



## Academic Information Systems And PPDB Base On Web-Android

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### Abstract

SMA-SMK Yapim Taruna Belawan is an institution engaged in the field of education. Student registration and reporting of student assessment results at SMA-SMK Yapim Taruna Belawan is a form of service for students/students. In terms of registration, efforts are made to be more effective and for the student assessment process covering all activities in schools to be more effective and efficient by using internet technology facilities in the form of a school academic system. The academic system that is currently operating at the Yapim Taruna Belawan High School and Vocational Schools is not all computerized and cannot be accessed online. In addition, every input of academic data that is stored in the form of sheets of paper is considered less effective and efficient because the administration section will experience difficulties when it comes to recording data when making reports. So that it is hoped that a better system will be formed that can solve these problems by implementing a web-based and mobile internet technology base, so that information can be accessed boldly.

**Keywords:** Academic, PPDB, Android, Java, PHP, mysql.

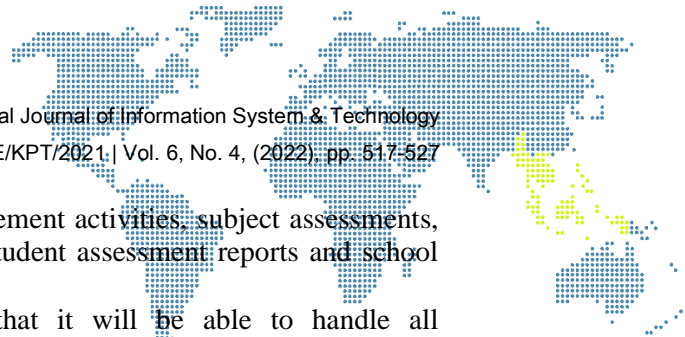
## 1. Introduction

Academics are all formal educational institutions, including early childhood education, basic education, secondary education, vocational education and tertiary institutions which carry out vocational education in one or several fields of science, information technology and certain arts. School is an educational institution that carries out teaching and learning activities. In Indonesia, it is currently obligatory for every citizen to carry out a nine-year compulsory education program, namely elementary, junior high and high school.

PPDB is one of the annual student admission agendas at every level of school, the online school registration method starts from the early childhood, kindergarten, elementary, middle school, to high school/vocational school levels. This term is used by various schools when they want to accept new students. The PPDB technical guidelines for each region will be prepared by the head of the service and must be adjusted to Permendikbud Number 1 of 2021. The PPDB process is carried out in every region in Indonesia, both cities and districts and is carried out in accordance with the provisions set by the Ministry of Education.

In practice, the PPDB process uses a special system designed with one source or information center as a server or manager of the selection of new students. The PPDB system can be carried out offline or online, depending on the capabilities of each school or region.

SMA-SMK Yapim Taruna Belawan is an institution engaged in the field of education. The online PPDB process is very useful in improving academic quality including student selection, assignment of questions, and information on student graduation/admissions. And for the results of student assessments at SMA-SMK Yapim Taruna Belawan, it is hoped that they can implement a web-based and mobile digitization system so that they



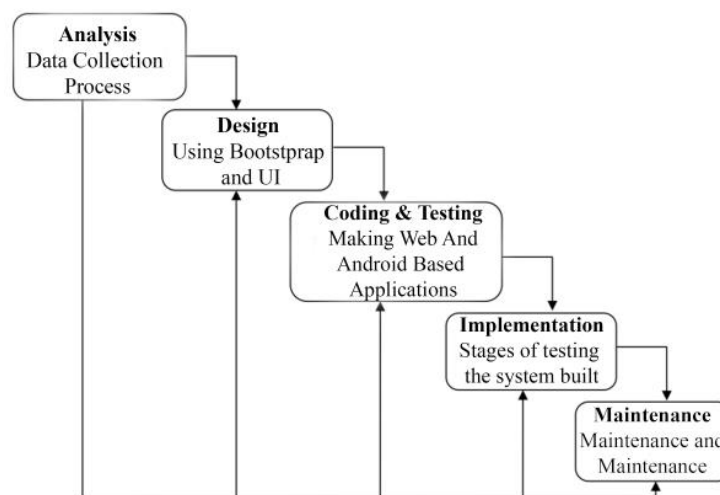
can be accessed online, such as student data management activities, subject assessments, and all academic data needed in the formation of student assessment reports and school information.

