QD SYSTEM

NUR DAYANA AINI
BINTI MOHAMAD RUSLI

UNIVERSITI MALAYSIA PAHANG

DECLARATION OF THESIS AND COPYRIGHT

Author's Full Name : NUR DAYANA AINI BINTI MOHAMAD RUSLI

Date of Birth : 28 MARCH 2002

Title : QD System

Academic Session : 2021/2022

I declare that this thesis is classified as:

☐	CONFIDENTIAL	(Contains confidential information under the Official Secret Act 1997)*
☐	RESTRICTED	(Contains restricted information as specified by the organization where research was done)*
☑	OPEN ACCESS	I agree that my thesis to be published as online open access (Full Text)

I acknowledge that Universiti Malaysia Pahang reserves the following rights:

1. The Thesis is the Property of Universiti Malaysia Pahang
2. The Library of Universiti Malaysia Pahang has the right to make copies of the thesis for the purpose of research only.
3. The Library has the right to make copies of the thesis for academic exchange.

Certified by:

(Student's Signature)	(Supervisor's Signature)
020328020354 New IC/Passport Number Date: 12/1/2022	ZALILI BINTI MUSA Name of Supervisor Date: 12/1/2022

NOTE : * If the thesis is CONFIDENTIAL or RESTRICTED, please attach a thesis declaration letter.

THESIS DECLARATION LETTER (OPTIONAL)

Librarian,
Perpustakaan Universiti Malaysia Pahang,
Universiti Malaysia Pahang,
Lebuhraya Tun Razak,
26300, Gambang, Kuantan.

Dear Sir,

CLASSIFICATION OF THESIS AS RESTRICTED

Please be informed that the following thesis is classified as RESTRICTED for a period of three (3) years from the date of this letter. The reasons for this classification are as listed below.

Author's Name	NUR DAYANA AINI BINTI MOHAMAD RUSLI
Thesis Title	QD SYSTEM
Reasons	(i)PTA 1
	(ii)
	(iii)

Thank you.

Yours faithfully,

_____
(Supervisor's Signature)

Date:

Stamp:

Note: This letter should be written by the supervisor, addressed to the Librarian, *Perpustakaan Universiti Malaysia Pahang* with its copy attached to the thesis.

SUPERVISOR'S DECLARATION

I/We* hereby declare that I/We* have checked this thesis/project* and in my/our* opinion, this thesis/project* is adequate in terms of scope and quality for the award of the Diploma of Computer Science

_____

(Supervisor's Signature)

Full Name :ZALILI BINTI MUSA

Position : LECTURE

Date : 12/11/2022

STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other PTA1 at Universiti Malaysia Pahang or any other institutions.

_____

(Student's Signature)

Full Name : NUR DAYANA AINI BINTI MOHAMAD RUSLI

ID Number : CC20096

Date : 22 OCT 2021

QD SYSTEM

NUR DAYANA AINI BINTI MOHAAMD RUSLI

Thesis submitted in fulfillment of the requirements
for the award of the Diploma Science Computer

Faculty of Computing

UNIVERSITI MALAYSIA PAHANG

JANUARY 2022

ABSTRACT

Until early April 2020 Malaysian government developed an application known as MySejahtera to assist in monitoring the Covid-19 outbreak. This project scope focus on monitoring system from IoT and relate it to current pandemic happen to the world. The methods of protection employed to secure internet-connected or network-based devices are referred to as IoT security. To study how the security monitoring system can help to break the chain of Covid-19 in our country. That is when an idea came out for this project to develop a system named 'QD'initial from Quarantine Days. As a result, a wide range of approaches have been categorized as IoT security. Because the Internet of Things is so vast, IoT security is evenmore so. At the same time to break the Covid-19 chain from spreading and infect people. Security and monitoring system exactly related with this project as this project goal to secure people health by using IoT secure system to track or monitor and alert people using individual internet connected devices. To design and develop quarantine system that can trace and avoid people from having movement other than their quarantineplace such as hotel, house or hostel for 14 days. The government work in various ways to prevent Corona Virus from spreading treat Covid-19 patient in our country, Malaysia. So, I came out with an idea to make a system special for people who will undergo quarantine only. It shows that particular person had diagnose with positive Covid-19 and definitely ongoing their quarantine. Every people need to work together tobreak the Covid-19 chain as soon as possible to heal the country economy state too.

.

Contents

CHAPTER 1 INTRODUCTION

1.0 Background of Study

It is almost 3 years pandemic starting from December 2019 till 2021. As previously informed, the first wave of Coronavirus Disease 2019 (COVID-19) infection in Malaysia which included 22 COVID-19 positive cases (i.e., the first case to the 22nd case) was healthy and discharged. After 11 days no new cases were reported, the second wave began on February 27, 2020. For the second wave until March 4, 2020, there were a total of 28 COVID-19 positive cases (i.e. the 23rd case to the 50th case) that were reported. The government work in various ways to prevent Corona Virus from spreading treat Covid-19 patient in our country, Malaysia. Until early April, 2020 Malaysian government developed an application known as MySejahtera to assist in monitoring the Covid-19 outbreak. During post-covid people cannot avoidworking on their daily business for our economy to continue lives where people need to go from one place to another place to settle their work or study. At the same time, it means that, social gatherings, events and crowds will be at many places such as offices, companies, schools, universities and many more public places. That is when quarantine terms become familiar to people during the pandemic.

Based on research, found that there is no certain or typical application developed yet foronly people who will be doing quarantine with a usual minimum of 14 days in Malaysia. So, I came out with an idea to make a system special for people who will undergo quarantine only. There will be many features that will help to secure, update and monitor people during the time of quarantine. However, when the government implements a tracking program, there will always be concerns about personal information and data privacy stored in the system, which will influence individuals' willingness to utilize the technology or vice versa [1]. The methods of protection employed to secure internet-connected or network-based devices are referred to as IoT security.

The word "Internet of Things" is quite wide, and as technology advances, the term will only become more so. Almost every modern gadget, from watches to thermostats to video game consoles, may interface with the internet or other devices in some way. Because the Internet of

Things is so vast, IoT security is even more so. As a result, a wide range of approaches have been categorized as IoT security. Application programmed interface (API) security, public key infrastructure (PKI) authentication, and network security are just a few of the strategies IT leaders can employ to tackle the growing threat of cybercrime and cyberterrorism stemming from insecure IoT devices. Security and monitoring system exactly related with this project as this project goal to secure people health by using IoT secure system to track or monitor and alert people using individual internet connected devices.

1.1 Problem Statement

"We have identified the two individuals, aged 23 and 46. They are close contacts of a Covid-19 patient and were supposed to be in home quarantine from Aug 14 to Aug 24 but saw at a restaurant wearing pink wristbands" said OCPD Supt Sohaimi Ishak. "The case is being investigated under Section 22(b) of the Prevention and Control of Infectious Diseases Act 1988 and offenders could be issued a RM5,000 compound notice if found guilty" he added. Malaysian especially very familiar with a condition of people who wear pink wristband *[Figure 1]*. It shows that particular person had diagnose with positive Covid-19 and definitely ongoing their quarantine. [2] Based on the news, it is clearly state the problem which people cannot manage themselves without the authorities during quarantine. That is when an idea came out for this project to develop a system named 'QD' initial from Quarantine Days. By having this system, it will make them feel under monitor for only 14 days during their quarantine. It is believing this monitoring for many people sakes because when other people do not know which person is ongoing quarantine, they will not be well alert about the risk they will face.

Figure 0.1Pink Wristband

Other countries that have enforced quarantine apps include South Korea, Russia, and Poland.[3] On the other hand, Moscow has also made it mandatory for individuals who tested positive for the coronavirus to download and install the Social Monitoring quarantine app, which uses GPS to monitor movement. The country launched a phone app for residents who are under mandatory 14-day quarantines after returning from abroad too. This is also one of the problems because no GPS tracker to specifically track on must isolated people, so they are freely to go anywhere specially to stall or food truck which usually do not take serious about scanning QR code using MySejahtera because they are not a premises.

14 days quarantine should not just a staycation time, each person must be monitoring their health condition closely. The reason is during 14 days in the most crucial time where people can show symptoms. No daily health screening or no particular check on person can lead to not honest result because a person can deliberately fill in the necessary information so they will not be subjected to further medical examinations that will keep them longer in the quarantine phase. Health screening form should incudes photo, document and other thing that can prove the person health condition is fine.

1.2 Aim and Objectives

The aim of this project is to assist the government to monitor people who is ongoing their quarantine in this country and to secure citizens from the risk they might face if people not quarantine properly. At the same time to break the Covid-19 chain from spreading and infect people. It is very direct yet important aim for our country to flatten the curve faster and to avoid other waves in our country.

There were varieties of contact tracing apps. China was the first country to develop an app specific for contact tracing by using sophisticated tracking and surveillance methods. They involved tracking of infected individuals and their contacts, while others were allowed to carry on with their normal lives.[4]

In addition to contact tracing apps, various countries have also come up with quarantine apps to ensure that quarantine measures are being followed. For example, geofencing apps enforce the quarantine by using mobile phone signals and GPS to track the movements of users. The concept is to create a virtual fence around people's houses so that when they disobey the regulations and go outside their houses, the authorities will be notified. [3]

Objectives: -

1. To study how the monitoring system can help to break the chain of Covid-19 in our country.
2. To design and develop quarantine system that can locate patient location and administrator data dashboard.
3. To test the functionality of developed system using user acceptance test.

1.3 Scope of Project

This project scope focus on monitoring system and security system from IoT and relate it to current pandemic happen to the world. The boundary of project and users will be connected with the focusing area where user's internet connected device also involved here.

The expected users will be listed below: -

i) Everyone who come from abroad or domestic and will doing their work or stay in different place or state.
ii) Traveler who come to Malaysia for vacation purpose.
iii) International or local student who will enter their college to have physical class.
iv) Businessman or any worker that need to work outstation in other state for a long time before visit their office and work.
v) Interracial couple who wife or husband will enter Malaysia to visit their partner.

1.4 Project Significance

This project will be significance to many people especially to Ministry of Health Malaysia to help them control the rate of Covid-19 patient in this country. Everyone is hoping the pandemic over so we can work, study and visit anywhere freely without need to scan QR code to check in or out nor wearing a mask. In order to do that, every people should take quarantine phase seriously so that high risk person who might positive with Corona Virus cannot just simply roaming around during their isolation duration. At the same time, this project can be significance to show that IoT security and monitoring can be useful IoT healthcare too.

Every people need to work together to break the Covid-19 chain as soon as possible to heal the country economy state too. As we know that, analysis on affected sectors such as

tourism sector, social entrepreneurs, creative industries, traders' associations, technology and e-commerce, education, housing, manufacturing, human resources, private medicine, professional services, non-governmental organizations (NGOs), as well as agriculture and plantations are getting due a list of prohibited activities or strict standard operating procedures (SOPs) to ensure safety and health factors during this pandemic.[5]

In Poland people who are supposed to be isolating themselves at home take selfies and upload them to the app as proof that they're not outside. "People in quarantine have a choice: either receive unexpected visits from the police, or download this app," Karol Manys, Digital Ministry spokesman, told AFP. Poland is not the only country employing an app to do help with its coronavirus tracking. Neighbor country, Singapore developed the TraceTogether app, which uses Bluetooth signals between cell phones to keep track of who people come in contact with, according to ZD Net.[6] Limiting interactions and the duration of interactions helps prevent the wider spread of the virus. A similar app is being used in South Korea. The "self-quarantine safety protection" app was, developed by the country's Ministry of the Interior and Safety. It allows those in mandatory quarantines to stay contact with case workers and report on their progress. The app also uses GPS technology to keep track of users' locations, making sure they don't break their quarantine.[7]

This is clearly show that this project significance will definitely give a good hand for the government to stabilize the economy back with people when the Covid-19 situation is under and below the analysis graph estimated *[Figure 2]* as other country also starts doing this project for the sake of their own country.

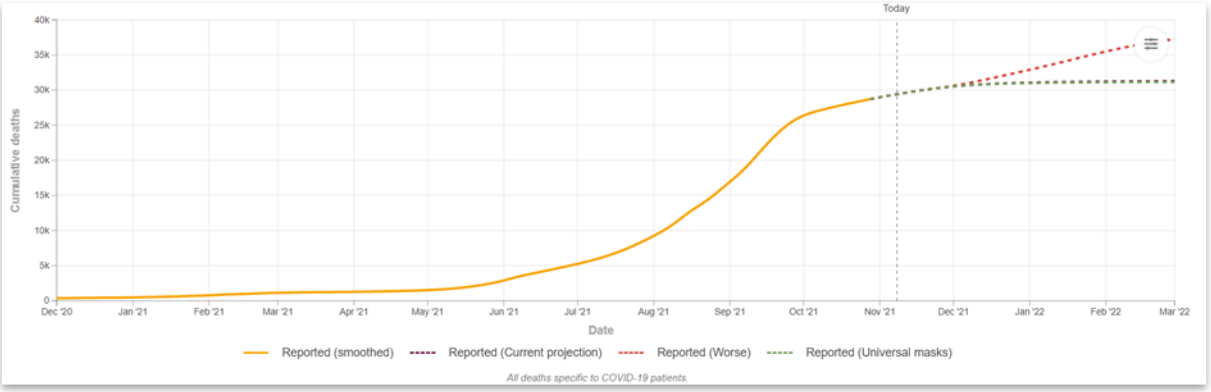
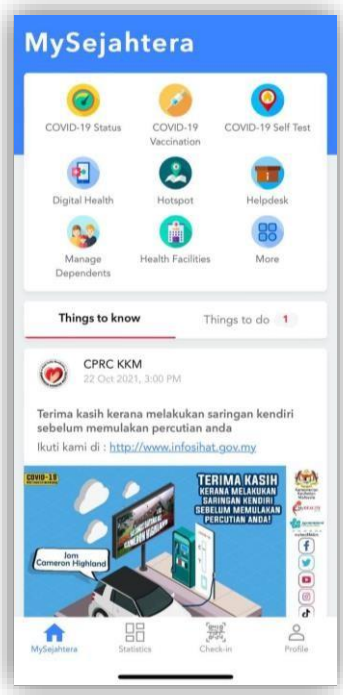


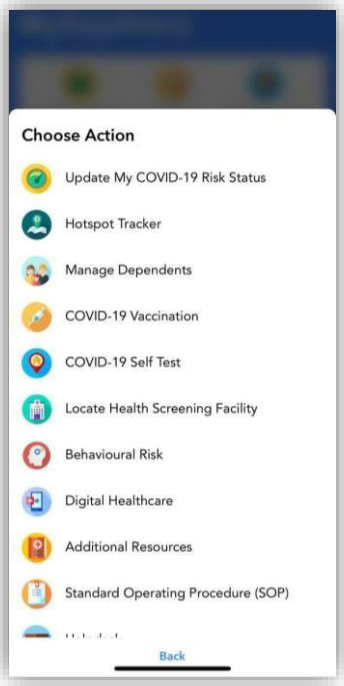
Figure 0.2Total Deaths are the estimated number of deaths attributes to COVID-19, including unreported deaths

CHAPTER 2 REVIEW OF EXISTING SYSTEMS

2.0 Introduction of 3 Existing System

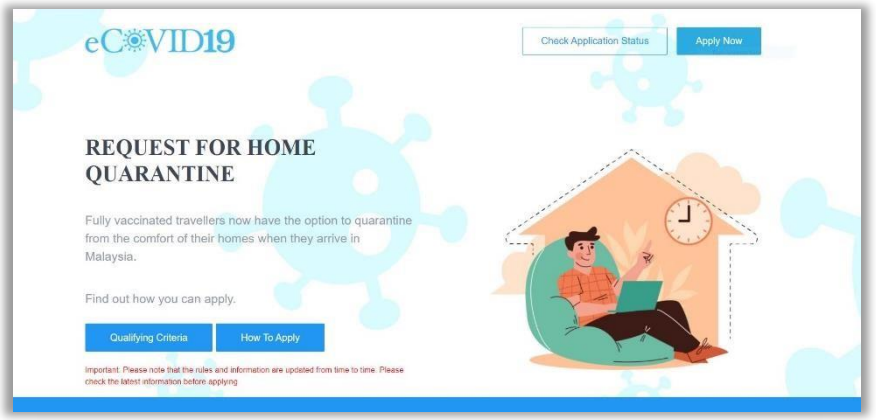
Based on my research, I found 3 systems that related to assist the government to break the chain of Covid-19 and to ensure the people are safe to go from place to place. All systems that will be listed are not really focus on quarantine phase but they are the most related to the content of our topic which is Covid-19.

