Faculty of Electrical and Electronic Engineering Technology

DEVELOPMENT OF MOBILE BASED FLOOD VICTIM MANAGEMENT SYSTEM

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Bachelor of Computer Engineering Technology (Computer Systems) with Honours

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DEVELOPMENT OF MOBILE BASED FLOOD VICTIM MANAGEMENT SYSTEM

AMIRUL IKMAL BIN MUSA

A project report submitted
in partial fulfillment of the requirements for the degree of
Bachelor of Computer Engineering Technology (Computer Systems) with Honours

Faculty of Electrical and Electronic Engineering Technology

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2021

DECLARATION

I declare that this project report entitled “DEVELOPMENT OF MOBILE BASED FLOOD VICTIM MANAGEMENT SYSTEM” is the result of my own research except as cited in the references. The project report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : 

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APPROVAL

I hereby declare that I have checked this project report and in my opinion, this project report is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Engineering Technology (Computer Systems) with Honours.

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Date	:	11/01/2022

DEDICATION

To my beloved mother, Shabani Binti Sharif, and father, Musa Bin Ismail,

My sister , Natasya Nadjwa Binti Musa

and

To closest friend, Ahmad Syamir and

My special friend, Dayang Adilah.

ABSTRACT

Flood is the most destructive natural calamity that Malaysia has ever had. There are 189 river basins in Malaysia, including Sabah and Sarawak (89 are in Peninsula Malaysia, 78 in Sabah, and 22 in Sarawak), with the main rivers going straight to the South China Sea, and 85 of them are prone to recurring floods. The estimated area vulnerable to flood disaster is approximately 29,800 km2 or 9% of the total Malaysia area, and is affecting almost 4.82 million people which is around 22% of the total population of the country. Floods give many affects to humans in various aspects. The worst effect brought about by floods is human health where infectious diseases are easily spread during and after the flood. In addition,hospital services during the flood season is also limited. This is due to constraints such as transport and manpower and the process of documenting flood victims' health reports. The main objective of this project is to help flood victims from the health aspect. With the information provided, it will facilitate the process such as getting treatment, recording the patient's health problems online and also inform the hospital directly if there are patients who need to be taken to the hospital. This software development is developed using the Android Studio platform as user interface medium and also Google Firebase as a information data storage.

ABSTRAK

Banjir adalah bencana alam yang paling memusnahkan di Malaysia dan terdapat 189 lembangan sungai di Malaysia, termasuk Sabah dan Sarawak (89 di Semenanjung Malaysia, 78 di Sabah, dan 22 di Sarawak), dengan sungai-sungai utama terus mengalir menuju ke Laut China Selatan, dan 85 daripadanya terdedah kepada banjir yang berlaku berulang kali . Kawasan yang dianggarkan terdedah kepada bencana banjir adalah sekitar 29.800 kilometer persegi atau 9% dari keseluruhan kawasan Malaysia, dan mempengaruhi hampir 4.82 juta orang ataupun sekitar 22% dari jumlah penduduk negara ini. Banjir memberikan banyak kesan kepada manusia dalam pelbagai aspek. Kesan yang paling buruk dibawa oleh banjir adalah kesihatan manusia di mana kejadian penyakit berjangkit mudah dijangkiti semasa dan selepas banjir. Selain itu, perkhidmatan hospital ketika musim banjir juga terhad. Ini kerana kekangan seperti pengangkutan dan tenaga kerja dan proses dokumentasi laporan kesihatan mangsa. Tujuan utama projek ini adalah untuk membantu mangsa banjir dari aspek kesihatan. Dengan maklumat yang diberikan, ia akan memudahkan proses seperti mendapatkan rawatan , merekodkan masalah kesihatan pesakit secara atas talian dan juga memaklumkan pihak hospital secara terus jika terdapat pesakit yang perlu dibawa ke hospital. Pembangungan perisian ini dibangunkan dengan menggunakan platfom Android Studio sebagai medium reka bentuk antara muka pengguna dan juga Google Firebase sebagai stor penyimpanan maklumat.

ACKNOWLEDGEMENTS

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My highest appreciation goes to my parents and family members for their love and prayer during the period of my study. An honourable mention also goes to Musa Bin Ismail and Dayang Adilah Binti Ariffin for all the motivation and understanding.

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PPS	-	Pusat Penempatan Sementara

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CHAPTER 1

INTRODUCTION

1.1 Background

Floods are natural events that often occur in Malaysia. Floods occur almost every year, especially during the change of monsoon season. However, in some places, floods occurred at different times and experienced rainfall of the same intensity. In short, floods may occur in places with different rainfall characteristics (ie depth, duration, intensity). In addition, floods may happen again at the same location with the same intensity of rainfall. Floods have wide-ranging effects on humans, including the risk of injury or death, power supply interruption, and forced closure of businesses. In addition, services such as hospitals and schools may be stopped, and transportation networks may be disrupted, such as bridges, trains and roads damaged by floods. The main impact of the flood on the population is that houses and properties may be submerged by the flood, forcing residents to evacuate until the damage caused by the flood is repaired.

Mobile applications generally provide users with the same services as those available on PCs. However, research shows that users prefer mobile applications to mobile websites. This is a compelling argument for developing a mobile app to connect new (and current) users. Therefore, the mobile age has arrived. Today, there are more mobile device users than desktop users. Mobile applications can facilitate users with a more attractive interface. Mobile applications can also send notifications more easily. There are two types of notifications which is push notifications and in-app notifications. Both are interesting

alternatives for communicating with application users in a less intrusive way. A well-designed mobile application can perform operations faster than a website.

This system will focus on the process of obtaining health information from patients and making appointments with doctors at a temporary placement centre, receiving treatment and recording information such as the care provided and if the patient needs to be sent to the hospital. Mobile applications, generally called applications, are software that runs on mobile devices such as smartphones or tablets.

1.2 Problem Statement

Many organizations rely on paperwork for every job transaction such as invoicing as well as the collection of various data information. A manual paper data management requires a lot of transparency in managing a growing number of documents. There are some disadvantages why manual documentation must be change into digital management documentation. Firstly, paper documentation may can take up a lot of space that should be usable for other needs as well as documents are increasing day by day. In addition, paper documents should be nearby to make it easier to retrieve them.

Besides that, security issues are critical for every organization in safeguarding information as well as assets. Paper is a common problem in an organization. This is because paper is more easily lost, mistreated, and even destroyed, but digital data be protected and safely stored on database. Lost, destroyed, misplaced or even stolen manual documents often occur in the workplace. Fires or natural disaster can also cause the loss of important data of an organization. In the absence of a support plan, all data and information will not be recoverable. It will affect many organisations especially victims itself when they must provide same information again while they are in trouble themselves.The next problem is transportation problem. In data management through manual paper, data transportation will

be more difficult, slow and inefficient. If using an application or web based system, all files or information that you want to convey will be easier while using in app notification.

During the floods, all the victims in the temporary accommodation center will have difficulty in receiving medical assistance from the hospital. And also information about their health is difficult to record, doctors find it difficult to record what has been done to patients due to lack of facilities such as writing tools and even documentation. Finally, limitation of collaboration is one of the reason of this project. Collaboration is exceedingly tough when dealing with papers. If multiple user or organization head need to generate a shared information, they have to print many copies or when a change of information is needed, they have to print it again. Users can deal with various parties more easily and quickly if using a digital management system. User may also keep track of all the adjustments that have been done.

1.3 Project Objective

The main aim of this project is to develop mobile based management system on flood victims'. Specifically, the objectives are as follows:

a) To develop an efficient and friendly user flood victim management app in order to collect all the victim health data.

b) To facilitates multi-way data transfer in managing flood victims in medical field in a more convenient way.

c) To facilitate the documentation of patient treatment information in temporary placement centers.

1.4 Scope of Project

The project is part of a larger system of managing flood victims. The main scope of this project is to facilitate the collection of data on flood victims in term of health. This is intended to help them especially in terms of health problems. If before, more data is collected manually such as filling out forms. The problems presented by the victims are more difficult to solve due to problems such as loss of victim information forms. These management problems commonly occur when in temporary placement. So with the development of this mobile-based system, flood victims can more easily fill in the required information and also receive medical treatment when the information has been communicated more easily. The scope and the limitation of the system that will be implemented as follow.

Mobile Based Flood Victims Management System's users:

1. Admin
    - Registration of doctor that been assigned to flood disaster health assistance program.
    - Updating details of current doctor and victims.
    - See report of victims and doctor.
2. Doctor
    - Submit full report after victims treatment.
    - See history of treatment that has been carried out on victims at PPS
3. Victims
    - Registration to the system
    - Submit appointment with doctor
    - See history of treatment that has been carried out at PPS.

1.5 Thesis Organization

This project contains 5 different chapters and different importance of the implementation of the work. In chapter 1, the introduction of the project includes an initial overview of this project as well as the problems that caused this project to be built. Also contained in this chapter are work objectives as well as scope of the project also thesis organization itself.

After that, in Chapter 2, literature review takes place where the research for publications that relevant to the project such as books and journal articles. Findings in each article will be recorded for evaluation and comparison as well as what is necessary for renewal and development.

In chapter 3, it is all about the workflow, methodology used, software tools as well as system storyboard. The importance of this chapter 3 is for the experience of the reader or analyst to illustrate how this system is built.

Chapter 4 is the development of the software system is carried out. All information on the results of the study and analysis of the system will be recorded. The software system will be measured in detail in terms of information delivery, user satisfaction and develop coding standards.

