

**BATAAN iRESPONSE: A BARANGAY QUICK
RESPONSE AND INCIDENT REPORTING MOBILE APPLICATION**

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DEDICATION

I would like to give my deepest gratitude to my instructors, who had put their faith in us and led us all the way. My college life was not easy but I can manage and carry on to my college life with the help of my classmates, groupmates, and friends. To my Mama Cecilia Gusi, who had been there to support me physically, emotionally, and financially. I would like to dedicate all this hard work to myself because, despite the struggles I have faced for the last four years, I still choose to believe in myself that I will, and I can finish my degree. All of it will not be possible without the Lord, who has given me the wisdom and strength to get through and finish it.

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ABSTRACT

The study Bataan iResponse: A Barangay Quick Response and Incident Reporting is a mobile application that was developed to notify the residents and barangay officials in Bataan, maintain the user's information, give the barangay officials the permission to post announcements & inform the residents on announcements, show the incident location in a map, provide the residents to report an incident, monitor the status of incidents, and generate the statistical reports of incidents. The system has three admins classified as Bataan Admin, Town Admin, and Barangay Admin; their work is to manage the data and secure the information of users and officials. The system has an add incident report module. Once registered, you can add an incident to your barangay and input the incident classification, location details, incident description, incident time, and date. The system allows the barangay officials to add and view their posted announcements. The Events module can inform the residents. It also has a notification module wherein the residents and the barangay officials can be notified. The system also monitors the status of incidents per barangay of each town. Moreover, the system generates statistical reports of incidents per barangay of each city through the Monitor module. The researchers used the Waterfall Model to develop the application. Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application used ISO 25010 to evaluate functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability of the system. It showed that the mobile application was great for the residents, barangay officials, and local government services agencies. The mobile application got a rating of 4.74 during its evaluation with an interpretation of "Excellent". It shows that it is considered as a great application that can be practically applied to its target users such as barangay officials and residents in Bataan.

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CHAPTER 1

INTRODUCTION

Many companies, corporations, and local governments have benefited from technological advances, which have helped them become much better in the industry and economy. A better quality of life is often obtained because of the development of IT. As technology evolved, people's work and life became more accessible. They no longer write reports, government policies, or events in the barangay on paper because it is already in the database. They do not have to solve for a long time because they can use excel. Because of technology, they have a better and more modern economy.

According to Escano (2020), "The investigation team should submit the incident report to study further and look for deeper causes. An investigation should be conducted by those competent in collecting and analyzing information and evidence gathered from the incident report. Those conducting the investigation should be knowledgeable in occupational health and safety fundamentals. Incident reports should be properly kept as they are an important record of every organization." He lives in Makati City, Philippines, and contributes to SafetyCulture.

The main problem of the study was how to develop and implement an incident reporting mobile application that speeds up the response process of barangay officials in Bataan to the incident reports submitted by the residents. This study sought answers on how to assist the residents in reporting, locating the incident, storing and maintaining the user's information, and how to post and inform the residents about the events posted, monitoring the status of incidents, and generating statistical reports.

Bataan iResponse: Barangay Quick Response and Incident Reporting Mobile Application is a mobile application that helps barangay officials improve the response time

of the barangay in emergencies. It would allow the residents to report any incident quickly, obtain a response from barangay officials, and provide comprehensive reports of the incident.

It was used to facilitate barangay officials in assessing the precise location of incident reports received, and they rescued the victims quickly. When the resident posted an incident report to their account, the barangay was notified. This study, Bataan iResponse: Barangay Quick Response and Incident Reporting Mobile Application, provides the needed system for storing information, reporting incidents in a faster, easier, and more accessible way through a database. It would reduce the amount of paper required to store data or files for each resident regularly. It provides information, particularly for the victims who need information about the incidents.

Objectives of the Study

The main objective of the study is to develop Bataan iResponse: Barangay Quick Response and Incident Reporting Mobile Application that is capable of notifying the residents and the barangay officials in Bataan and assisting the barangay in speeding up the response process during emergencies.

Specifically, the study aims to:

- Design a Mobile Application that is capable of:
 - a. Maintaining the users' information by importing a CSV file.
 - b. Allowing the barangay officials to post announcements and to let the residents get informed on announcements through the Events module;

- c. Providing a convenient way for residents to report an incident using Add Incident Report Module;
 - d. Notifying the residents and the barangay officials involved in the incident through the use of cloud messaging;
 - e. Locating the report of incidents with the use of 2D Mapping;
 - f. Monitoring the status of incidents per barangay of each town through monitor module; and
 - g. Generating the statistical reports of incidents per barangay of each town through a monitor module.
- Create the system using Android Studio, Firebase, and Windows OS as software requirements, and laptop, mobile phone, and router as hardware requirements;
 - Test and improve the developed system in terms of probability, reliability, and accuracy; and
 - Evaluate the performance of the developed system based on ISO 25010 characteristics such as functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability.

Scope and Delimitations of the Study

The study covers Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application, focusing on how barangay officials provide incident reports in their barangay. Through this system, it helps the barangay officials in an easy way of locating the exact place of what is happening in the barangay. The Bataan admin is the one who can import the file of town admins, the town admins are the ones who import the

barangay admins, and lastly, the barangay is the one who is responsible for importing the registered list of their residents using a CSV file. The barangay admin cannot delete the reported incidents submitted by the residents; every barangay admin cannot upload residents that is outside of their boundary. And the barangay admin can call the resident to confirm the report they submitted.

The residents can access the mobile application by logging in to report incidents and be notified when barangay admin post an announcement. Residents can only access the system when they are already registered residents or they requested an account. Barangay admin are the ones who can accept or delete the requested account. Barangay admin can send a notification for the residents to notify them about the submitted report. When you add a report, the developed system has five (5) classifications of incidents: fire, emergency/rescue, property damage, theft/robbery, and, lastly, homicide. Furthermore, the developed system has three (3) status levels: low, high, and severe.

The proponents used the required software suitable for the system. The developed system used Android Studio and Firebase for databases. At the same time, the researchers needed a laptop and mobile phone that had a minimum requirement to run the software used for application development. The developed system can be evaluated using ISO 25010 regarding functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. The proponents interviewed fifty (50) individuals as respondents. The target respondents of the study are barangay officials and residents of Bataan. They are composed of twenty-five (25) barangay officials and twenty-five (25) residents.

CHAPTER 2

CONCEPTUAL FRAMEWORK

This chapter provides information related to the topic, which aids the researchers in developing the study. The research refers to all gathered information from books, journals, electronic sources, thesis findings, and dissertations that provide sufficient background about the study.

Review of Related Literature and Studies

Barangay

Findwords.com (2016) defined Barangay as the minor administrative division in the Philippines, the native Filipino term for a community, district, or ward. Municipalities and towns in the Philippines are divided into barangays. Puroks can range from twenty to fifty or more households depending on the geographical position, cluster of houses, and sitios, the tribal enclaves within a barangay.

Balucanag (2019) explained the term "barangay" derived from the Malay word "balangay," which means sailboat. However, the word "ship" is no longer used to describe a vessel. Instead, it evolved into a political structure. The Philippines' smallest administrative district, formerly known as barrio, is the Filipino term for village. The barangay was the most common organizational system among indigenous groups.

Lastly, according to PhilAtlas.com (2018), the barangay is the smallest political unit in the Philippines. As a result, barangays make up each municipality or city. The Punong Barangay, who is the chief executive, the Sangguniang Barangay members, also

known as kagawad, and the sangguniang kabataan chairman cover the barangay government unit. The appointive officials are the barangay secretary, barangay treasurer, representatives of the lupong tagapamayaya, and barangay tanods.

Overall, the proponents use the term Barangay in the study to help them know about the different barangays in Bataan and how the residents can submit an incident report.

Quick Response

Cority (2020) stated that Quick Response is vital to any potential incident because it ensures safety among all individuals. Moreover, if you do everything you can to avoid it, an unexpected occurrence can always occur.

According to Safeopedia (2018), Quick Response qualifies as a systematic response or potentially dangerous occurrence. A crucial feature of quick response is response time. The time it takes for the first services to arrive at an emergency scene has been determined.

Definitions.net (2017) simply defined Quick Response as an effort by public safety personnel and citizens to mitigate the impact of an incident on human life and property.

To sum up, the study employs a quick response to help the residents to have an immediate rescue from the barangay officials.

Incident Reporting

SafetyCulture.com (2021) simply explained that Incident Reporting is a method for documenting any case that may or may not have resulted in personal injury or harm. It is

being used to keep track of work-related incidents, near-misses, property and equipment destruction, health and safety issues, and security violations.

Incidentreporting.com (2019) clarified that the Incident Reporting procedure includes documenting the details of an incident, such as a safety incident, security, property harm, near miss, or safety observation, and sending them to a designated contact for follow-up. This procedure led to identifying the threats, faults, and dangers that contributed to the incident and implementing improvements to prevent similar incidents.

Furthermore, Sheen (2021) stated that incident reporting might be used to investigate and analyze a situation. A tool for tracking any incident that may or may not have resulted in an individual being injured being affected is incident reporting. It is used to monitor workplace incidents, near-misses, property and infrastructure destruction, health and safety concerns, regulatory violations, and wrongdoing.

In other words, the study employs incident reporting to raise awareness among citizens in the barangays of Bataan about apparent risks such as corrective and preventive measures, which can be taken quickly.

Barangay Incident Reporting Application

iReportMo.com (2019) explained that the Barangay Incident Reporting Application is convenient to report emergencies, including fires, accidents, crimes, and barangay incidents. When reporting an incident, it includes location, date, time, and images.

Barangay Incident Reporting is the practice of protecting and assisting people against any life-threatening situation. It implies helping both the citizens and the barangay officials to get meaningful details that can be used in an incident report analysis.

Ignaco (2019) explained that Mobile Application for Incident Reporting is a program that allows users to track and respond to criminal incidents in the Philippines. The person who uses this application sends an incident report with images, then coordinates to the nearest barangay or barangay officials for notification of urgent incident response to the report.

In addition, inettutor.com (2018) added that the Barangay Incident Reporting Application is a system that can provide record-keeping, easy data retrieval, monthly and annual or real-time statistical reports. Moreover, of course, graphical representation of comparative data is essential in making the barangay more effective, accurate and notifying many citizens.

To conclude, barangay incident reporting was used in the study to help the residents and the barangay officials collect relevant data for use in incident reports.

Database Management System

Sharma and Neha (2017) defined that a database management system is a part of computer software used to manage databases. The primary goal of a database management system (DBMS) is to make storing and retrieving database data as easy as possible.

Techopedia.com (2020) defined the database management system (DBMS) as a software package for representing, manipulating, retrieving, and managing databases. Data, data type, field names, document structure, and file structure are all used by a database management system (DBMS). It also lays out the rules for validating and manipulating the data.

Moreover, Naeem (2021) clarified that the database management system or DBMS software is used for storing, processing, and handling data, such as format, field names, records, and file structures. Users may use a DBMS to build their databases to meet their business needs.

As a whole, the proponents manage a database management system to manage the barangay officials' and residents' information.

Android Technology

According to Studymoose.com (2016), Android technology is an example of OSS (open-source software), freely distributed with a source code that is not protected under copyright laws. Android is a smartphone operating system that contains functionality that offers standard utilities for computer applications, middleware (which allows many applications to operate simultaneously or connect), and various other essential applications such as social networking, gaming, and business modules. Android is based on the Linux kernel, the first free and open-source operating system.

Similarly, Holmes (2021) defined Android as a computing platform for smartphones and other devices. This technology, which includes an operating system, software, and applications, is owned by Google, Inc. The operating system is based on Linux, which provides advanced computer processing. The Android Open-Source Project is responsible for maintaining and developing Android technology (AOSP).

Fitatraining.com (2020) stated that Android is built on a qualified Linux kernel version. It is an open-source intelligent application middleware platform. The device is simple and has a wide range of applications and features. These smartphones have a camera, Bluetooth, Network, Audio, Wi-Fi, Sensors, microphones, GSM, live wallpapers, calls, email, browser, home screen input methods, App Widgets, language support, multi-touch, and other valuable functions are all included in the interface.

Overall, the study used android technology since most of the capabilities can be accessed through a mobile device.

2D Mapping

According to Crescentflightops.com (2019), 2D Mapping is collected when a drone takes hundreds or even thousands of photos, then stitched together and analyzed to create a high-definition map. These maps and images aid you and your team make quick choices while providing a realistic perspective.