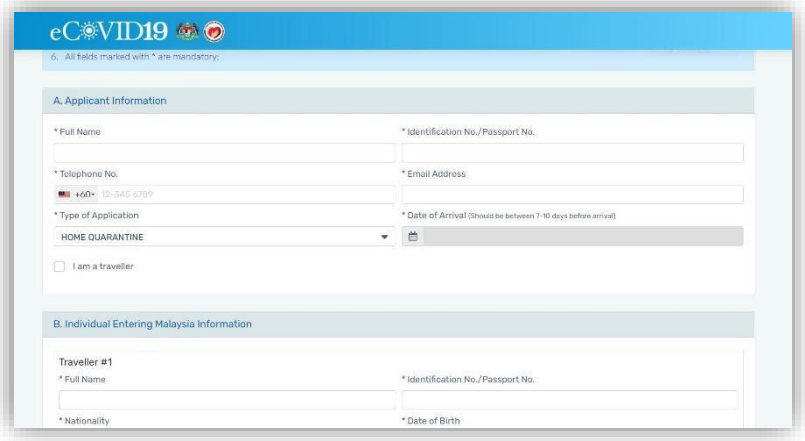


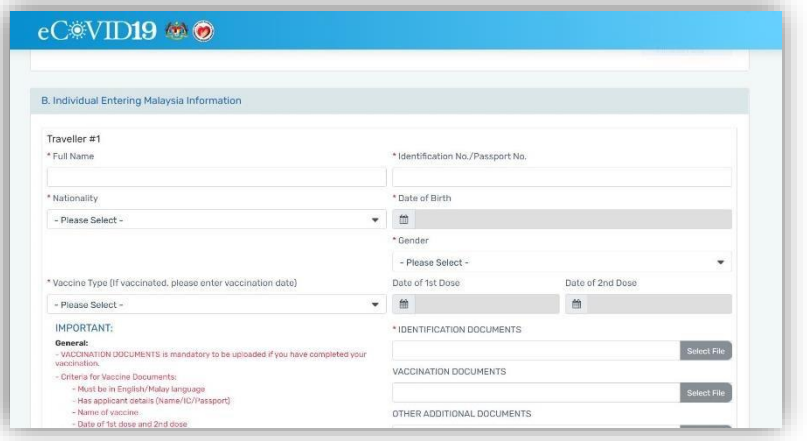


First, MySejahtera application. This application is a must have application for every individual in case to survive the pandemic. MySejahtera is an application developed by the Government of Malaysia to assist in managing the COVID-19 outbreaks in the country. It allows users to perform health self-assessment on themselves and their families. The users can also monitor their health progress throughout the COVID-19 outbreak. In addition, MySejahtera enables Ministry of Health (MOH) to monitor users' health condition and take immediate actions in providing the treatments required. There are also many functions can be found in this application such as, vaccination registration, location health screening facility, hotspot tracker and standard operating procedure (SOP) information. [1]

Next is MyTrace application. MyTrace is a Contact tracing apps using a Bluetooth technology. It is a community-driven approach where participating devices exchange proximity information whenever an app detects another device with MyTrace app installed. This application allows the identification of people who were in close proximity to COVID-19 infected individual. MyTrace apps is complementing MySejahtera to combat Covid-19 pandemic in Malaysia.[8]







Lastly, eCovid HQA website which is under Ministry of Health Malaysia. This website allows foreigner and citizen to apply for home quarantine. Here, people have to read all the rules and criteria before applying. Some of it are, Local or foreign traveler who has a home or residence in Malaysia, for double dose vaccines: recipients must have received two complete doses of which more than 14 days, and home or residence must be suitable based on risk evaluation.

2.1 Critical Review of Existing System

Based on the table below, shows the different between those 3 systems on user, functional requirement and application using process.

	MySejahtera	MyTrace	eCovid HQA
User	• Malaysians and residents of Malaysia • System administrator in MOH	• Malaysians and residents of Malaysia	• Malaysians • Traveler from overseas. • System administrator in MOH
Functional requirements	• Assists the Government in managing and mitigating the COVID-19 outbreak. • Helps users in monitoring their health throughout the COVID-19 outbreak. • Assists users in getting treatment if they are infected with COVID-19. • Locates nearest hospitals and clinics for COVID-19 screening and treatment.	• Assisting the Ministry of Health Malaysia (MOH) tracking and prevent infection. • Allow to identify individual who had close contact with Covid-19 patient.	• Allow local or foreign traveler to apply for home quarantine by entering all information and uploading required documents.
Process	To register, you need to follow these steps: i. Step 1: Download and install MySejahtera ii. Step 2: Click on "Register Here" to register a new account iii. Step 3: Enter your mobile phone number	To register you have to follow these steps:[9] i. Download and install MyTrace ii. Click on register and choose language iii. Register your phone number and wait	• This system does not need to register. • User can directly apply on application page.

	and click "Register" or click on the link "I would like to use Email to Register" (if you want to register using email address) iv. Step 4: You will receive an OTP via SMS (if you register using phone number) or confirmation link through your email (if you register using email address) v. Step 5: Enter the OTP and click 'Send' (if you register using phone number) or click on the confirmation link sent to your email (if you register using email address) vi. Step 6: Fill in your registration details and click 'Confirm' vii. Step 7: You will receive a "Successful Registration" message. Click "Close" at the bottom of the screen to return to the sign-in screen viii. Step 8: Enter your User ID (phone number or email	for OTP text. iv. Fill up the OTP and click on submit then close the page v. To use allow Bluetooth and location features all the time in your device. vi. Verify when receive the verification code. vii. Type the PIN number and click submit. viii. After click OK, fill up all the information and click submit. ix. User can click on icon ‘i’ to read FAQs. x. Then the system is ready to use.	

	address) and your password and click "Sign in". ix. Step 9: Congratulation! You may start using the app.		

2.2 Comparison of Existing Systems

Table below shows the comparison of 3 existing systems in term of user advantages and user disadvantages which is also will relate to the project idea.

	User Advantages	User Disadvantages
MySejahtera	• Allow user to check in their location on time when visit premises • Allow user to do self-screening health test • Help user to search nearest hospitals/clinics for emergency. • Have many functions that will help user keep updated during pandemic.	• Do not monitor patient if they are in quarantine by GPS tracking as patient still can visit premises freely. • User can purposely answer self-screening health test with good condition of health only to avoid being test by real doctor. • No details on health screening to submit because the question always be the same and no place to upload such as photos of negative Covid-19 results.
MyTrace	• Allow user to know people who have close contact with Covid-19 patients around them.	• People and user privacy can be disclosed easily because this application will detect people phone number and time. • Application is not user friendly to user device when user use IOS because Bluetooth function and phone screen need to turn on every time which can drain user mobile phone's faster.

		• Identify close contact people will sometimes be a useless point to user because people tend to not make a scene in public. • Systems can only identify people who download and install the application too.
eCovid HQA	• Allow user to apply for home quarantine if qualified the requirement stated.	• User can apply if do self-quarantine at home only. • User will not get monitor during the quarantine. • User will face hard time if not qualified all the requirements.

CHAPTER 3 METHODOLOGY

3.0 SDLC Model

In this project the most suitable SDLC Model is waterfall Model. Waterfall SDLC methodology is widely use in project to ensure the success of the project. Work is done in separate phases. In the waterfall SDLC, each phase is being approach after the other phase are done. Typically, the result of a phase will be indicated for next phase to be done sequentially. This will be benefited because all step steadily flows when complete the phases. The next phase can only be start after the first phase are done because no phase can be overlapping which each other.

The waterfall software development life cycle is the structured series of stages that downwards like a waterfall. It contains six phases which are requirement analysis, system design, implementation, testing, deployment and maintenance. All this phase is sequential make the project can be simply develop and easy to understand. Moreover, it is really easy to manage as the rigidity of the model and the useful thing is the phase can be access again if developer need to do some changes. For example, after testing phase are done developer can go back to implementation phase to add any new requirement or user interface.[10]

The first phase is requirement analysis. Here, the project significant, background study and all possible requirement are taken note and documented in specific report flow. This will help to identity the project main purpose and the outline of the project idea. Relating this phase with the project, it was done in Chapter 1 & 2 where the project background, objective, problem statement, comparison existing systems are being study. This makes developer have better idea about project for next phase.

Next is system designing phases. When the outline of the project done, the system design can be start using desirable tools and resources. Here, where design process starts which will be done throughout this Chapter 3. Design include context and use case diagram to show how will the applications flow is. Also, mock-up of user interface fully with the

requirement and functionality. This system design can help in specifying software and hardware and system requirements which also act as overall system architecture.

After that, waterfall have implementation phase. This phase usually is the first phase where simple development is done such as inserting input field, button and other basic component in separate tools or software that developer might use. The workflow then completes with integrate all those separate files into a system by coding or any programming behind them to make it functionality. Basically, developing progress take place here.

Once complete that, the functionality of the system is being test. It is good to test each separate file first before combine to identify any error happened. Then, test it as a whole system to see any failure or faults. Solve the error again and again until the result is out like imagine.

In PTA 1 the phase will stop at testing phase only as no deployment will be done. However, deployment of system is the phase after testing is successfully run and all functional requirement are achieved. By deploy it means the system enter the user environment or put into the market.

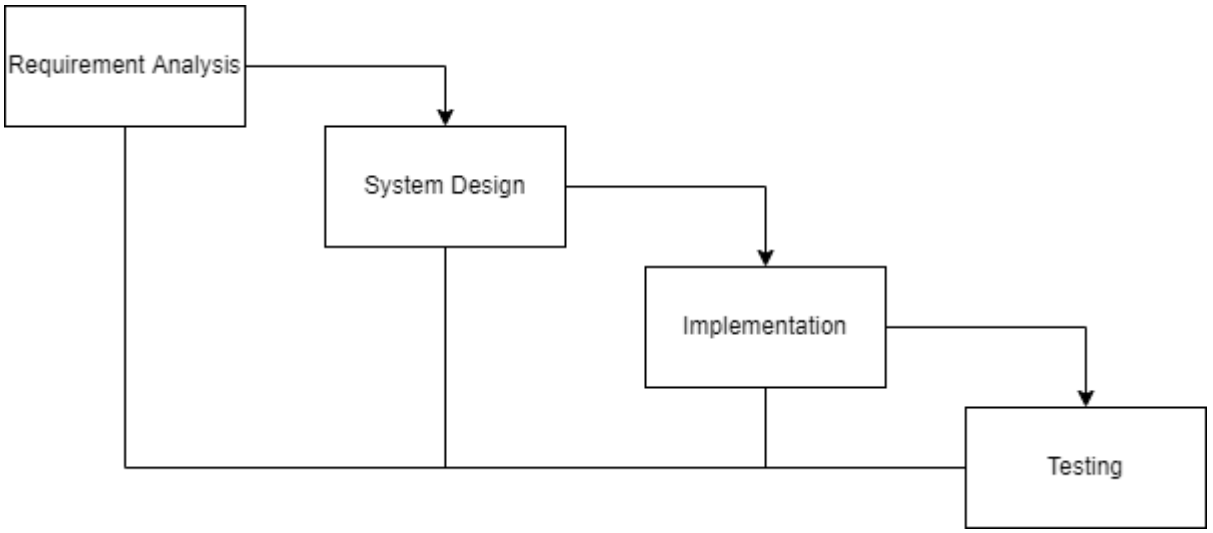


Figure 0.1Waterfall Model SDLC

3.1 User Requirement

Based on waterfall model, listing about requirement is in system designing phase where functional requirement of this system and non-functional will be explained too. Functional requirementis the main item that will be a function in the application later. Functional requirement must be executed to able the user complete their task and goal using this system. This requirementalso very beneficial for both side of user and developer.

According to observation as user before and current local news or case, reading from research paper attach at reference [3], [6], [7], [11]– [14], comparing existing system such as MySejahtera, MyTrace and other source from internet also paper work, there are few functional requirements that an bring out for further discussion. One of them is, to allow user log in or sign up using their email. As we all know and experience by yourself so many times before, standard log in or sign up are needed to create oneself an account or simply register to authenticate an individual to an account.

Next is, to complete one of this system objectives which is to monitor user health during quarantine by making user compulsory to update their daily health condition by answering some question and upload some picture for health proof. This is to ensure the user that under quarantined be honest with their current health condition. Screening is one-way employers can lower the chance of COVID-19 transmission. Screening will not identify people not yet showing symptoms, or who may be infected but show no symptoms Of course, after the user submit theform, the administrator can access to the form answer for inspection and next action if needed.

Other than that, to keep user quarantine history and information this system will allow user to fill their profile. This is very important to user and administrator to know why, when and who is ongoing the quarantine and to keep it record if anything happen it can be trace easily. There will be user personal information, vaccine information and quarantine detail to fill in profile part. This functional requirement also allow administrator to view all information submitted for sure.

Furthermore, this application main target to act as a virtual gate for user whos' under quarantined stay inside their designed accommodation and would not allow them to move out and visit other place than their room because COVID-19 spreads mainly between people who are in close contact with one another (within about 6 feet) through respiratory droplets produced when an infected person coughs or sneezes, or by touching surfaces where the virus has been, then touching one's face. This will instantly help to break the chain of Covid-19 from being spreading by potential patient. This requirement will be use location sensor function and they need to allow location to be track by this application. The user's current location in latitude and longitude as well as a location object such as additional properties like accuracy and heading direction then a text message alert will be sent as warning if user been track outside original place. This will not violate any trespass their privacy as this application will only track one place which is their quarantined.

Some non-functional requirement also will be included such as notification about update daily health screening form, new news or any alert for user to get update from this application. Since non-functional requirement focus and relate more on the application reliability and performance this notification will certainly be useful.

It is believed for every task, action, goal and function of this system to be develop and work smoothly, all mentioned requirement will be included to complete this project system development in this phase.

3.2 System Proposed Design

To start the system designing context diagram or level 0 data flow diagram DFD will be helpful to show the data flow diagram. It will help to understand the details and boundaries of the system. It also makes the skeleton of the project simple yet straightforwardly.