Finally, in chapter 5 will show the conclusions and recommendations for the entire system that has been built. This is to discuss the findings of the study, acknowledge limitation and make recommendation for future works

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Floods are natural events that often occur in Malaysia. Floods occur almost every year, especially during the change of monsoon season. The east coast of Peninsular Malaysia is most prone to flooding, especially during the northeast monsoon season from October to March. Especially from the second monsoon (October) to the beginning of the northeast monsoon (November to December). During the northeast monsoon, strong winds bring heavy rain to Peninsular Malaysia, often causing flooding. According to research on the causes of floods, the results show that the occurrence of floods is due to changes in the depth, duration, and intensity of rainfall. However, in certain places, the floods occurred at different times and experienced rains of the same intensity. In short, floods can occur in places with different rainfall characteristics (i.e., depth, duration, intensity). In addition, another flood occurred in the same place with the same intensity of rain.

Therefore, early response to flood emergencies is very important to keep flood risk and its impact to a minimum. However, coming up with the best flood emergency plan is not easy. Next, it is important to understand the existing research and discussions related to a particular topic or research field. Facilitate the process of developing a suitable system for the project.

2.2 Statement

Early response to flood emergencies is very important to minimize flood risk and its impact. However, it is not easy to develop the best flood emergency plan. Next, it is

important to understand the existing research and discussions related to a particular topic or research field. Facilitate the process of developing a suitable system for the project.

[1], describe the role of the Malaysian government's delivery system for flood victims before, during, and after the storm. At the moment, the flood management service delivery system is primarily based on an official plan that emphasises the deployment of innovative technologies in flood control, forecasting, early warning, and evacuation systems. The official strategy focuses on the use of modern technologies in flood management, forecasting, early warning, and evacuation systems, which is based on a technology-centric approach.

[2]. Due to the negative effects of the flood, it need close attention and adopt alternative methods to reduce this disaster effects. In Malaysia, flood disaster management consists of four stages: prevention/mitigation, preparations, respond, and recovery.

2.3 Expected Outcome

[3], this paper reviews flood disasters in detail. Describes different types of disasters along with their impact. This article discusses disaster management applied in different countries and Malaysia. It is expected to achieve the result of a drastic reduction in the losses from disasters, livelihoods, and social, economic and environmental assets of society and the country over the next decade (United Nations, 2006). [4], has used flood management processes and flood victims' experiences in Central Thailand's Chai Nut province to develop knowledge about future handling of these disasters. The government has supported electricity services, food and water, toilet and health services, and water drainage. In the recovery phase, victims need to invest funds, job opportunities, children's books, extra time to repay loans, reconnect electricity, loss investigations, and pensions.

(See, 2019) [14] had establish the current situation regarding citizen science, crowdsourcing and flooding and reflects future directions in this area. The idea of this article is to develop an automatic flood detection, online reporting mobile app and damage assessment. Additional development of flood reporting applications and automated flood detection systems will generate useful data for model validation. [5] in articles "System design of disaster management information system in Turkey as a part of e-government" aims to identify areas of risk through geographic analysis before natural disasters. The other purpose of this project is to manage emergency and effective support services during and after a disaster. [6] expected the real potential of GIS technology for spatial data management, including real-time (moving object) data for ER units, can impact the quality of service of the system.

[7] The purpose of the early warning system is to alert people to imminent natural disasters so that vulnerable people are aware of the potential impact of natural processes to respond appropriately and minimize damage. So the victim can make preparations in advance such as moving the goods to a safe place if there is an early notification through the system. [8] in the Flood Information and Notification module aims to provide early warning to the public about possible flooding. Data obtained from the Department of Irrigation and Drainage Board (DID) can also be used to provide flood-related information, such as rainfall and river levels. Relevant information, such as nearby shelters or routes, is displayed on the map to help victims get to a safe place. The second module is designed so that after receiving an emergency message sent from the victim, the rescue team can determine the whereabouts of the victim. Mobile phones are the devices we have with us all the time, so Mo-FA can be the perfect tool for providing a variety of flood-related information and providing a quick way to communicate information to the public and rescue teams.

[2] said the role of the flood-affected community is no less important. Awareness and response to flood disasters is essential to minimize the negative effects of disasters. Therefore, communities need to be aware of flood management, especially how and what to prepare for floods, and how to respond in the event of a flood.

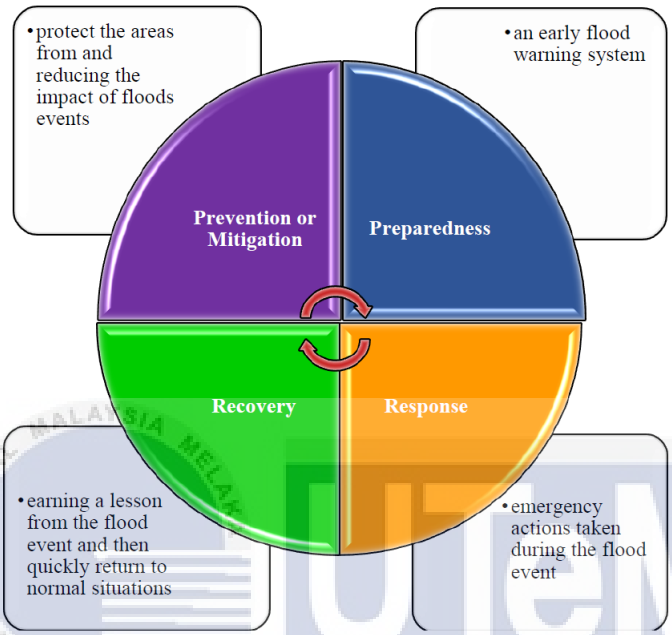


Figure 2.1 GIS Flow

GIS is a system designed to capture, store, manipulate, analyze, manage, and ultimately display all types of geospatial data. Simply put, GIS is a combination of mapping, statistical analysis, and database technologies. Therefore, GIS systems can be used as another reference level to innovate projects to meet the needs of society. In a journal written by Islam [16], discussed the review of flood disaster management mechanisms in Asia. In this article, it focusses on flood disaster management in some Asian countries such as Malaysia, Indonesia, Thailand, Bangladesh, India, Pakistan, Japan, and China. For these countries, focus on trying to explore flood disaster risks, pre- and post-disaster plans and participants, emergency response and recovery, flood mitigation and management, disaster preparedness and relief mechanisms, flood forecasting and early warning systems, policies,

and planning, and disaster management systems in various countries can better respond to and deal with disaster risks and reduce social and economic losses caused by disasters. Furthermore, it needs to improve the availability and evaluation of the data, and possibly combine it with other types of information to increase its usefulness for decision making.

Disaster level	Description
Level I (District level)	Localized emergency where the disaster response could be managed by local resources
Level I (State level)	Two areas are affected be emergency situation and need support from outside
Level I (National level)	Complex disaster which affected the areas in all states

Figure 2.2 Disaster Level

To help victims, [15] had built the Knowledge model for post-disaster management. The main objective of this research is to help post-disaster managers use advanced knowledge and developed models to find the most reasonable solutions. Post-disaster management is based on developing a common understanding and interpretation of means and objectives and is a shared activity with a purpose. Stakeholders generate the personal and group decisions which contribute to post-disaster management success.

2.4 Database Management System

[9], developed a web-based support system that was presented to use a web-based support system for flood operations in Malaysia. The system is intentionally designed to improve the process and management of data to provide a rapid and effective response to victims. [5] , designed systems are basically divided into two parts: design of databases and communication design. The purpose of communication design is to provide data updates and data continuity before disaster. As a result, the disaster information system is designed according to the Electronic Government Standard that is always the last method. When the

system is configured, Istanbul is ready to deal with unnecessary results of disasters. [10] also developed an emergency management system using Android applications. The system is intended to function in the case of emergency situations of society. Emergency situations include fires, medical emergencies, external accidents, and emergencies (earthquakes, floods, stretch marks). In this document, they present the Emergency Management System (EMS). This allows ad hoc communication based on smartphone to Wi-Fi disasters. The system works at the beginning of the client-server system, and the server responds to customer requests. EMS client application, rescue application and server implemented. Client and rescue applications have been implemented as Android applications. The server is implemented as a Java application based on the Web. The system was tested using some real Android phones with GPS on the phone through Wi-Fi.

.....[11]. The system "Android Application for Collaborative Mapping in Emergency Situation" creates the map cooperatively, and to communicate the situation in the field when loading multimedia files based on cloud platforms function as a tool for fire departments and other emergency workers to make it possible. Real-time data synchronization support. Instead of flood systems, the emergency allocation flow must be in the current project. [8] in Mobile Flood Assistant (MO-FA): Assisting Flood Victims with Mobile Technology had presented the features and architecture mobile technology to support flood victims and rescue teams. We present the function of application and architecture. The purpose is generally providing early warnings for information modules and flood notification. System also use data obtained from irrigation and drainage units to provide information related to the flood, such as rainfall and water level (HID).

Mo-Fa was developed to have the following two (2) modules and sub-modules:

1. Flood Information and Notification Module
    a) Flood Information

- Provide flood-related information from relevant authorities such as the DID and MetMalaysia.
- Provide instruction and advice to flood victims.

b) Early Warning

- Send a warning message as early warning to the public on possible flood occurrence via SMS notification

c) Evacuation Center

- Display evacuation centers within the vicinity.
- Show route to the nearest evacuation center.

2. eSOS Module

a) Enable flood victims to send SOS message to authority

b) Enable search and rescue team to locate victims

[6] created a system to delete incorrect information, incomplete data, and overload information from database management systems (DBMS) that are sent to users. This article describes the use of emergency comprehensive routing application responses. Context-Aware built-in unit.

[7] showed that the overall framework of this study is the effectiveness of early warning to reduce flood risk in vulnerable communities. Within this framework, it was focused on four areas that were part of the concept of a total flood warning system, namely:

- knowledge of the risks faced.
- technical monitoring and warning service.
- the dissemination of warnings to those at risk
- public awareness and preparedness to act.

