

# YELLOW CARD SERVICE APPLICATION DEVELOPMENT BASED ON ANDROID IN LABOR AGENCY OF TASIKMALAYA DISTRICT

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## ABSTRACT

The purpose of the development of yellow card service applications at the Manpower Office is to provide an overview of the technologies that has been growing rapidly, where in the making of a yellow card there is still very little inadequate service because of the general gamelan about the application to be built is starting from the community to make the making of AK.1 yellow card through the android application in which there are various features of registration by searching personal data based on NIK and login registration with valid email, then email verification, self photo upload, diploma photo, and ID card photo. The method used in this research is Descriptive method which describes the processing of population data as data on job seekers in the AK.1 Yellow Card Service Based on *Android*. The problem faced by the Tasikmalaya Regency labor agency is the process of registering data on job seekers who have not worked well for so long in the processing of making AK.1 yellow cards, starting from the start of the queue of creation, registration, inputting data to signatures and stamp by officials who authority, which is done still manual with a data processing system that is far from the word technology that is increasingly rapid and advanced, the essence in making or service should be concerned with comfort and tenacity in every implementation, especially officers in public services. Based on the results of the study, to solve these problems include: starting from the yellow card registration model online with the android application and filling in all personal data and uploading photos needed in the registration of the yellow card, as well as the signature and digital stamp attached to the registration form makes it possible to facilitate the service of yellow kertu.

**Keywords:** Designing, *Android*, Yellow Card, Descriptive, SAD, OOAD.

## 1. INTRODUCTION

Department of labor is a government agency in the field of labor that provides information about job seekers and job openings. In the regional regulation of Tasikamalaya District No. 3 of 2016, it was explained that the governmental affairs which

became the governmental authority of Tasikmalaya Regency included the fields of labor and service between work [1]. The type of service provided by the Tasikmalaya Regency employment office is the service for making AK.1 yellow cards.

Based on the results of interviews with Mr. Suparman, SE as the head of the placement and expansion section of the work at the Tasikmalaya district labor agency, it is known that most people, especially job seekers who come to the Tasikmalaya Regency employment office who want to make AK.1 yellow cards, are issued by the government still feel that the service provided is not optimal. What people want is comfort, skill and speed in getting public services in other words, in essence is service to the community. The problem faced is the job seeker registration process or often called the AK.1 yellow card, the implementation is still done manually so it is less effective because the data processing system is still semi-computerized. So that it requires a relatively long time to process data and requires an operator or officer to register, input, stamp and legalize. It is known that the yellow card AK.1 is an inter-work letter or special letter issued by the agency that functions as a companion letter to apply for a job at an agency or company [2].

Another problem that was found based on the data of making an AK.1 yellow card in Tasikmalaya Regency was that the number of AK.1 yellow cards, from year to year, had increased. From the results of the interview, there was a strong relationship between the quality of service of the officers making AK.1 yellow cards and job seekers satisfaction in Tasikmalaya Regency. This is one of the problem factors related to a person who does not need to come directly to the place of making a card between work and queuing.

Currently the application *Mobile* has been widely used as it gets easier to get a device *smart phone*, not only an operating system but a Tablet PC operating system, *Android* itself is *platform* a very complete both its operating system, and *ToolsTools* Developer, and support from the community *OpenSource* [3]. *Android* provides an open platform for developers to design, develop, create their own applications that can be used by various mobile devices such as *Eclipse* is an IDE used

for development *Android*, because it has an *Android* Plug-in to facilitate the development of *Android*.

Because of that, to make it easier to make yellow cards and make it easier for the public, an online yellow card making application is needed. This application can help the community to register online which is needed for registration. Based on the description above, the researcher intends to make an application that can be a solution to the problems that exist in the Tasikmalaya Regency workforce because of that the author sets out a study entitled: "Development of Yellow Card Service Application for Manpower Services in Based Tasik Regency *Android*".

Based on the background of the problem described earlier, the results obtained from identifying several problems that arise: first the Tasikmalaya Regency labor office registration process for job seekers data is still carried out directly and periodically, secondly in the service of making AK.1 Yellow Cards not yet fulfilling operational standards workers in terms of time and queue are so long, all three require a long time to process the yellow card registration data.

The purpose of this research is to build an application that is used to assist officers in making AK.1 yellow cards in the Tasikmalaya Regency workforce. While the objectives of this study are as follows:

1. Making AK.1 Yellow Cards in the Manpower Office of Tasikmalaya Regency becomes computerized.
2. Make it easier for people to make yellow cards online as well without taking the queue number.
3. Shorten the time and data processing in making yellow cards.

## 2. LITERATURE REVIEW

### 2.1 Foundation Theory

The cornerstone of theory is a brief explanation where interrelated with the development of applications which without the existence of a theoretical basis will not be made of a subsystem either *backend* or *frontend*.