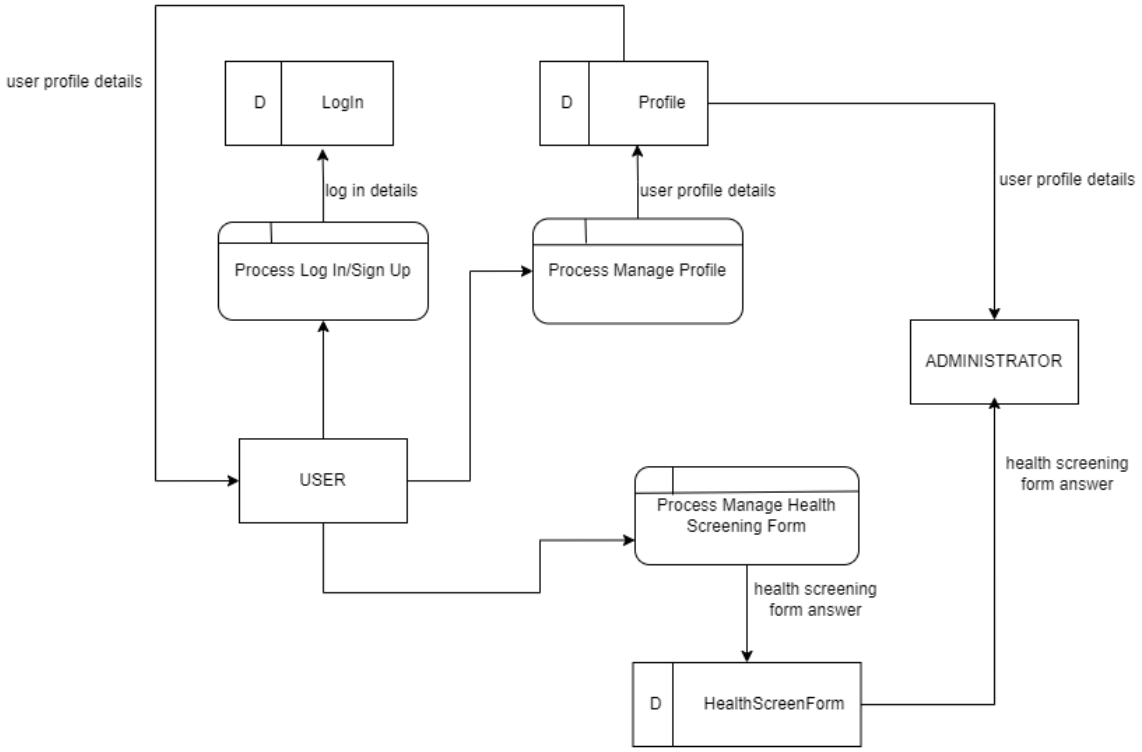


Figure 0.2DFD Diagram

In the diagram above, a DFD is used to display the QD system application process the external entities that interacts with it which is user and administrator. There are also 3 main processes of the activity or function where the manipulation and transformation of data take place such as process login/sign up, process manage profile and process manage health screening form. Then, 3 data stores represent the storage or database of the data produced by the process. The arrow in indicate the data flow of information from where it starts to the end of flow connector in the system.

After data flow and process being identify, below the use case diagram and use case description table to explain how many modules this project will have. In the use case diagram, the system name is as stated, QD system and there are 2 actor which act as the user and administrator. By user it means people who will going on quarantine. In the system boundary there are 3 use-case which also act as modules for this project. User actor and administrator actor have association with log in, manage profile and manage health screening form as it follows thesystem requirement.

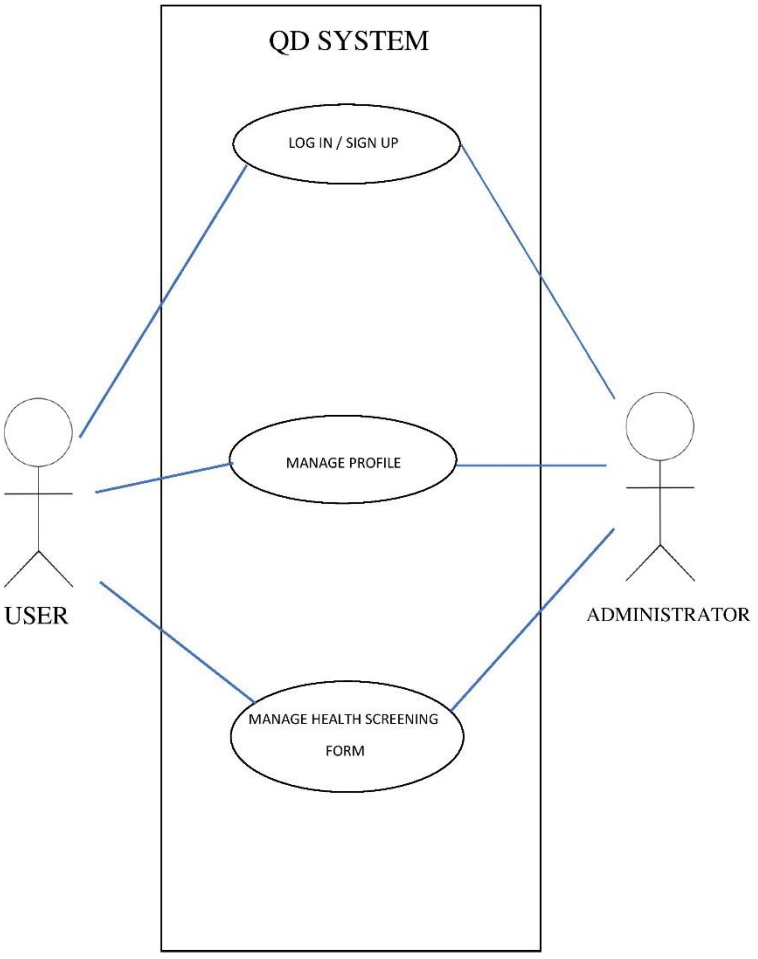


Figure 0.3 Use Case Diagram

Use Case Name	QD System
Brief Description	This use case is initiated to perform effective quarantine days to break the chain of Covid-19 which include secure and monitoring user daily health and condition.
Actor	1. User (patients undergo quarantine) 2. Administrator (medical staff or quarantine place management)
Pre-Conditions	All users need to login into the system.
Basic Flow	1. The use case starts when all user login into the system using email. [**A1**: Answer form] 2. While administrator will have to enter valid code to access the user data. [**E1**: Verification failure is executed] 3. The user will be able to fill the detail of their profile. 4. The user can view their profile entered after. 5. The administrator also able to view the user profile filled. 6. The user needs to answer and submit daily health screening form. [**C1**: Health Screening form] 7. Only administrator will be able to view the form answer after. 8. The use case end.
Alternative Flow	**A1: Answer form** 1. User decide to answer the form for following day or time after the first-time log in. 2. User can skip step 3 and 4 in basic flow and directly go to the step 6 to answer health screening form.
Exception Flow	**E1: Verification failure is executed** 1. Administrator fail to provide default verification. 2. Administrator will be bringing back to log in screen and need to start over from step 1 in basic flow.
Post-Conditions	1. The table for new health screening form answer is successful updated for administrator view. 2. The table of new user profile also successful update for administrator view.
Constraints	**C1: Health Screening form** 1. The form can be answer once per day only.

Moving to interface designing, where interface for application screen will be design as mock ups here. The design of this mock ups applies many concepts and rules included in graphical user interface (GUI) to make sure user of the application can access the interface easily and the application become a user-friendly application to all ages. This is important for interaction between people or the user of the system and the application. To achieve this, all factors need to be understood and must use suitable tools and techniques but contain all the philosophy of GUI which are consistent, helpful, robust, user friendly and powerful.

In the other hand, this interface also follows the 26 GUI principles. Few of them that getting emphasize are aesthetically pleasing, simplicity, efficiency, directness and consistency. This principle helps to keep designing process inline and ensure mock ups fulfil all standard set.

One of the keys to produce a significant graphical user interface is the usability heuristic by Jacob Nielsen which are feedback, metaphor, navigation, consistency, memory, prevention, efficiency, design, recovery and help. All this 10 usability seriously beneficial to developer when carry out early prototypes or mock ups before actual user join the testing to see how well the user can experience the system and measure did the system accomplish the main goal or task splendidly.

Next, as mentioned earlier this phase will use digital design or mock ups as the “visual script” represent the overall visual design of the system. In digital design, colour pallet, sizing, icon, logo, button and other sub detail are being highlight to give a realistic feeling when observe the completed mock ups of each screen. The tool or software used to finish the mock ups are proto.io and Canva. This 2 software will have further explanation *in 3.5 Hardware and Software* section.

During working on the design phase, analysis of the function is done to ensure the design follow the requirements of the system and modify as necessary before final result. Thus, the 8 golden rules of Shneiderman were considered to be include in this system such as strive for consistency, enable shortcuts, permit easy reversal of actions, and reduce short-term memory load. More rules will surely be included during the developing are getting place.

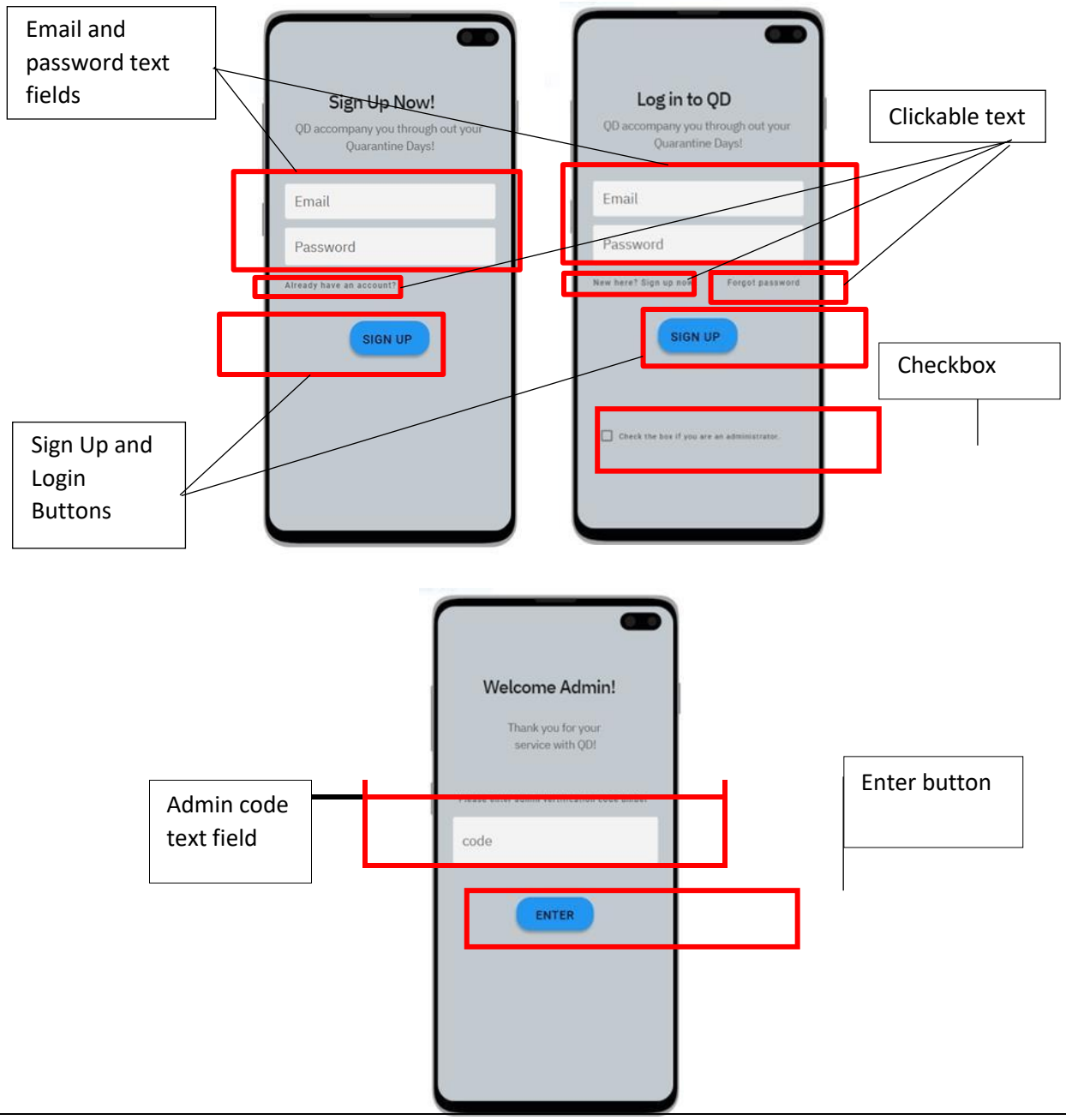
Most of mobile devices manufacturing pattern are various follow respectively company. Since this project focus one mobile device, mobile app design step is being apply for instance research before design, prioritize features, design a finger friendly tap-target and many more. That is why the following UI basic design goes into the mock ups such as text fields,

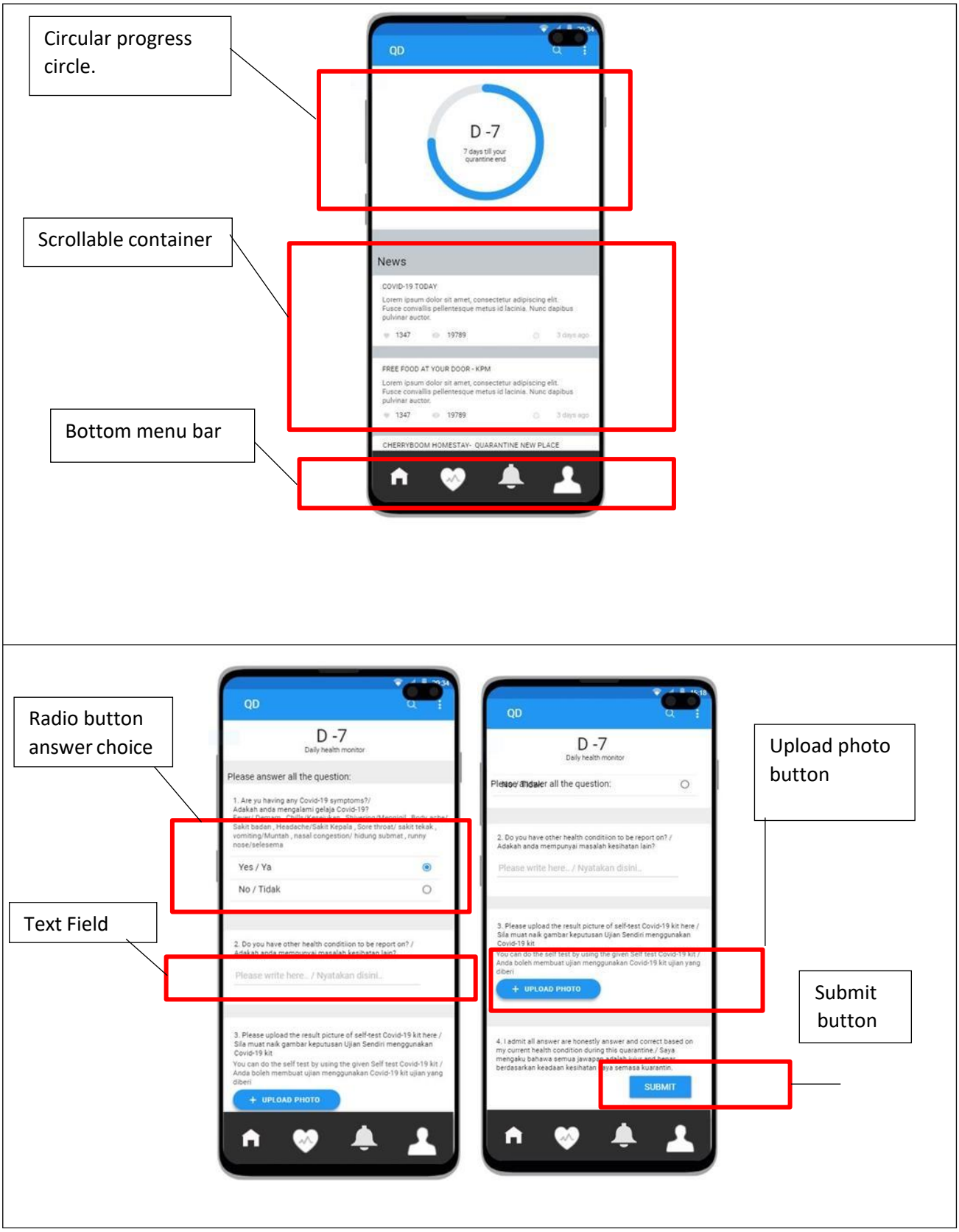
checkbox, button, toggle button, menu bar, radio button and scrollable container. Other various basic UI can be easily found below in the mock ups.

Last but important, designing mock ups embrace the basic design elements into this mobile application system. Proximity and symmetry in designing are being focus as much as the visual hierarchy to make use user can do eye tracking easily especially if repetition of colon, typeface or certain functional element happen. All this create unity in system interface design. Some contrast will give focus effect when user first see the interface make it emphasis to the focal point or center of a composition. The arrangement of visual element in composition or dynamics should be given priority to ensure emotive characteristic to design and it appear active or calming and pleasing.