Alert writers need to learn more about how the community views risks and the reasons behind their actions when floods threaten them. It must also empower communities

to play an important role in disseminating information before flooding. In addition, regarding the victim early warning system, [12] stated that strengthening early warning systems and disaster response capabilities are essential to minimize the loss of people, property, livelihoods and critical infrastructure in communities. The basic requirements of a prepared community are:

- Warn members of an informed and active community.
- An effective community organization that is identified and plays a constructive role in local emergency management readiness.
- Local governments that have fully established, broadly understood and practiced systems to recognize their role and fulfil their responsibility for community safety from community safety issues; and
- Organizations and communities Can work together to respond to emergencies, seek life and property, and help communities recover.

2.5 Summary

With all the information obtained, we can see how important this system is in helping flood victims. Natural events such as floods can be dealt with if the management system is organized and meets the required criteria. In addition, two-way communication and gathering of all information is the most critical aspect of this system. All information obtained will be evaluated to ensure the effectiveness of the system. Such as data collection and more organized management of flood victims.

CHAPTER 3

METHODOLOGY

3.1 Introduction

A method or set of methods used in software development is known as a software development methodology. Again, it is very broad, but includes the design and development phases and more. It's a different way of looking at waterfall-like phenomena as a non-repetitive process. It usually takes the form of well-defined steps. Its purpose is to define the methods of the software lifecycle.

SDLC (Software Development Lifecycle) is a framework used by development teams to build high-quality software in a structured and cost-effective style. Software companies large and small are all implementing SDLC technology. The team uses a variety of development methods, including Agile, Lean, and Waterfall

3.2 Methodology

A well-designed process will reduce error, remove redundancies, and increase efficiency. With speed, scale, and flexibility, a smart workflow management software may assist you in doing this.

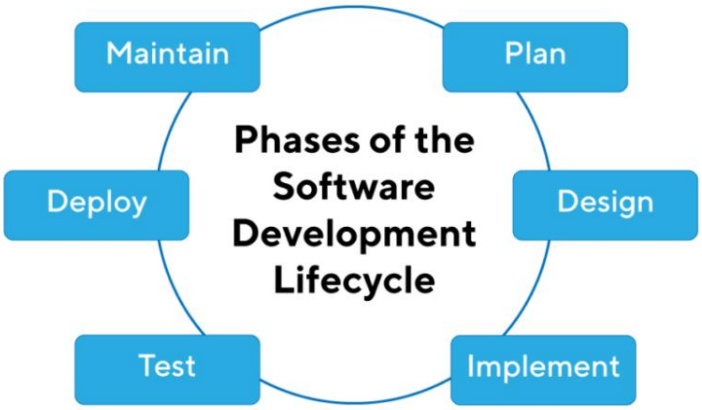


Figure 3.1 SDLC Phase

Given that there are six different stages of the software development life cycle as shown in (3.1), it is important to understand what each step constitutes and why this is important for the overall development of the product.

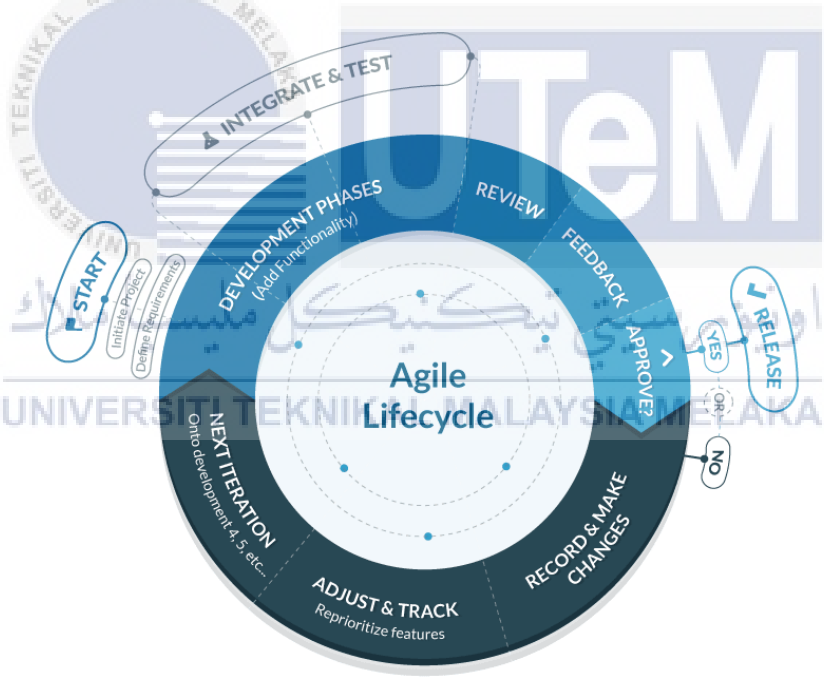


Figure 3.2 Agile Lifecycle

Agile Methodology is the most suitable for this project. Agile are a way to do some really important work. Agile teams spend hours or days on the creation of a full project plan, where the match and inconsistencies match the implementation of the project, and instead start with a fraction of the work, assess progress, and clear the road after receiving enough input to move along.This cycle suggestion make they are on the right track.

3.2.1 Milestone of This Project

Project milestones are events in calendar that indicate a significant achievement or the closure of a major phase of this project. Project milestones are critical for project management and keeping the progress on schedule.

Table 3.1 Milestoned Mobile Based Flood Victim's Management System BDP 1

No	Task Name	Start Date	End Date	Duration
1	Briefing	17th March 2021	17th March 2021	1 day
2	Title Selection	18th March 2021	18th March 2021	1 day
3	Discuss the project with SV	25th March 2021	25th March 2021	1 day
4	Chapter 1: Introduction	27th March 2021	31th March 2021	5 days
5	Redefine Problem	31st March 2021	1st April 2021	2 days
6	Chapter 2: Literature Review	2nd April 2021	30th April 2021	29 days
7	Feasibility Study	1st May 2021	1st May 2021	1 day
8	Understanding Existing System	3rd May 2021	25th May 2021	4 days
9	Submission of 1st Progress	10th May 2021	10th May 2021	1 day
10	Discuss with SV bout project	12th May 2021	12th May 2021	1 day
11	Submission of 2nd Progress	29th May 2021	29th May 2021	
12	Chapter 3: Methodology	26th May 2021	9th June 2021	15 days
13	System Requirement	10th June 2021	11th June 2021	2 days
14	Design the Project	12th June 2021	17th June 2021	6 days
15	Submission of 3rd Progress	17th June 2021	17th June 2021	1 day
16	Prepare Video Presentation , Slide and Recheck Report	18th June 2021	20th June 2021	3 days

No	Task Name	Start Date	End Date	Duration
17	Presentation PSM 1	21st June 2021	22nd June 2021	2 days

Table 3.2 Milestoned Mobile Based Flood Victim's Management System BDP 2

No	Task Name	Start Date	End Date	Duration
1	Initial application design	4th October 2021	10th October 2021	7 day
2	Discuss the project with SV	13thOctober 2021	13th October 2021	1 day
3	Chapter 1 & Chapter 2 Correction	11th October 2021	24th October 2021	14 days
4	Chapter 3 : Methodology ERD Design	18th October 2021	24th October 2021	7 days
5	Database Implementation	18th October 2021	21st November 2021	35 days
6	Submission of 1st Progress	10th November 2021	10th November 2021	1 day
7	Result Analysis and Make Change	22nd November 2021	26th December 2021	35 days
8	Meeting with SV	15th December 2021	15th December 2021	1 day
9	Submission of 2nd Progress	22nd December 2021	22nd December 2021	1 day
10	Chapter 4: Result and Analysis (Documentation)	20th December 2021	9th January 2022	21 day
11	Submission report draft	5th January 2022	5th January 2022	1 day
12	Chapter 5 : Conclusion	2nd January 2021	9th January 2022	7 days
13	Prepare Video Presentation , Slide and Recheck Report	10th January 2022	11th January 2022	2 days
14	Presentation PSM 2	12th January 2021	17th January 2021	6 days

No	Task Name	Week															
		October 2021				November 2021				December 2021				January 2022			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Initial application design																
2	Discuss the project with SV																
3	Chapter 1 & Chapter 2 Correction																
4	Chapter 3 : Methodology ERD Design																
5	Database Implementation																
6	Submission of 1st Progress																
7	Result Analysis and Make Change																
8	Meeting with SV																
9	Submission of 2nd Progress																
10	Chapter 4: Result and Analysis (Documentation)																
11	Submission report draft																
12	Chapter 5 : Conclusion																
13	Prepare Video Presentation , Slide and Recheck Report																
14	Presentation PSM 2																

Figure 3.3 Gantt Chart BDP 1

No	Task Name	Week															
		October 2021				November 2021				December 2021				January 2022			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Initial application design																
2	Discuss the project with SV																
3	Chapter 1 & Chapter 2 Correction																
4	Chapter 3 : Methodology ERD Design																
5	Database Implementation																
6	Submission of 1st Progress																
7	Result Analysis and Make Change																
8	Meeting with SV																
9	Submission of 2nd Progress																
10	Chapter 4: Result and Analysis (Documentation)																
11	Submission report draft																
12	Chapter 5 : Conclusion																
13	Prepare Video Presentation , Slide and Recheck Report																
14	Presentation PSM 2																

Figure 3.4 Gantt Chart BDP 2

3.2.2 Equipment

Table 3.3 Software Application and Operating System

Software	Description	Version
Windows 11 Home Single Language	Operating System	Version 21H2
Android Studio	Android Studio is the official integrated development environment for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.	4.2.1 for Windows 64-bit
Firebase	Cloud Storage for Firebase is a powerful, simple, and cost-effective object storage service built for Google scale. The Firebase SDKs for Cloud Storage add Google security to file uploads and downloads for your Firebase apps, regardless of network quality.	Firebase Android BoM (Bill of Materials) version 28.1.0
Microsoft Office	Report Writing	Office 365 2019
Wondershare EdrawMax	Drawing Tool	10.5.5
Adobe Reader	Documentation	Version 2021.005.20048