From a number of studies on the making of applications that have been built, namely the design of a web-based work card letter information system, which the application explains about the workings and menu structure that is quite understood by the user and produces a product in the form of a work card.

### 2.2 Firebase Cloud Messaging

Fi amplin. Where the product that was first developed is *Realtime Database*, *Firebase* was first established in 2011 by *Andrew Lee* and *James Tdi* where *developers* can easily store and synchronize data to many users. Then it developed into an

application development service provider. In October 2014, the company was acquired by *Google*. Various features continue to be developed until it was introduced in May 2016 on *Google I / O* [4].

To be able to implementservices a *Push Notification* needed *cloud server* is, one of the *cloud servers* that can be used is *Firebase*. service on *Google Cloud Messaging* (GCM) that helps developers send data from *servers* to theirapplications *Android*.

### 2.3 Application Programming Interface (API)

(*Application programming interfaces* *Application Programming Interface*/ API) are a set of commands, functions, and *protocols* that programmers can use when building software for certain operating systems [5]. The API allows programmers to use standard functions to interact with the operating system. The API can explain how a particular task is performed. Inprogramming *procedural* such as the C language, action is usually carried out with media function calls. Therefore, the API usually includes an explanation of the functions / routines it provides [6].

The API provides functions and commands with languages that are more structured and easier to understand for programmers when compared to *System Calls*, this is important for the editing and development aspects, so programmers can develop the system easily. The API can also be used on any Operating System as long as it has an API package [7]. In the example of a simple program, it takes at least thousands of *system calls* per second. Therefore most programmers make an application using the *Application Programming Interface*.

In the API there are functions / commands to replace the language used in *system calls* with languages that are more structured and easily understood by programmers. Functions created using the API will then call the *system calls* according to the operating system. It is possible that the name of the *system call* is the same as the name in the API.

### 2.4 Android Studio

*Android Studio* is an- *Integrated Development Environment* *Integrated Development Environment* (IDE) for application development *Android*, based on *IntelliJ IDEA* [8]. In addition to the code editor *IntelliJ* and powerful developer tools, *Android Studio* offers even more features to enhance your productivity when creating applications, *Android* for example: a unified environment for development for all devices, *Android* testing tools and frameworks are extensively.

By default, *Android Studio* will automatically display your project files in the project view *Android*, as shown in the Display image arranged according to the module to provide quick access to your project's main source files. All version files are visible at the top under *Gradle Scripts* and each application module contains a folder.

running user interface testing on *Android Studio* is an important part of the cycle *development* application *Android* [9]. Well-written tests can help catch bugs early in the cycle *development*, so they are easier to fix, and adding trust in the sample code in the window *editor* is where you create and modify the code. Depending on the current file type, the editor may change. For example, when viewing layout files, the editor displays the *Layout Editor*.

## 2.5 JSON (JavaScript Object Notation)

*JavaScript Object Notation* is a data exchange format that is lightweight, easy to read and written by humans, and easily translated and generated (*generated*) by computers. This format is based on part of the Programming Language *Java Script*, ECMA-262 Standard 3rd Edition - December 1999. *JSON* is a text format that does not depend on any programming language because it uses the language style commonly used by C family programmers including C, C ++, C #, *Java*, *JavaScript*, *Perl*, *Python*. Because of these properties, make *JSON* ideal as a data-exchange language [10].

These data structures are referred to as data structures *universal*. Basically, all modern programming languages support data structures in the same or different forms, why do they deserve to be called because of easy data formats.

## 3. SYSTEM DESIGN

### 3.1 Architecture System

architecture analysis explains to define the architecture that was built with the aim that the designed structure can describe the application concept or workflow that is built. The flow of the system architecture illustrates how the communication lines in the software. System architecture analysis is divided into 2 parts, system architecture analysis on *the website platform* and system architecture on *the Android platform*.