Autodesk.com (2019) clarified that 2D Mapping is two-dimensional images that are typically mapped onto the surface of geometric objects or used as environment maps to

create a background for the scene. All 2D maps are created procedurally, except for the most detailed 2D Map, Bitmap.

Esri (2016) stated that 2D Maps are still helpful for various tasks, such as navigating a new city or defining legal boundaries, but their top-down world perspective limits them.

Overall, the 2D Mapping was used in the system to quickly identify the location of the incident and to estimate the distance between the location of the reported incident from residents and barangay location to search for a way in order for the barangay officials to act quickly.

Mobile Application

According to Mroczkowska (2021), a mobile application is a type of software that runs on a mobile device such as a smartphone or tablet. Despite being small processing devices with minimal capabilities, they continue to deliver high-quality functionality and communications to their users. In comparison to desktop applications, mobile applications depend less on sophisticated computing technology. Mobile devices avoided multi-functionality due to the limited hardware capabilities of early handheld computers. Even as today's smartphones become advanced, mobile device versatility remains limited.

Techopedia.com (2020) explained that mobile applications depart from PCs' traditional integrated software systems. Instead, each application only has one limited feature, such as a game, a calculator, or mobile web browsing. In addition, the most basic

mobile applications are simply PC-based software that has been ported to a mobile device. This approach is becoming less effective as mobile applications become much as sophisticated. A more advanced method includes designing specifically for mobile applications, taking advantage of their weaknesses and benefits.

Baktha (2017) stated that the mobile application field had grown tremendously with the dramatic rise in mobile applications in different mobile phones and tablets. Mobile applications are necessary because they have features to locate a place or purchase movie tickets online. Mobile marketing is becoming increasingly successful in today's fast-paced environment.

As a whole, a mobile application is used in the system since it is much easier for the residents of Bataan to report an incident immediately and conveniently using their mobile phones. Furthermore, officials from the barangay can monitor incidents anywhere and at any time.

ISO 25010

Codacy.com (2021) stated that ISO 25010 software quality data systems describe code quality characteristics and decompose them. One model stands out among corporate software devices: the ISO/IEC 25010, released in 2011.

According to ISO/IEC 25010, software quality is classified into two distinct categories: product quality and quality in operation. Furthermore, the quality of the substance is deteriorating. Product consistency is linked to the static and dynamic properties of the program itself. Functional Suitability, Performance Efficiency, Compatibility, Usability, Reliability, and Security are the eight characteristics.

Maintainability and portability are two critical factors to consider. It is divided into the following five categories: effectiveness, performance, satisfaction, risk avoidance, and context coverage.

Hovorushchenko and Pomorova (2016) noted that the ISO 25010 model is the most widely used model for software quality evaluation. The concept behind this standard is that each character should be evaluated directly on the software product. Model ISO 25010 recommends evaluating software consistency based on eight characteristics, each of which comprises many sub characteristics (a total of 31 sub characteristics). Sub characteristics, on the other hand, are functions of several steps.

Overall, ISO 25010 was used in the study to evaluate the system's performance according to functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability.

Incident Reporting, Safety Compliance Inspections

ImecTechnologies.com (2018) stated that the Incident Reporting and Safety Compliance Inspections enable users to use custom forms to track incidents, hazards, and near misses. The application can collect all relevant details for an injury, threat, or near miss. Dashboards provide how incidents are classified by category, date, and location.

Both applications can track, gather all the necessary information, and view incidents classified by category, date, and location.

In terms of differences, the developed system notifies the users when an incident occurs, and the users can simply view the announcements. In contrast, the existing system has no notification and announcements module used.

1st Incident Reporting

Maghanoy (2019) explained that the 1st Incident Reporting is an on-the-spot-incident reporting that allows users to swiftly report the location, time, date, time asset information, and other details and automatically sends it to the designated department or operations for confirmation and actions.

Both systems can monitor events, collect all necessary data, and display them by category, date, time, and place.

On the contrary, the developed system focuses on barangay incidents and cannot share the reports via email, cloud, or text. While the existing system focuses on the happenings inside the company, reports can be shared via email, cloud, or text.

Spotlight-Incident Reporting

SafetyCulture.com (2018) explained that Spotlight gives a real-time alert for incidents, hazards, and near-misses. It makes reporting accidents very simple for users. Fast incident logging, a recorded incident history, an auto-generated and shareable incident report, real-time communication with a team, instant alerts, configurable

workflows, customizable incident forms, and feedback from incidents collected are all possible with this software.

Both systems can submit an incident report and locate any incident.

In contrast, the developed system incident report is only for the person involved. While the existing system, the incident report is auto-generated and shareable.

Software Requirements

In developing the system, the proponents used Java as the programming language, Firebase as its database, Android Studio for producing the entire application, and Windows as an operating system.

Java

Based on Johari (2019), Java is a cross-platform, object-oriented programming language that Sun Microsystems released in 1995. Today, Java is needed to run various games, social media applications, audio, and video applications. It is an object-oriented language similar to C++ but with advanced and simplified features. This language is free to access and can run on all platforms.

As shown above, the proponents used Java as the programming language to create the application to help residents report the incidents and quickly respond by barangay officials.

Firebase

Stevenson (2018) stated that Firebase is a collection of tools for developing, improving, and scaling the software. The tools it provides cover many services developers otherwise have to install themselves but do not want to because they would instead concentrate on the app experience. Analytics, authentication, databases, setup, file storage, and push messaging are examples of this. The services are cloud-based and scale with little or no effort on the developer's side.

To sum up, Firebase was used in managing, updating, deleting, and securing barangay officials & residents' information.

Android Studio

According to techtarget.com (2018), Android Studio is the official integrated development environment for Android application development. It is based on IntelliJ IDEA, a Java embedded programming platform with code editing and developer tools for software creation. It has a Gradle-based build scheme, code templates, and integration with GitHub. In this, every project has source code and resource file modalities.

In other words, the android studio developed the whole application by providing code editor, debugging, and testing of the seven (7) system capabilities. Such as maintaining the barangay officials and residents information securely by importing a CSV file, giving the users a simple way to view announcements, providing a convenient way for residents to report an incident, notifying the residents and the barangay officials

involved in the incident, providing a 2D mapping to locate the incident, monitoring of incidents per barangay of each town, and generating the statistical reports of incidents per barangay

Microsoft Windows

Based on techclopedia.com (2017), A dynamic user interface (GUI), multitasking, virtual memory management, and support for a wide variety of peripheral devices are all included in Windows. It is available in both 32-bit and 64-bit versions. Both client and server versions of the Windows operating system are available. The most recent update, Windows 10, was released in 2015. Windows NT Server, 2000 Server, 2003 Server, and Server 2008 R2 are available to program models.

Overall, the proponents used Microsoft Windows as its operating system in the study to develop the mobile application.

Hardware Requirements

The hardware requirements consist of a laptop, mobile phone, and router.

Laptop

Edu.gcfglobal.org (2018) stated that laptops are lightweight devices that can be easily transported and used in several places. Most laptops are designed to do the same functions as a desktop computer, including running the same programs and accessing duplicate files.

The study requires a laptop for coding, debugging, and testing the system functionalities. The proponents also used laptops for documentation and research.

Mobile Phone

According to Negi (2018), Mobile Phone is a lightweight handheld device that allows users to make calls and send text messages, among other things. The earliest generation of mobile phones could only send and answer phone calls. A 'cell phone' or 'wireless phone' is another name for a mobile phone.

To summarize, the study demands a mobile phone to run and test the application functionalities such as maintaining the barangay officials and residents' information securely by importing a CSV file, viewing announcements about events, reporting an incident, notifying the residents and the barangay officials involved in the incident, locating the incident, monitoring of incidents per barangay of each town, and lastly, generating the statistical reports of incidents per barangay of each town.

Router

Computerhope.com (2019) defines a router as a piece of hardware that receives, analyzes, and forwards incoming packets to another network. It may also delete packets, reroute them to a different network interface, and do other network-related tasks.

To sum up, a router enables the user to connect several devices to the internet and each other. The proponents used the internet to test the application and documentation of the study.

Conceptual Model of the Study

Airbrake.io (2017) cited the conceptual model as representing a system made up of concepts and ideas. Conceptual modeling is used in various areas, including physics, socioeconomics, and software production.

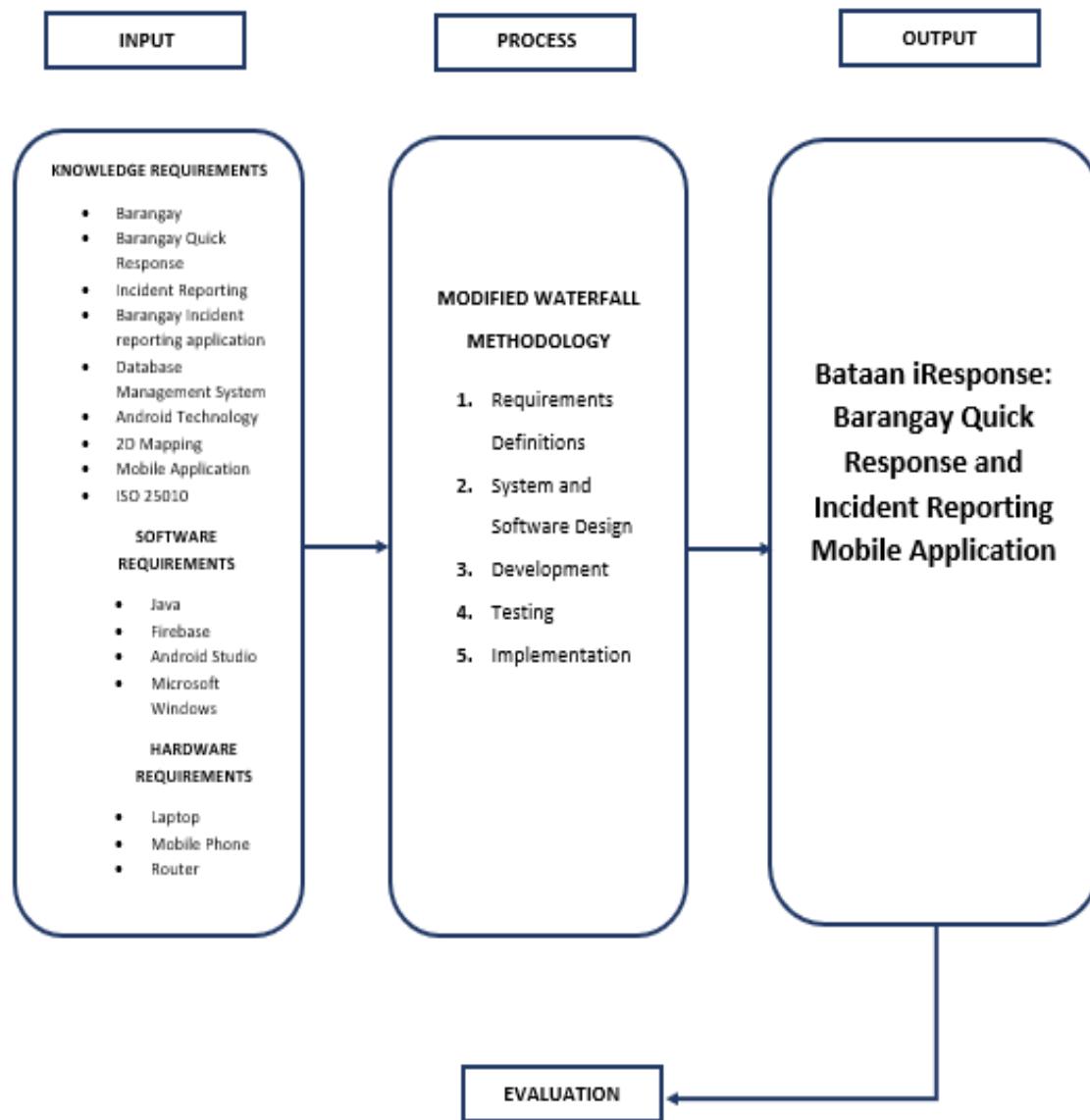


Figure 1 Conceptual Model of the Study

Figure 1 represents the study's conceptual model, which contains the input, process, output, and evaluation.