3.3 Flowchart of This Project and System

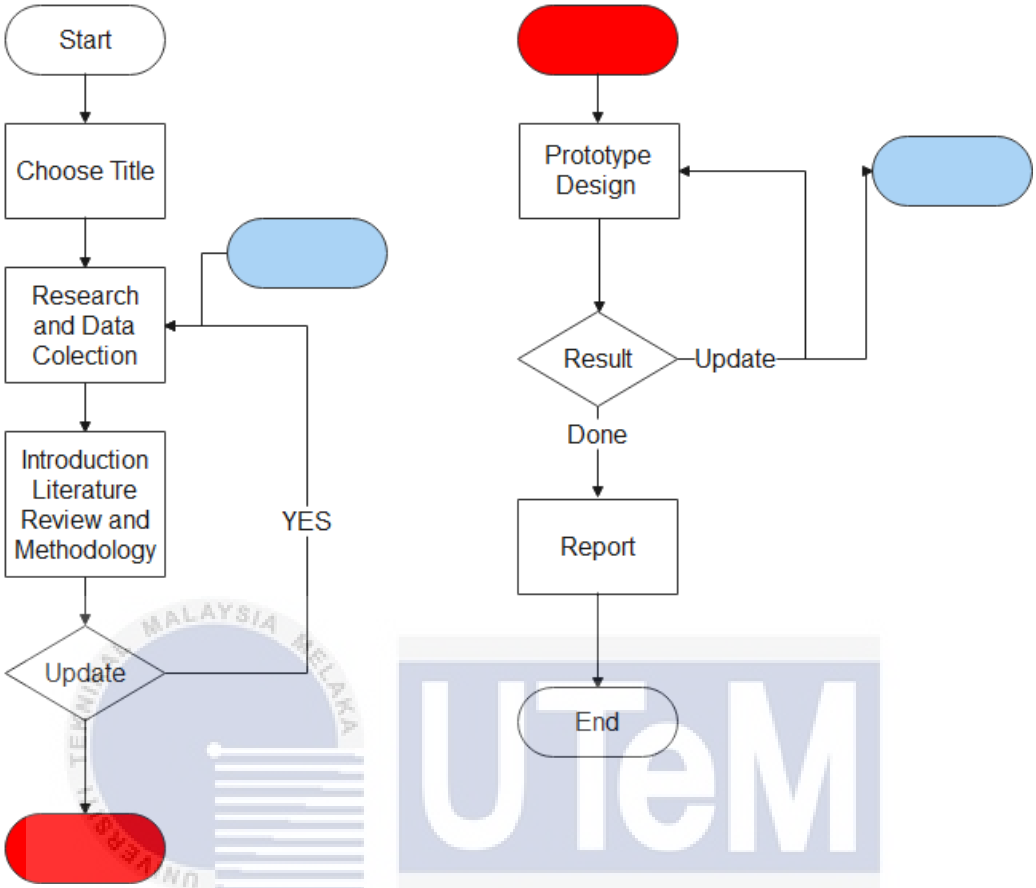


Figure 3.5 Project's Flowchart

Research and data collection is very important in every development of a project because each data will determine the flow of the project. Each data obtained can also be updated or added depending on the latest requirements. Prototype design will be developed after researching and determining the system requirements to ensure the smooth running of the system before the system is fully developed. However, if there is a need such as up -to - date information or necessary improvements. The prototype can be corrected or can be returned to research and data collection if needed. This is to ensure that the system built always meets current needs.

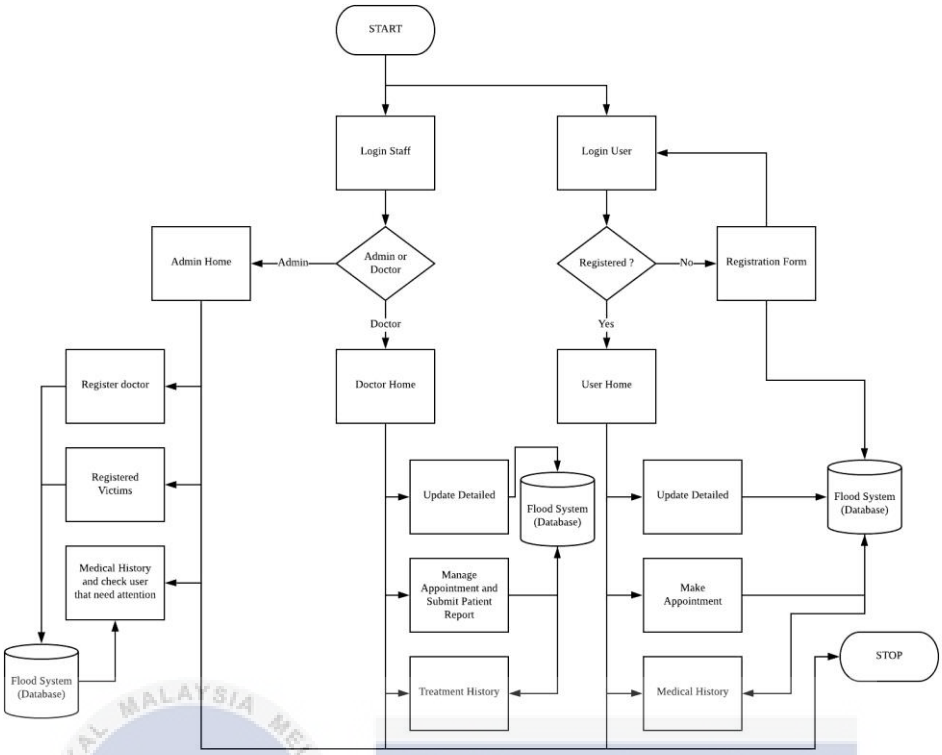


Figure 3.6 Flowchart of System

The system modules were described based on the category of user such as Staff and User.

1. User access level: Staff (Admin and Doctor)

   System Module to handle:

   - Manage User – Register Doctor
   - Manage User – Problem Solving / Health
   - Check All Medical History

2. User access level: User (Victim and Non-Victims)

   System Module to handle:

   - Registration
   - Update Detail
   - Make Appointment
   - Check Medical History

3.4 Data Flow Diagram and Entity Relationship Diagram

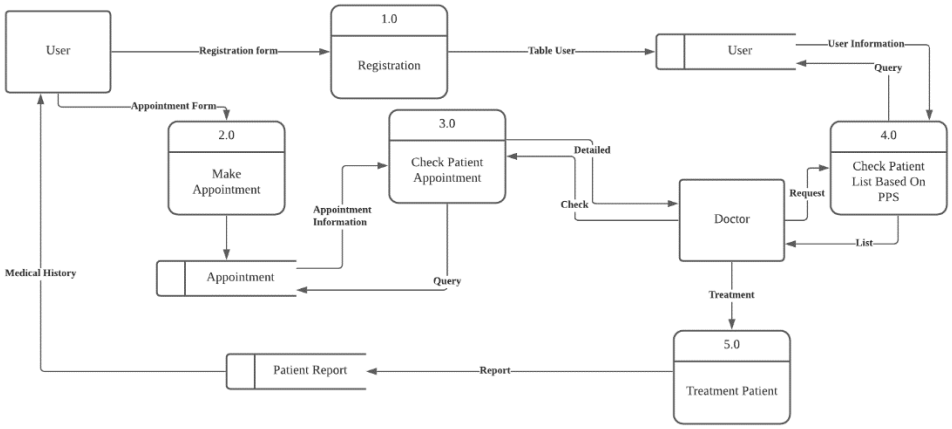


Figure 3.7 Data Flow Diagram Level 1

A data flow diagram above illustrates the flow of information through a specific process. It contains data inputs and outputs, database systems, and the numerous subprocesses through which the data flows. The explanation as below:

a) User

- Fill in registration form and insert into USERS Table .
- User make appointment by fill in the form and inserted to APPOINTMENT Table.
- User can see history by retrieving data from PATIENT REPORT Table.

b) Doctor Flow

- Check all patient appointment detailed for current date and selected PPS.
- If patient dont have or already miss an appointment,doctor can retrieve directly from USER table based on selected PPS.
- Doctor fill in the form of report when make assesment on patient and store on PATIENT REPORT Table.

- Doctor can see history of medical history on patient in whom they have been treated

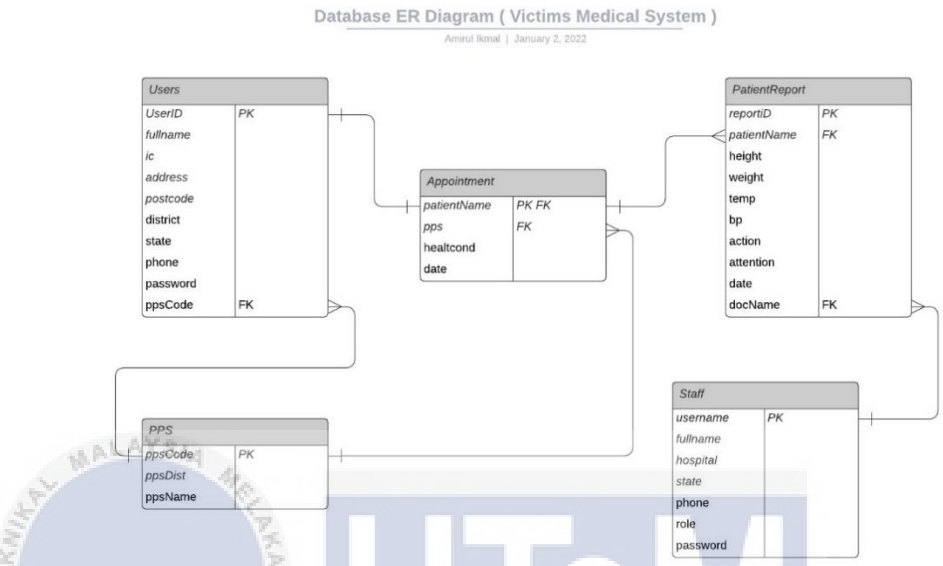


Figure 3.8 Database Entity Relationship Diagram

An entity relationship diagram (ERD) depicts the relationships between entity sets in a database. In this application, an entity is an object, a data component. An entity set is a group of entities that are comparable in certain way. Attributes can be assigned to these entities to specify their properties.

a) Users – Appointment (one-to-one)

- User can only make one appointment
- An appointment is only can have by one user only

b) Users – PPS (one-to-many)

- User can only be in one PPS
- One PPS can have many user

c) Appointment – PPS (one-to-many)

- An appointment can be request on one PPS only.