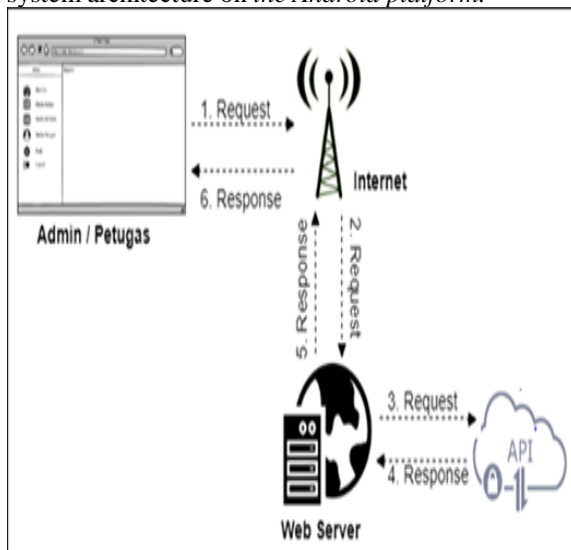


Figure 1. System Architecture *Platform Website*

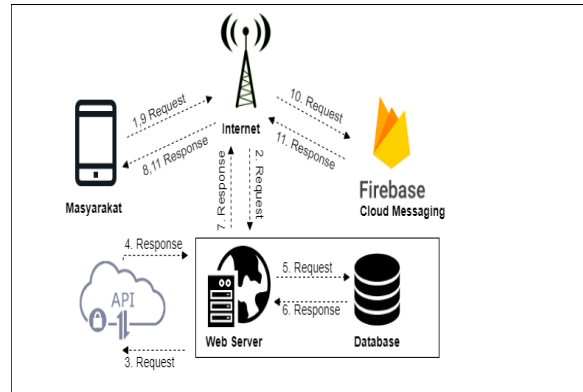


Figure 2. System Architecture *Mobile Platform*

Where between one unit unit are interrelated and connected in two subdomains as well as need each other as a medium of exchange in exchange of data.

### 3.2 Ongoing

Analysis The ongoing system analysis is carried out by interview method with Mr. Suparman, SE as head of the placement and expansion section of the work at the Tasikmalaya Regency Manpower Office, this was done to get a complete picture of the current system which then the results will be described in the form of activity diagrams in accordance with the problem, the analysis scenario as follows: the community visited the Tasikmalaya Regency labor agency directly to register gradually.

### 3.3 Analysis of Business Rules Analysis of Business

Rules that are carried out is to explain the provisions that occur in existing business processes. Analysis of business rules applied in business processes in applications that will be designed and will be built based on existing problems are as follows:

1. Android-based mobile users who can use this application.
2. Mobile users can register and log in with their e-mail and password online without having to come to the Manpower Department of
3. mobile users before logging in. They are required to register by checking first by entering the residence number online after the data comes out by registering an account for login
4. Mobile users can add personal data if something needs to be added.
5. Mobile users can add a list of educational history if there is one that needs to be added.
6. Mobile users can add skills according to their talents and abilities if there is anything that needs to be added and upload certificates if there are
7. Mobile users can see how to use if they have difficulty making yellow cards
8. Mobile users can register online by accessing the application submission menu, there is a form of checking personal data based on the check number before the community can upload photos

of themselves, photos of legalized diplomas, and ID cards in accordance with the conditions for making

9. Admin or Tasikmalaya Regency Manpower Officers. , has a web-based server, to verify community data that submits a yellow card, and the making of an
10. Admin or Manpower Office officer has another task, namely managing all incoming data and acting as the manager of verification of community data, and me send notifications, especially for people who register.
11. Mobile users can easily print yellow cards without having to come to the Manpower Office and without having to prepare documents for registration.
12. Data on the number of registration for making AK.1 Yellow Cards added to the web server will automatically be sent to the main server in the Tasikmalaya Regency workforce which will be downloaded in two different databases, the API database.

### 3.4 Technology Analysis

In this study the workings or use of technology in the applications being built are as follows:

1. *Firestore Cloud Messaging Firestore Cloud Messaging*  
*Technology* is used to *authenticate, cloud storage, realtime database*, which can send in the form of *notifications* on *devices mobile* and users can save and *upload objects* in the form of images easily, along with storing and synchronizing data between users and devices in realtime. The workings of the application are as follows: The
  - a. user or community can wait for a *notification* from the official, to preview the AK.1 yellow card.
  - b. After receiving the AK.1 yellow card preview link, the user or community can then download and print the themselves.
2. *Application programming interface (API)*  
*on Technology application programming interface (API)* used to serve and facilitate the exchange of information or data between two or more software applications. The way it works in the application is as follows:
  - a. For example, from the public checking data based on population number (NIK), then the data concerned with population will appear entirely.
  - b. The public sends NIK requests, and the API server sends responses to population data according to request input in the form of NIK.

### 3.5 Functional Requirements

Analysis Analysis of functional requirements describes the external requirements of the system needed to run abased data processing system *website* and *mobile* to be built. The functional requirements

for running a data processing system for making AK.1 yellow cards in the Tasikmalaya Regency Manpower Office include software requirements, hardware requirements, and users who will use the system. Functional needs analysis aims that all information systems built can be used according to needs.