With the system created later, it is hoped that it will be able to handle all traditional/manual academic performance problems such as inputting academic data stored in the form of sheets of paper which are considered less effective and efficient because the administration section will experience difficulties when it has to recap data when making reports which are currently being developed. used by the SMA-SMK Yapim Taruna Belawan school, both in terms of providing school information, student selection included in the PPDB (New Student Acceptance) process and student assessment at Yapim Taruna Belawan SMA-SMK schools. Therefore we need a web-based and mobile academic system that can manage academic data and can facilitate the school's work so that the data obtained is more accurate, and can shorten the time in completing the work quickly and accurately.

To overcome these problems, a technology-based system is needed by applying web and mobile technologies. The expected application is in the form of an academic application that can run on all devices, both computers, laptops, cellphones/smartphones so that they can be accessed anywhere, anytime and can always be accessed online.

## 2. Research Methodology

The research method used is the analytical research method, in which the research is carried out by comparing several existing variables with an assessment of certain points of view or aspects, so that a good and appropriate analysis is obtained. In this analytical research method used analytical techniques, problem simplification, site review, reference literature from books, journals, and articles related to the theme being raised as well as the arrangement of observations, and test techniques on existing research objects. The methodology for developing a web-based and mobile academic information system can be seen in the waterfall framework in Figure 1 below.

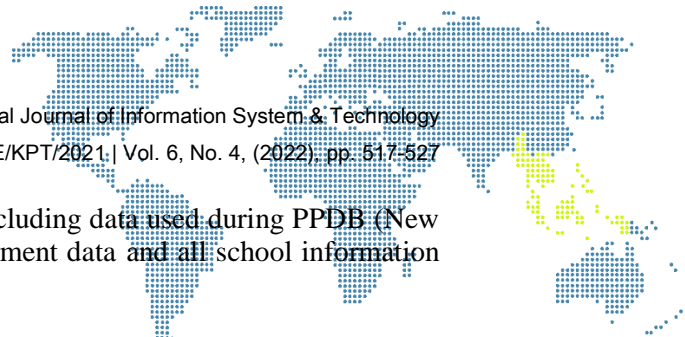


**Figure 1. Waterfall Framework**

In establishing the research framework, the waterfall method has several stages, namely: Stages of analysis or analysis of data and problems, design of systems both on the web and mobile, formation of applied programming languages and databases, implementation and testing of programs, and system maintenance.

a) Needs Analysis

Research to determine research targets, and choose Yapim Taruna Belawan High Schools as research objects. Analysis of the data needed in the system design was

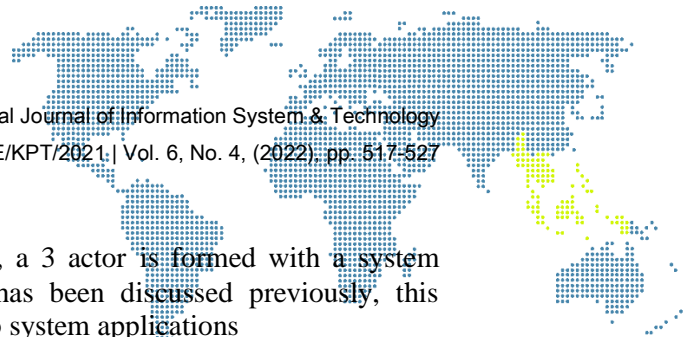


- carried out in the form of all academic data including data used during PPDB (New Student Acceptance) as well as student assessment data and all school information data.
- b) System Design  
Mobile and web-based system design using CSS Bootstrap and Android UI layouts.
  - c) Coding And Testing  
At this stage, web-based programming uses the HTML programming language which operates on the client side and PHP to run on the server side. As for the mobile side, it uses the Java language. Application testing uses Postman by implementing json to retrieve the POST and GET system methods used.
  - d) Program Testing  
At this stage, testing and implementation of the system will be carried out/used by the Yapim Taruna Belawan SMA-SMK school. New Students) is declared successful in use within a certain testing period, then it is continued to the student assessment stage from the beginning to the end, students receive graduation information, and testing for academic data that is information dissemination.
  - e) System Maintenance  
At the system maintenance stage a framework is applied to the programming language both from a web programming perspective using CI (codeigniter) and mobile with flutter, so that when there are changes it can be immediately adjusted.

In compiling a program, both web and mobile based, a data model is required in the form of a case diagram that can explain how the system works and is often called the process flow of the system to be built. The following is a use case diagram that reflects the work of the system being built.