- PPS can have many appointment

d) PatientReport – Appointment (one-to-many)

- One patient can have many report.
- One report is based on one appointment

e) Staff – Patient Report (one-to-many)

- One staff can asses many report.
- One report asessed only by one staff

3.5 Transaction Requirement

1. Admin (Hospital)

a) Data Entry

- Enter detail of new doctor assigned to flood victims program based on hospital.

b) Data Queries

- List all patient based on PPS selected
- List all doctor in the system based on Admin State.
- List of victims analysis and need attention

2. Admin (Human Resources)

a) Data Entry

- Enter Detail for new PPS victims.

b) Data Queries

- List all patient based on PPS selected
- List all medical history where victims need hospital attention.

3. Doctor

a) Data Entry

- Enter detail of patient report.

b) Data Update / Deletion

- Delete data from appointment on selected user
- Update Patient to no appointment when patient report submitted

c) Data Queries

- List medical history based on that current doctor

4. User

a) Data Entry

- Enter the detail of user.
- Enter detailed appointment

b) Data Update / Deletion

- Update user information

c) Data Queries

- List Medical History

3.6 Summary

This chapter explained about project planning and system requirement in developing the system. This method is to ensures that every development system runs smoothly, and any development planning can be completed on time. This to set that system can be completed in the stipulated time to avoid the development activities of the system interrupted.

CHAPTER 4

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results and analysis on the development of flood victims mobile based sytem. So, with the work planning procedure and methodology, this system will be built from one stage to another. Design phase is the phase where design and analysis will conduct in more details ways. Each of the system design will be developing according to the module such as login, insert, update and delete like stated in system analysis part. Each of the interface design will explain the input and output of the system. Database design also included in this phase as it will make sure that every single data will be inserting in a correct way.

4.2 Function Module and Specification

Function modules are sub-programs that contain a set of reusable statements with importing and exporting parameters while A user interface specification (UI specification) is a document that captures the details of the software user interface into a written document. The specification covers all possible actions that an end user may perform and all visual, auditory and other interaction elements.

4.2.1 User

4.2.1.1 Registration

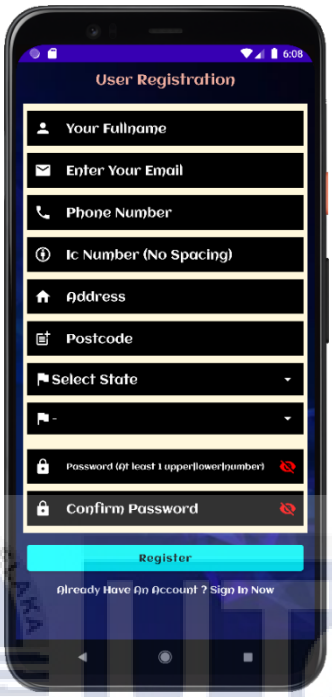


Figure 4.1 Registration Form

In this registration interface , users will fill in the form as shown in (4.1) above . The registration detail will be inserted in database. Once the users complete registration , they can log in to the system and also make it easy to make an appointment without insert any detail again.

Table 4.1 Reqistration Query

Expected : Getting user input and register to firebase by using email and password authentication.
Query

```
UserHelperClass helperClass = new
UserHelperClass(role,fullname,email,phone,ic,address,postcode,district,
state,password,pps,app);

mAuth.createUserWithEmailAndPassword(email,password).addOnCompleteListe
ner(task -> {
    if(task.isSuccessful()){
        Toast.makeText(PatientRegister.this,"User
```

Query

```
Created",Toast.LENGTH_SHORT).show();

reference.child(FirebaseAuth.getInstance().getCurrentUser().getUid()).s
etValue(helperClass);
        loader.dismiss();
        Intent intent = new
Intent(PatientRegister.this,LoginActivity.class);
        finish();
}else{
Toast.makeText(PatientRegister.this,"Error ! " +
task.getException().getMessage(),Toast.LENGTH_SHORT).show();
        loader.dismiss();
    }
});
```

Testing Report

System : Flood Victim's System Version : 1.0

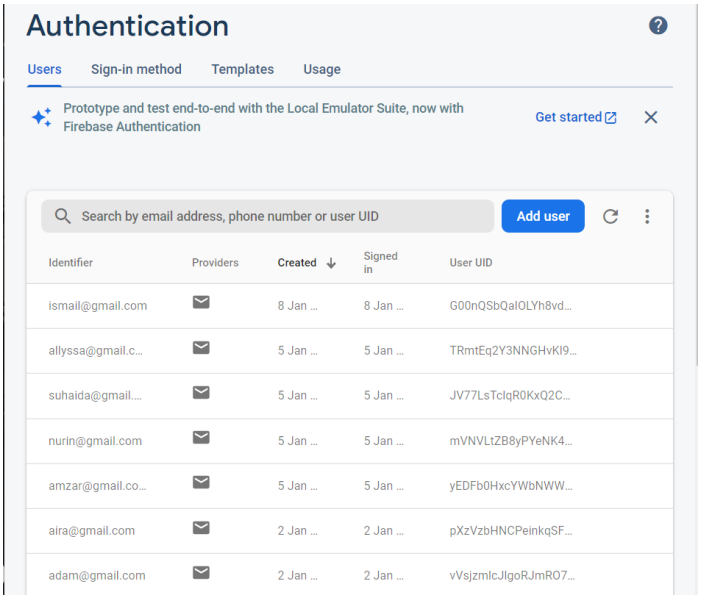
Module : Registration

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.2 User Registration Testing

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS - 1001	Form Required		OK
FVS – 1001 A	Validate all value	Error message if wrong format of value	OK
FVS – 1001 B	Inserting Data		OK
FVS – 1001 C	Intent to Login Page		OK

Result :



4.2.1.2 Login

Figure 4.2 Login Form

Login Module is a portal where user request for authentication to enter thee system. This system module request user to insert their email and password before authenticate the data and direct the user to main page if data inserted match to database data.

Table 4.3 Login Script

Expected : Login by using email and password in Firebase Authentincation

Script

```
mAuth.signInWithEmailAndPassword(email,password).addOnCompleteListener(
new OnCompleteListener<AuthResult>() {
    @Override
    public void onComplete(@NonNull Task<AuthResult> task) {
        if(task.isSuccessful()
Intent(LoginActivity.this,UserHome.class));
        }else{
            Toast.makeText(LoginActivity.this,"Failed to
Login",Toast.LENGTH_SHORT).show();
        }
    }
});
){
            startActivity(new

(task -> {
    if(task.isSuccessful()){
        Toast.makeText(PatientRegister.this,"User
Created",Toast.LENGTH_SHORT).show();

reference.child(FirebaseAuth.getInstance().getCurrentUser().getUid()).s
etValue(helperClass);
        loader.dismiss();
        Intent intent = new
Intent(PatientRegister.this,LoginActivity.class);
        finish();
    }else{
        Toast.makeText(PatientRegister.this,"Error ! " +
task.getException().getMessage(),Toast.LENGTH_SHORT).show();
        loader.dismiss();
    }
});
```

Testing Report

System : Flood Victim's System	Version : 1.0
Module : User Login	
Made By : Amirul Ikmal Bin Musa	Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.4 Login Module testing

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 1002	Form Required		OK
FVS – 1002 A	Validate all value	Error message if wrong format of value inserted or data not existed	OK
FVS – 1002 B	Authentication		OK
FVS – 1002 C	Intent to User Homepage		OK

4.2.1.3 Make Appointment

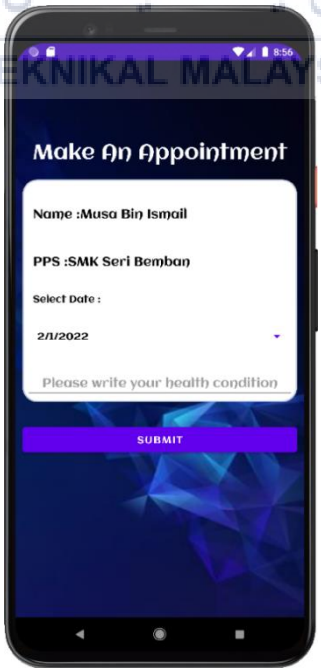


Figure 4.3 Appointment Form 32

Appointment module for user access-level is to make an appointment by select date to make an appointment. After submitting data. A trigger function will make user homepage display when user have appointment and also restricted user to make another apppointment until they see the doctor.