### 3.6 Analysis of Hardware Requirements

Analysis of hardware is a requirement needed to operate the system to be built. The hardware analysis that will be explained is the hardware analysis that will be used by the Tasikmalaya Regency labor agency. Here are the specifications for membaut yellow card service application:

Table 1. Hardware SpecificationsDevelopers

Hardware	Detail
<i>Processor</i>	<i>2.80 GHz Intel Core i5-7200U</i>
<i>Ram</i>	<i>4 GB</i>
<i>Hard Drive</i>	<i>1 TB</i>
<i>VGA</i>	<i>Nvidia GeForce 930MX</i>
<i>Monitor</i>	<i>1920x1080</i>
<i>Kyboard</i>	<i>Standard</i>
<i>Mouse</i>	<i>Standard</i>

Here are the hardware specs used by the community in their operation:

Table 2. Users Hardware Specifications

Hardware	Details
<i>Processor</i>	<i>octa-core 1.4 GHz</i>
<i>RAM</i>	<i>3 GB</i>
<i>Internal Memory</i>	<i>32 GB</i>
<i>Camera</i>	<i>16 Mp</i>
<i>Internet conection</i>	<i>3G / 4G</i>

### 3.7 Analysis Software Requirements

Analysis software is a necessary requirement in operating systems other than their hardware. The software analysis to be explained is a device analysis that describes the requirements for software specifications needed by the system at the implementation stage. which will be used by the Tasikmalaya Regency Manpower Office.

Here is the software that dubutuhkan to build the system:

Table 3. SpecificationsSoftware Developer

Hardware	Details
<i>Processor</i>	<i>Intel Core i5-7200U2.80 GHz</i>
<i>Ram</i>	<i>4 GB</i>
<i>Hard Drive</i>	<i>1 TB</i>
<i>VGA</i>	<i>Nvidia GeForce 930MX</i>
<i>Monitor</i>	<i>1920x1080</i>
<i>Kyboard</i>	<i>Standard</i>
<i>Mouse</i>	<i>Standard</i>

Here are the specifications of software users used by people in pengoprasiannya:

Table 4. User Software Specifications

Software	Details
Oprasi system	Android OS, V6.0.1 (Marshmellow)
3G	/ 4G / WiFi

### 3.8 needs Analysis functionality website

functional needs analysis aims to describe the processes that occur in the system will be applied in accordance with the needs needed so that the system can run properly according to needs. The analysis that will be done on the surface will use ERD, *Context Diagram* and *Data Flow Diagram*.

### 3.9 Database Analysis

*Entity Relation Diagram* (ERD) aims to describe relationships between tables to clarify relationships between tables. ERD consists of a set of objects, namely entities and relationships between entities.

Here is a model of ERD that is applied in the system:

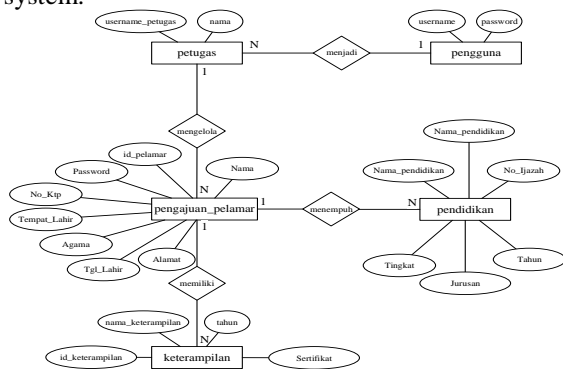


Figure 3. Entity Relation Diagram

### 3.10 Context Diagram

*Diagram* is a diagram that describes the system in one unit and in it there are processes that can be described in more detail. The following is a context diagram that will be applied to the system:

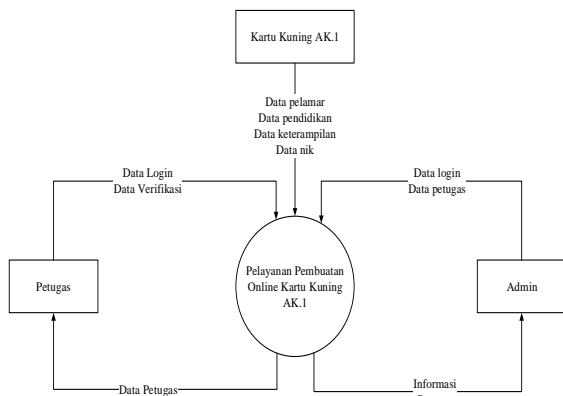


Figure 4. Context Diagram

### 3.11 Data Flow Diagram Diagram (DFD)

DFD is used to describe the design of a system to be developed that is oriented to the data flow that moves. Next *Data Flow Diagram* of the application to be built:

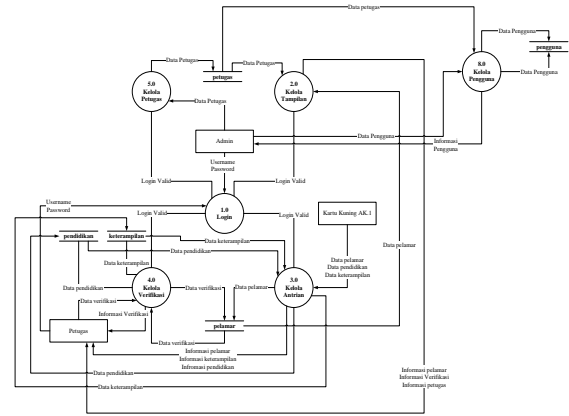


Figure 5. Data Flow Diagram

### 3.12 Use Case Diagram Android

*Use case diagram* is a way of describing the expected functionality of a system. In the use case diagram, the emphasis is more on what the system does and how the system works.

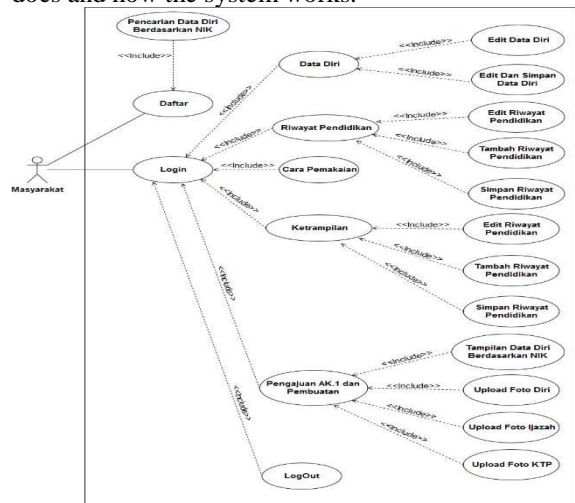


Figure 6. Use case

### 3.13 Activity Diagram diagram

Activity Diagram is a stage that is more focused on describing business processes and sequence of activities in a process. Where is usually used in business modeling to show the order of business process activities.

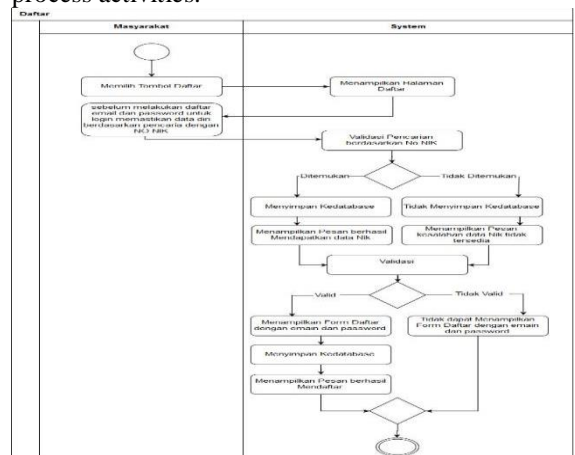


Figure 7. Data Flow Diagram



### 3.14 Class Diagram Android

Class Diagrams are used to describe the classes involved in the analysis of a system to be built. With class diagrams the structure and description of classes and relationships between classes will be clearly seen along with the methods of each class.

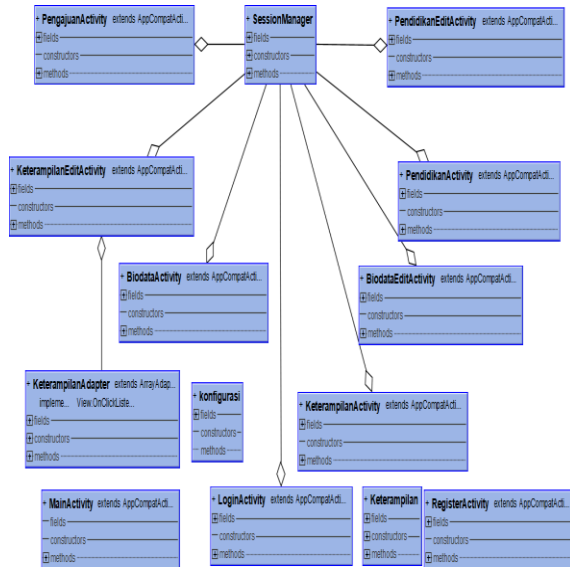


Figure 8. Class Diagram

## 4. IMPLEMENTATION AND TESTING

### 4.1 Interface

Implementation The interface implementation aims to convert the analysis results into concrete forms. The interface is an important part and the most basic part of the Yellow Card Service Application Development in the Manpower Office in Tasikmalaya District Based on Android