Figure 1 shows the study's conceptual model, which contains the input process. The input phase includes knowledge requirements, software requirements, and hardware requirements used to develop the system. The knowledge requirements consist of Barangay, Quick response, Incident Reporting, Barangay Incident Reporting Application, Database Management System, Android Technology, 2D Mapping, Mobile Application, and ISO 25010. In addition, Java, Firebase, Android Studio, and Microsoft Windows are the software requirements. Furthermore, the hardware requirements consist of a Laptop, Mobile Phone, and Router.

The process phase shows the Waterfall Methodology, which incorporates five (5) phases specifically: Requirements Definitions, System and Software Design, Development, Testing, and at last, Implementation.

The Output phase results from the combined input process phase, Bataan iResponse: A Developed Barangay Quick Response and Incident Reporting Mobile Application, and the Final phase is evaluation.

Operational Definition of Terms

The following are terms that are operationally defined for a better understanding of the study:

Administrator – refers to the people engaged in carrying out duties and responsibilities.

Barangay official – refers to the barangay staff responsible for posting events and announcements in the system.

Bataan – refers to the locale of the study.

Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application – is a mobile application intended to help barangay officials improve the incident response time of the barangay in emergencies.

Events and announcements – refer to an act of barangay officials to announce and post upcoming events.

Incident – refers to an unexpected event submitted by a resident to the Bataan iResponse system.

Incident Response – refers to an act of the Barangay officials to respond to the incidents submitted by a resident.

Report – refers to a description of what has been said, seen, done by the users.

User – refers to residents and barangay officials.

CHAPTER 3

METHODOLOGY

This chapter discusses the system's major features in response to stated problems during information gathering. Also, it presents the different diagrams in developing the system. It explains the testing procedure done by the researchers.

Project Design

The Bataan admin is the one who can import the CSV file of town admins, the town admins are the ones who import the barangay admins, and lastly, the barangay is the one who is responsible for importing the registered list of their residents. This application allows the barangay officials to notify residents about incidents in Bataan and assist the barangay officials in speeding up the response process in emergencies. Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile application give users a simple way to add and view announcements about events in the barangay. The system also provides the residents to report an incident. The barangay admin cannot delete the reported incidents submitted by the residents. And the barangay admin can call the resident to confirm the report they submitted. The barangay officials are notified when residents submit their reports, and residents who submitted the incident report are notified when the barangay responds to their report. The system has five (5) classifications of incidents when you add a report: fire, emergency/rescue, property damage, theft/robbery, and lastly, homicide.

Moreover, the system has three (3) status levels: low, high, and severe. The system also provides the location of the incident using 2D Mapping to quickly identify and locate the incident and search for a way to let the barangay officials act quickly. The system helps the barangay officials quickly assess the precise location of incident reports received and rescue victims.

Use Case Diagram

Techtarget.com (2020) explained that a use case is a system research technique for identifying, clarifying, and organizing system specifications. A "machine" is something that has been designed or maintained, such as a Web site that sells and delivers mail-order packages. Use Case diagrams are used in UML (Unified Modelling Language), a basic notation for modeling real-world systems and processes. Compared to other graphs, such as flowcharts, a use case diagram has many benefits.

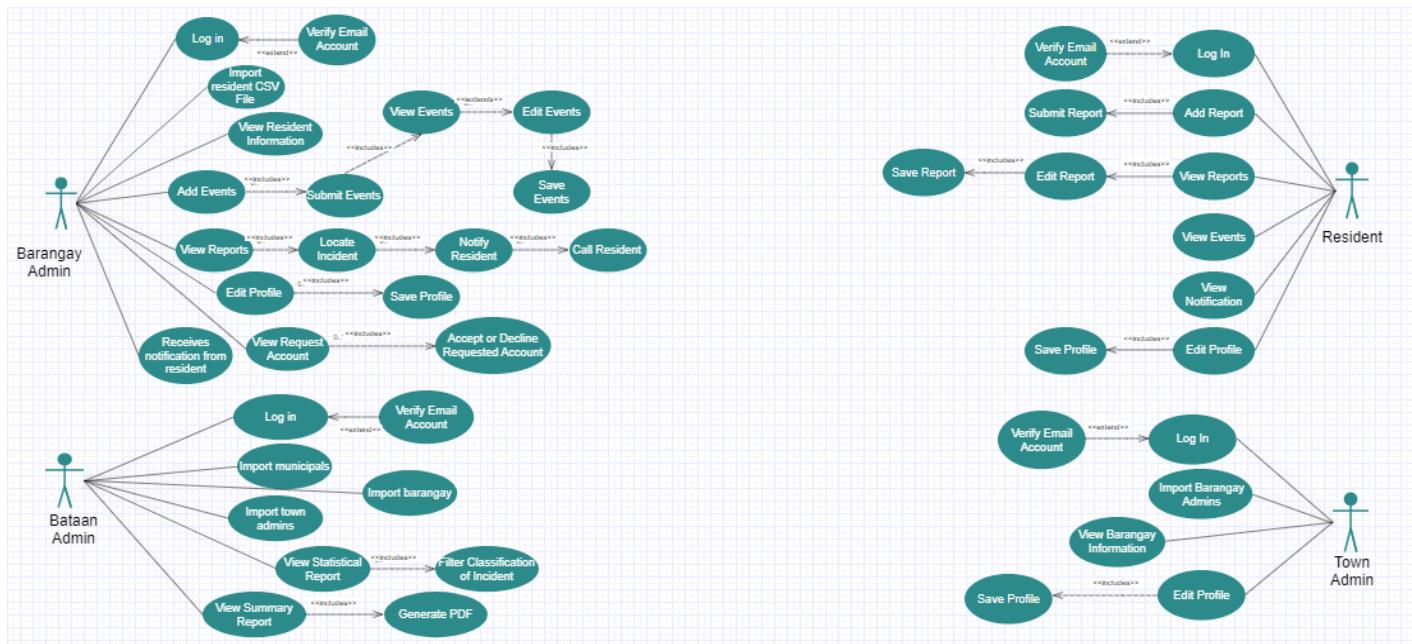


Figure 2.0 Use Case Diagram

Figure 2.0. displays the use case diagram. Residents who do not have an account need to request an account before logging in to the application. Once their account is processed, they need to verify their email account and login; the registered residents can add reports about the incidents in their barangay. After submitting the reports, the barangay notifies residents about the submitted report. Also, residents can view and edit their reports once they submit a report and view the barangay events or announcements. Furthermore, residents can view the notification they received from barangay officials about reports submitted and they can also access their profile to edit their information in their account.

Barangay Admin can access the application after the town admin added the list of them. They can view the reports of the residents and locate the location of incidents given by the residents and they need to notify the residents about the reports and call to verify the reported incident. They can import CSV files for the list of their residents only and view the information of residents and approve or delete requested accounts from residents. Barangay admin can post an event that will happen in the barangay. Barangay admin can also edit their information.

Bataan admin is automatically created when the application is launched for the first time. Once logged in, they can import the municipality, barangay, and town admin. In the web application, Bataan Admin can log in to their account using the credentials in the application. Once logged in, they can view the statistical reports which are the incident leaderboard and Incident Graph report, and monitor summary reports in every municipality in Bataan. They can also generate pdf files from summary reports.

Town admin can log in to their account. They are the ones who manage the barangay admin by importing their information using a CSV file and can view it in the Barangay information button. Furthermore, town admin can also edit their profile, including their name and contact details.

Activity Diagram

Creately.com (2021) stated that Activity Diagram helps in the more accurate visualization of a use case. It is a behavioral diagram that depicts how events move

through a system. Activity diagrams may be used during the software development process and for various reasons.

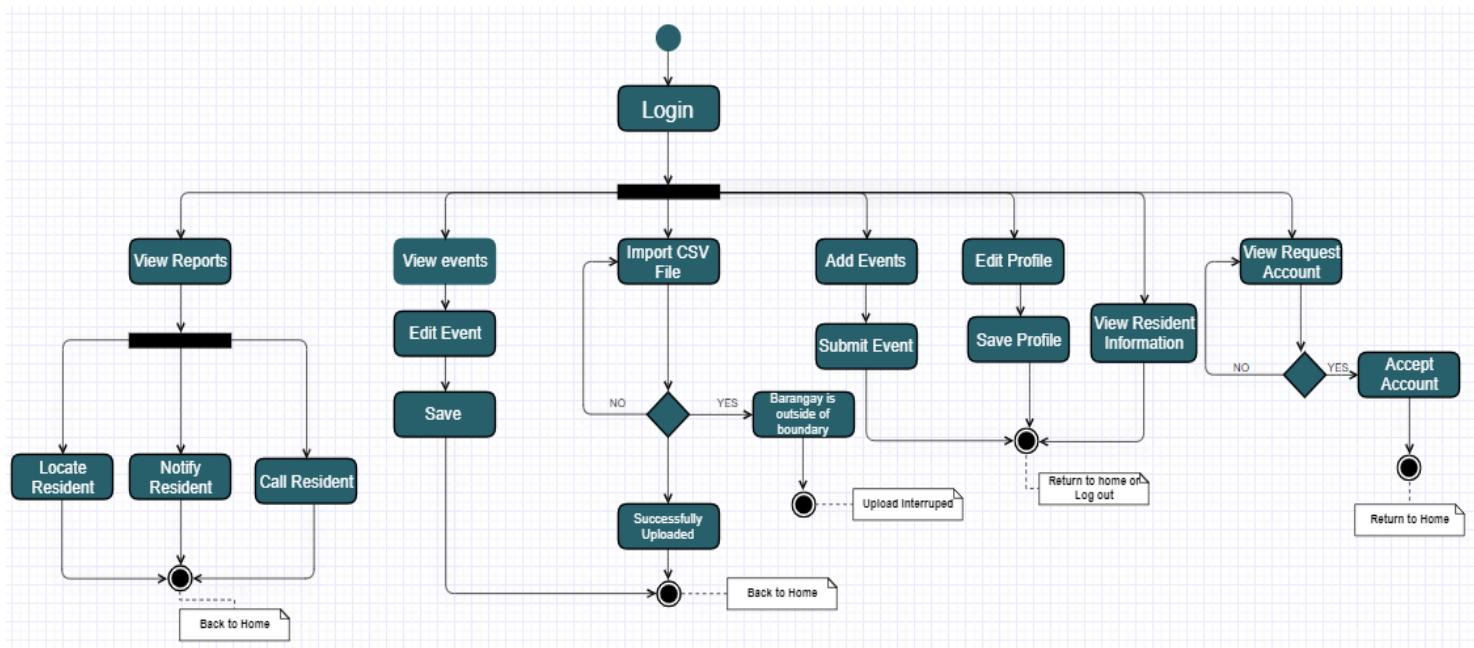


Figure 3.0. Activity Diagram (Barangay Admin Side)

Figure 3.0. shows how to access the application, the barangay admin needs to log in to their account. If the inputs are invalid, the application prompts the barangay admin to correct the incorrect details. If the inputs are correct, the barangay admin was redirected to the home page, which unlocks the functionalities of the applications such as viewing of reports wherein they can locate the incident occurring using 2D Mapping, notify residents about their submitted and call the resident for the verification. Barangay Admin will import the residents' account information to log in to their account, barangay admin only allows to import residents list from their barangay, outside of the boundary is not included in a CSV file. Add events wherein barangay admin can submit the important

announcements of events in their vicinity. Once the events are submitted, they can view them and, lastly, approve or delete resident requested account. After the processes, the barangay admin can redirect to the homepage or log out.