Table 4.5 Appointment Query

Expected : Insert appointment information by using userId Query

`referenceApp = rootNode.getReference("Appointment");`
 	
`AppHelperClass appointment = new AppHelperClass(fullname,pps2,date,healthCond);`
 	
`referenceApp.child(fullname).setValue(appointment);`
`Toast.makeText(PatientAppointment.this,"Data Inserted",Toast.LENGTH_SHORT).show();`
`Intent intent = new Intent(PatientAppointment.this,UserHome.class);`
`startActivity(intent);`

Testing Report

System : Flood Victim's System Version : 1.0

Module : Make Appointment

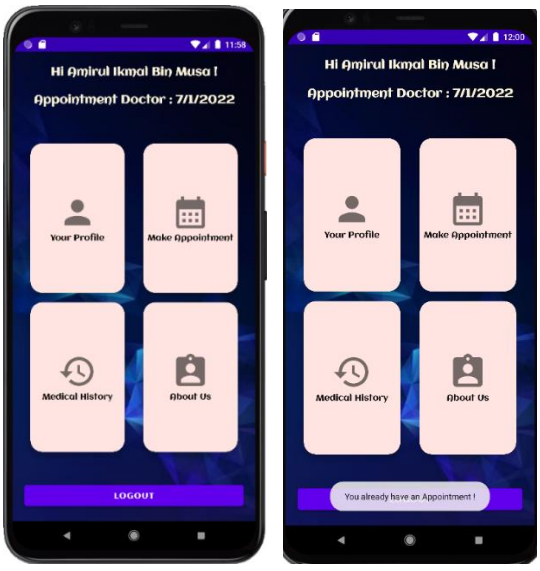
Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

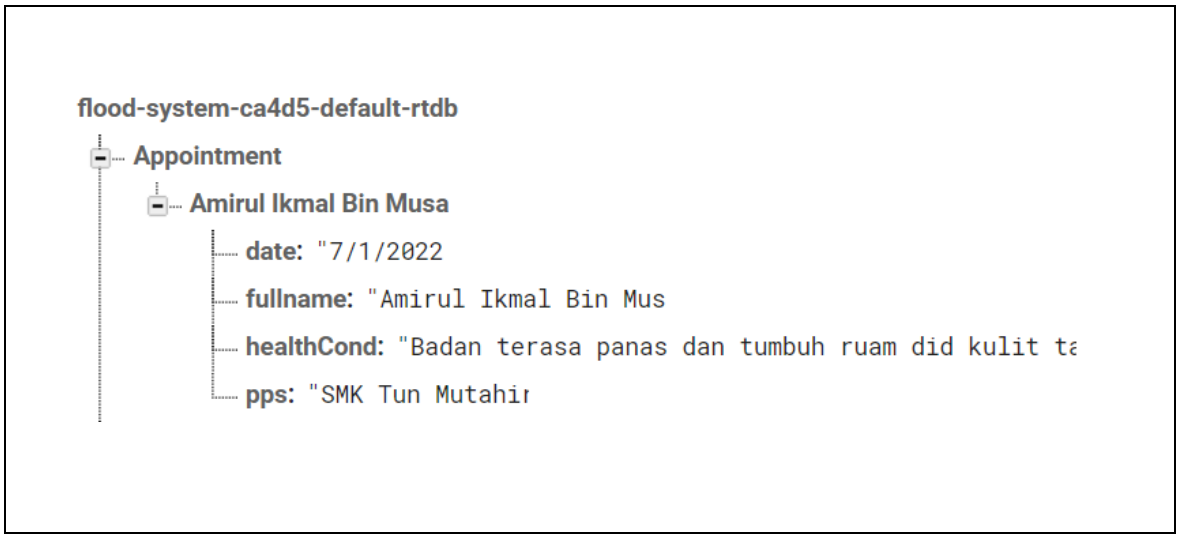
Table 4.6 Make Appointment Testing

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 1003	Form Required		OK
FVS – 1003 A	Validate all value	Error message if wrong format of value inserted	OK

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 1003 B	Inserting Data	Data exist in database after inserted.	OK
FVS – 1003 C	Intent to User Homepage		OK
FVS – 1003 D	Trigger (Display Date)	Show appointment date on user home page	OK
FVS – 1003 E	Trigger (Restricted Appointment)	Can't make other appointment if already have one.	OK

Result :





4.2.1.4 Medical History

Figure 4.4 User Medical History View

This module where all current user medical treatment history is retrieve from database and be shown to the user as information detail for that appointment. Report appear in list and sorted by newest report first.

Table 4.7 User Medical History Query

Expected : Getting user medical treatment history at PPS from database.

Query

```
database =
FirebaseDatabase.getInstance().getReference("PatientReport").orderByChi
ld("patientName").equalTo(fullname);

database.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            ReportHelperClass user =
dataSnapshot.getValue(ReportHelperClass.class);
            userList.add(user);
        }
        myAdapter.notifyDataSetChanged();
    }
});
```

Testing Report

System : Flood Victim's System Version : 1.0

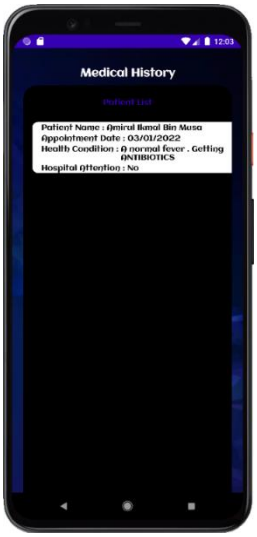
Module : User Medical History

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.8 Medical History Testing

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 1004	Retrieving Data		OK
FVS – 1004 A	Show data in list		OK

Result :



4.2.2 Doctor

4.2.2.1 Patient List

Figure 4.5 Doctor - Patient List View

This list view in the patient list module is the view that list all patient/victims registered in selected PPS. Its tabular view for the users with details of name , ic number , phone number and also appointment that if they have upcoming appointment or already miss the appointment..

Table 4.9 Patient List Query

Expected : Getting patient list from database filtering on selected PPS.

Query

```
database =
FirebaseDatabase.getInstance().getReference("Users").orderByChild("pps"
).equalTo(ppsName);

database.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            UserHelperClass user =
dataSnapshot.getValue(UserHelperClass.class);
            userList.add(user);
        }
        myAdapter.notifyDataSetChanged();
    }
```

Testing Report

System : Flood Victim's System Version : 1.0

Module : Patient List (Doctor View)

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.10 Patient List Testing

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 2001	Retrieving Data		OK
FVS – 2002 A	Show data in list		OK

Result :

4.2.2.2 Current Date Appointment

This list view in the patient list module is the view that list all patient/victims registered in selected PPS where they have appointment on current date. Its tabular view for the users with details of name , ic number and problem that being submit..

Table 4.11 Patient Appointment on Current Date Query

This part user interface is exactly like (4.5). Expected : Getting patient list from database filtering on selected PPS and current date. Query

```
database =
FirebaseDatabase.getInstance().getReference("Appointment").orderByChild
("pps").equalTo(ppsName);

database.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            AppHelperClass user =
```

```
dataSnapshot.getValue(AppHelperClass.class);
            String tday = user.getDate();
            if(getTodaysDate().equals(tday)){
                appList.add(user);
            }

        }
        myAdapter.notifyDataSetChanged();
    }
});
```

Testing Report

System : Flood Victim's System Version : 1.0

Module : User with an Appointment

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.12 Patient Appointment Listing Report

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 2002	Retrieving Data		OK
FVS – 2002 A	Show data in list		OK

Result :

4.2.2.3 Submit Report

Figure 4.6 Report Form

This module contain report form that doctors need to fill on selected patient in the patient list module. The data inserted to database storage and aslo triggered update to delte previous appointment if have and also change to patient currently doesnt have any appointment and patien can make appointment again if needed.

Table 4.13 Patient Report Query

Expected : Inserting patient report detail by using user id.
Query
`reference = FirebaseDatabase.getInstance().getReference().child("PatientReport"); reference.push().setValue(report);`

Testing Report

System : Flood Victim's System Version : 1.0

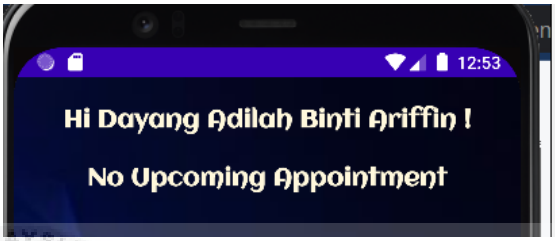
Module : Patient Medical Report

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.14 Report Submission Report

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 2003	Form Required		OK
FVS – 2003 A	Validate all value		OK
FVS – 2003 B	Inserting Data	Inserting data into PatientReport table	OK
FVS – 2003 C	Intent to Homepage		OK
FVS – 2003 D	Trigger (Delete Data)	Delete data from Appointment table on selected user	OK
FVS – 2003 E	Trigger (Update Data)	Update user data to No appointment .	OK
Result :			

Result :



4.2.2.4 Treatment History

This list view in the patient list module is the view that list all patient/victims that have been treated by current doctor at selected PPS. Its tabular view for the users with details of name , ic number and and what have been done by the doctor.

Table 4.15 Report History Query

This part user interface is exactly like (4.5).