**Figure 2.** PPDB and Academic System Work Use Cases



### 3. Results And Discussion

Based on the research methodology carried out, a 3 actor is formed with a system workflow in the use case diagram scheme that has been discussed previously, this becomes a reference in designing academic and ppdb system applications

#### 3.1. Application Menu Display in Admin

##### a) View the Login Page

The login page display is the display that appears the first time when the program is run. Function as user authentication. The image of the login page display can be shown in Figure 3:

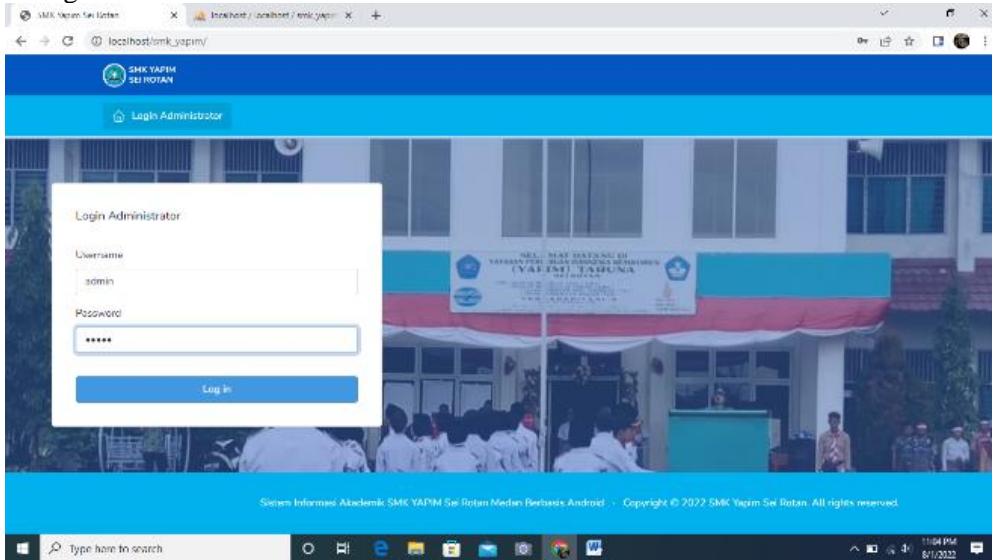


Figure 3. Fish Bone Diagram Research Methodology

##### b) Student Data Display

This page displays student data options, when selecting student data the program will display student data. Picture of the student data form display can be seen in Figure 4:

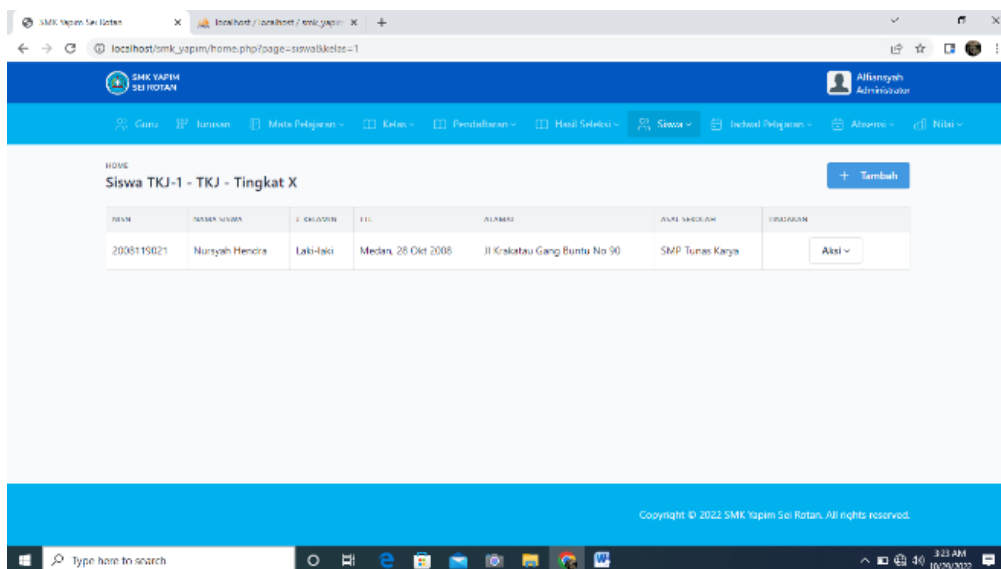
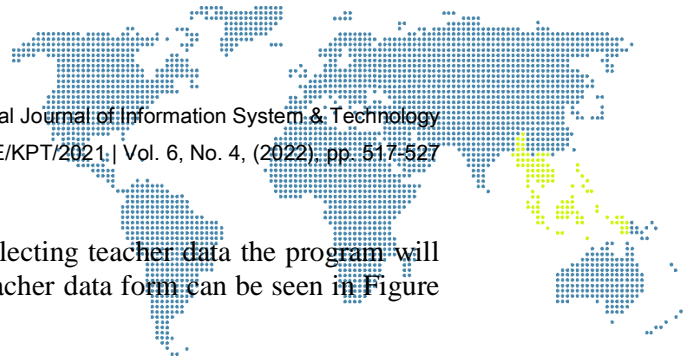