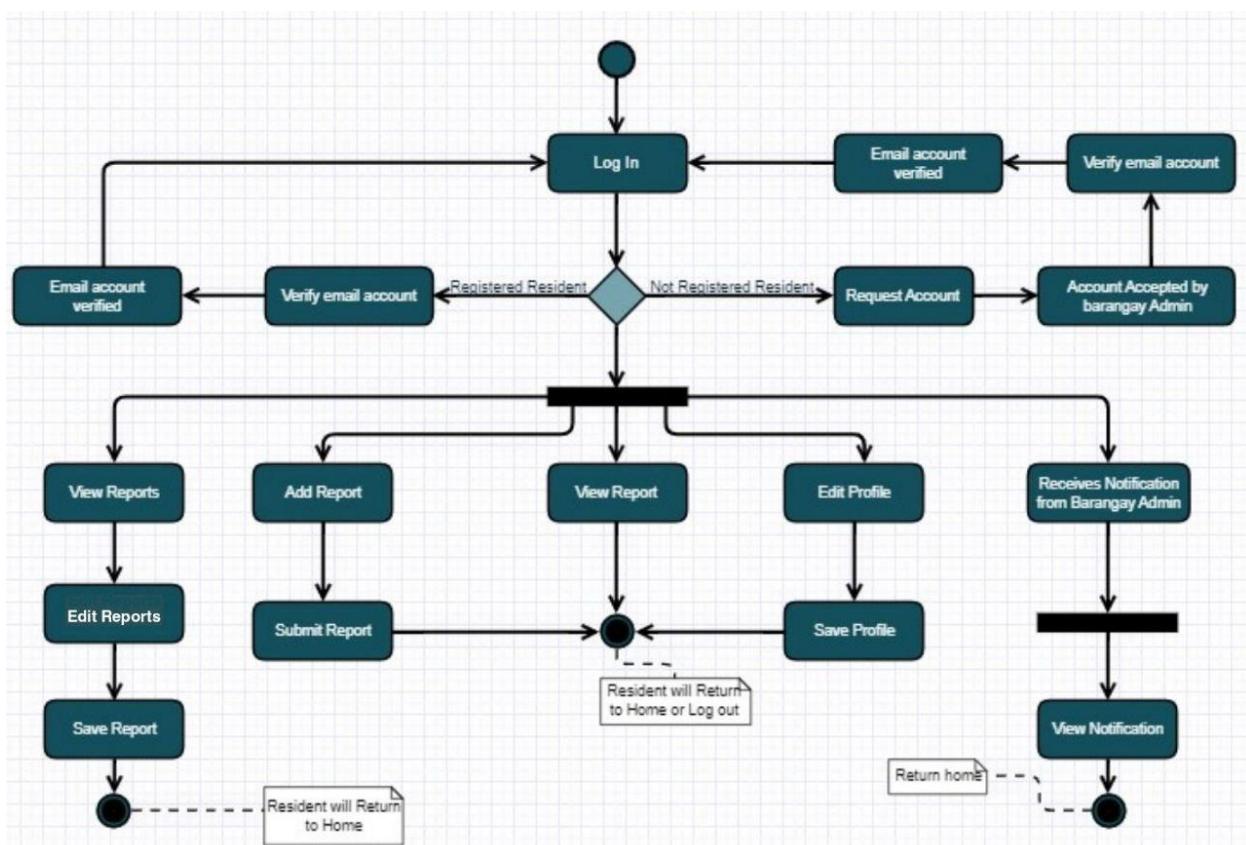


Figure 4.0. Activity Diagram (Resident Side)

Figure 4.0 Before logging in, if the resident is unregistered in the barangay, they need to request an account to access the application. Once the account has been accepted and processed by the barangay Admin, the resident needs to verify their email account. Once the account has been verified, they can log in to their account while the registered resident just needs to verify their email account, and after confirming, they can now log in. If the inputs are invalid, the application prompts the resident to correct the

wrong detail. If the inputs are correct, the resident can now log in to their account. Once logged in, it proceeds to the resident home page, wherein the resident can see the application's functionalities, such as Add Reports. On this page, they can provide the required details, such as the description of the incident, name of the persons involved, location of the incident, etc., to submit a report. The resident can also edit their reports in the View Report module. For the View Events page, the resident can see the announcements of the barangay.

Moreover, the Edit Profile page, wherein the resident can edit their information such as their name and contact information or change their password. Lastly is the Notification page; on this page, the resident can view the notification received by Barangay Admin. After the process, the resident can return to the home page or log out.

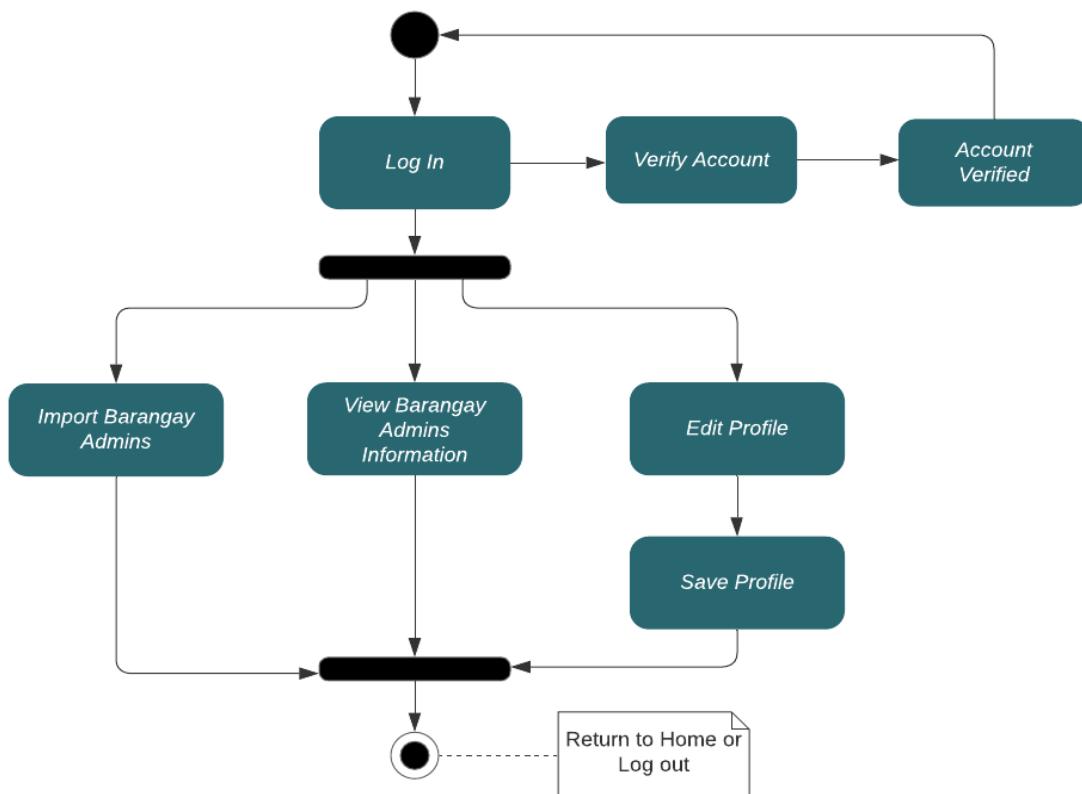


Figure 5.0. Activity Diagram (Town Admin Side)

Figure 5.0 Before logging in, Town Admin needs to verify their account. Once the account has been verified, they can now log in to their account. Town Admin can see some functionalities such as Importing barangay admin account information using CSV file, view Barangay Admin, and Edit profile.

In importing a CSV file, they need to allow access to their file and click the file that they create using CSV and upload it through the system. After uploading the CSV file, they can view it in the barangay admin information button. Lastly, In Edit Profile, Town Admin can edit their information such as their name, contact information, and password. After the process, they can go back to the home page or log out of their account.

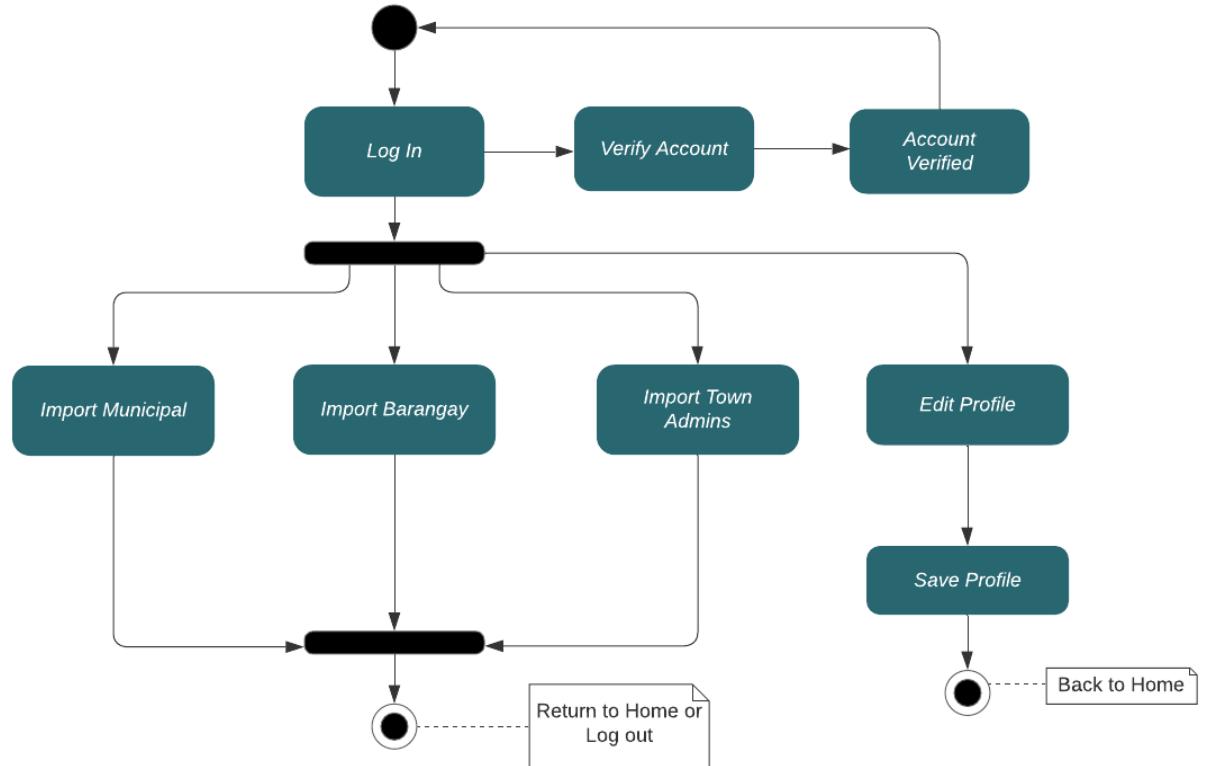


Figure 6.0. Activity Diagram (Bataan Admin Side in Mobile Application)

Figure 6.0 shows how Barangay Admin can access the application, at first the Bataan admin needs to verify his/her email account after verifying the email account Bataan admin can now log in and see the functionalities that he/she are capable such as importing municipal, importing barangays, importing town admin and edit profile. The Bataan Admin all it needs to do in a mobile application is to import the municipalities, barangay, and town admin in Bataan. The mobile application also allows the Bataan admin to edit his/her information such as the name, contact information, and password. Once done in all he/she has to do, the Bataan admin can log out of the application.