Expected : Getting patient report from database filtering on current doctor

Query

```
database =
FirebaseDatabase.getInstance().getReference("PatientReport").orderByChi
ld("docName").equalTo(docName);

database.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            ReportHelperClass user =
dataSnapshot.getValue(ReportHelperClass.class);
```

Query

```
                userList.add(user);
            }
            myAdapter.notifyDataSetChanged();
        }
    });
```

Testing Report

System : Flood Victim's System Version : 1.0

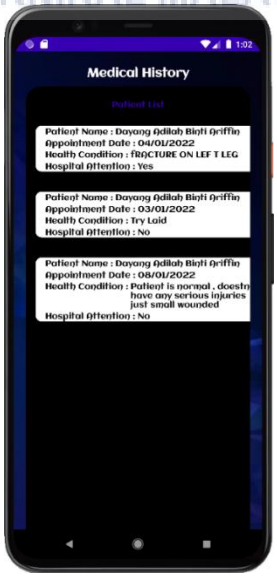
Module : User Medical History

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.16 Patient Treatment History (Doctor View)

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 1004	Retrieving Data		OK
FVS – 1004 A	Show data in list		OK

Result :



4.2.3 Admin (Hospital)

4.2.3.1 Patient Attention

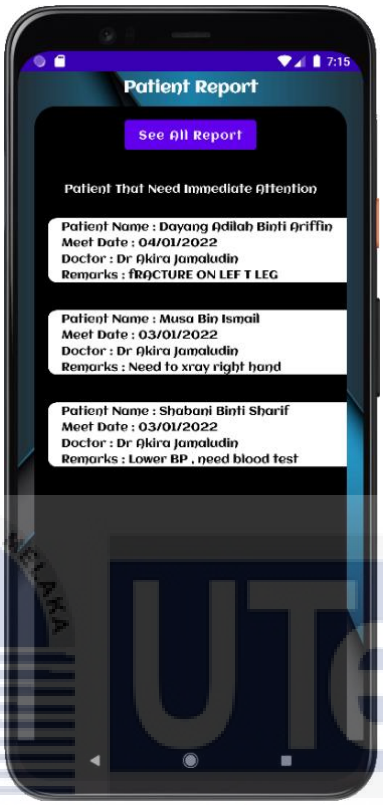


Figure 4.7 Patient that Need Attetion

This list view in the patient list module is the view that list all patient/victims that immediate attention from hospital and the data is limited of PPS in that admin state area. Its tabular view for the users with details of patient name , meet date , doctor-in-charge and remarks for hospital information.

Table 4.17 Patient Attention Query

Expected : Getting patient detail that need immediate attention from hospital Query
`database = FirebaseDatabase.getInstance().getReference("PatientReport").orderByChild("attention").equalTo("Yes");`

```
database.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            ReportHelperClass user =
dataSnapshot.getValue(ReportHelperClass.class);
            String state = user.getState();
            if(adminState.equals(state)){
                userList.add(user);
            }
        }
        myAdapter.notifyDataSetChanged();
    }
}
```

Testing Report

System : Flood Victim's System Version : 1.0

Module : Patient Attention

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.18 Patient Attention Testing (Hospital View)

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 30001	Retrieving Data		OK
FVS – 3001 A	Show data in list		OK

Result :

Result :

4.2.3.2 Patient Report List

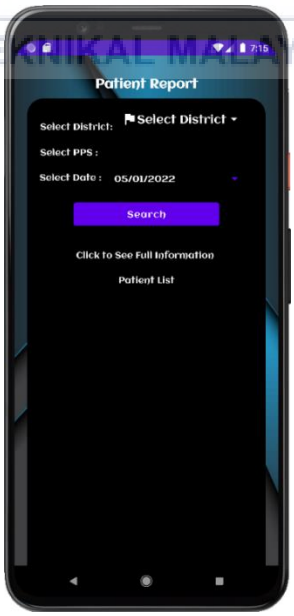


Figure 4.8 Patient Report List

This list view in the patient list module is the view that list all patient/victims that have been treated by current doctor at selected PPS and selected date. Its tabular view for the patient with details of name , ic number and and what have been done by the doctor If this list clicked on specific patient full report that can be print will display.

Table 4.19 Patient report List Query

Expected : Getting patient report from database filtering on selected PPS and date.
Query

```
database =
FirebaseDatabase.getInstance().getReference("PatientReport").orderByChi
ld("pps").equalTo(ppsName);

database.addValueEventListener(new ValueEventListener() {

    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            ReportHelperClass user =
dataSnapshot.getValue(ReportHelperClass.class);

            String dat = user.getDate();
            if(selectDate.equals(dat)){
                userList.add(user);
            }
        }
        myAdapter.notifyDataSetChanged();
    }
}
```

Testing Report

System : Flood Victim's System Version : 1.0

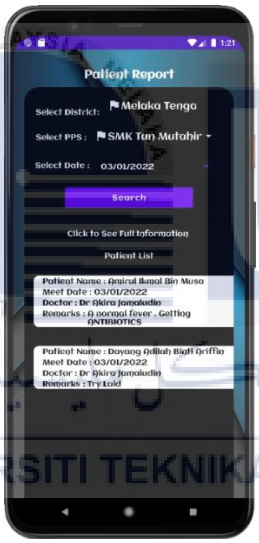
Module :Medical History (Hospital View)

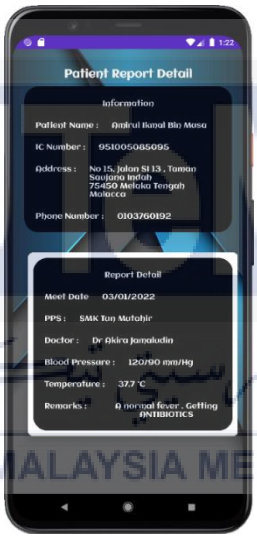
Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

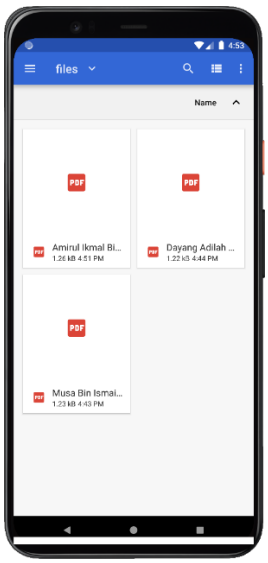
Table 4.20 Patient Medical History Testing (Hospital View)

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 3002	Retrieving Data		OK
FVS – 3002 A	Show data in list		OK
FVS – 3002 B	Show full data		OK
FVS – 3002 C	PDF print		OK

Result :







4.2.3.3 Doctor List

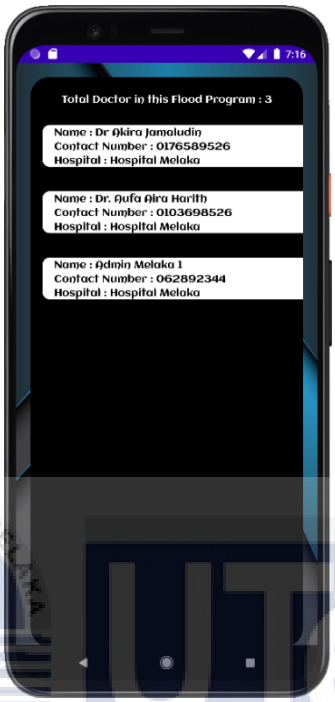


Figure 4.9 Doctor List

This list view in the patient list module is the view that list all doctor that assigned to this flood victims medical suppot program. Its tabular view for the doctors with details of name , contact number and and hospital which the doctor works for.

Table 4.21 Doctor List Query

Expected : Getting doctor list that assigned to flood program by filtering on admin's hospital name. Query:

```
recyclerView.setAdapter(myAdapter);

database.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            StaffHelperClass user =
dataSnapshot.getValue(StaffHelperClass.class);
```

Query :

```
            list.add(user);
            kira++;
}
        myAdapter.notifyDataSetChanged();
        tunjuk.setText("Total Doctor in this Flood Program : " + kira);
    }
```

Testing Report

System : Flood Victim's System Version : 1.0

Module : Doctor List

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.22 Doctor List Testing

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 3003	Retrieving Data		OK
FVS – 3003 A	Show data in list		OK

Result :

4.2.3.4 Patient List

Table 4.23 Patient List Query (PPS)

This part user interface is exactly like (4.5).

Expected : Getting patient report from database filtering on selected PPS name.

Query

```
database =
FirebaseDatabase.getInstance().getReference("Users").orderByChild("pps"
).equalTo(ppsName);

database.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            UserHelperClass user =
dataSnapshot.getValue(UserHelperClass.class);
            appList.add(user);
            kira++;

        }
        myAdapter.notifyDataSetChanged();
  }
```


Testing Report

System : Flood Victim's System Version : 1.0

Module : User Medical History

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.24 Patient List Testing (Admin Hospital View)

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 1004	Retrieving Data		OK
FVS – 1004 A	Show data in list		OK

Result :

4.2.3.5 Register Doctor

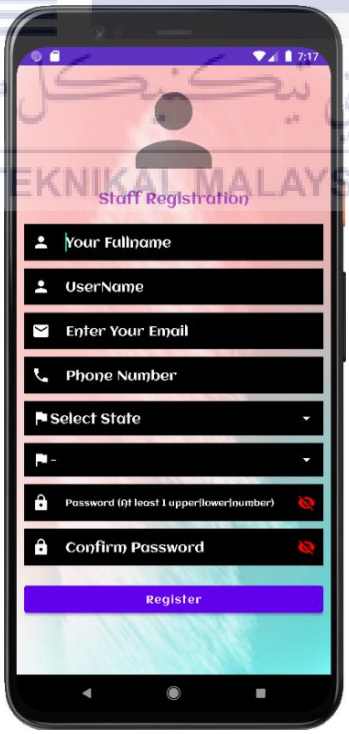


Figure 4.10 Doctor Registration Form

In this registration interface , current hospital's admin will fill in the form as shown in (4.10) above about new doctor details that been added to flood medical support team. The registration detail will be inserted in database. Once the admin complete registration , they can log in to the system and also make it easy to make an appointment without insert any detail again.

