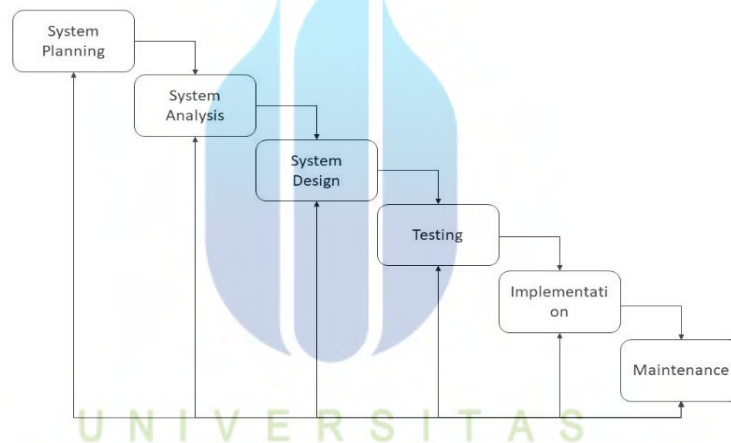


Figure 1

Figure 1 describes the steps which are implemented in developing the application. In developing this application, use some tools as follows:

### Android Studio

Android Studio is an IDE for Android Development that is introduced by Google on the Google I/O 2013 event. Android Studio is an improvement of Eclipse IDE and is based on the popular Java IDE; IntelliJ IDEA. It is an official IDE for Android app development. (Informatics, Engineering, Surabaya, 2016).

Android Studio serves as the prime tool for developing this app. Meanwhile, all the coding processes are performed in Android Studio.

### MySQL

In the application progress, there is a database that serves as a storage of data information derived from the application. The Database used in application development is MySQL.

MySQL is an Open Source and most popular SQL database management system today. The MySQL database system supports several features such as multithreaded, multi-user and SQL database management systems (DBMS). (Achyarudin, Zulkarnaen, & Rachmadi, 2013).

MySQL is a well-known open-source database server used by various applications, especially for servers or web service creators. MySQL functions as a Structured Query Language

(SQL) owned by itself and has been expanded by MySQL, which is commonly used in conjunction with PHP to create a dynamic and powerful server application. (Irsan, 2015).

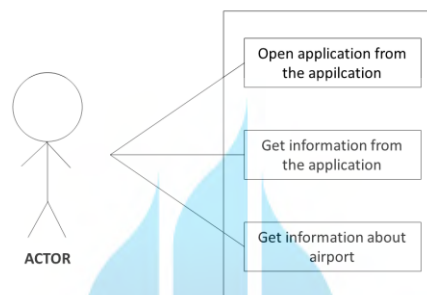
## PHP

PHP serves as a connector between Android Studio and MySQL. Android Studio requires PHP to access a MySQL database. PHP is a scripting language that includes into the HTML document working on the server-side, so the script does not appear on the client-side.

The way of PHP starts with the client called by URL through the browser. Then the browser gets the address of the Web server which will provide all the information that the Web browser needs. Afterwards, the Web browser that has been informed immediately performs the translation process of the PHP code and displays it to the user's screen. (Athoillah & Irawan, 2013).

## Use Case Diagram

Use case diagram of the application can be described as follows:

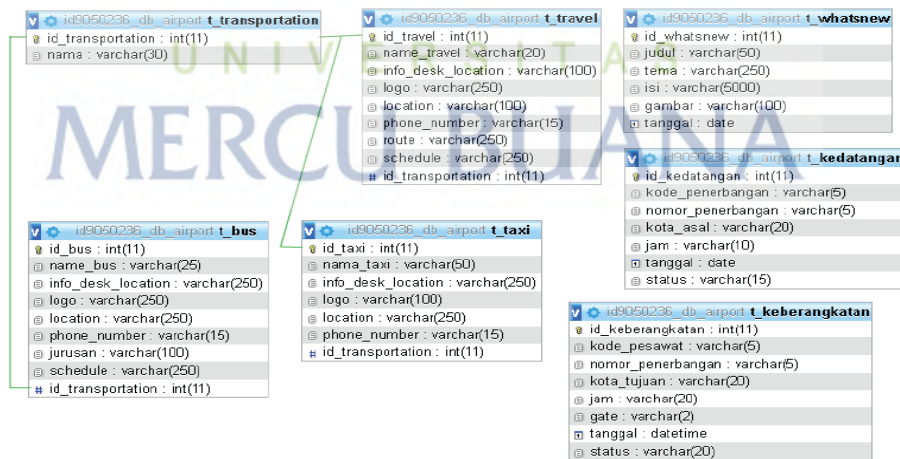


**Figure 2**

Figure 2 explains how airport passengers can easily receive information about the airport by only using an Android smartphone.

## Database

The following is the database design in the application:



**Figure 3**



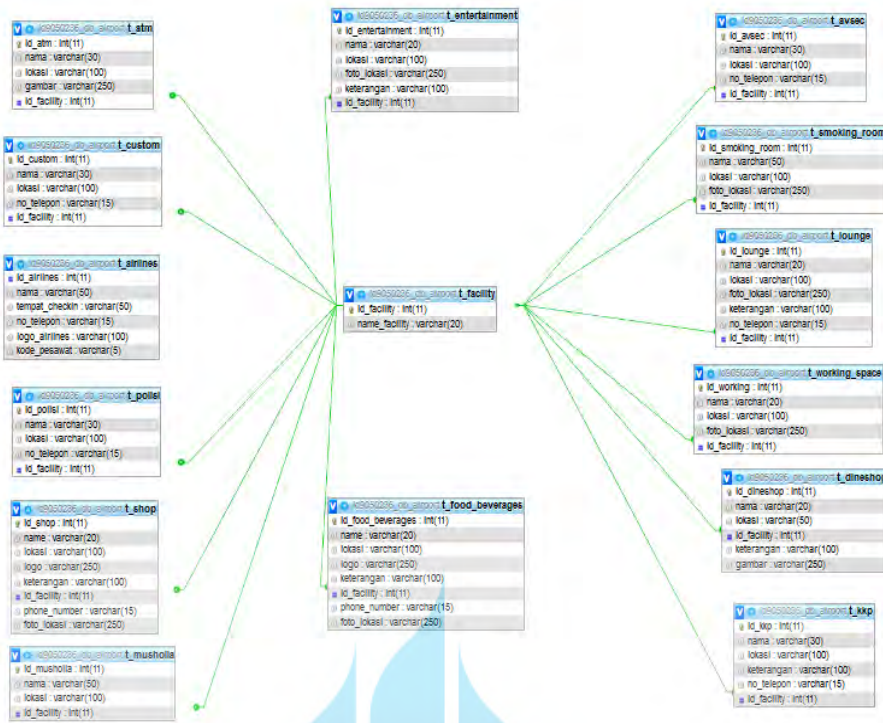


Figure 4

Figure 3 and 4 describe a database which is designed in the application development consisting of table facility as table parent table. Figure 3 explains there are a lot of tables showing available facilities in the application.

**Interface Application Testing**

In testing, the developer uses an Android emulator. Android emulator imitates the feature of the real mobile device. (K, K, K, More, & Shirole, 2017). The application performs as following:



Figure 5

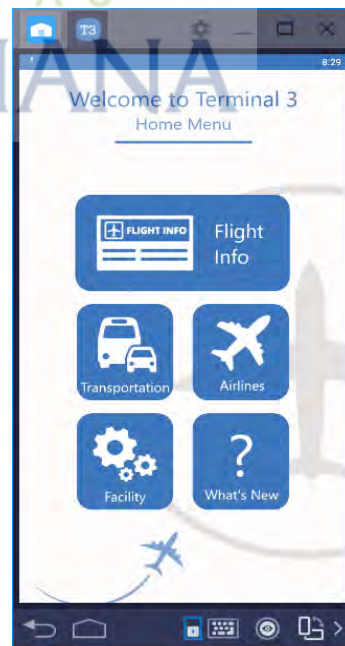


Figure 6





Figure 7



Figure 8

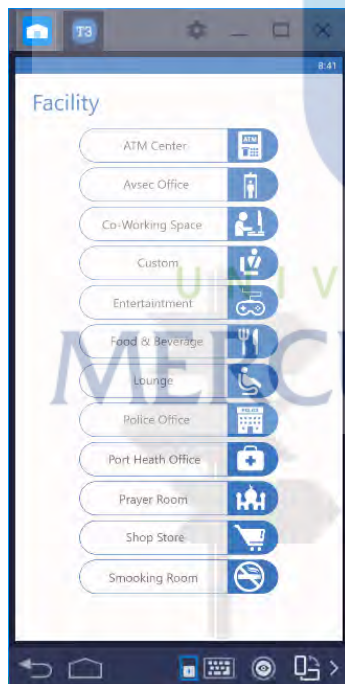


Figure 9



Figure 10

Figure 5 is the initial display or splash screen of the application. It is found the Terminal 3 logo of Soekarno Hatta International Airport as an icon of the application.

After the splash screen display is complete, it continues to the main menu (Fig 6). In the main menu, there are several sub-menus as information contents of the application. Figure 7 is the flight menu, which provides information about flight departure and arrival at Terminal 3. In

departure menu, it will be found flight details such as flight take off, entrance gate for passangers, airline number and code. Figure 8 is an information menu of the airlines at Terminal 3, such as check-in counter and airline phone number. Figure 9 shows the information about available facilities at Terminal 3, such as information services for passangers of Terminal 3. Figure 10 is a what's new menu which consists of update news n to provide more information about Soekarno-Hatta airport.

### Source Code

```

@Override
public void onBindViewHolder(ViewHolder holder, int position) {

    Airlines tx = airlines.get(position);
    holder.textViewNamaAirlines.setText(tx.getNama());
    holder.textViewTempatCheckin.setText(tx.getTempat_checkin());
    holder.textViewNoTelepon.setText(tx.getNo_telepon());
    holder.textViewURLLogo.setText(tx.getLogo());
    new GetImageFromURL(holder.imageViewAirlines).execute(tx.getLogo());
}

```

**Figure 11**

Figure 11 performs the display of Android Studio as source code to get the value of MySQL database.

```

<RelativeLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginBottom="5dp"
    android:background="@color/white"
    android:padding="10dp">

    <ImageView
        android:id="@+id/iv_airlines_logo"
        android:layout_width="70dp"
        android:layout_height="70dp"
        android:layout_weight="1" />

    <TextView
        android:text="Nama"
        android:id="@+id/tv_airlines_nama"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_marginLeft="26dp"
        android:layout_marginStart="10dp"
        android:layout_marginTop="20dp"
        android:layout_toEndOf="@id/iv_airlines_logo"
        android:layout_toRightOf="@id/iv_airlines_logo"
        android:textColor="@color/black"
        android:textSize="22dp" />

```

**Figure 12**

Figure 12 is the source code display of an activity considered as a user interface of the Airlines menu in the application.

```

package com.example.t3information.api;

import java.util.List;

public interface RegisterAPIAirlines {
    @GET("view.php")
    Call<ValueAirlines> view();
}

```

**Figure 13**

Figure 13 is a source code to call the PHP file to receive data from MySQL.

```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_margin="6dp"
    android:background="@drawable/new_airlines_screen"
    tools:context="act.airlines.AirlinesActivity">
    <ProgressBar
        android:id="@+id/progress_bar_airlines"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"/>
    <android.support.v7.widget.RecyclerView
        android:layout_marginTop="70dp"
        android:id="@+id/recyclerView_airlines"
        android:layout_width="match_parent"
        android:layout_height="match_parent">
    </android.support.v7.widget.RecyclerView>
</RelativeLayout>