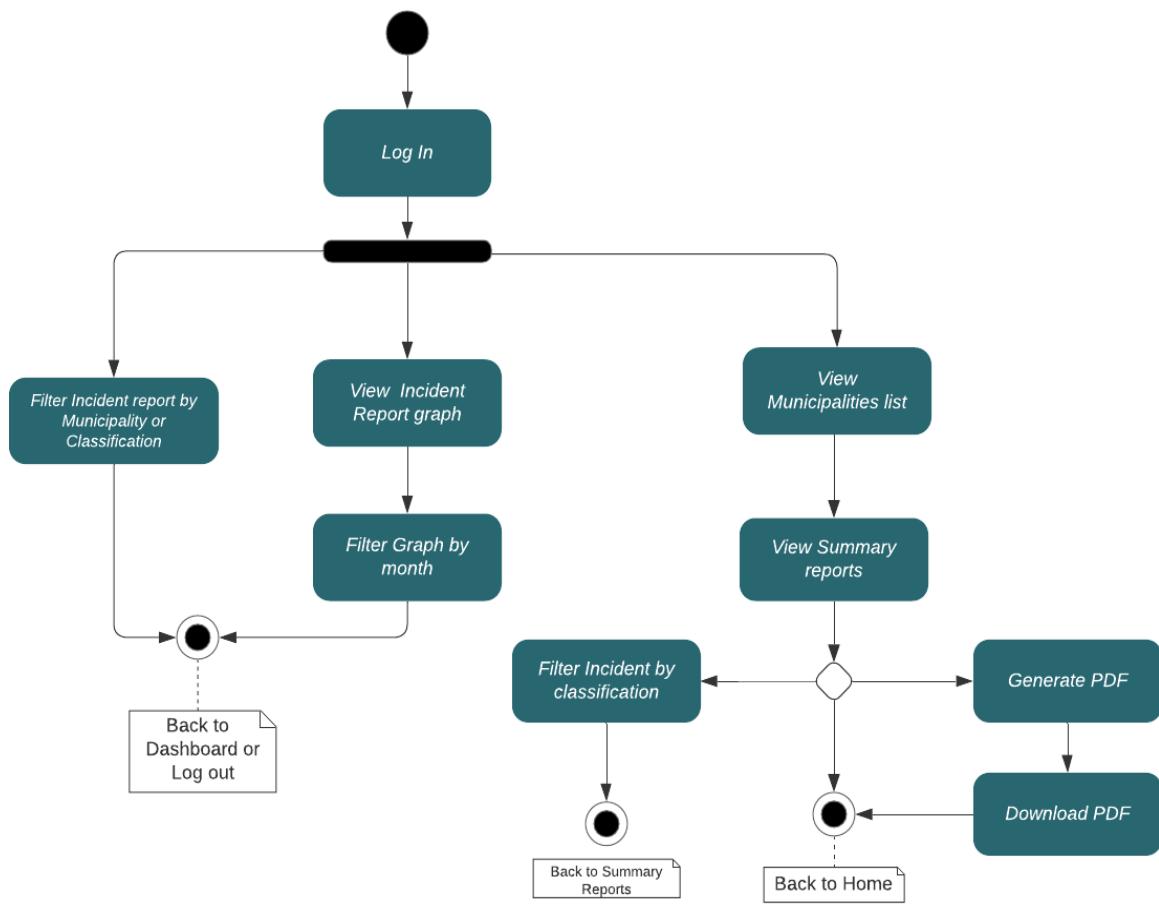


Figure 6.1. Activity Diagram (Bataan Admin Side in Web Application)

Figure 6.1 In web application Bataan admin needs to log in to his/her account using the credentials in the mobile application. Once logged in, Bataan admin can now view the incident report graph, municipalities list, and filter the incident report by municipalities and incident classification in the dashboard. In the incident report graph, the Bataan admin can filter the graph by month to see the various report graphs per month. In viewing the municipalities, the Bataan admin can also view the summary reports of every municipality. Once the Bataan admin clicks on the town that he/she wants to monitor it will go to a summary report of that town and the Bataan admin can monitor every reported incident

in the barangay in that municipality and can filter incident classification. It also allows the Bataan admin to generate a pdf file that contains reports from every barangay in the selected municipality by Bataan admin and it can be downloaded once the pdf file is generated. After monitoring and viewing statistical reports the Bataan admin can log out his/her account.

Database Design

Database design contains entity-relationship models and data dictionaries used in a developed system. Some of the significant tables are; Users, Reports, Events, Barangay, Municipality tables.

Entity-Relationship Model

Singh (2016) cited that an entity-relationship model (ER model) uses a model called an Entity Relationship Diagram to explain the configuration of a database (ER Diagram). An ER model is a database architecture or prototype that can be applied as a database. Entity set and relationship set are the two primary elements of the E-R model.

**BATAAN iRESPONSE: A BARANGAY QUICK
RESPONSE AND INCIDENT REPORTING MOBILE APPLICATION**

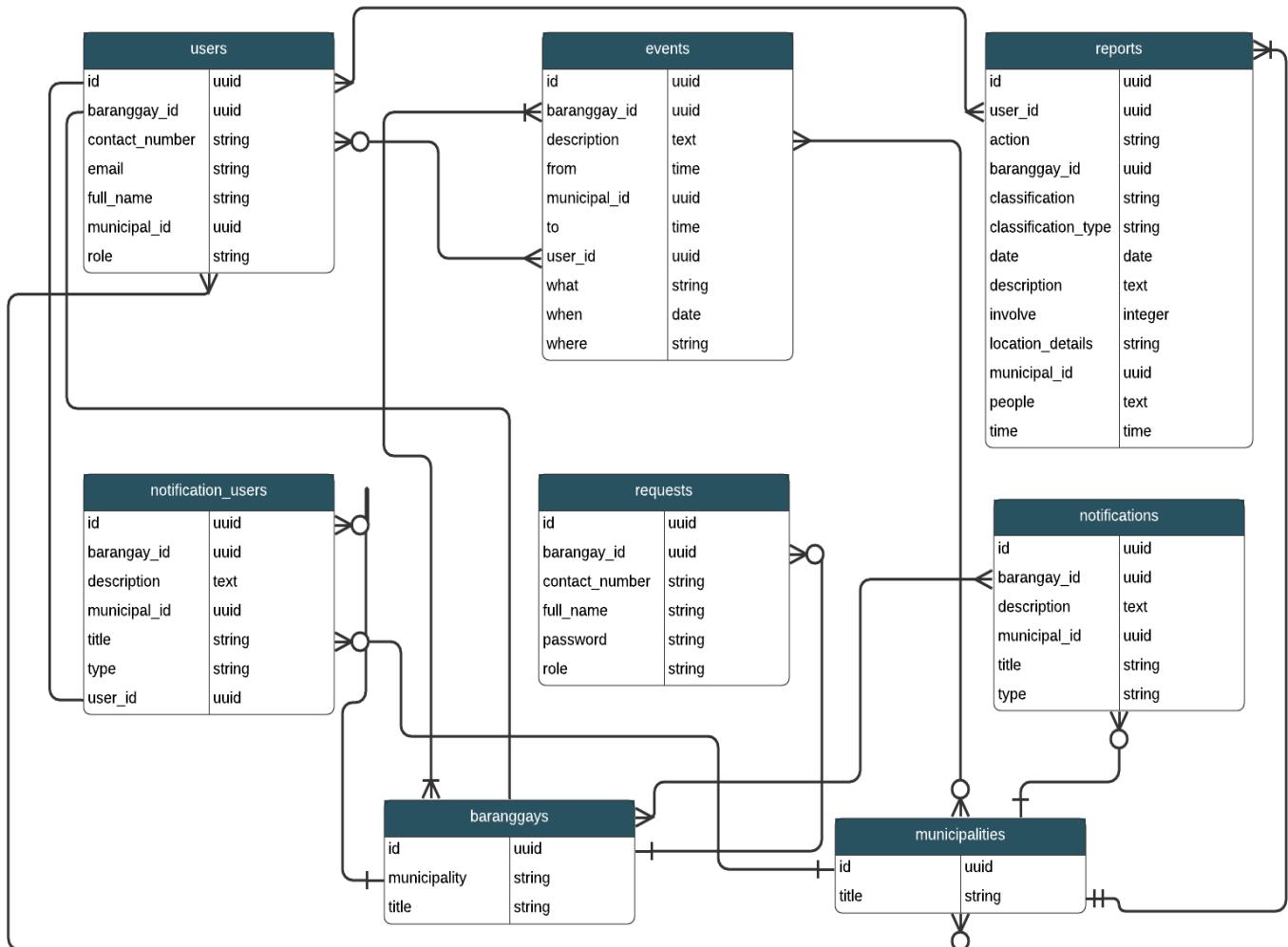


Figure 7.0. Entity-Relationship Model

Figure 7.0 above shows the entity-relationship model of the Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application. It displays the eight tables of the android database, namely: users, reports, events, barangay, notification, notification users, municipalities, and requests. Each table stores different data.

The user's table and barangay table are connected to determine the barangay of every user that uses the application. Users table is also connected to the events and reports table to identify those users who submitted the reports and events; then, it is processed by the system.

The barangay table is connected to events and reports tables for the system to determine where the barangay delivers those events and reports submitted by the users. Lastly, table municipality is also connected to the barangay table to know the municipality of every user in the barangay.

Data Dictionary

Knight (2017) claimed that a data dictionary is a business-oriented definition of data that often includes information about the data, such as data types, structure descriptions, and security constraints. The data dictionary's material is usually derived from the logical data model.

Table 1.0: Users Table

DATA DICTIONARY				
System: Bataan iResponse: Barangay Quick Response and Incident Reporting				
Subject: Users Table				
PK	FK	Field name	Data Type	Description
YES		Id	uuid	User's universally unique identifier
	YES	baranggay_id	uuid	Barangay universally unique identifier
	NO	contact_number	string	User's contact number
	NO	Email	string	User's email
	NO	full_name	string	User's full name
	YES	municipal_id	uuid	Municipalities universally unique identifier
	NO	role	string	User's role

Table 1.0 shows the Users table of the Bataan iResponse: Barangay Quick Response and Incident Reporting Mobile Application. This table stores the information of the Resident and Barangay Officials. This table's fields are id, baranggay_id, contact_number, email, full_name, municipal_id, and role.

Table 2.0: Events Table

DATA DICTIONARY				
System: Bataan iResponse: Barangay Quick Response and Incident Reporting				
Subject: Events Table				
PK	FK	Field name	Data Type	Description
YES		id	uuid	Events universally unique identifier
	YES	baranggay_id	uuid	Barangay universally unique identifier
	NO	description	text	Description for events
	NO	from	time	Event time
	NO	to	time	Event time
	YES	municipal_id	uuid	Municipalities universally unique identifier
	YES	user_id	uuid	User's universally unique identifier
	NO	what	string	Event title
	NO	when	date	Event date
	NO	where	string	Event location

Table 2.0 exhibits the Events table of the Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application. This table stores the information of Bataan iResponse events. This table's fields are id, baranggay_id, description, from, to, municipal_id, user_id, what, when, and where.

Table 3.0: Reports Table

DATA DICTIONARY				
System: Bataan iResponse: Barangay Quick Response and Incident Reporting				
Subject: Reports Table				
PK	FK	Field name	Data Type	Description
YES		id	uuid	Reports universally unique identifier
	YES	user_id	uuid	Users universally unique identifier
	NO	action	string	Action taken for the reported incident
	YES	barangay_id	uuid	Barangay universally unique identifier
	NO	classification	string	Incident Classification
	NO	classification_type	string	Type of Incident
	NO	date	date	Incident date
	NO	description	text	Incident description
	NO	involve	integer	Count of people involved
	NO	location_details	string	Location of Incident
	YES	municipal_id	uuid	Municipal universally unique identifier
	NO	people	text	Name of people involved
	NO	time	time	Incident time

Table 3.0 shows the Reports table of the Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application. This table stores the information of the incident reports in Bataan iResponse. This table's fields are id, user_id, action, barangay_id, classification, classification_type, date, description, involvement, location details, municipal_id, people, and time.

Project Development

Airbrake.com (2016) detailed that the waterfall model highlights the importance of following a sequential sequence of steps during the software development life cycle (SDLC), similar to the cascading steps down an exponential waterfall. Although the waterfall model's popularity has diminished in recent years in favor of more agile methodologies, the logical nature of its systematic approach cannot be overlooked, and it is still used in the industry.

The developed system adopted the Waterfall Methodology because early in the project, requirements are accomplished, allowing the team to establish the whole project scope, create a detailed timetable, and design the overall application. Because tasks can be split to be handled in parallel or grouped to harness resource expertise, it enhances resource utilization. Waterfall methodology also results in a better application design because all needs and deliverables are better understood. A thorough timeline and resource plan make it easier to assess the project's progress.