Figure 4. Student Data



c) Teacher Account Data Display

This page displays teacher data options, when selecting teacher data the program will display teacher data. The display image of the teacher data form can be seen in Figure 5:

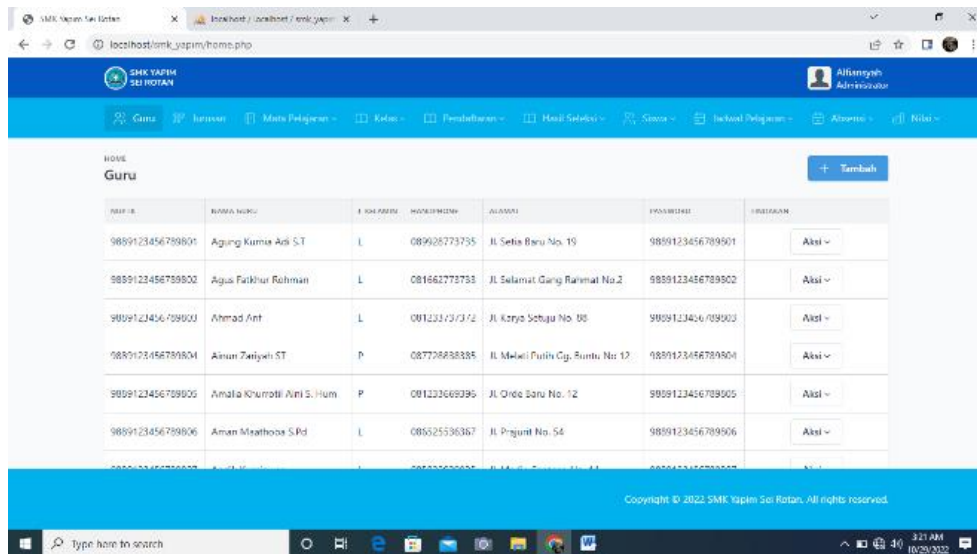


Figure 5. Teacher Data

d) View the Subject Data Form

This form displays a selection of subject data, when selecting subject data the program will display subject data. Picture of the subject data form display can be seen in Figure 6.