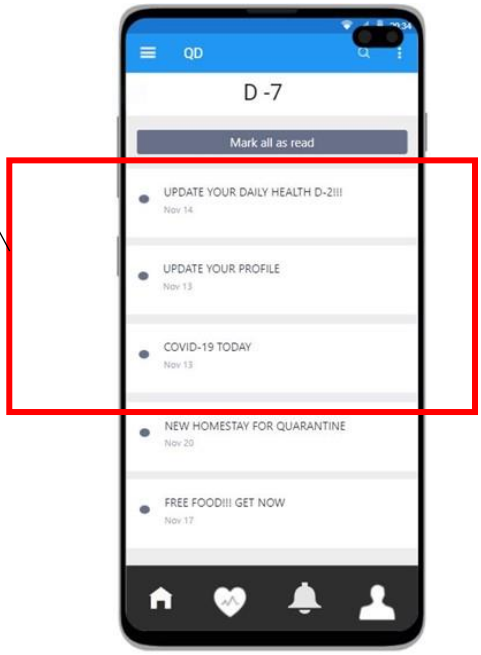
GRAPHICAL USER INTERFACE DESIGN – MOCK UPS

Descriptions
Screen size: 412*869
Brand: Samsung S10+



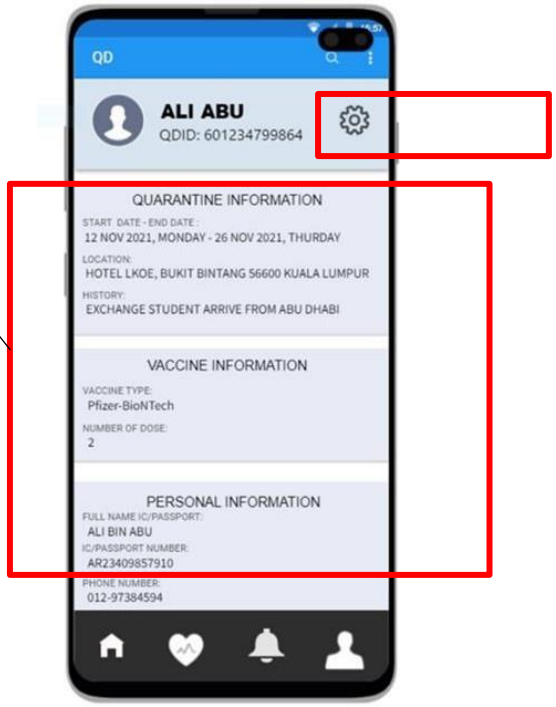

Circular progress circle.
Scrollable container
Bottom menu bar
QD
D -7
7 days till your qurantine end
News
COVID-19 TODAY
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce convallis pellentesque metus id lacinia. Nunc dapibus pulvinar auctor.
1347
19789
3 days ago
FREE FOOD AT YOUR DOOR - KPM
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce convallis pellentesque metus id lacinia. Nunc dapibus pulvinar auctor.
1347
19789
3 days ago
CHERRYBOOM HOMESTAY- QUARANTINE NEW PLACE
Radio button answer choice
Text Field
Upload photo button
Submit button
QD
D -7
Daily health monitor
Please answer all the question:
1. Are yu having any Covid-19 symptoms?/ Adakah anda mengalami gelaja Covid-19?
Sakit badan , Headache/Sakit Kepala , Sore throat/ sakit tekak , vomiting/Muntah , nasal congestion/ hidung submat , runny nose/selesema
Yes / Ya
No / Tidak
2. Do you have other health conditiion to be report on? / Adakah anda mempunyai masalah kesihatan lain?
Please write here.. / Nyatakan disini..
3. Please upload the result picture of self-test Covid-19 kit here / Sila muat naik gambar keputusan Ujian Sendiri menggunakan Covid-19 kit
You can do the self test by using the given Self test Covid-19 kit / Anda boleh membuat ujian menggunakan Covid-19 kit ujian yang diberi
+ UPLOAD PHOTO
4. I admit all answer are honestly answer and correct based on my current health condition during this quarantine./ Saya mengaku bahawa semua jawapan adalah jujur dan benar berdasarkan keadaan kesihatan saya semasa kuarantin.
SUBMIT

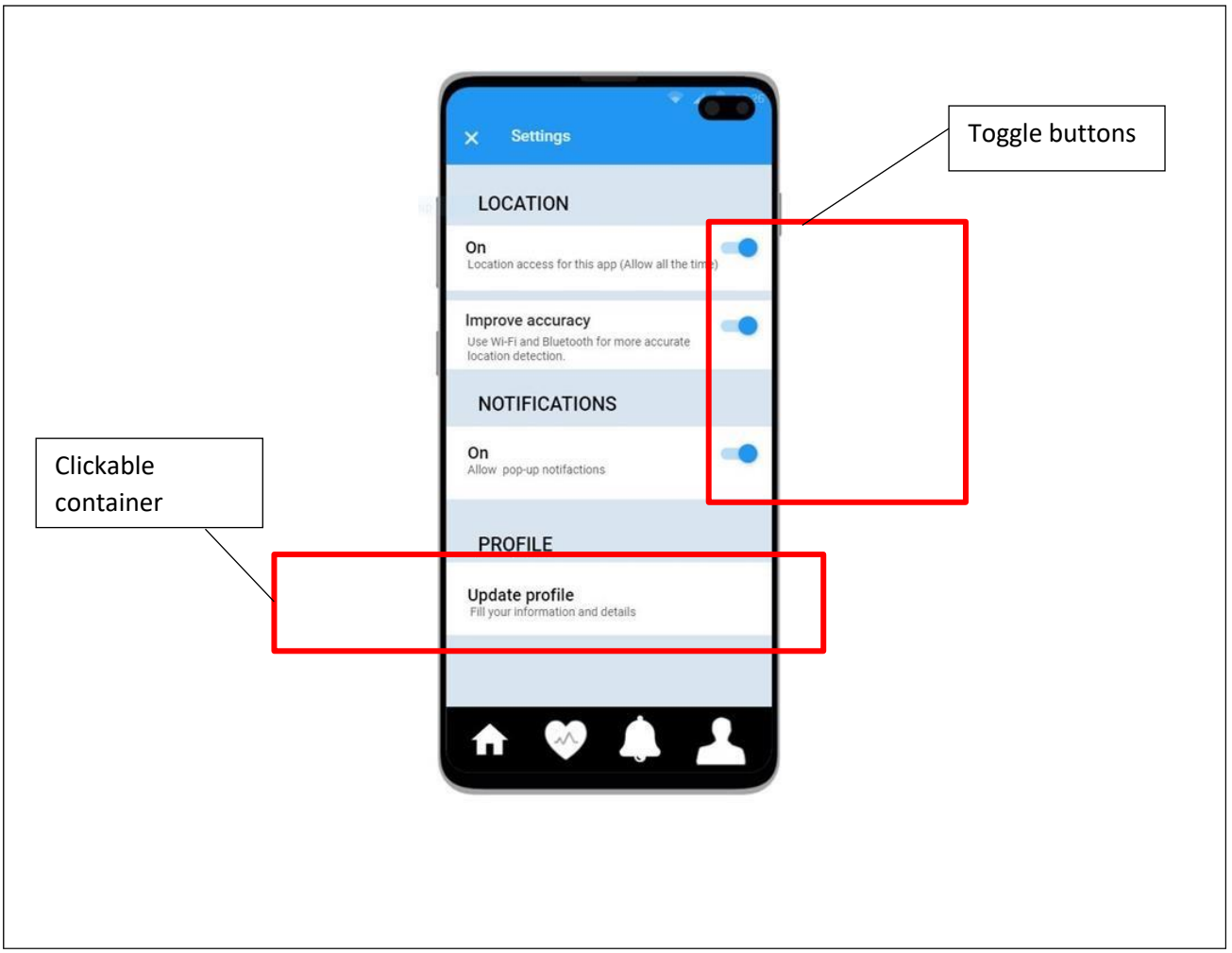
Clickable post notification

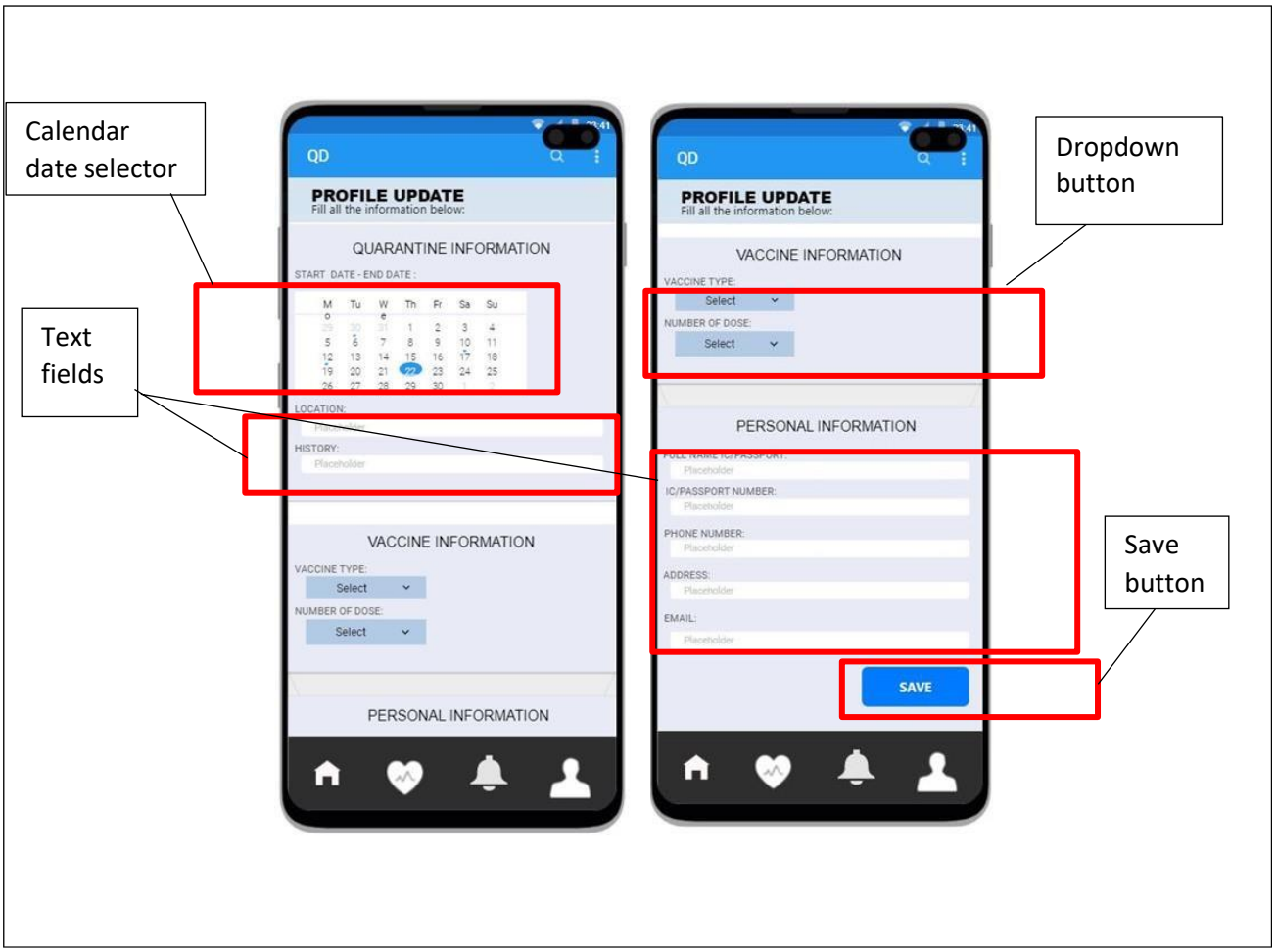


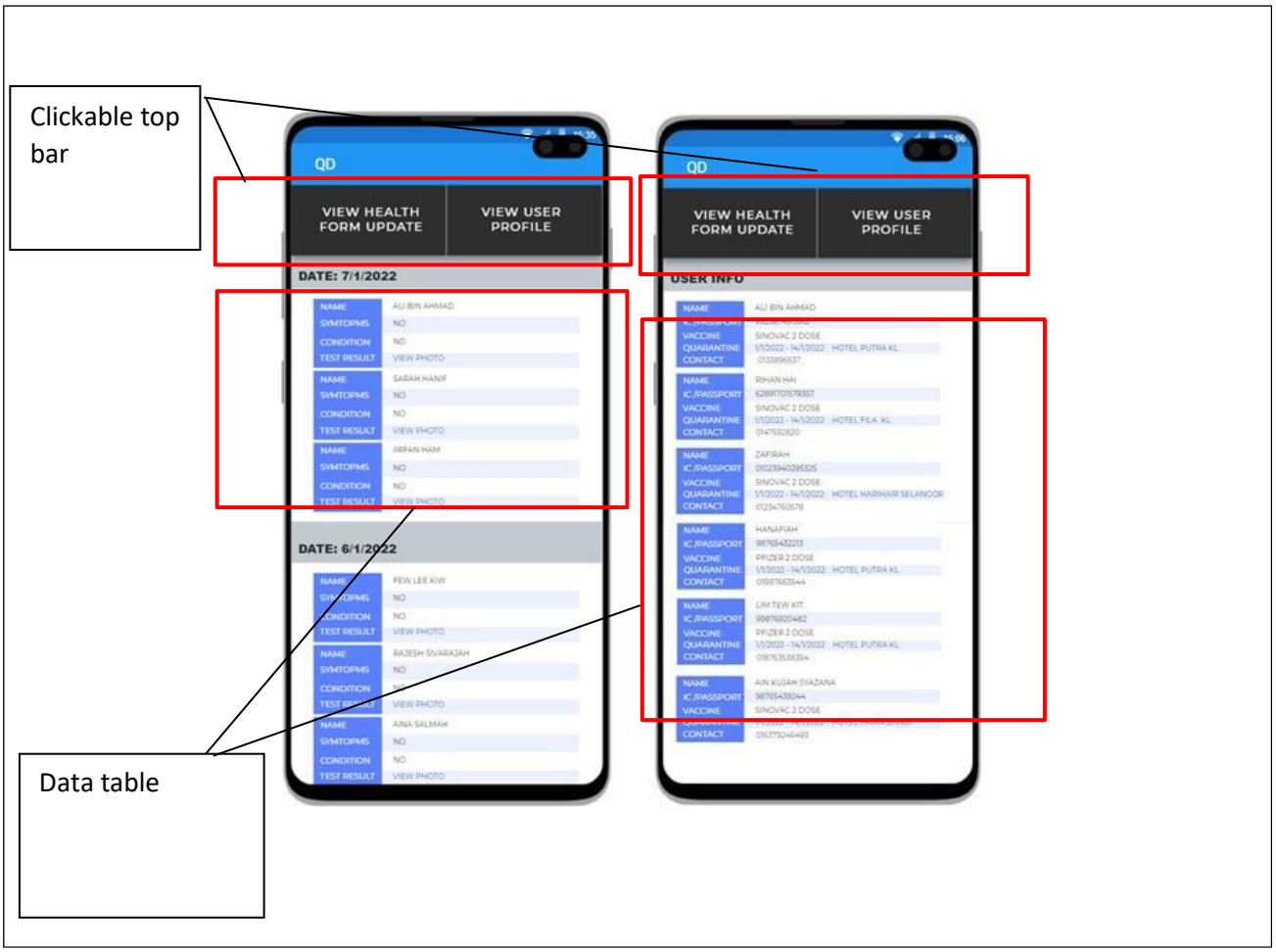
Scrollable container

Setting icon button

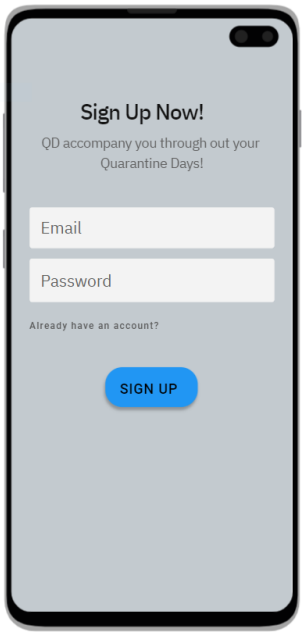


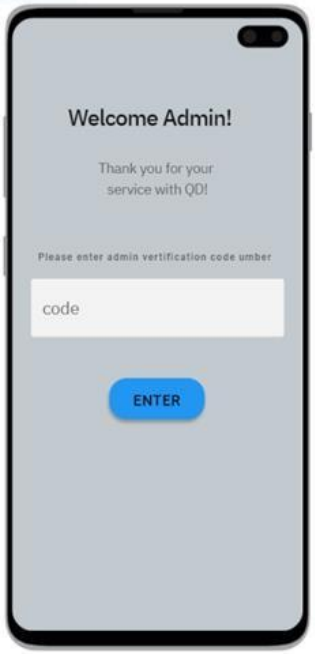
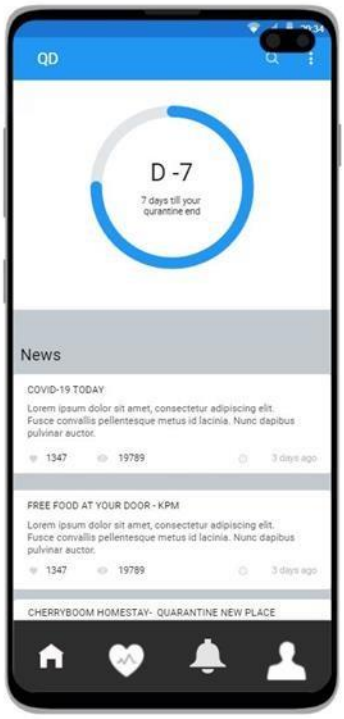