```

**Figure 14**

Figure 14 is source code in creating the items of list view at Android Studio.

```

1 <?php
2 define('host', 'localhost');
3 define('user', 'id9050236_root');
4 define('pass', 'das16das');
5 define('db', 'id9050236_db_airport');
6
7 $con = mysqli_connect(host, user, pass, db) or die('Unable to Connect');
8 ?>

```

**Figure 15**

Figure 15 is a source code of PHP which functions as PHP file configuration to be connected with MySQL database.

```

1 <?php
2 require_once('config.php');
3 if($_SERVER['REQUEST_METHOD']=='GET') {
4     $sql = "SELECT * FROM t_airlines ORDER BY nama ASC";
5     $res = mysqli_query($con,$sql);
6     $result = array();
7     while($row = mysqli_fetch_array($res)){
8         array_push($result, array('id_airlines'=>$row[0], 'nama'=>$row[1], 'tempat_checkin'=>$row[2], 'no_telepon'
9             =>$row[3], 'logo_airlines'=>$row[4]));
10    }
11    echo json_encode(array("value"=>1,"result"=>$result));
12    mysqli_close($con);
13 }

```

**Figure 16**

Figure 16 is a source code of PHP which functions to perform data derived from a database in MySQL.

### Conclusion

Applications created using cloud computing systems, users get information anywhere and anytime through the app by utilizing the Internet. This will help the system in providing information to the users as well as innovations in the face of the digitalisation era and the application is expected to be an alternative in providing information about the airport.

### Suggestion

Following suggestions that can be proposed for the improvement of this application are:

- The application should cover more information of other terminals at Soekarno-Hatta International Airport.
- The login function using email, because email is one of the information technologies that widely used by many people and almost everyone has an email address. (Nurhaida, Ramayanti, & Riesaputra, 2017). The Log In function should be created to broaden social media that will give a positive value from the passengers of the airport and social media is open communication platform. (Sharma, 2018)

### References:

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## KERTAS KERJA

### Ringkasan

Kerta kerja ini merupakan ringkasan hasil dari penelitian dan perancangan *Application Information Airport* pada sebuah *Mobile Smartphone* Berbasis *Android*. Dalam kertas kerja seluruh langkah-langkah perancangan design, database, tahapan implementasi serta hasil dari perancangan akan dijelaskan.

### Pendahuluan

Perkembangan teknologi pada zaman sekarang ini sudah sangat berkembang pesat, perkembangan tersebut tentunya banyak mempengaruhi gaya hidup masyarakat sekarang ini. Hampir seluruh masyarakat sudah tak asing dengan teknologi *smartphone*. Diawali dengan hadirnya Internet dan teknologi *smartphone* tersebut tentunya membantu masyarakat dalam berbagai hal tak terkecuali informasi. Di Bandara sendiri, penyampaian informasi saat ini masih bersifat konvensional, yakni dengan menampilkan informasi pada layar 55” yang ditempatkan di area Bandara yang biasa disebut dengan istilah Digital Signage. Digital signage merupakan perangkat pengelola konten digital yang telah deprogram untuk dapat menampilkan urutan informasi atau pesan. Digital signage seperti sebuah multimedia. Multimedia adalah penggunaan beberapa media untuk menyampaikan Informasi. Kombinasi dapat mencakup teks, grafik, animasi, Gambar, video dan suara. Dengan adanya internet, penyampaian informasi menjadi lebih mudah. Aplikasi informasi yang dibuat memanfaatkan internet untuk memberikan informasi kepada pengguna, dibuat untuk membantu sistem yang ada dalam memberikan informasi kepada pengguna dan juga sebagai inovasi digital dalam memberikan informasi.

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