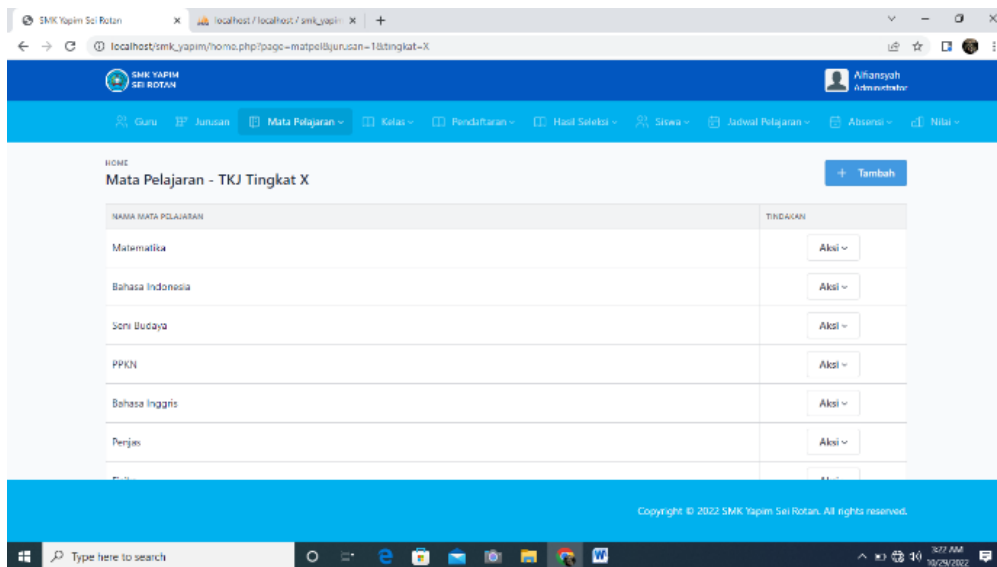
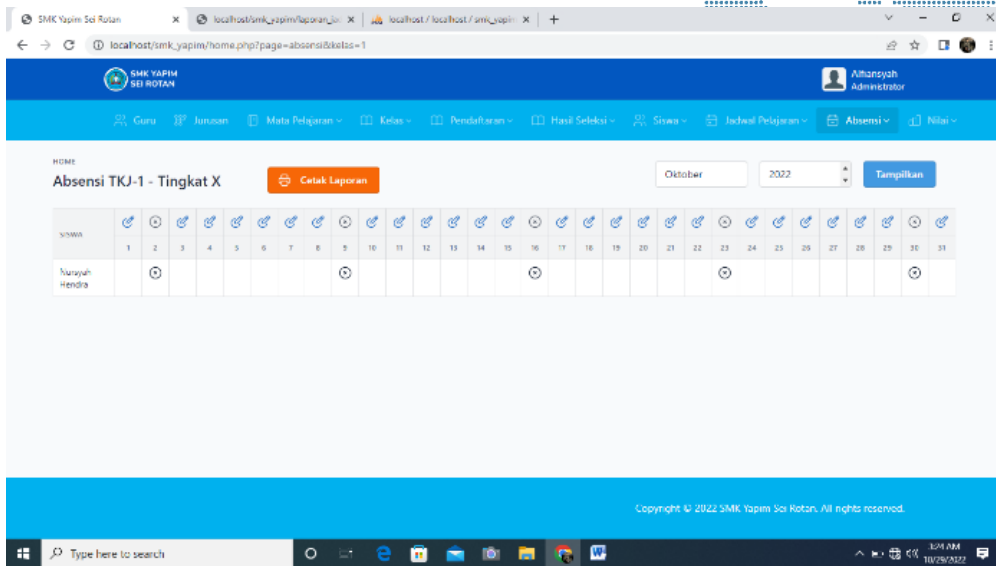
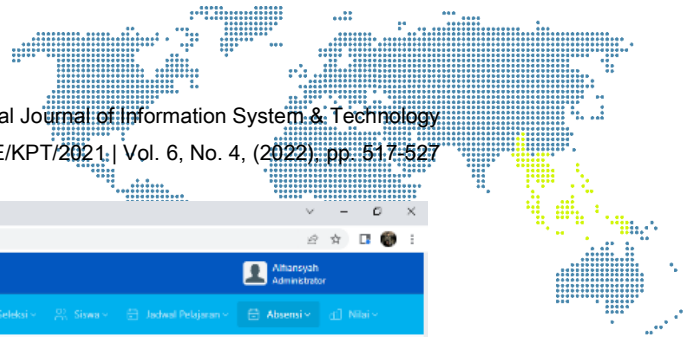


Figure 6. Subject Data

e) Display of Attendance Data

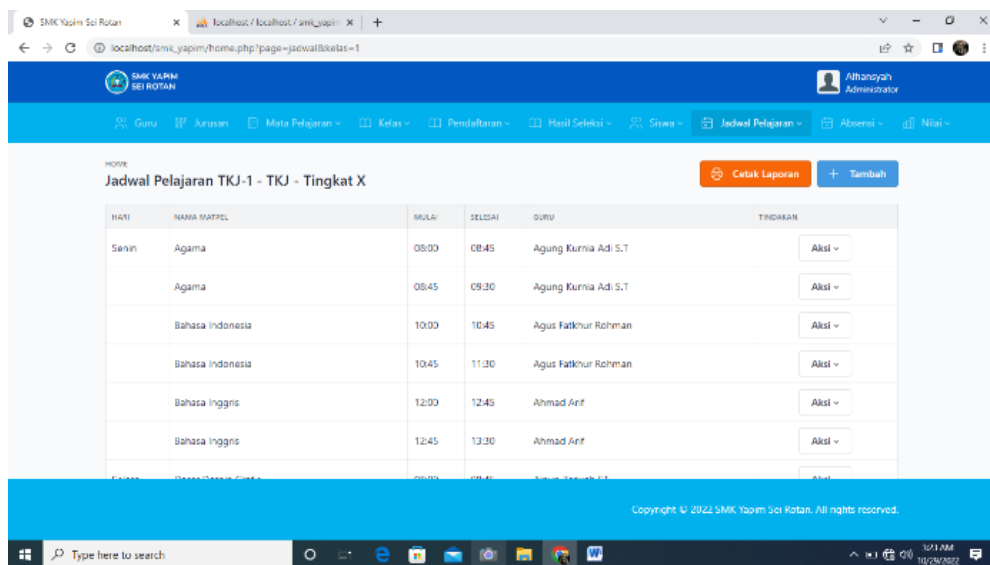
This page displays attendance data options, when selecting attendance data the program will display attendance data. An image of the attendance data form display can be seen in Figure 7.