Toggle buttons
Clickable container
Settings
LOCATION
On
Location access for this app (Allow all the time)
Improve accuracy
Use Wi-Fi and Bluetooth for more accurate location detection.
NOTIFICATIONS
On
Allow pop-up notifactions
PROFILE
Update profile
Fill your information and details

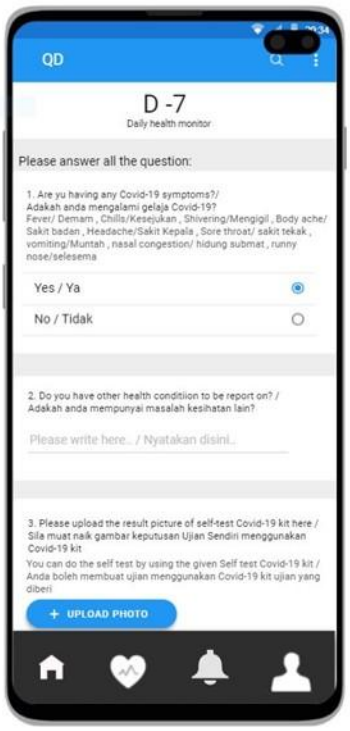
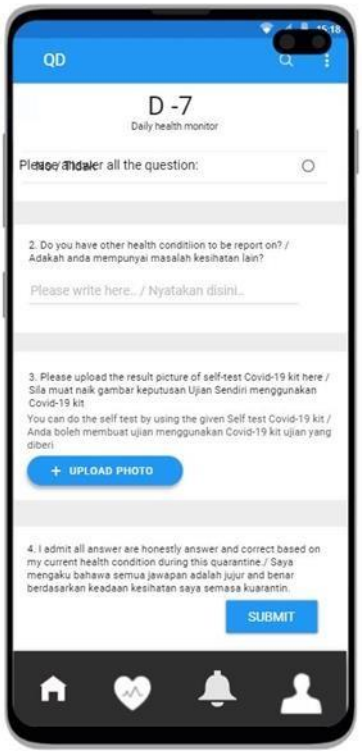

Calendar date selector
Text fields
Dropdown button
Save button
QD
PROFILE UPDATE
Fill all the information below:
QUARANTINE INFORMATION
START DATE - END DATE :
LOCATION:
HISTORY:
VACCINE INFORMATION
VACCINE TYPE:
Select
NUMBER OF DOSE:
Select
PERSONAL INFORMATION
IC/PASSPORT NUMBER:
PHONE NUMBER:
ADDRESS:
EMAIL:
SAVE

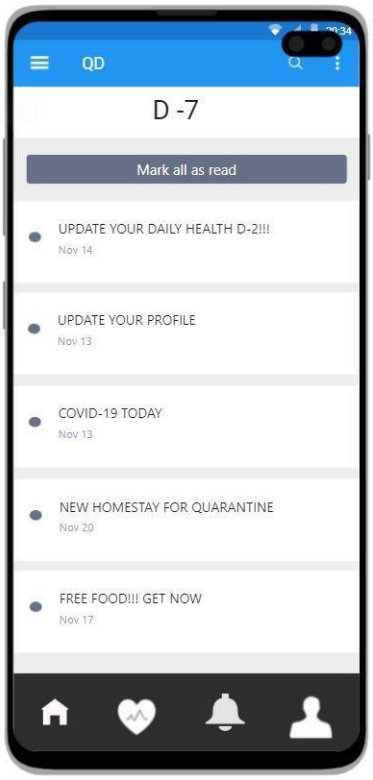

Clickable top bar
QD
VIEW HEALTH FORM UPDATE
VIEW USER PROFILE
DATE: 7/1/2022
DATE: 6/1/2022
QD
VIEW HEALTH FORM UPDATE
VIEW USER PROFILE
USER INFO
Data table

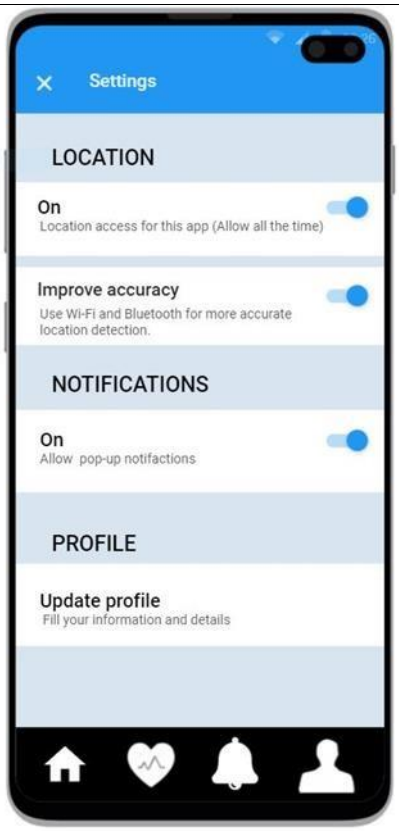
The following is the storyboard of the system interface. Here, the action, navigation and function of button and are being explained to get clear picture how the application will work and function.

STORYBOARD		
SCREEN	**ACTION NAVIGATION**	**NOTES**
 1. Sign up Screen	1. When this screen open, user need to sign up by enter the email and password in the text field and click button sign up to complete the process. 2. If user already have account, they can click on the "Already have account" text and user will be directed to log in page.	
 2.Log In Screen	3. When this login page open, user can login by entering email and password and complete the process by clicking the log in button. 4. If user have no account yet they can simply go back to sign up page by click the "New here? Sign up now!" text and user will be at sign up page back. 5. If user forgot their password, they can click on "forgot password" and they can reset their password.	

 3.Admin Verify Screen	box is only for administrator to ata. in log in and check the box it will s welcome page and admin need default code given just for n. nter the button and admin will tapage.	
 4.Home Screen	3. After finish log in or sign up, homepage screen will start. 4. User can monitor they day left in quarantine in the circular progress circle. 5. User also can scroll the latest news update about Covid-19 and many more. 6. At the bottom there are 4-tab button that can direct to different page and first button from left is homepage button.	

  5.Health Screening Form Screen	1. When user click on the second button which a heart-like button it will direct to this health screening page. 2. User need to answer this daily. 3. User need to answer a yes/no question, write some health issue if have and upload photo of their self-test Covid-19 kit result as prove. 4. After all question are answered, user need to click the submit button to submit all the answer.	

 6.Notification	1. Next is the notification page which open if user click on the bell button. 2. Here user can read the notification.	
 7.Profile Screen	1. Last is the profile page where all user information will be show. 2. There are 3 separate sections here which is user information, vaccine information and quarantine information. 3. On the top when user click the setting icon, user can access the setting screen.	

 8.Settings Screen	1. In this setting screen, user can turn on their location and notifications using the toggle button. This will keep user in monitor and always track user location. 2. Also, user can set up their profile when click on update profile.	

  9.Fill Profile	1. When user click on update profile, user will direct to this page. 2. User need to enter all the details asked which are about quarantine, vaccine and personal information. 3. When click on save button all info will be save.	

  10.Admin View Data	1. This is interface for administrator when given access to data page. 2. The top bar direct to daily health form answer when clicked on “view health form update” sort by date. 3. Meanwhile when the administrator clicks on “view user profile” it will open the next page with user data.	

3.3 Database Design

Next is, database design which is also included in designing phase. After all module has been finalized, database will be created. In this project it been decided to use Airtable and Firebase as database and for sure to store all data. Airtable and Firebase description and explanation will be discussed in *3.5 Hardware and Software* point.

The first is LogIn which save user email and password when log in into the system or sign in user into the system. Only for login firebase will be use as database since firebase already have a good function to create log in and sign up with the Realtime database. The understanding of data flow for NoSQL firebase data modeling also will be below.

The second table is Profile where it will store all user personal info into database. The attributes are userName, userID, userPhone, userAddress, userVacType, userVacDose, QDstartendDay, QDstartendDate, QDlocation andQDhistory. The primary key is userID. All data can be retrieved for administrator to identify user and for user to see the data entered itself. The third and last table is for HealthScreenForm. Here is when user fill in their daily health condition and status and the answer will be kept into database to be retrieve back for administrator to check.

Meanwhile, below also the table about entities relationship and ERD to give better understanding about the system database. Since there are 2 entities which is Profile and HealthScreenForm so there are 4 relationships between each entity.

Profile has one to many relationships with HealthScreenForm and vice versa. The rational is one profile can have many HealthScreenForm because user need to fillthe form daily. Since one profile represent one user, health screening form can be entering many times by user. Same goes to HealthScreenForm which have one to many relationshipsto Profile because one health screening form can have many profiles as many users will use the form too. In addition, below is the ERD diagram to visualize the relationship between entities with complete attribute and primary key listed.

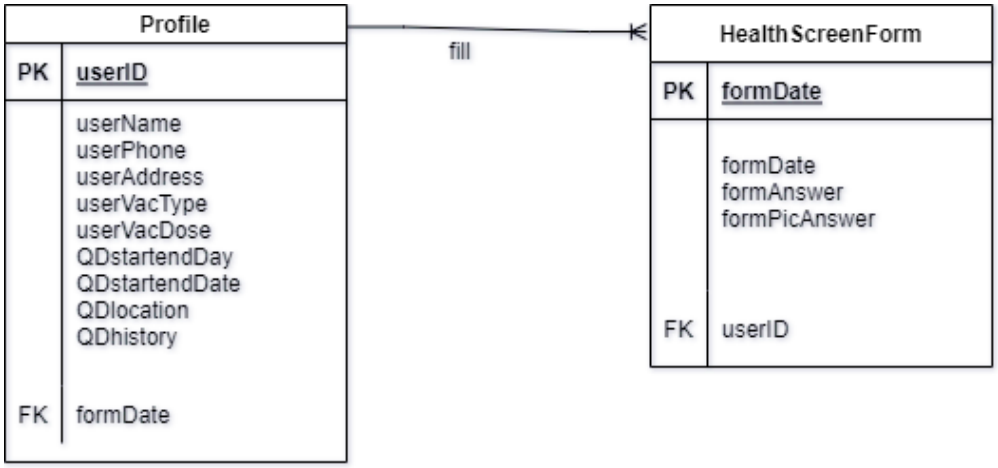


Figure 0.4ERD

Table 1Relationship Table

Entity	**Entity**	**Relationship**	**Business Rules**
Profile	HealthScreenForm	1:M	-One Profile can fill many HealthScreenForm
HealthScreenForm	Profile	M:1	-Many HealthScreenForm can has one Profile

Table 2 HealthScreenForm Table

Entity	ATTRIBUTE	DESCRIPTION	TYPE	PK/FK
HealthScreenForm	formDate	The date for each time user fills the form. Foreign Key in Profile table	DATE	PK/FK
	formAnswer	Password that user or admin use to log in account	VARCHAR	
	formPicAnswer	The picture of proof user self-test kit	ATTACHMENT	

Table 3Profile Table

Entity	ATTRIBUTE	DESCRIPTION	TYPE	PK/FK
Profile	userName	User real name as per IC orpassport	VARCHAR	
	userID	User IC number or passportnumber. Foreign Key to LogIn and HealthScreenForm table.	VARCHAR	PK/FK
	userPhone	User phone number	INT	
	userAddress	User home address	VARCHAR	
	userVacType	Type of COVID-19 vaccineuser got	VARCHAR	
	userVacDose	Number of dose vaccinationuser received	INT	
	QDstartendDay	The day user starts and endfor quarantine	VARCHAR	
	QDstartendDate	The date user starts and endfor quarantine	DATE	
	QDlocation	The place where user undergo their quarantine	VARCHAR	
	QDhistory	The history about user journey before the user doquarantine	VARCHAR	

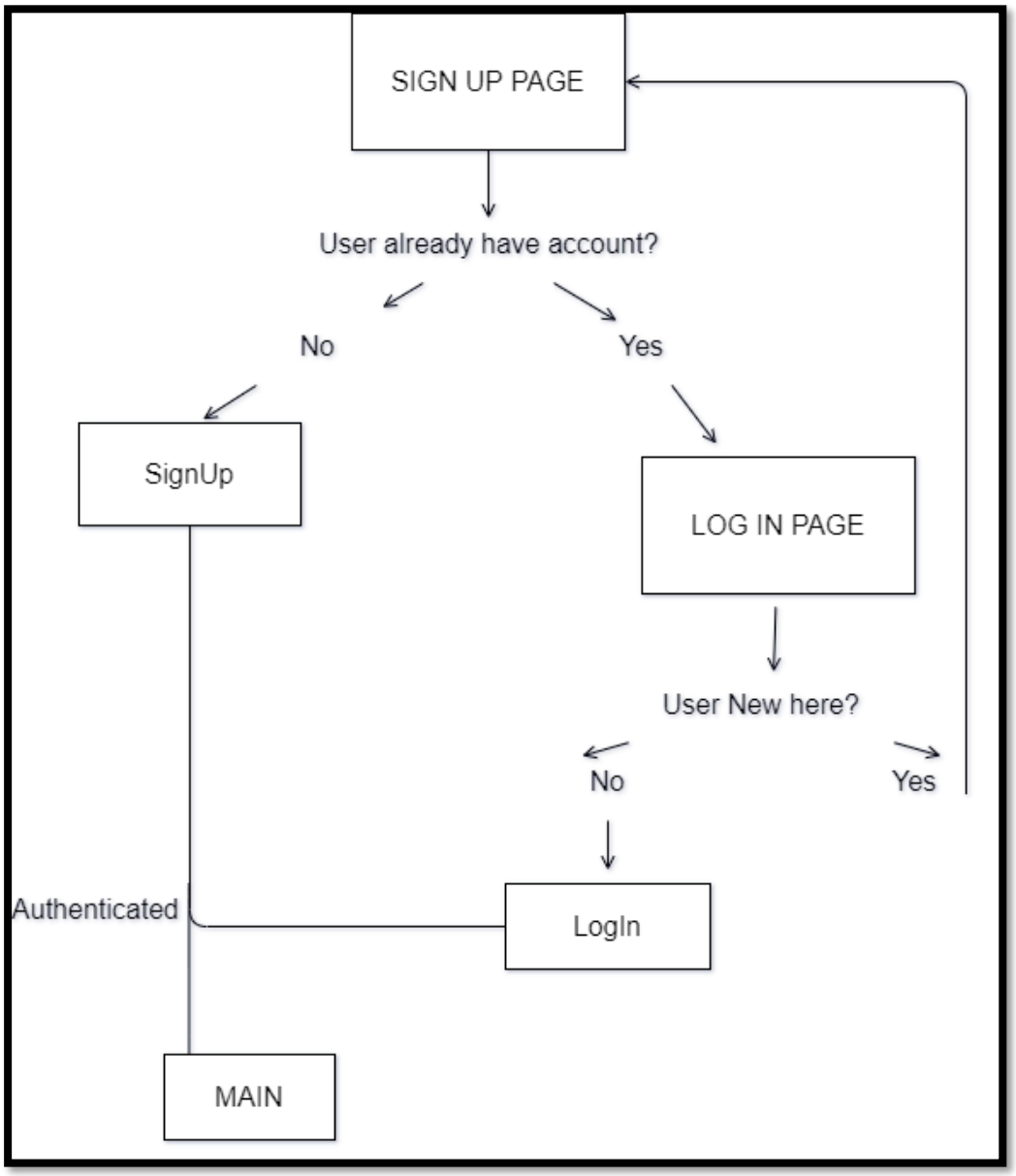


Figure 0.5Firebase data Visualization of NoSQL Database

3.4 Hardware & Software Used

In this project, there are many hardware and software will be involved to make sure developing, design and testing work can be done successfully. As this is a system in application, of course many tools, and source code from online will be taken to help during development phase.