1. Following is the implementation of the mobile user interface as follows

Table 5. Implementation of User Interface

No	Name Interface	Description	File Name
1	Login	Input Page login .	Login Activity.Java
2	Registrati on	Page Complete theidentity	RegisterActivi ty.Java
3	Self Data Menu	View self-edit data, and save	Data_DiriActi vity.Java
4	Education History Menu	Edit, add, save EducationHist ory	EducationHist ory.Java
5	Skills	ActivityJavaE dit skills, Upload certificate andActivityA ctivity.Java	Skills.Java
6	How to Use	Displays How it Works	CaraPemakaia nActivity.Java
7	Submissio n of AK	Displays form data	PengajuanActi vity.Java

	and Manufact ure	themselves upload photos, Ktp, Diploma	
8	Logout	page to come out	LogoutActivit y.Java

2. following implementation of the interface of mobile officers following

Table 6. implementation officer interface

No	name Interface	Description	File Name
1	Login	input Admin login and officer	Login.Php
2	Menu Home	view detail data AK taker, Verified data, officer data	Menu.Php
3	Queue managem ent menu	Display export, details by officer	Queue.Php
4	Manage Verificati onMenu	Displaydata that will be Verified	Verification.Php
5	Menu Manage Officer	Data Officer Urgent Officer.	MenuManageOf ficer.Php

### 4.2 Implementation of API Technology

Implementation Technology is a form of implementation of an analysis of technology in the form of a real application. The implementation of the technology used in the applications built is as follows:

Table 7. Implementation API technology

```

package com.alvian.kartukuningak1;

public class configuration {
    public static final String URL_API
    = "http://disnakertasikmalayakab.com/pages/api.php"
    ;
    // public static final String URL_API =
    "http://192.168.0.7/kkuning/pages/api.php";
    public static final String URL_CARINIK
    = "http://api.disnakertasikmalayakab.com";
}

```

Formatdesigned in such a way andconcept *Representational State Transfer* (REST). *REST* allows clients to easily request via HTTP protocol using a URI. The following is the URI format for making requests to the API.

http: // {domain\_name} / {sub\_domain} / {function\_name}? {parameter\_1} ... & {parameter\_n}

The API test will be carried out to find out whether the authorization process can run properly. To test the API, the following is a URL for requesting population data with NIK: 3206282103990001, and this is the URL <https://api.disnakertasikmalayakab.com/?nik=3206282103990001>.

The implementations that are used and implemented are using *JSON* which is an API-

standard format, as for the form of implementation of the results from JSON itself, namely:

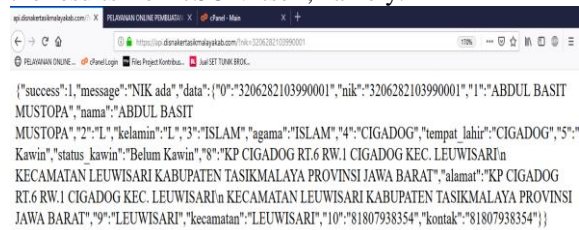


Figure 9. JSON Trial

### 4.3 Implementation Webservice

In the controller section we also have to define what will be used for calling web services.

Table 8. Implementation Webservice

```
if (mysqli_connect_errno ($ con)) {
    echo "Failed to connect to MySQL:";
    mysqli_connect_error ();
}
$ process = $_GET ['p'];

if ($ process == "login") {
    $ username = $_POST ['username'];
    $ password = md5 ($ _ POST ['password']);
    $ result = mysqli_query ($ con, "SELECT * from
    pengajuan_pelamar WHERE username = '$ username'
    AND password = '$ password' AND activation = 1");
    $ row = mysqli_fetch_array ($ result);
    $ response ["success"] = 1;

    $ response ["message"] = "Login success";
    $ response ["data"] ["id"] = $ row ["id"];
    $ response ["data"] ["username"] = $ row
    ["username"];
    $ response ["data"] ["email"] = $ row ["email"];
    $ response ["data"] ["status_ verification"] = $ row
    ["status_verified"];

    if ($ row) {
        echo json_encode ($ response);
    }
}
else if ($ process == "register") {
    $ username = $_POST ['username'];
    $ password = md5 ($ _ POST ['password']);
    $ no_ktp = $_POST ['no_ktp'];
    $ name = $_POST ['name'];
    $ genital = $_POST ['sex'];
    $ tempat_lahir = $_POST ['tempat_lahir'];
    $ Tanggal_lahir = $_POST ['Tanggal_lahir'];
    // $ Tanggal_lahir = date ("Ymd", strtotime ($
    Tanggal_lahir));
    $ contact = $_POST ['contact'];
    $ email = $_POST ['email'];
    $ religion = $_POST ['religion'];
    $ status_kawin = $_POST ['status_kawin'];
    $ address = $_POST ['address'];
    $ key = md5 (mt_rand (100000,999999));
    $ link =
    'http://disnakertasikmalayakab.com/pages/aktivasi.php
    ?token='.$key;
```

### 4.4 BlackBox Testing

At this stage BlackBox Testing is a functional test held in the development environment by a group of users who will use the system built. In the workforce in Tasikmalaya district, Android-based is tested in functional suitability.