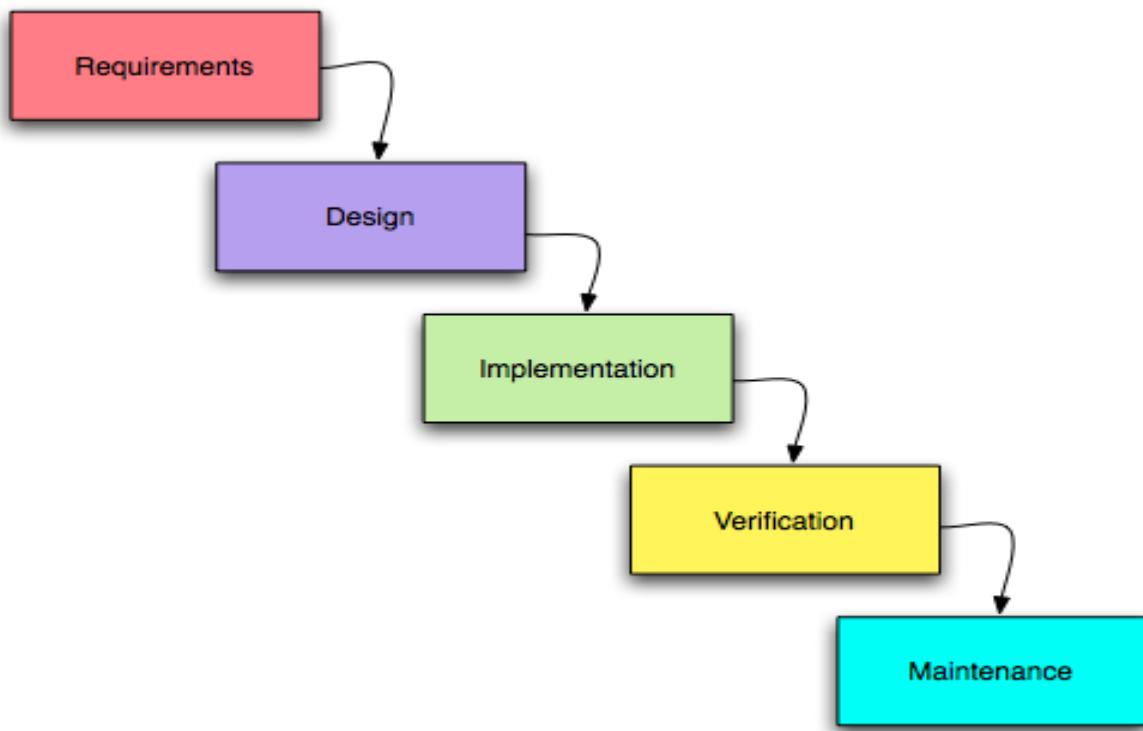


Figure 8.0 Waterfall Methodology

Reference: [File:Waterfall model.png - Wikimedia Commons](#)

Requirements Phase

Tutorialandexample.com (2019) said this process aims to fully comprehend and log the customer's exact specifications. The aim of this function, which is usually done in conjunction with the user, is to document all of the application's functions, capabilities, and configuration requirements. The specifications explain the system's "what" rather than its "how."

The researchers gathered the necessary information to develop the system and the user's requirements. The proponents interviewed the barangay captain of Barangay

Cupang, Balanga City, to better understand the incident reporting process in barangay. They explained the objectives of the study to them.

Design Phase

Javatpoint.com (2019) explained that this process aims to convert the specifications gathered in the SRS into a format that can be coded in a programming language. It includes high-level and comprehensive programming as well as the overall device architecture. A Software Design Manual is used to document all of this work (SDD).

The second stage is the design stage, which is concerned with the system's interfaces and design to satisfy or fulfill the expectations and needs of barangay admin and residents. It is essential to consider how the system can be user-friendly for residents and barangay officials. When the system's functionality or configuration is altered, this stage controls taking the necessary steps.

Implementation Phase

Tutorialandexample.com (2019) specified that the concept is applied during this process. Since the SDD contains all the details software engineers require, the installation or coding process goes seamlessly if the SDD is complete. The main tasks revolve around reviewing and altering the code during the research.

In this phase, the system is being produced by the proponents. They often use iteration, in which they test each feature at the same time as they implement the framework and see whether it meets the requirements. The researchers also performed

different testing stages to ensure functionality during this phase. They implemented the entire system.

Verification Phase

Coursehero.com (2017) explained that verification examines whether the system is well-engineered, error-free, and fulfills the given criteria. Validation or verification is performed between phases so that any variations may be addressed promptly and mistakes can be significantly eliminated.

During this phase, the researchers went through verifying stages to ensure that the system meets requirements and serves its intended function. They assessed the system module by module and the whole system to see how each module's specifications have been fulfilled.

Maintenance Phase

Tutorialandexample.com (2019) cited that error fixing, capability enhancements, and enhancements fall under the maintenance phase. This phase ensures that the system's value is preserved over time. This model often assumes complete and exact conditions, which is unrealistic.

After the verification phase, the maintenance phase begins in which the components required for the application are ready to be developed into code. The proponents started the coding phase and designed the diagrams. The database serves as the source for system development. The application works according to each module required, including maintaining the barangay admin and residents' information, giving the

users a simple way to view announcements about events in the barangay, providing a convenient way for residents to report incidents, notifying the residents and the barangay, providing 2D Mapping, monitoring the incidents per each town and generating statistical reports per barangay of each town.

Gantt Chart

Instagantt.com (2020) noted that Gantt charts are frequently used to monitor project schedules and are particularly helpful in project management. Put another way, they demonstrate and communicate what must be done and why it must be done. Gantt charts also display how many projects have gone, how tasks can depend on other tasks, how specific vital tasks are, and how project resources are utilized.

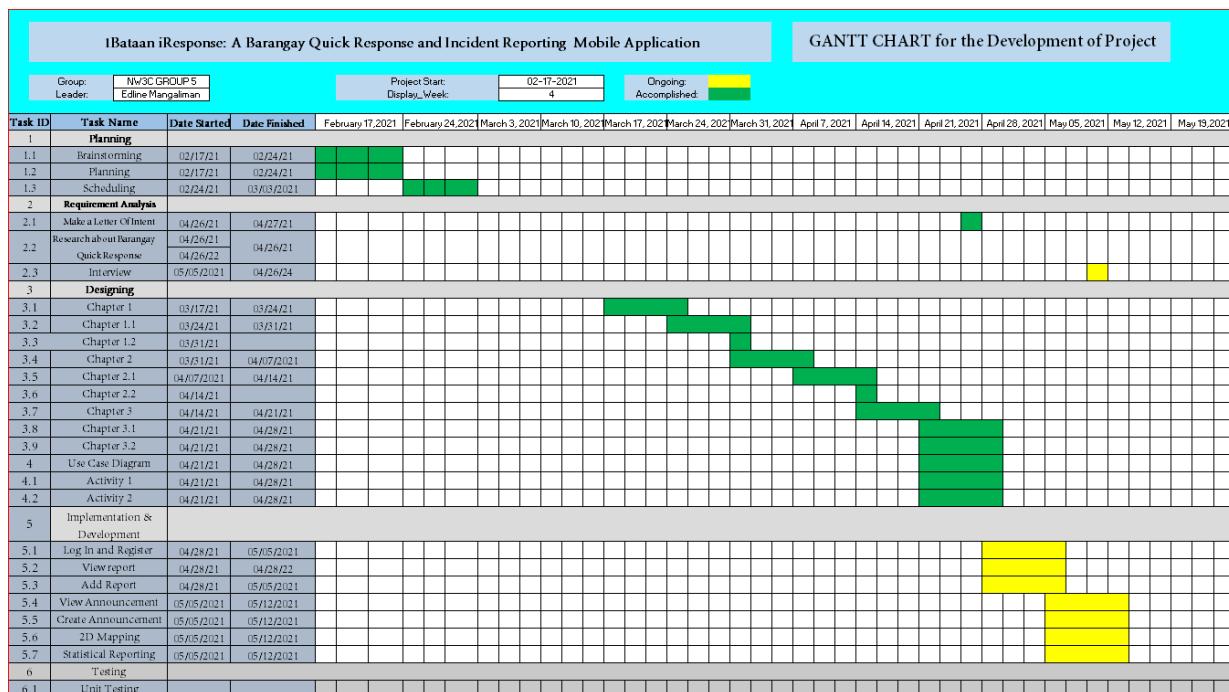


Figure 9.0 Gantt Chart

Figure 9 shows the Gantt chart in which the activities of the proponents, such as the Requirements Definition phase, Design phase, and Testing phase, are shown. The system development started on February 17, 2021, and presumably ended in February 2022. The proponents started deliberating on what topic or title they would develop. When the title was finalized, the proponents began designing the project proposal and scheduling the development. Data gathering began after the study to be developed—the proponent's research about Barangay Quick Response. Next, as a part of data gathering, the proponents began interviewing a barangay official. Furthermore, the third primary process is the Design phase, and the proponents start with the creation and writing of documentation, including Chapter 1 to Chapter 3. Furthermore, they conducted testing procedures, starting with Unit Testing.

Operation and Testing Procedure

In this section, the operation procedure, and testing procedure are discussed. The various testing techniques are also taught, including unit testing, integration testing, system testing, and acceptance testing.

Operations Procedure

The Bataan admin is the one who can add the list of the municipality, barangay, and town admin. Bataan admin can monitor every summary report in Bataan and see the statistical report.

The barangay officials were added by the town admin. Once the barangay has a registered account, they can also add the list of their residents by importing a CSV file. After importing their residents.

The resident who is not registered in the barangay needs to request an account to access the application. Once the account has been processed and completed resident be notified, the resident can log in and be redirected to the home page of the application.

The resident sees the application's functionalities on the home page, such as Add Report, View Reports, View Events, Edit Profile, Notification and Log out Button. Once the resident adds a report, they have access to view their reports, and the barangay is notified that there is a report from the resident. The resident can also edit or delete the report. If the barangay posts an event, residents can be notified, and they can view the posted announcements of the events that happen in their barangay. Furthermore, the residents can update their information on their profile pages, such as their name, password, and contact information, and view the notification that they received in the notification button.

The barangay official can view the reports of the residents, and the barangay is notified about the reports. A locate button and the address link is used to locate the incident where the 2D Map can be seen when viewing the reports. Moreover, a notification button is used to send residents who submitted the report to find out if the barangay viewed the report and responded to the report they submitted. The other thing the barangay admin can do is accept or delete the requested account from the unregistered residents who want to have an account to report an incident to their barangay. Once the

barangay accepts the requested account, it will be removed from the list of requested accounts, and the resident will be notified that their account has been approved and can now log in.

Testing Procedure

The proponents conducted different levels of testing such as Unit Testing, Integration Testing, System Testing, and User Acceptance Testing. The said procedures are further explained below.

1. Unit Testing

Javatpoint.com (2020) claimed that unit testing is the process of testing each element or part of a software program separately. It is the first step in the experimental testing process. The purpose of unit testing is to ensure that unit components perform as anticipated. A unit is a single quantifiable component of a software framework evaluated during the application development process.

Unit testing was carried out during the application development to ensure that every application component worked adequately. Unit testing is vital to point out and correct the system's error.

2. Integration Testing

Choudary (2020) wrote that integration is a form of software testing in which individual components are merged and checked to see whether they function correctly. The primary goal of this exercise is to evaluate the interface between the components.

The proponents conducted the integration testing when every module was fully completed. The system consisted of multiple modules, and the developers focused on integrating every module to check if these were communicating with each other or not. The proponents observed most of the issues during the integration testing because every module's effect on the entire program did not work well. The encountered errors during the testing must be resolved, so each module is ready to implement as a whole on the following testing procedure.

3. System Testing

Geeksforgeeks.org (2019) pointed out that system testing is a form of software testing carried out on an entire automated system to assess the system's conformity with the related specifications. Integration tests passed modules are used as feedback in system testing. Integration checking is used to identify any conflicts between the linked units.

In the system testing, the proponents tested the system to analyze if it was working correctly and free from errors before conducting the acceptance testing.

4. Performance Testing

According to Stackify (2021), performance testing is a type of software testing that emphasizes how a system works when subjected to a specific load. It is not about discovering glitches or flaws in apps. Different methods of performance testing take into account metrics and criteria. Performance monitoring provides developers with the diagnostic data they need to identify bottlenecks and remove them.

It is the final phase. During this phase, the researchers can test and check the system to see what needs to be modified or enhanced. Also, to see if the capabilities are satisfied.

Table 5. Test Script Form

Date			
Tested By			
Test Case Number			
Test Case Name			
Test Case Description			
	Item(s) to be tested		
	Procedural Steps		
	Specifications		
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output

Evaluation Procedure

These are the following activities that the researchers performed during the evaluation.

1. The researchers have set up the system.

2. The proponents distributed the survey form to the respondents.
3. The proponents explained the flow of the system to the respondents.
4. The proponents tested the system based on criteria under ISO 25010.
5. The respondents evaluated the system performance using the survey form.
6. The proponents collected the evaluation forms from the respondents and analyzed the data collected.
7. The proponents computed the data using the weighted formula.
8. The overall rating is interpreted using the numerical range and equivalent descriptive interpretation using the Likert scale.

Table 5. Likert's Scale

Rank	Numerical Scale	Interpretation
5	4.51–5.00	Excellent
4	3.51–4.50	Very Good
3	2.51–3.50	Good
2	1.51–2.50	Fair
1	1.00–1.50	Poor

CHAPTER 4

RESULTS AND DISCUSSION

This chapter covers the discussion of the project description, including the project's structure, capabilities, and limitations. This part also discusses the test results and the evaluation result of the project.