Software	**Purpose**
Thunkable	Thunkable is one powerful platform to develop application with no-code creation but using a code block. It can help with building the best apps using simple drag and drop design and function. It also provides easy way to add third party power to open any integration or to connect the database to the creation and customized Android, iOS and Web based applications. This software also allow developer to make real time test to mobile device when download Thunkable Live mobile application. There demo can be done and review can be done effectively.
Airtable	Airtable as a relational database tool. Airtable can be connected to Thunkable easily and use it extremely versatile. It also come with helpful selection of templates that can give clear idea about how the database work. One of the best things is, record or data in Airtable expand into complete by showing all data page without needing to refresh or open new window. This tool will be a good database management tool with easy guide to create the database.

Firebase	Google Firebase is a Google backed application development software. It works by let developer build the database use the Realtime database. However, the firebase Realtime database is a cloud-hosted NoSQL databases because it let developer sync data between user in Realtime.
Proto.io	Proto.io help UX designers express their design with great idea. It means there is no need to start from scratch to visualize the interface mock ups. By using the drag and drop function no skills even required to produce aesthetically pleasing interface. There are more than 250 UI components that mimic the behavior of original native component and more than 1000 templates to use and fully customizable follow the developer creativity. The size also customizable so Samsung S10+ were chosen to be the mock ups size for this project.
Microsoft Word	The most common software that everyone uses to complete their report by typing in Microsoft Word. Itemsuch as table of content, table figure and report are doneusing tools in Microsoft Word. This tool surely gives many advantages to developer to sketch all process in a word file.
Teamgantt	Teamgantt which obviously help to build project Gantt chart. It is a free online software where project plan, schedule and chart can be done effortlessly. It also has function to switch between Gantt chart Kanban board and calendar views. To adjust certain time in Gantt cart developer only need to drag the from the time start to end and chart will stay organized.

Hardware	Purpose
Asus Tuf Gaming A15	The hardware that developer use to develop is laptop brand Asus Tuf Gaming A15 because this laptop offers good specification to run all software mentioned. This laptop also come with AMD Ryzen 7 processor and 16 GB installed RAM ensure system run smoothly using 64-bit operating system.
Samsung Z Flip3	To demo the application when using Thunkable live android device which is Samsung Z Flip3 will be use to review the system. Since this project scope is only android based application this hardware will be a good device to test the system. Samsung Z Flip3 use Android 11 version and also compatible for 5G internet make it a good device for demo and review.

3.5 Planning for Implementation & Testing

To full fill one of this project objective which is, testing the functionality of developed system using user acceptance test, UAT form below will be use. Each activity under module should get work properly to ensure it success.

Below is the example UAT form to be use. There are also comment section for any suggestion or critique about the module. The user to perform the test first for checking purpose should be this project supervisor.

Then it can be test by the user that include in this scope of project for example Universiti Malaysia Pahang (UMP) student that ongoing their quarantine. Currently, there are few students in UMP are doing their quarantine in hostel but different block.

No.	Module	Activities	Status		Comments
1	Log-In	User sign up	Yes ☐	No ☐	
		User log in	Yes ☐	No ☐	
		User log out	Yes ☐	No ☐	
2	Profile	Fill up profile details	Yes ☐	No ☐	
		Display all profile details	Yes ☐	No ☐	
		Administrator view user profile	Yes ☐	No ☐	
3	Health Screening form	User answer questions	Yes ☐	No ☐	
		User upload picture	Yes ☐	No ☐	
		User submit the answers	Yes ☐	No ☐	
		Administrator view answer submitted	Yes ☐	No ☐	
4	Location	Locate user place during quarantine	Yes ☐	No ☐	
		Alert warning for outside location	Yes ☐	No ☐	

This test has been performed by:

Name :_____

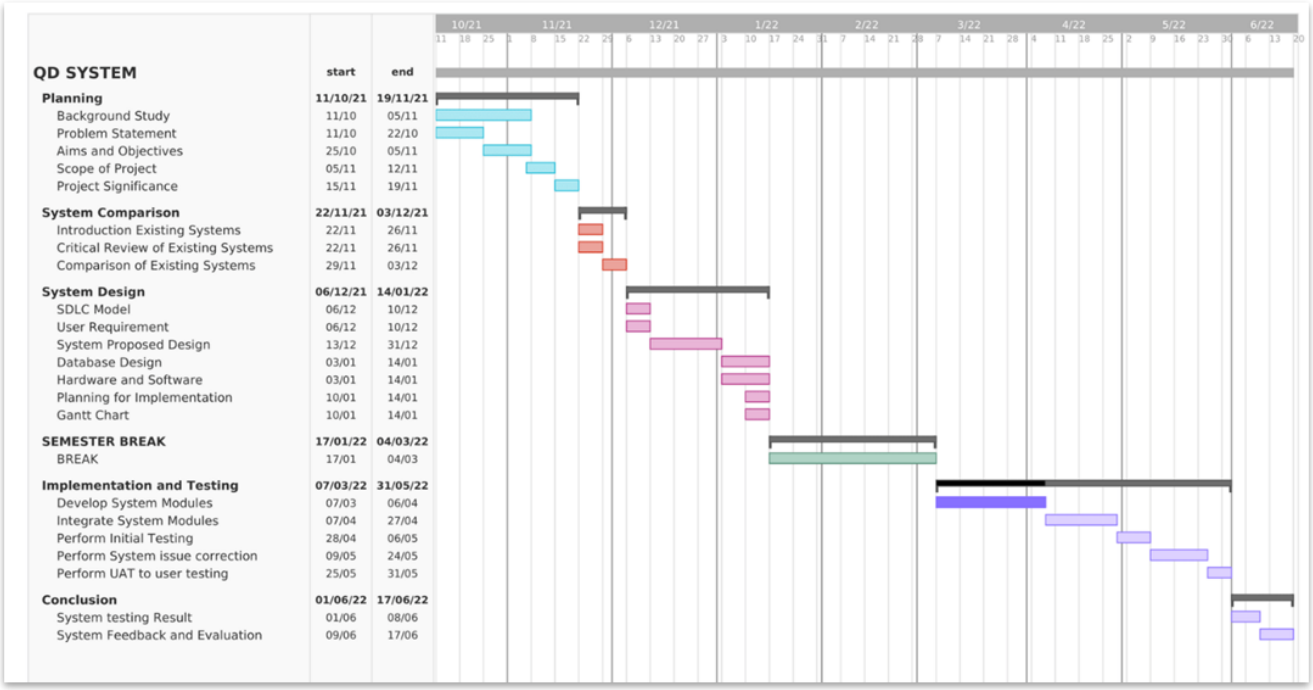
Signature:_____

Date :_____

3.6 Gantt Chart

Eventually, the Gantt Chart below show the concept and interception phase of this project. The planning first starts on 11 October 2021 for almost 5 weeks. Then, follow by system comparison chapter 2 that take almost 2 weeks until 3 December 2021. After that, the system designing phase that start on 6 December and finish on 14 January which took 6 weeks to complete. Total all is 13 weeks of progress for this final year project 1 on QD system.

Meanwhile, in new semester for final year project 2 which is will continue the same project to do implementation and testing as it follows the waterfall model mentioned. There system will be developed using hardware and software stated within the time planned. The testing also will use the UAT form made. Lastly, the conclusion of this project together with result of full system developed will revised with all main goal whether achieved or not and the feedback from user also supervisor.



CHAPTER 4 IMPLEMENTATION & TESTING

4.0 Implementation

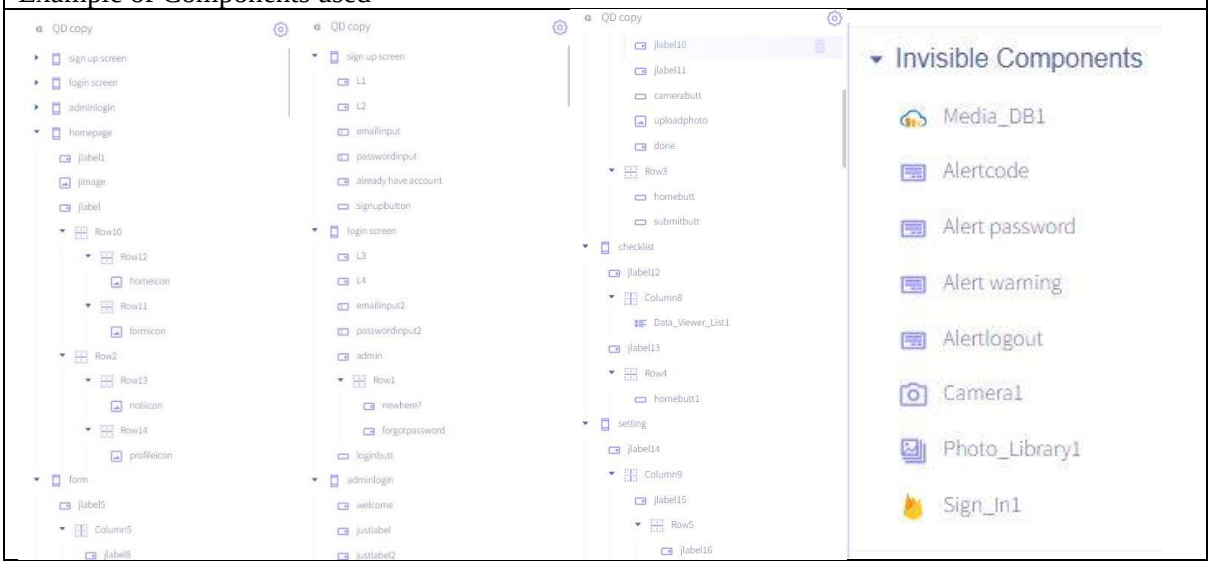
4.0.1 Introduction

In this project, implementation will take place to follow by step. The process of the implementation will be explained in detail here. Going into the process, the first step is to design the interface of each screen following the plan made in the graphical user interface mock-up in the previous chapter only small changes can be seen. Thus, around 11 screens are designed by putting all components that will help the function later on.

4.0.2 Input/Output Design Implementation

To make sure input and output functions are working well, many components are used on the screen. Examples of user interface components that allow input and output are labels, test input, data viewer, switch, alert, date input, and button. Meanwhile, there is also a layout component designed to put all components in places such as rows and columns. Also, to allow attachment component image and camera also designed to allow user take photo and display image.

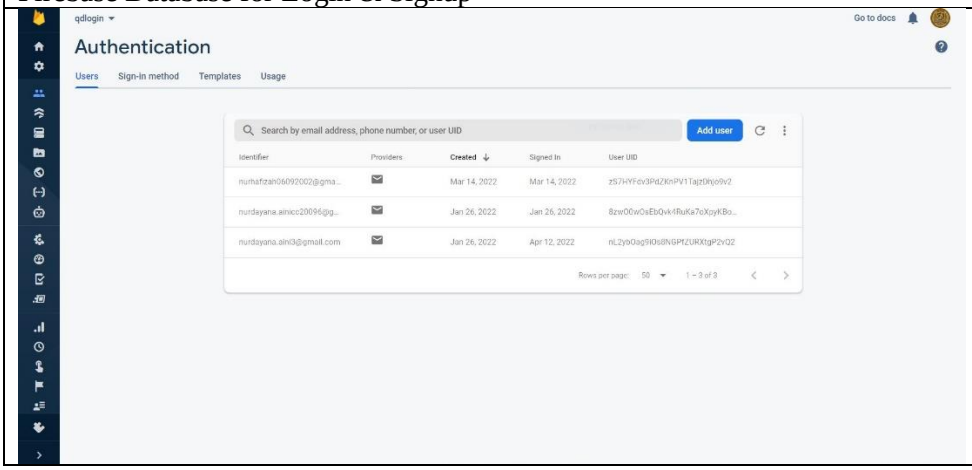
Example of Components used



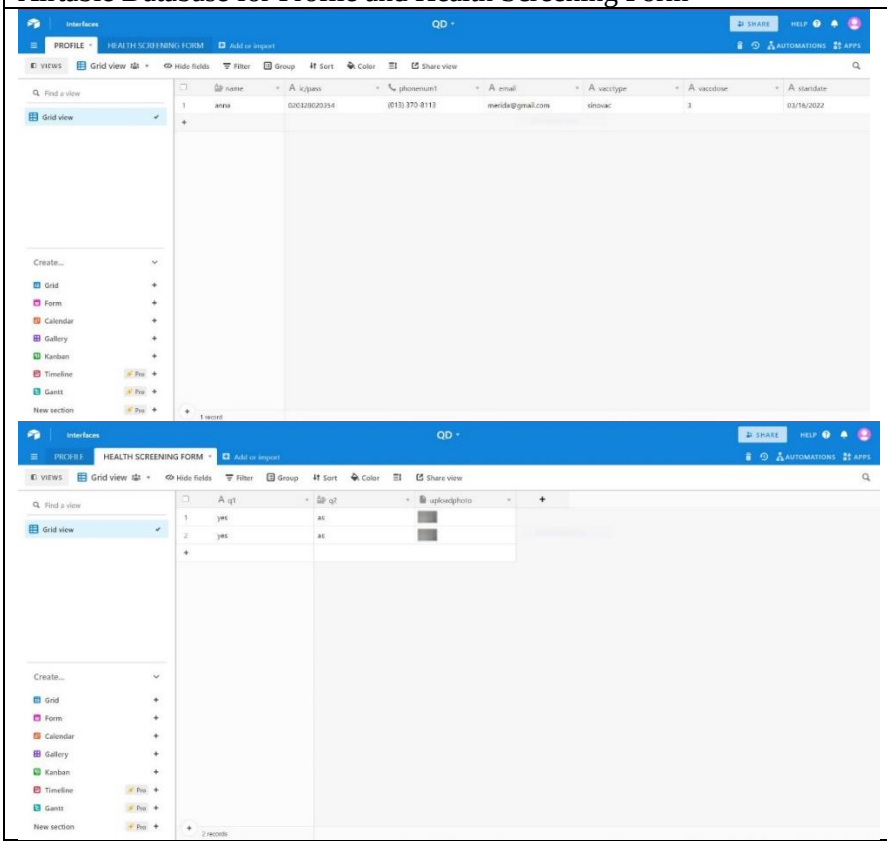
4.0.3 Database Implementation

After all, screens have their designated components the process of creating the database starts. As mentioned there will be 2 types of databases used in this application which are Airtable and Firebase. The Firebase data is to store user email and to allow users to sign up. It can be connected easily with Thunkable by using its APIs key. The same goes for the Airtable database where it stores the data of user profile info and daily health screening form answer when linking it in.