**Figure 7. Attendance Data**

f) Display of Scheduling Data Pages

This web page displays scheduling data options, when selecting scheduling data, the program will display scheduling data. Picture of the scheduling data display can be seen in Figure 8:



**Figure 8. Scheduling Data Pages**

g) Display of Student Value Data

This form displays value data options, when selecting test value data, the program will display value data. Picture of the value data form display can be seen in Figure 9.

SIWA	ALJAWA	REHABILI MEDISINA	MANAJEMEN NEGARA	DAFTAR DAN MANAJEMEN GASTRO	ELEKTROKARDIOLOGI DAN HEMODIALISIS	SIWA	KIRYA	KEPERAWATAN ANAK DAN MASYARAKAT	MANAJEMEN	PERENCANAAN DAN MANAJEMEN	REKAM MEDIS	SIWA	SIWA	SIWA	SIWA	
Abdurahman	77	88	96	83	100	67	96	88	65	74	75.5	81.5	100	98	65	77
AJP Indrawan																
Andi Guntawan	90															
Arnela Sari	85	96	78	71	87	68	70	90	69	72	80.5	95.5	92.5	97	66	75

Figure 9. Display of Student Value Data

h) Display of New Student Registration Data

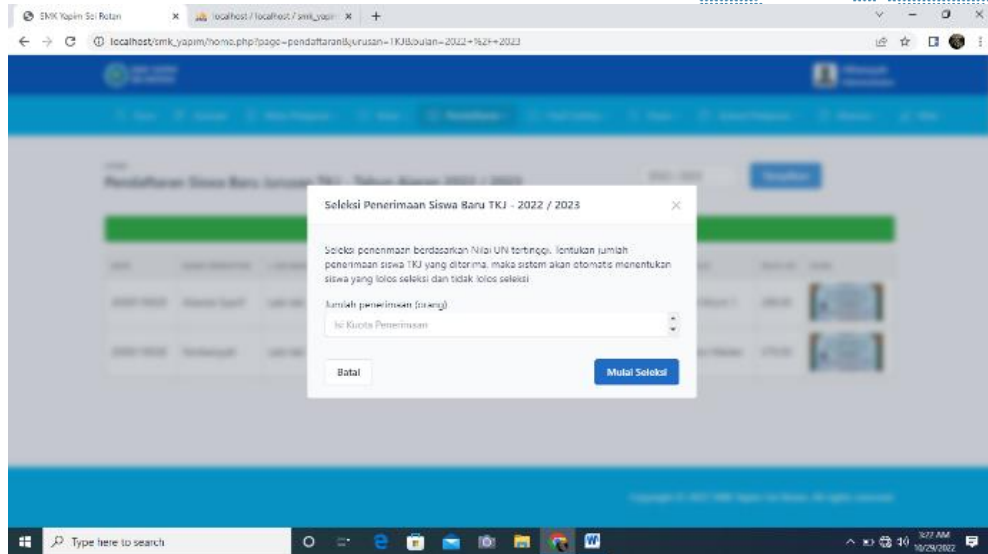
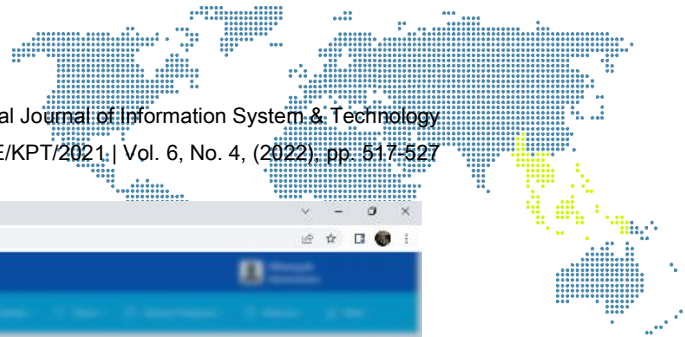
This page displays a selection of new student registration data, when selecting new student registration data the program will display new student registration data. Picture of the display of the new student registration data form can be seen in Figure 10.