Table 4.25 Doctor Registration Query

Expected : Submitting doctor registration details in database by using email and password but using username as key.
Query

```
mAuth.createUserWithEmailAndPassword(email,password).addOnCompleteListe
ner(task -> {
    if(task.isSuccessful()){
        Toast.makeText(StaffRegister.this,"User
Created",Toast.LENGTH_SHORT).show();
        reference.child(username).setValue(helperClass);
        loader.dismiss();
        Intent intent = new
Intent(StaffRegister.this,LoginActivity.class);
        startActivity(intent);
        finish();
    }else{
        Toast.makeText(StaffRegister.this,"Error ! " +
task.getException().getMessage(),Toast.LENGTH_SHORT).show();
        loader.dismiss();
    }
})
```

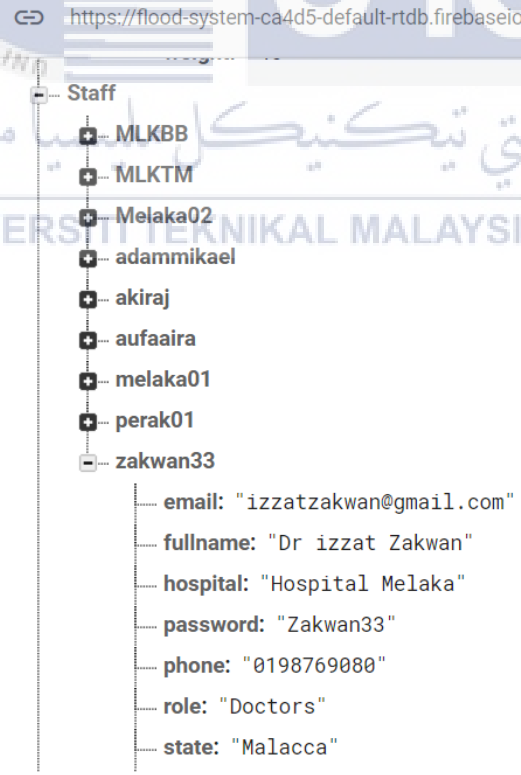
Testing Report

System : Flood Victim's System	Version : 1.0
Module : Doctor Registration	
Made By : Amirul Ikmal Bin Musa	Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.26 Doctor Registration Testing

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 3005	Form Required		OK
FVS – 3005 A	Validate all value		OK
FVS – 3005 B	Inserting Data	Inserting data into Staff table with role Doctors on admin hospital.	OK
FVS – 3005 C	Intent to admin homepage		OK

Result :



4.2.4 Admin (PPS)

4.2.4.1 Victims List On PPS

Figure 4.11 Victim List

This list view in the patient list module is the view that list all victims that been registered to current admin PPS. Its tabular view for the victims with details of name, ic number , contact number and victim's address.

Table 4.27 Victim List Query

Expected : Submitting doctor registration details in database by using email and password but using username as key.
Query

```
database =
FirebaseDatabase.getInstance().getReference("Users").orderByChild("pps"
).equalTo(ppsName);

database.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            UserHelperClass user =
dataSnapshot.getValue(UserHelperClass.class);
```

```
                userList.add(user);
            }
            myAdapter.notifyDataSetChanged();
        }
}
```

Testing Report

System : Flood Victim's System Version : 1.0

Module : Victims List

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.28 Victim's List Testing (Doctor View)

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 4001	Retrieving Data		OK
FVS – 4001 A	Show data in list		OK

Result :

4.2.4.2 Immediate Attention

Figure 4.12 Immediate Attention

This list view in the patient list module is the view that list all patient/victims that immediate attention from hospital and the data is limited on current admin's PPS. Its tabular view for the users with details of patient name , meet date , doctor-in-charge and remarks for admin information.

Table 4.29 Immediate Attention Query

Expected : Submitting doctor registration details in database by using email and password but using username as key.
Query

```
database =
FirebaseDatabase.getInstance().getReference("PatientReport").orderByChi
ld("attention").equalTo("Yes");

database.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(@NonNull DataSnapshot snapshot) {
        for(DataSnapshot dataSnapshot : snapshot.getChildren()){

            ReportHelperClass user =
dataSnapshot.getValue(ReportHelperClass.class);
            String pps = user.getPps();
```

```
                if(ppsName.equals(pps)){
                    userList.add(user);
                }
            }
            myAdapter.notifyDataSetChanged();
        }
    }
```

Testing Report

System : Flood Victim's System Version : 1.0

Module : Victims List

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.30 Patient List Testing (Need Attention Only)

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 4002	Retrieving Data		OK
FVS – 4002 A	Show data in list		OK
FVS – 4002 B	Show full data		OK
FVS – 4002 C	PDF print		OK

Result :

Result :

4.2.4.3 Register Victim at PPS

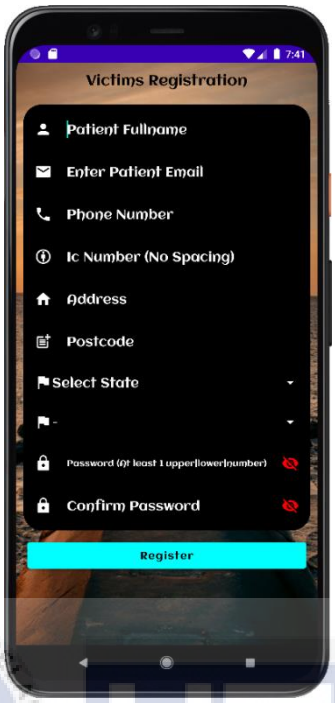


Figure 4.13 Register New Victims

In this victims registration interface , current PPS admin will fill in the form as shown in (4.13) above about new victims details that been added to pps where user cant register on themselve. This module is to make sure every victims on that PPS is registered to the system so that doctor can treat and submit the report about the patient. The registration detail will be inserted in database. Once the admin complete registration , victims also can log in to the system and also make it easy to make an appointment without insert any detail again.

Table 4.31 Register Victim Query

Expected : Submitting doctor registration details in database by using email and password but using username as key.
Query

```
UserHelperClass helperClass = new
UserHelperClass(role,fullname,email,phone,ic,address,postcode,district,
state,password,pps,app);

mAuth.createUserWithEmailAndPassword(email,password).addOnCompleteListe
```

```
ner(task -> {
    if(task.isSuccessful()){
        Toast.makeText(HRRegister.this,"User
Created",Toast.LENGTH_SHORT).show();

reference.child(FirebaseAuth.getInstance().getCurrentUser().getUid()).s
etValue(helperClass);
        loader.dismiss();
        Intent intent = new Intent(HRRegister.this,HRActivity.class);
        finish();
    }else{
        Toast.makeText(HRRegister.this,"Error ! " +
task.getException().getMessage(),Toast.LENGTH_SHORT).show();
        loader.dismiss();
    }
});
```

Testing Report

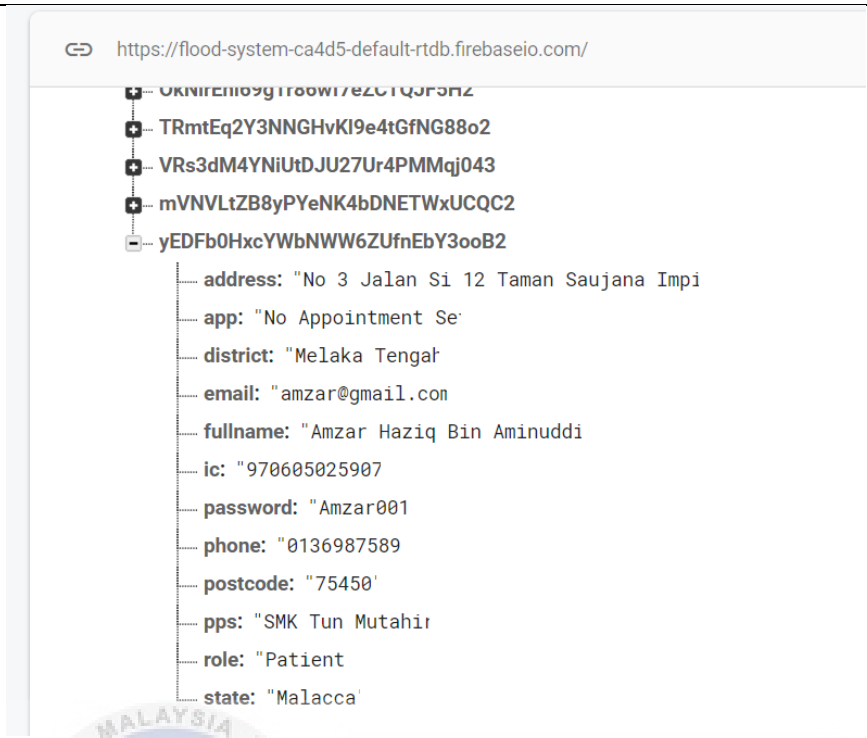
System : Flood Victim's System Version : 1.0

Module : Victims / Users Registration

Made By : Amirul Ikmal Bin Musa Date : 2 / 1 / 2022 – 8 / 1 / 2022

Table 4.32 List of Victims in Current PPS Testing

Testing No	Action	Expected Result	Real Result (OK/FAIL)
FVS – 3005	Form Required		OK
FVS – 3005 A	Validate all value		OK
FVS – 3005 B	Inserting Data	Inserting data into Users on admin PPS.	OK
FVS – 3005 C	Intent to admin homepage		OK
Result :			



4.3 Summary

This chapter contain full implementation for this system include database , interface and data handling. Throughout the project the analysis, development, implementation and testing phases will be conducted using, the requirement standard, agile development life cycle. This specifies that changes can be made if required and appropriate. This system analysis report is intended for all the project's major stakeholders: the victims, doctors and hospital.For overall , this system run without any problem and succesfully follow the module needed.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

In this project, a mobile phone -based system was developed from the beginning covering the planning phase , design and implementation , testing and report analysis. To conclude from this project's objective are to collect victims medical report data and communicate multiway information between data in PPS and report to hospital. Based on all result implementation and testing, User can submit appointment and see history of medical treatment . While the data submitted from PPS can be accesed by hospital to see which patient need immediate attention from hospital. So that the information given is accurate and shorten the duration taken to inform hospital. Admin can see who need immediate attention as their initial observation and decide what should be done next. All the objectives accomplished.

5.2 Future Works

As for the future work, this system can be improved to be a bigger mobile based system by becoming flood disaster management which include information about meteorological report, flood information, stock, asset, volunteer and also transaction fund management.

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APPENDICES