Table 9. Table testing User Registration

Case Test Result Data (true)				
Data Input	Results in the expected correct	Observations	Description	conclusion
Serch personal data using NIK: 3206282103990001	Data NIK was found, an email confirmation is successful , the username password correctly	Succesfully found	(√)  Succesfully  ( )  Failed	Succesfully Find data and list using email
Fill in Username desi@gmail.cm				
Fill in Password Desi123				
Confirmation email  Successfully confirm				
Login				
CaseTest Result Data (Data False)				
Data Input	Result expected correct	Result Observation	description	Conclusion
Serch self data using NIK: 3206282103990001	NIK data is not found, email confirmation is not available, email and	No Succes was found, all data	( )  Succesful	Find data and list using NIK and confir

	username have not been verified yet	inputted	(√) Failed	mation with email
Fill in desi @ gmail username. cm				
Fill in Password				
Confirmation of email  Successfully confirm				

Table 10. Test table Login Officer  
CaseTest Result Data (Correct)

Data Input	Results expected correct	Observation	Description	Conclusion
Content Username uses email: desi@gmail.com	email has been successfully registered and can be entered into the password page	Successfully entered the website system	(√) Successful ( ) Failed	Successfully entered the system and can operate the system
Fill in the Password: desi123	system successfully validated			
Repeat Password Desi123				
Successful Login				
Case Data Test Results (False)				
Data Input	Results expected correct	Observation Results	Description	Conclusion
Fill in Username	Emailnot	Not Successful	( ) Success	Successful

using email: desi @ gmail.CM	terverifikasi and password not validated by the system then fails to enter into the system	ssful entry into the system website	(√) failed	ully entering the system and can operate the system
Fill in Username using email: desi @ gmail.CM	Emailnot terverifikasi and password not validated by the system then fails to enter into the system	Not Successful entry into the system website	( ) Success (√) failed	Successfully entering the system and can operate the system
Fill password:desi123				
Repeat password desi123				
Successful				

#### 4.5 Application Testing Results Thewebsite

followingis the result of the appearance of the website application that has been made wake up.

1. Early Halawan Login where the officer or admin input the username and password to log in to the system.



Figure 10. Testing figure Officer Login

2. Display the start page of the website after entering the system.

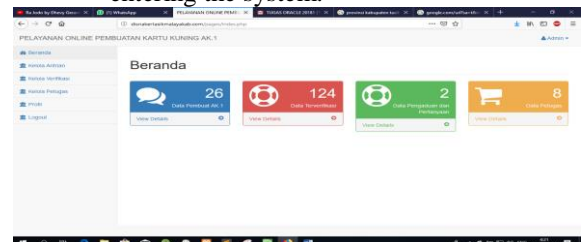


Figure 11. Testing figure Officer Login



3. Display the managing queue page where on this menu page explains the queue data that has been registered

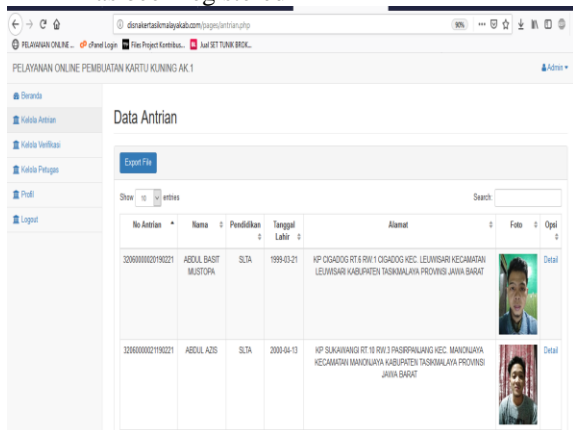


Figure 12. Testing figure Officer Login

4. Display unverified registration data page

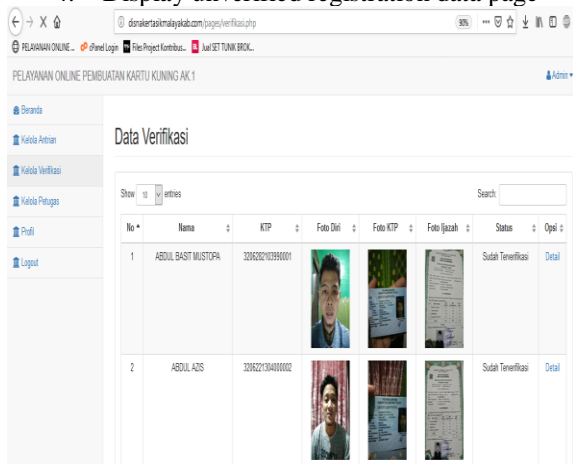


Figure 13. Testing figure Officer Login

#### 4.6 Mobile Application Testing Results

Next this is the result of the display of the mobile application that has been built.