Firebase Database for Login & Signup



Airtable Database for Profile and Health Screening Form



4.0.4 Code Module

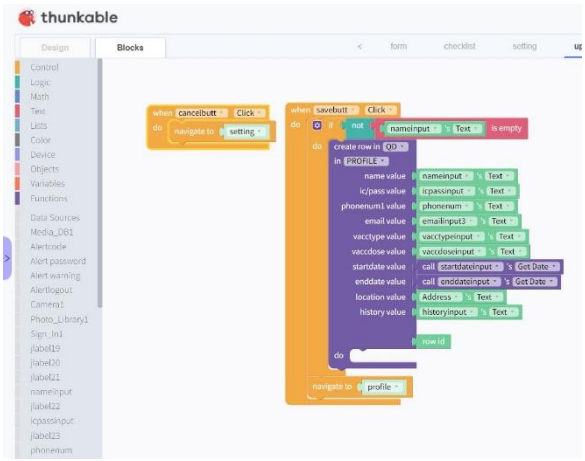
Next, here is where the coding phase starts. The coding process uses a code block that offers in Thunkable as a software tool to develop a mobile application. The code block might look simply but it needs a detailed structure to combine with another component to make one function work well even during a live test. Here, the coding for the login and sign-up module is the first. Sign-up coding needs the user's email and password then if no error it will navigate the user to the login page. Users will also receive an email for signing up. That is one of the firebase benefits. Coding for the alert warning is also there in case the user enters the wrong password during login. The coding for forgotten passwords is also included. Not forget the logout button is also coded.

For the admin login page, the verification code is manually coded. The default verification code is

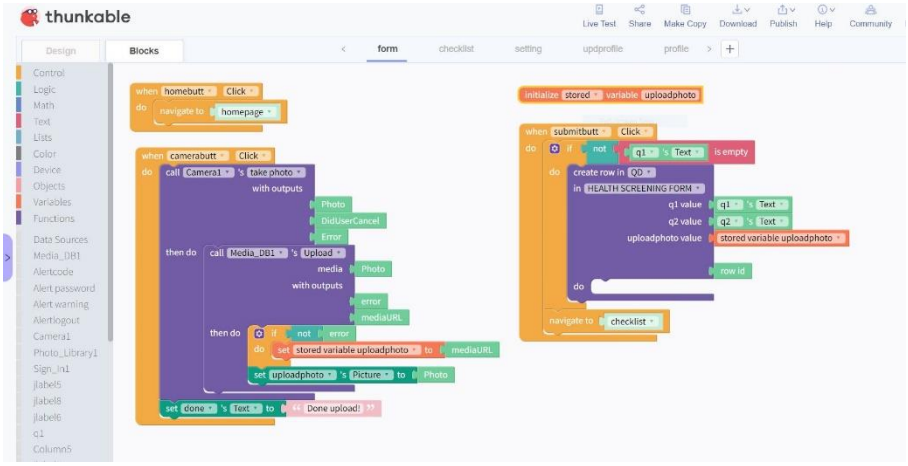
put inside the coding and the admin enters the exact number if not error alert will pop up. Coding for both health form and profile is also done when linked to the Airtable database. It can store all data entered by the user including photos. Users also can update or delete their data as it will also include coding as one of its functions. All this coding about data here will definitely involve the Airtable.

Furthermore, when login in as an administrator, they can view all the data users entered. The coding here is to call back all data from the database and display them in the respective label designed when buttons are clicked.

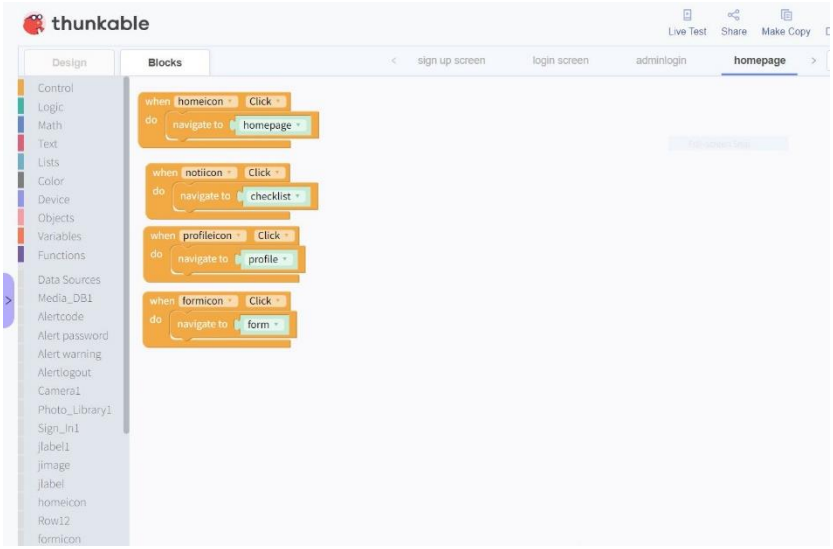
Example of Login & Alert Module Code Blocks


Example of Profile Module Code Blocks


Example of Health Screening Form Module Code Blocks



Example of Homepage Code Blocks



4.0.5 System Implementation

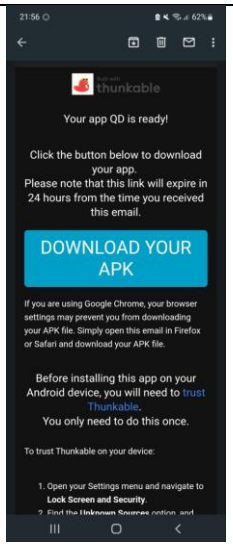
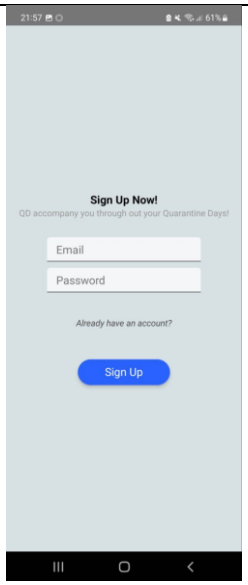
Overall, the method to develop the system is by coding the component to make sure of its functionality by combining the code block in the coding area provided in the tool. Of course, this course has its own advantages and disadvantages at the same time relevant for this project.

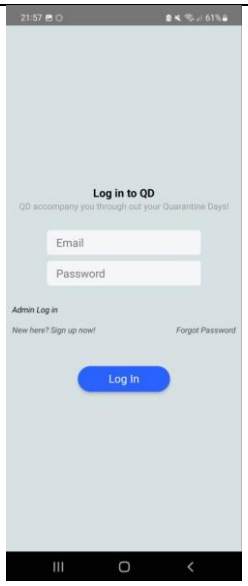
To deploy the application, the developer can download it as an Android app. The developer will get an email with instructions on how to install the application on the device. The device must be set to allow the installation of apps that is not from the play store. The application install is in an APK file for Android.

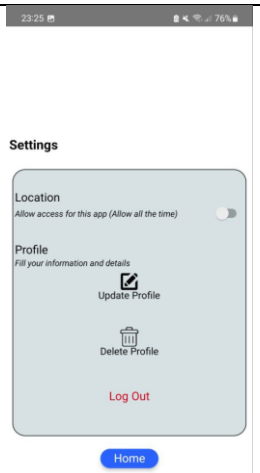
CHAPTER 5 TESTING

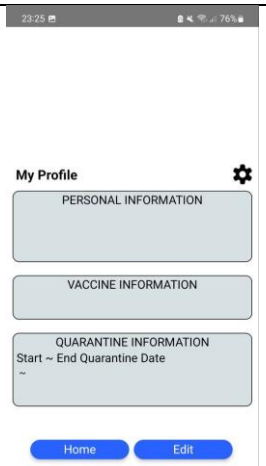
5.0 User Manual

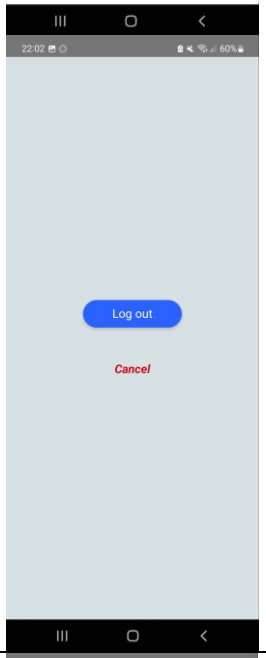
<table>
<tr><td colspan="2">How to download the application?</td></tr>
<tr><td>1. QD application can be downloaded from APK File on an android device only. The time and number to download the APK file are limited since it is from free software.

2. Before installing this app on your Android device, you will need to trust Thunkable. You only need to do this once.
a) To trust Thunkable on your device:
b) Open your Settings menu and navigate to Lock Screen and Security.
c) Find the Unknown Sources option, and set it to true.</td><td> 
</td></tr>
<tr><td colspan="2">How do sign up for new users?</td></tr>
<tr><td>1. Enter email and password and click sign up you will be directed to log in page.</td><td> 
</td></tr>
</table>

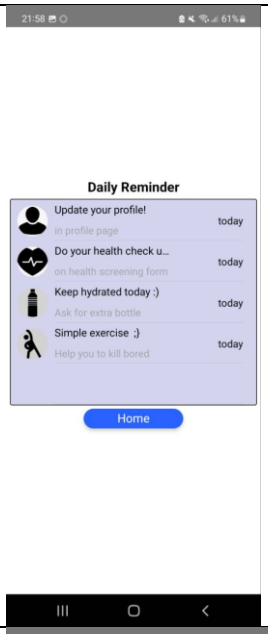
How to log in?	
1. Enter the same email and password then click *login*. 2. If you forgot your password enter only email and click *forgot password*. You shall receive a reset password email.	

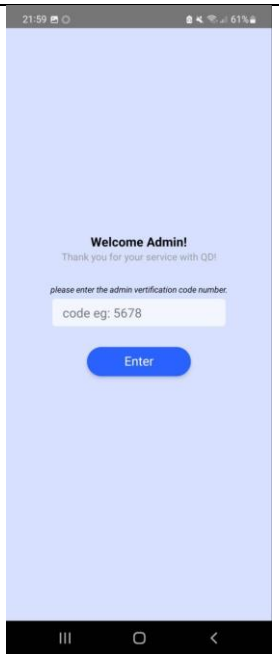
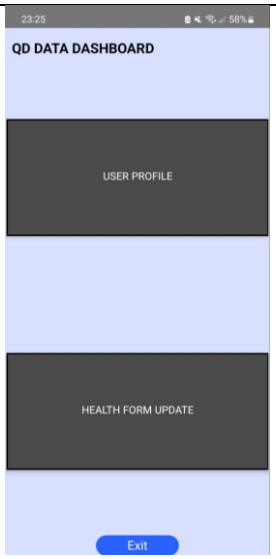
How to enjoy QD?	
1. You can first set up your profile info. *Profile icon>setting icon > allow location track > update profile> fill out all data > save* 2. To delete your profile click *delete profile* and *confirm* delete 3. To edit data click *edit* at *My Profile* page and edit your data. 4. To log out *Profile icon>setting icon>log out> confirm*	 



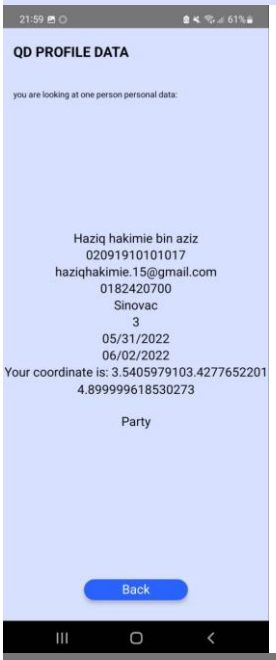


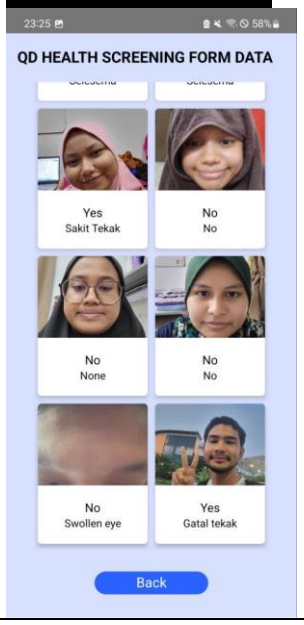
5. To update daily health conditions.
   Heart icon> answer all question> submit

6. To see the reminder or suggested activities during your quarantine. *Reminder bell icon > reminder list*	
7. To see news update you can click *home* and you will be direct to the CPRC Kementerian Kesihatan Malaysia telegram channel.	

How does the admin sign up?	
1. At the login page, the admin can click *admin login.* 2. You do need to sign up but must know the default admin verification code and enter the code to access the database.	
How to view data?	
1. Once you successfully log in 2 buttons will be shown. 2. You can click the *user profile* button on to see the latest data at the end of the list. 3. To view data details simply click on the item on the list. One's profile or answer will be shown in detail. 4. If you click *health form update* button you can see the grid data of user health form answer one by one. 5. To exit click *exit.*	


23:25
QD PROFILE DATA
Siti Maryam 990605789876
Alia Hanis 678954654325
Karim Muhd 020405090765
Hafiz Taufiq 050607098765
NUR ZAFIRAH SYAZANA BIN... 020609100916
Nurhafizah binti Mustafa 020906060818
Haziq hakimie bin aziz 0209191010...
Nuratikah nurain binti sahrin 020428010938
Aleya nur adriana binti moh... 021016060298
Aina safiah binti ishrapi 021118080468
Nor Azwa binti Rosli 020406060010
Nur ellyana afiera binti hassan 02060501606
Back


21:59
QD PROFILE DATA
you are looking at one person personal data:
Haziq hakimie bin aziz
02091910101017
haziqhakimie.15@gmail.com
0182420700
Sinovac
3
05/31/2022
06/02/2022
Your coordinate is: 3.5405979103,4277652201
4.899999618530273
Party
Back


23:25
QD HEALTH SCREENING FORM DATA
Yes
Sakit Tekak
No
No
No
None
No
No
No
Swollen eye
Yes
Gatal tekak
Back

5.1 User Acceptance Test

Below is the example of the User Acceptance Test (UAT) form to be filled according to the system functionally whether it is a success or failure. The targeted user is UMP student that had to undergo quarantine in the hostel area. The user will test the application functionality and mark the function status or leave any comment needed. After that user needs to sign to prove the test is legit.