NIK	NAMA PENDAFTAR	J. KELAMIN	TTL	ALAMAT	ASAL SEKOLAH	NILAI UIN	SIWA
2068119029	Aliando Syarif	Laki-laki	Medan, 04 Feb 2008	Jl. Pembangunan 2 No. 21 Medan Timur	SMP Busti Murni 1	288.00	
2008119038	Ferdiansyah	Laki-laki	Medan, 24 Okt 2008	Jl. Cemara Gang Buntu No. 11 Medan Timur	SMP Pertiwi Medan	275.00	

Figure 10. New Student Registration Data

i) Display of New Student Registration Selection Data

This page displays a selection of new student registration data, when selecting new student registration data the program will display new student registration data. Picture of the display of the new student registration data form can be seen in Figure 11:

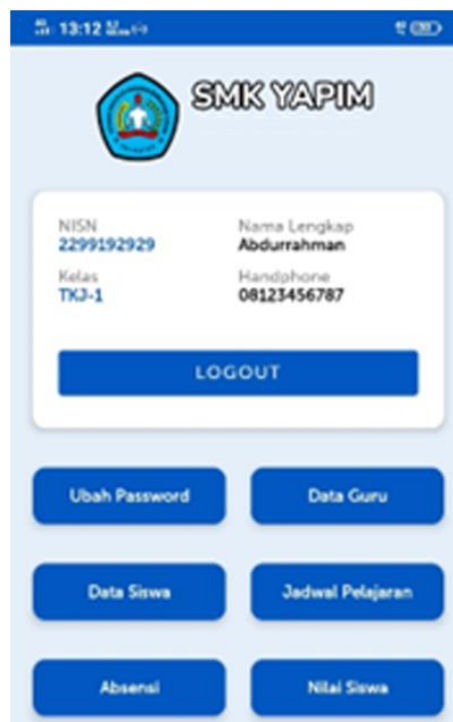


**Figure 11.** Display of New Student Registration Selection Data

### 3.2. Application Menu Display on Teachers and Students

#### a) Main Menu Data Form Display

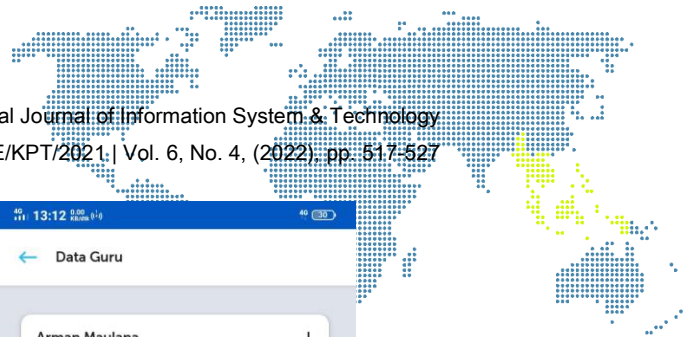
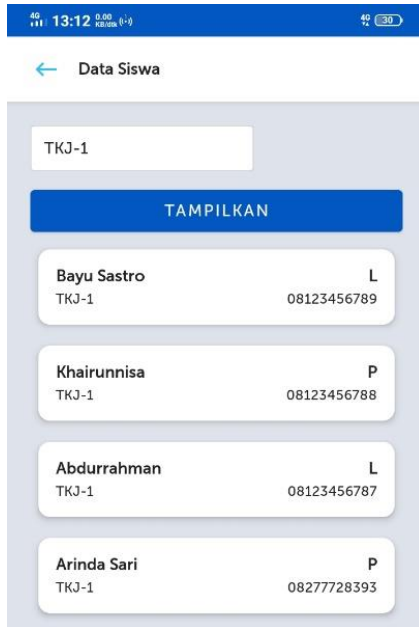
This form displays the main menu data choices, when selecting the main menu data the program will display the main menu data. The main menu data form display image can be seen in Figure 12.



**Figure 12.** Display of New Student Registration Selection Data

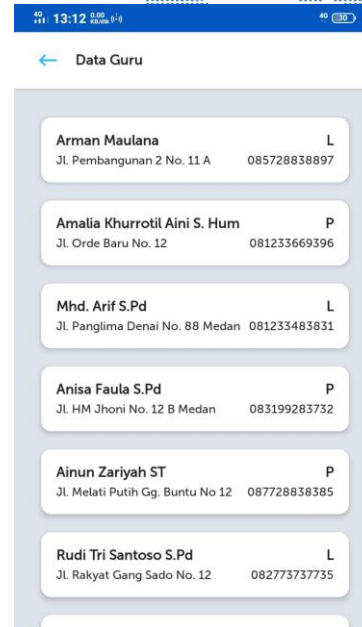
#### b) Display of Student Data And Teacher Data Display