Project Description

Bataan iResponse: A Barangay Quick Response and Incident Reporting is a mobile application developed to assist the barangay in speeding up the response process during emergencies. The developed system helps the barangay admin in Bataan locate the exact location of what is happening in the barangay.

The target respondents are barangay admin and residents in Bataan.

The developed system has a 2D Map that can identify the location of the incident and search for a way to let the barangay admin act quickly. The developed system can be used by registered residents or if they have requested an account, and the barangay admin are the ones who can accept or delete the requested account. Through the use of the system, residents of the barangay can access the mobile application by logging report incidents. They can be notified about the submitted report and when the barangay admin posts an announcement. When you add a report, the developed system has five (5) classifications of incidents: fire, emergency/rescue, property damage, theft/robbery, and, lastly, homicide. Furthermore, the developed system has three (3) status levels: low, high, and severe.

The developed system only allows Bataan admin to manage town admin, town admin to manage the barangay admin, and barangay admin to manage residents'

information. They are the only ones authorized to maintain and modify the records in the system. The developed system does not allow the residents and barangays to view reports if the resident does not have a submitted report. The barangay admin is the only one responsible for importing the registered list of their residents. The system only allows the resident to report where they are currently living. Lastly, only those residents who have not registered can request an account.

Project Structure

This part shows the significant forms of the system. The main capabilities include the import module, events module, view events module, add report module, 2D mapping module, notification module, and monitoring module.

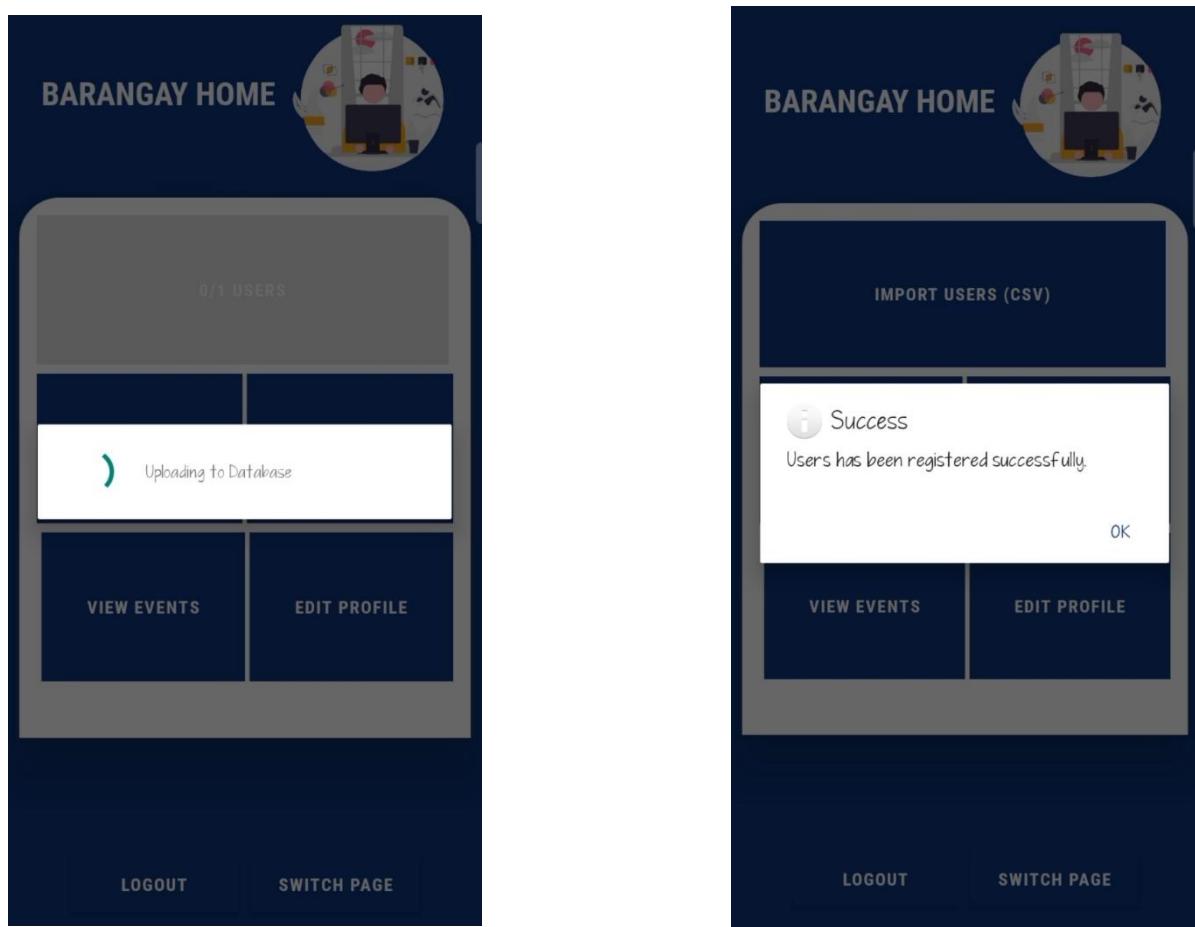


Figure 10. Import-Module

Figure 10 shows the Import module where the Bataan Admin can import TownAdmin information and Town Admin can import Barangay Information while Barangay Admin can import Resident's information using a CSV file.

The screenshot displays a user interface titled "BARANGAY Announcement". It features five input fields: "What", "Where", "From" (left), "To" (right), and "When". Below these is a larger "Description..." field. At the bottom are three buttons: "CHOOSE IMAGE", "SUBMIT", and "BACK".

Figure 11. Events Module

Figure 11 displays the Events Module where Barangay Admin can post announcements to view residents.



Figure 12. View Events Module

Figure 12 shows the View Events module where the Barangay and their Residents can view the posted announcements or events.

The figure consists of three wireframe screens for an 'ADD REPORT' module, arranged horizontally. Each screen has a dark blue header bar with the text 'ADD REPORT' in white.

- Screen 1:** This screen is for entering basic incident details. It includes fields for 'Location of incident' (with options 'Limay' and 'Landing'), 'Location Details (Street,etc.)', 'Incident date', and 'Incident Time'. At the bottom are three blue buttons: 'PREV', 'NEXT', 'SUBMIT', and 'CANCEL'.
- Screen 2:** This screen shows a more detailed entry process. It has a field for 'Choose Classification' (set to 'Fire'), an 'Incident Description' area, and navigation buttons 'PREV', 'NEXT', 'SUBMIT', and 'CANCEL'.
- Screen 3:** This screen is for attaching media. It features a large blue button labeled 'CHOOSE IMAGE', and below it are three blue buttons: 'PREV', 'NEXT', 'SUBMIT', and 'CANCEL'.

Figure 13. Add Report Module

Figure 13 exposes the Add Report Module where the Residents can add their incident report that happened in their barangay.

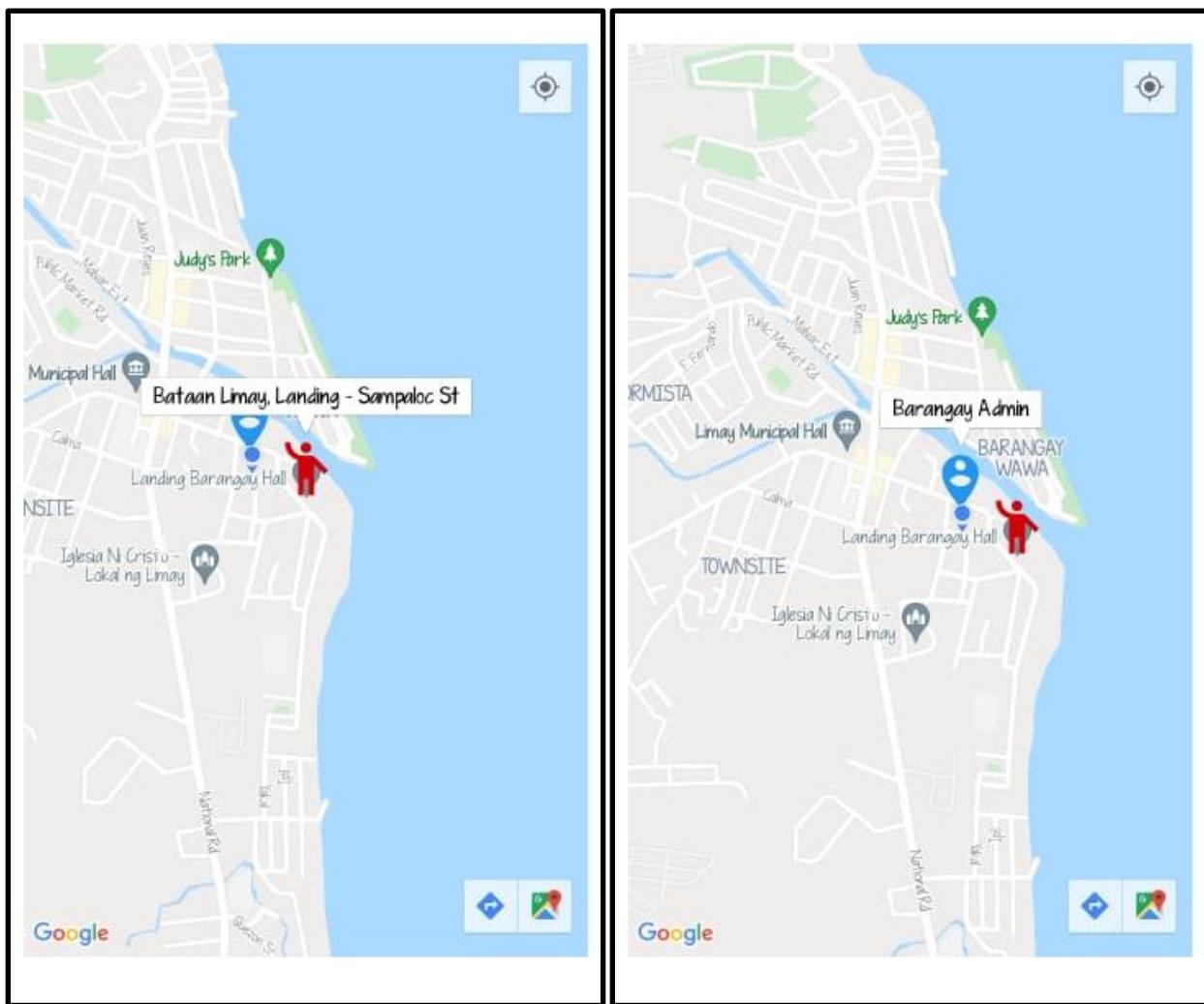


Figure 14. 2D Mapping Module

Figure 14 shows the Google Map Module where the barangay can locate reported incidents by Residents.

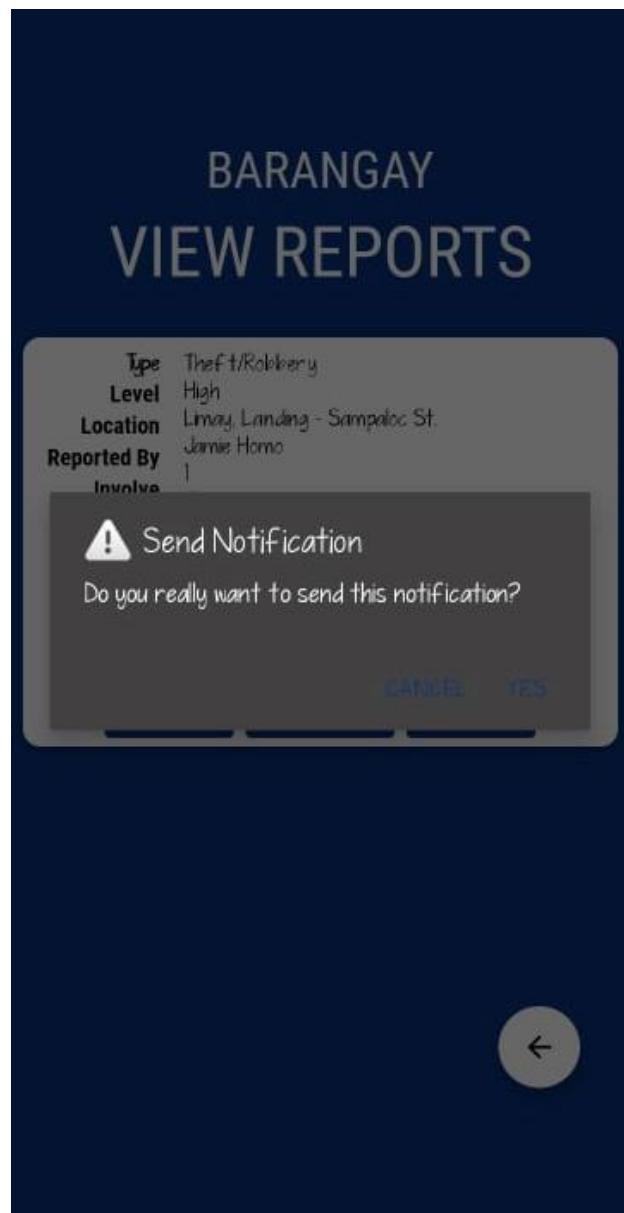


Figure 15. Notification Module

Figure 15 presents the notification where the Barangay and Residents can be notified about submitted reports and notification about the response of the barangay on the reported incidents.