No.	Module	Activities	Status		Comments
1	Log-In	User sign-up	Yes ☐	No ☐	
		User log in	Yes ☐	No ☐	
		User log out	Yes ☐	No ☐	
		User receive forgot password email	Yes ☐	No ☐	
		Admin log in	Yes ☐	No ☐	
2	Profile	Insert profile	Yes ☐	No ☐	
		Update profile	Yes ☐	No ☐	
		Delete profile	Yes ☐	No ☐	
		Display profile info	Yes ☐	No ☐	
		Administrator view user profile	Yes ☐	No ☐	
3	Health Screening form	User answer questions	Yes ☐	No ☐	
		User upload picture	Yes ☐	No ☐	
		User submits the answers	Yes ☐	No ☐	
		Administrator view answer submitted	Yes ☐	No ☐	
4	Location	Allow user location track	Yes ☐	No ☐	
		Tracking user current location	Yes ☐	No ☐	
5	Alert	User get an alert warning if wrong password/exist account/ confirmation	Yes ☐	No ☐	

This test has been performed by:

Name :_____

Signature:_____

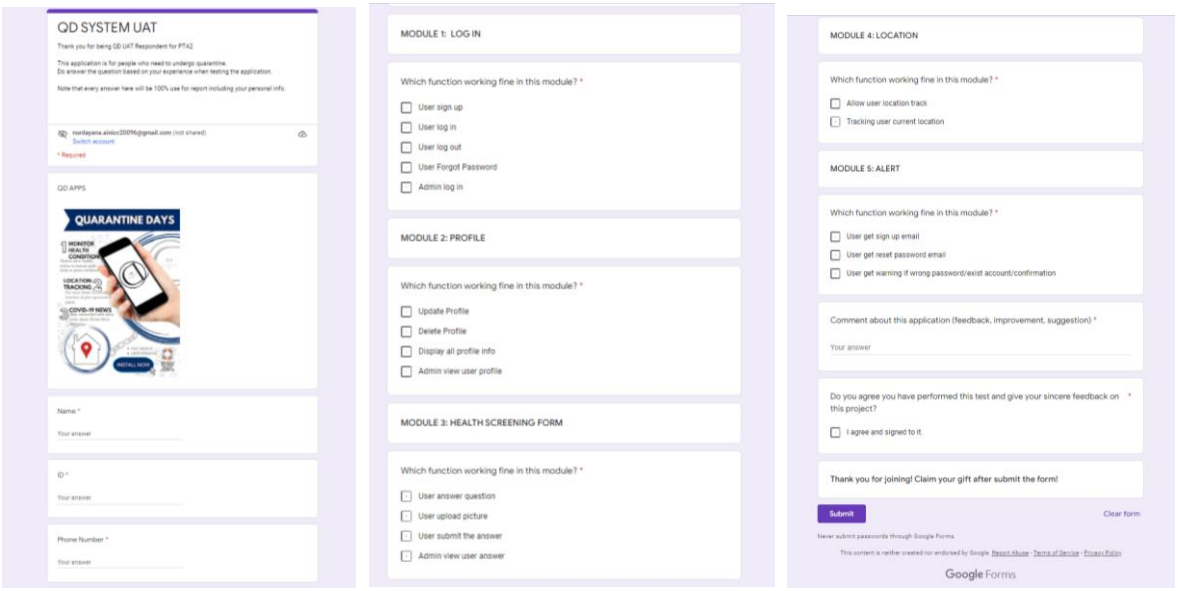
Date :_____

5.1.1 UAT Form in Google Form

To ease the testing process the UAT form was created in google form so that respondents can access it through their devices while testing the application. The form can be accessed through the link or scan the QR code below.

Link: https://forms.gle/agmawwgaRSgzzgQm7

QR code:



5.2 UAT Result & Feedback

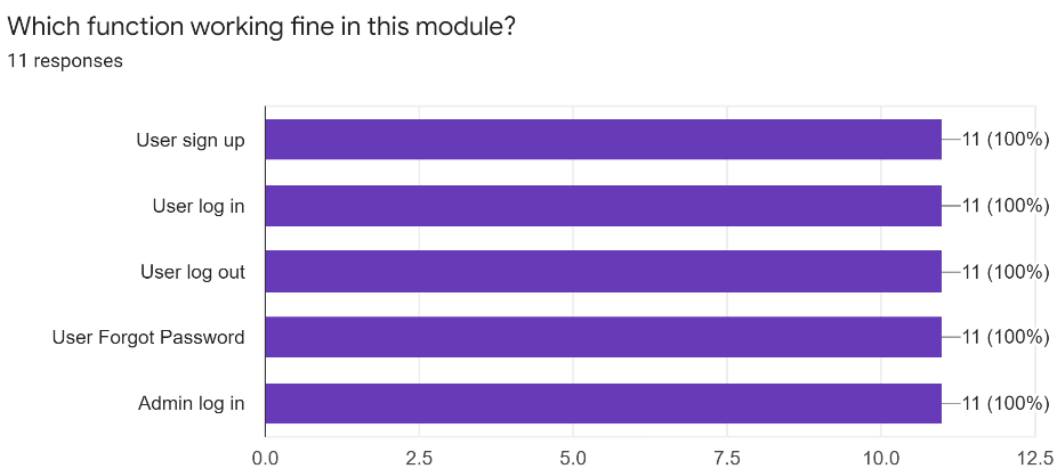
All the respondents are UMP students. They agreed that they had performed the test and give their sincere feedback on this project. As their consent to using their data was given permission, below is the list of respondents' details collected from the google form.

No	Name	ID	Phone Number
1.	NUR ZAFIRAH SYAZANA BINTI ZALATEF	CC20128	0176917787
2.	HAZIQ HAKIMIE BIN AZIZ	CC20157	0182420700
3.	MUHAMMAD DANIAL IMAN BIN ZAINAL ABIDIN	CC20109	0194458390
4.	Nuratikah Nurain binti Sahrin	CC20069	0137655284
5.	Aleya Nur Adriana Binti Mohd Kusaini	CC20127	0149301610
6.	NURHAFIZAH BINTI MUSTAFA	CC20084	01139160074
7.	AINA SAFIAH BINTI ISHRAPI	CC20101	0165426947
8.	NOR AZWA BINTI ROSLI	EB20121	0182103657
9.	Nur Ellyana Afiera Binti Hassan	CC20114	01111405105
10.	IDHAM SYAKIR BIN IZMAR	CC20173	0179344715
11.	AMAR RAZIN BIN HAMIDON	Cc20120	0179862968

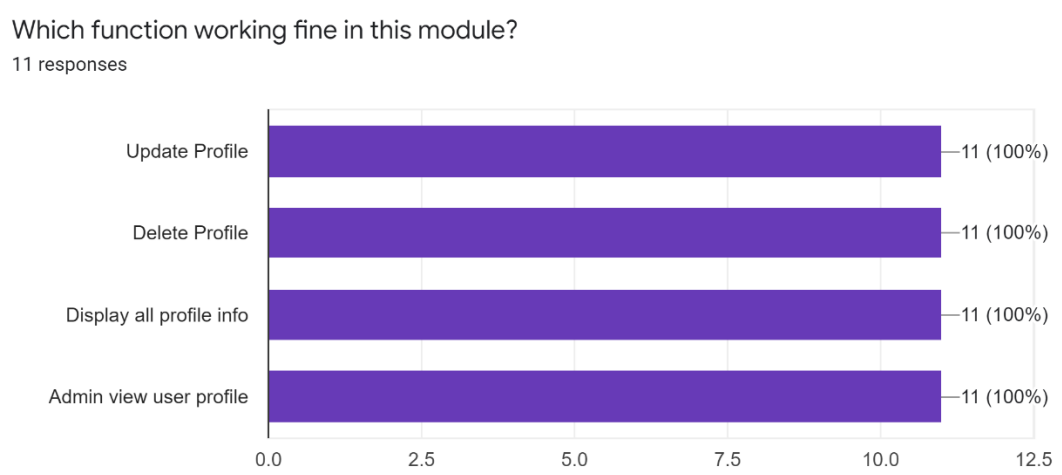
5.2.1 Result of the Test

Respondents use the checkboxes to clarify which function works while testing the application. Then, google form make it a summary in the graph so the result can be diagnosed clearly. There are 5 graphs that follow each module tested.

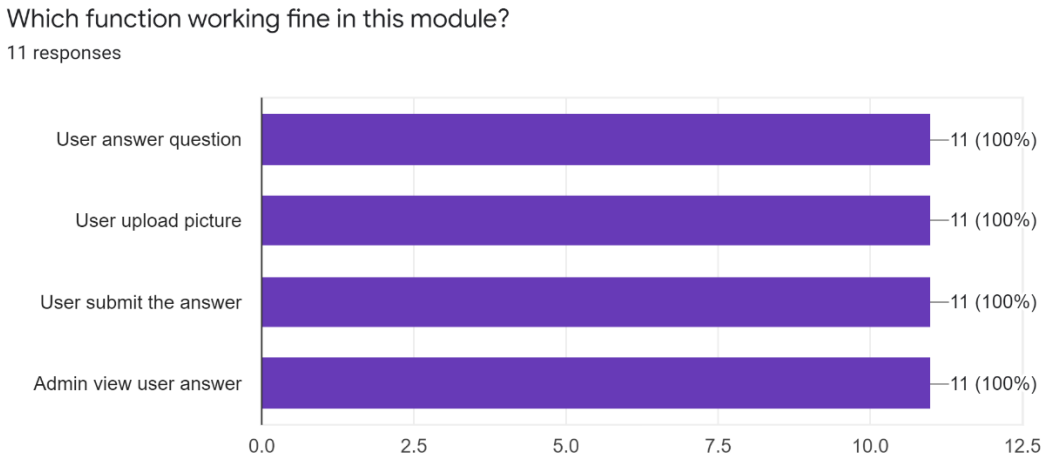
MODULE 1: LOG IN



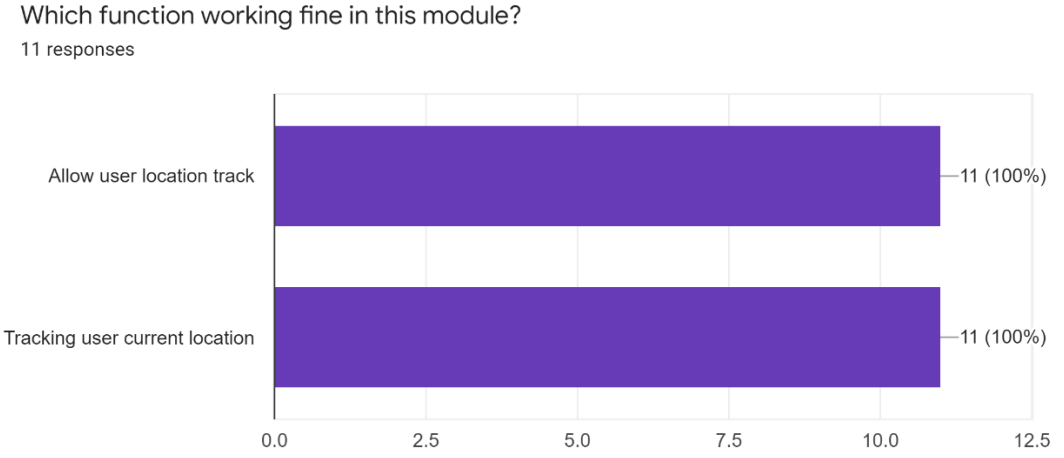
MODULE 2: PROFILE



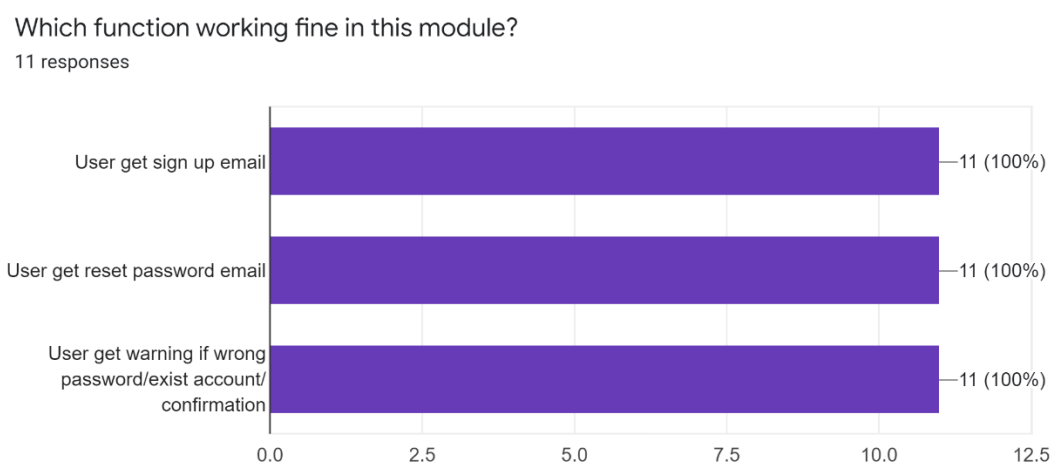
MODULE 3: HEALTH SCREENING FORM



MODULE 4: LOCATION



MODULE 5: ALERT



5.2.2 Feedback

At last, respondents need to give their feedback, improvement, or suggestion on the application after experiencing it. The list of each respondent's feedback is recorded in the table below.

Name	feedback, improvement, suggestion
NUR ZAFIRAH SYAZANA BINTI ZALATEF	this application really function well
HAZIQ HAKIMIE BIN AZIZ	nice and simple.
MUHAMMAD DANIAL IMAN BIN ZAINAL ABIDIN	Very good and easy to use
Nuratikah Nurain binti Sahrin	Great application, all function working very well! GOOD JOB!
Aleya Nur Adriana Binti Mohd Kusaini	Good application
NURHAFIZAH BINTI MUSTAFA	User friendly and easy to use
AINA SAFIAH BINTI ISHRAPI	very nice application but could improve the design more
NOR AZWA BINTI ROSLI	the app can be use
Nur Ellyana Afiera Binti Hassan	Hope can launch this application soon
IDHAM SYAKIR BIN IZMAR	Some changes to the icon have to be done
AMAR RAZIN BIN HAMIDON	The icon so confusing

REFERENCES

[1] T. A. N. Abdali, R. Hassan, and A. H. Mohd Aman, "A New Feature in Mysejahtera Application to Monitoring the Spread of COVID-19 Using Fog Computing," 2021 3rd International Cyber Resilience Conference, CRC 2021, no. Mcmc, 2021, doi: 10.1109/CRC50527.2021.9392534.

[2] Venesa Devi, "Johor police investigating viral video of duo with pink wristbands at restaurant," 2021. https://www.thestar.com.my/news/nation/2021/08/21/johor-police- investigating-viral-video-of-duo-with-pink-wristbands-at-restaurant

[3] N. Zamri and F. B. Syed Mohideen, "The Practicality of Mobile Applications in Healthcare Administration and COVID-19 Pandemic," Ulum Islamiyyah, vol. 33, pp. 117–130, 2021, doi: 10.33102/uij.vol33no1.300.

[4] Heather Murphy, "Quarantine in Hong Kong: Do wristbands and phone tracking work?," 2020. https://www.irishtimes.com/life-and-style/health-family/quarantine-in-hong-kong-do-wristbands-and-phone-tracking-work-1.4223950

[5] T. Chan, S. Wok, N. N. Sari, M. Afiq, and H. Abd, "FACTORS INFLUENCING THE INTENTION TO USE MYSEJAHTERA APPLICATION AMONG MALAYSIAN CITIZENS DURING COVID-19: A PLS- SEM Analysis," Journal of Applied Structural Equation Modeling, vol. 5, no. 2, pp. 1–21, 2021, doi: 10.47263/jasem.5(2)06.

[6] Caitlin o'kane, "Poland is making quarantined citizens use a selfie app to prove they're staying inside," 2020. https://www.cbsnews.com/news/coronavirus-update-poland-quarantine-app-asks-selfies-to-prove-isolation-social-distancing-police-patients/

[7] Max S. Kim, "South Korea is watching quarantined citizens with a smartphone app," 2020. https://www.technologyreview.com/2020/03/06/905459/coronavirus-south-korea- smartphone-app-quarantine/

[8] MOSTI, "New Digital Normal (Post-Covid)," 2021. https://www.malaysia.gov.my/portal/content/30955

[9] M. Mysejahtera, P. A. Aplikasi, M. Lanjut, and P. D. Juststayathome, "COVID-19 DI iOS".

[10] "SDLC - Waterfall Model," tutorialspoint. https://www.tutorialspoint.com/sdlc/sdlc_waterfall_model.htm

[11] N. K. M. Khair, K. E. Lee, and M. Mokhtar, "Community-based monitoring in the new normal: A strategy for tackling the covid-19 pandemic in malaysia," International Journal of Environmental Research and Public Health, vol. 18, no. 13, 2021, doi: 10.3390/ijerph18136712.

[12] Kevin Yap, "Mobile Health Apps That Help With COVID-19 Management: Scoping Review,"
2020. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7467120/

[13] "NEW NORMS PRACTICE OF COVID-19 AMONG MALAYSIAN PUBLIC," vol. 57601, no. June, p.
57601, 2020.
Figure 3.7.1Gantt Chart

[14] PTI, "Coronavirus tracking apps: From 'GoCoronaGo' to 'Sampark-o-Meter,'" 2020. https://www.livemint.com/news/india/coronavirus-tracking-apps-from-gocoronago-to- sampark-o-meter-11586409396134.html