1. Login page where the community will make a yellow card

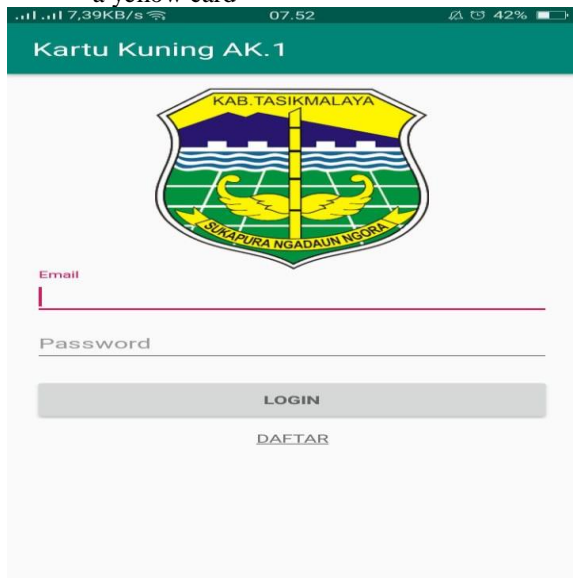


Figure 14. Testing figure Login Officer

2. Registration page before logging in and entering into the system

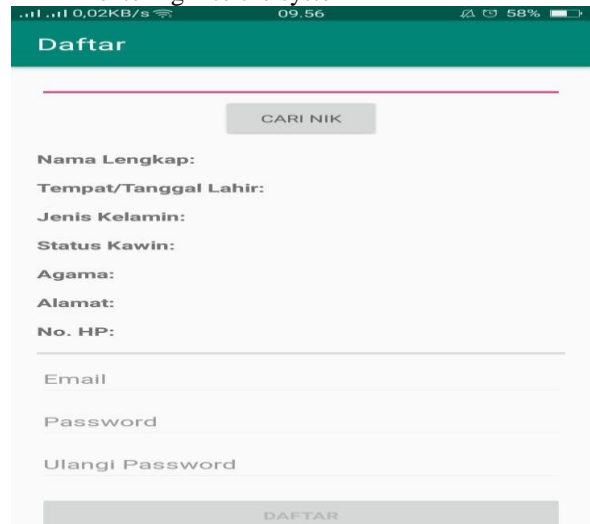


Figure 15. Testing figure Login Officer

3. Page overall menu contained in the yellow card service application

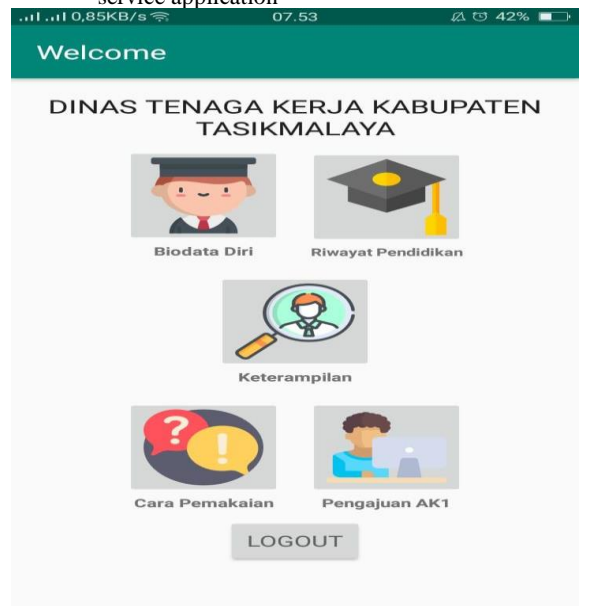


Figure 16. Testing figure Login Officer

4. Page submission AK.1



Figure 17. Testing figure Login Officer

## 5. CONCLUSION

### 5.1 Conclusion

Based on the results obtained from the research conducted in the preparation of the final assignment that refers to the research objectives, it can be concluded.

1. Can simplify the procedure of making a yellow card much faster precisely and accurately.
2. Notification system, verification is very helpful for approve the candidates for making yellow cards. The
3. system can assist agencies in making yellow cards online and easy to understand.

### 5.2 Suggestions

For the AK.1 yellow card service system to run well, this system still needs development so that this system be perfect and can walk with desire. The following are some suggestions for developing this system:

1. Because during testing there are still obstacles to making digital signatures, it is expected to be developed with signature technology.
2. Making this application is based onprogramming languages, *native* it is expected to be developed with programming languages that already have a good framework base.

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