This form displays student data options, when selecting student data the program will display student data. The display image of the student data form can be seen in Figure 13. And this form displays teacher data options, when selecting teacher data the program will display teacher data. The display image of the teacher's data form can be seen in Figure 14:

Name	Gender	Phone Number
Bayu Sastro	L	08123456789
Khairunnisa	P	08123456788
Abdurrahman	L	08123456787
Arinda Sari	P	08277728393

**Figure 13.** Display of student data

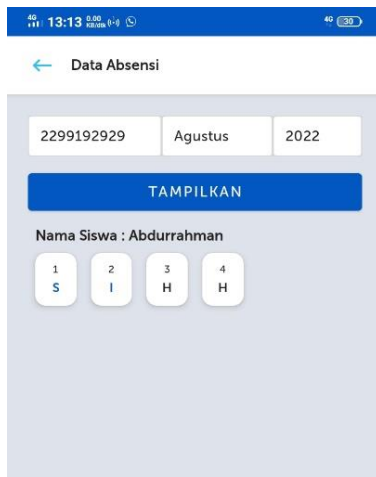


Name	Gender	Phone Number
Arman Maulana	L	085728838897
Amalia Khurrotul Aini S. Hum	P	081233669396
Mhd. Arif S.Pd	L	081233483831
Anisa Faula S.Pd	P	083199283732
Ainun Zariyah ST	P	087728838385
Rudi Tri Santoso S.Pd	L	082773737735

**Figure 14.** Display of teacher data

c) Display of Attendance Data And Display Value Data Form

This page displays attendance data options, when selecting attendance data the program will display attendance data. An image of the attendance data form display can be seen in Figure 15. And This form displays Value data options, when selecting tenor data, the program will display Value data. Picture of the value data form display can be seen in Figure 16.



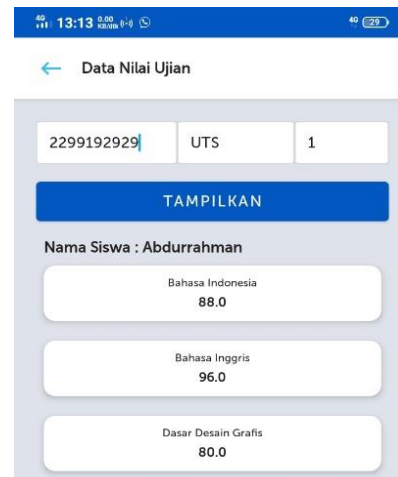
2299192929    Agustus    2022

TAMPILKAN

Nama Siswa : Abdurrahman

1 2 3 4  
S I H H

**Figure 15.** Attendance Data



2299192929    UTS    1

TAMPILKAN

Nama Siswa : Abdurrahman

Bahasa Indonesia  
88.0

Bahasa Inggris  
96.0

Dasar Desain Grafis  
80.0

**Figure 16.** Display of Value Data Form

d) Display of Teacher's Schedule Data Form, This form displays teacher schedule data options, when selecting teacher schedule data, the program will display teacher schedule data. The display picture of the teacher's schedule data form can be seen in Figure 17.



Figure 17. Teacher Schedule Data

### 3.3. PPDB Application Menu Display

New student registration menu display, the new student registration display is the first display that appears when the program is run. Serves as a new student registration form. The image of the new student registration display can be shown in Figure 18:

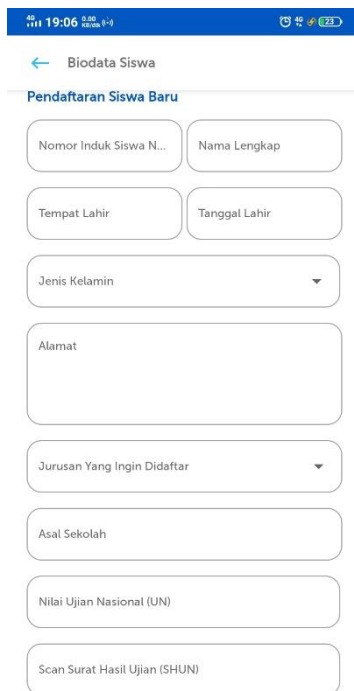


Figure 18. New Student Registration

## 4. Conclusion

It can be concluded from the analysis and program design that was built the system that has been built can help the Yapim Taruna Belawan High Schools in Medan in processing student academic data. With the Academic Application/academic portal students, teachers, and parties who have an interest in the SMA-SMK Yapim Taruna



Belawan Medan will easily get information or access information related to school academics. Yapim Cadets Belawan High School, Medan.

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