List of Municipalities	
Abucay Municipality	9 Baranggay
Bagac Municipality	12 Baranggay
Balanga Municipality	8 Baranggay
Dinalupihan Municipality	31 Baranggay
Hermosa Municipality	23 Baranggay
Limay Municipality	12 Baranggay
Mariveles Municipality	18 Baranggay
Morong Municipality	5 Baranggay
Orani Municipality	28 Baranggay

Limay					
Go Back		Generate Report			
Filter by Category					
<input type="text" value="Category"/>					
CLASSIFICATIONS					
Emergency/Rescue 3	Homicide 2	Theft/Robbery 2			
Landing					
REPORTED BY	INVOLVED	DATE / TIME	STATUS	ACTION	
Emergency/Rescue Nawalan ng malay	Jamie Saberon Resident	Angel People involved: 1	November 9, 2021 16:12	LOW	Low - Barangay Council
Theft/Robbery olkkk	Jamie Saberon Resident	N/A	November 18, 2021 19:15	HIGH	High - Police Investigation
Emergency/Rescue kkkkkk	Jamie Saberon Resident	N/A	December 8, 2021 13:13	LOW	Low - Barangay Council
Homicide lkdkk	Jamie Saberon Resident	Lucas Lex People involved: 1	December 8, 2021 17:08	LOW	Low - Barangay Council

The screenshot shows a web browser window with the URL 'reportpdf.php' in the address bar. The page title is 'BATAAN iRESPONSE: BARANGAY QUICK RESPONSE AND INCIDENT REPORTING'. On the left, there is a thumbnail preview of a PDF document titled 'SUMMARY REPORTS FROM: Municipality of Limay'. The main content area displays a table titled 'BRGY. LANDING' with the following data:

CLASSIFICATION	REPORTED BY	INVOLVED	DATE/TIME	STATUS	ACTION
EMERGENCY/RESCUE	JAMIE SABERON		DECEMBER 8, 2021 13:13	LOW	LOW - BARANGAY COUNCIL
HOMICIDE	JAMIE SABERON	2	DECEMBER 8, 2021 17:08	LOW	LOW - BARANGAY COUNCIL
HOMICIDE	JAMIE SABERON		DECEMBER 8, 2021 17:18	LOW	LOW - BARANGAY COUNCIL
EMERGENCY/RESCUE	JAMIE SABERON	1	NOVEMBER 9, 2021 16:12	LOW	LOW - BARANGAY COUNCIL

Figure 16. Monitoring Module

Figure 16 displays the monitoring of reported incidents submitted by every town in Bataan and can only be managed by the Bataan Admin.

The screenshot shows the 'Bataan Response > Dashboard' page. At the top, there is a 'Log Out' button. Below it, there are filters for 'Category' and 'Select municipality'. A 'Dashboard' section displays the 'Incident Leaderboard' with the following data:

Category	Municipality
Emergency/Rescue	Dinalupihan
Fire	Limay
Property Damage	Mariveles

At the bottom, there is a section titled 'Incident Report Graph'.

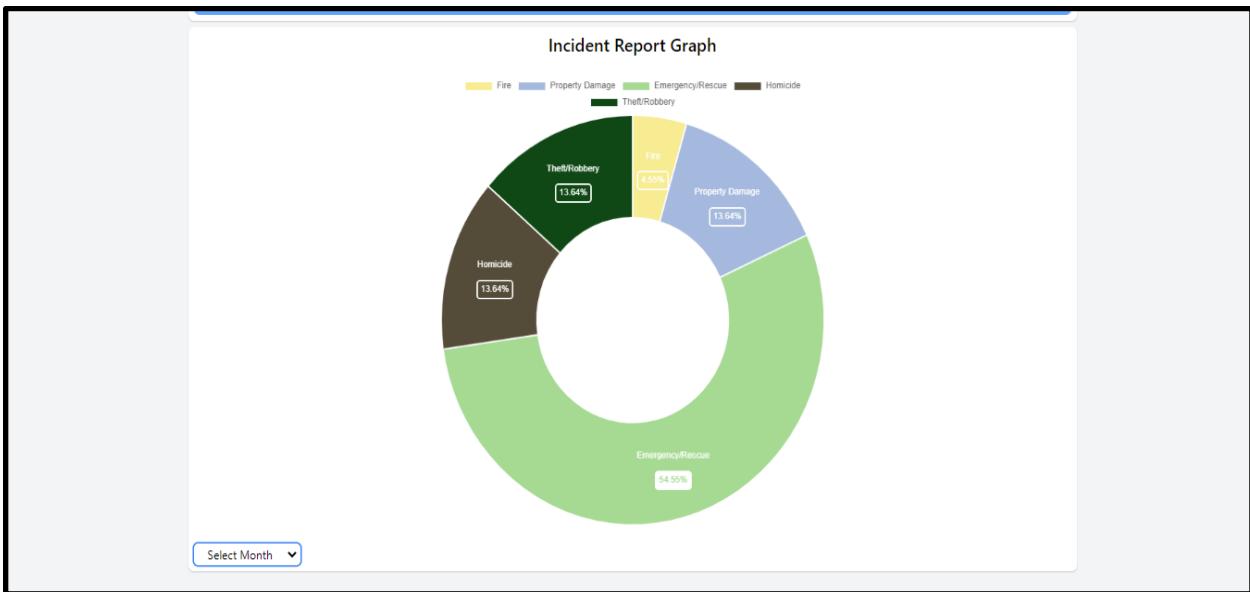


Figure 17. Statistical Report Module

Figure 17 displays the statistical reports of each classification of the incident per barangay in each town of Bataan.

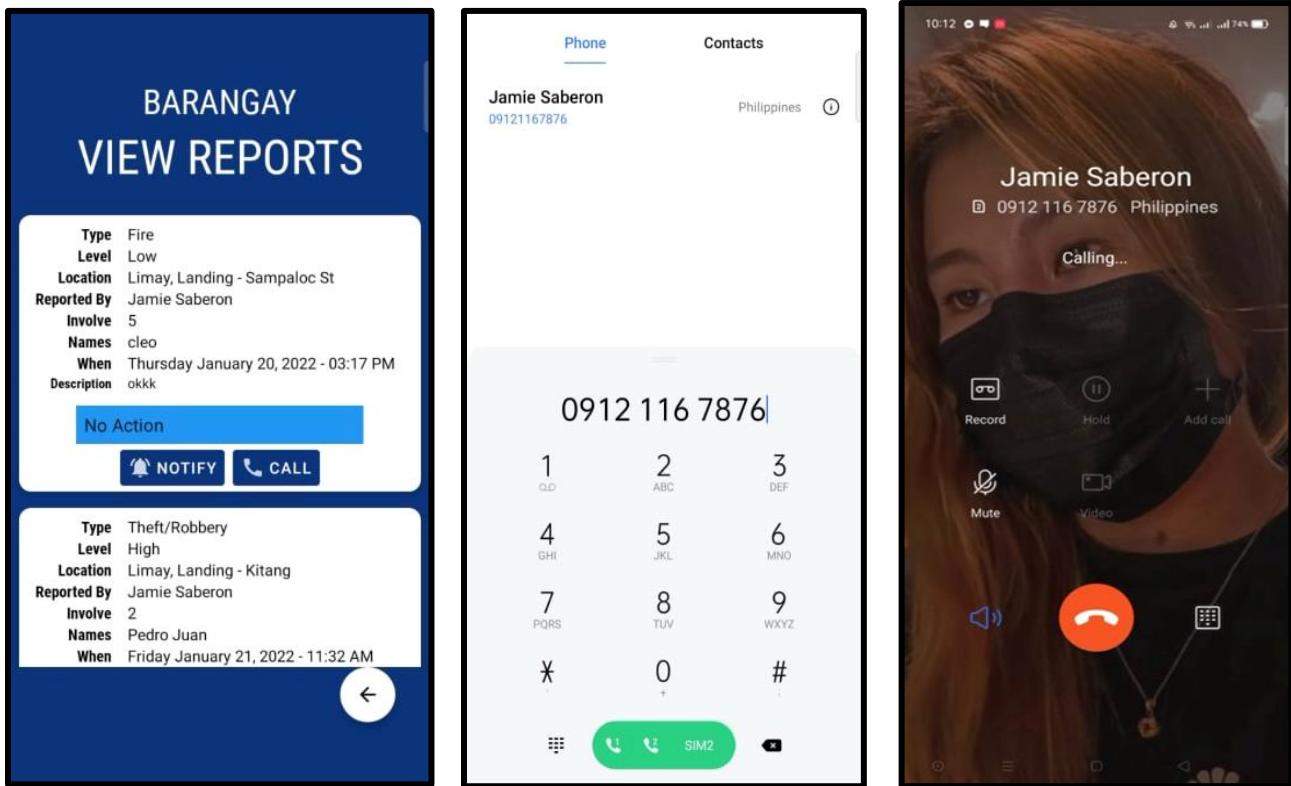


Figure 18. Call Module

Figure 18 displays the call module where the barangay admin can contact the resident to confirm the incident report.

Project Capabilities and Limitations

The following are the capabilities of the developed Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application:

1. Maintaining the users' information by importing a CSV file.
2. Allowing the barangay admin to post announcements and to let the residents get informed on announcements through the Events module;

3. Providing a convenient way for residents to report an incident using Add Incident Report Module;
4. Notifying the residents and the barangay admin involved in the incident through the use of cloud messaging;
5. Locating the report of incidents with the use of 2D Mapping;
6. Monitoring the status of incidents per barangay of each town through monitor module; and
7. Generating the statistical reports of incidents per barangay of each town through a monitor module.

The following are the limitations of the developed system Bataan iResponse Barangay Quick Response and Incident Reporting Mobile Application:

1. Only Bataan Admin can import Municipality and Barangay through the CSV file.
2. Bataan Admin manages the Town Admin.
3. The Town Admin manages the Barangay Admin.
4. Barangay Admin manages Residents.
5. The Monitoring and Statistical Report of Incidents website are only accessible to Bataan Admin.
6. Residents and Barangays will not view reports if the resident does not have a report.
7. A resident can only report where they are residing.
8. Only those who have not registered can request an account.

9. The barangay admin cannot delete the reported incidents submitted by the residents.

Test Results

The test result displays the various testing procedures used by the respondents. It also shows how to carry out the different methods so that the user can complete the study. The developers have examined the system's performance. The item to be tested within the software is displayed and the system's output. It will also check the system's functionality with this test.

Table 6. Importing User's Information Test Script

Date	October 27, 2021		
Tested By	Jaquelene Kate B. Gusi		
Test Case Number	001		
Test Case Name	Importing User's Information		
Test Case Description	It allows importing the user's information		
Item(s) to be tested			
1	Import Municipality Button		
2	Import Barangay Button		
3	Import User Button		
Procedural Steps			
1	Click import municipality button		
	Click and choose the CSV file that you will import into the application		
2	Click the import barangay button		
	Click and choose the CSV file that you will import into the application		
3	Click the import user button		
Specifications			
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output

Import Municipality Button	The town admin can select a CSV file to upload if the import municipality button is clicked.	Y	Uploaded files will be viewed in the database
	If the import municipality button clicks and the file are valid, the system will display a success message.	Y	Success message of "User has been registered successfully."
	If the file is not valid or no file was inserted.	Y	An error message of "Upload interrupted unknown municipal specified."
Import Barangay Button	The town admin can select a CSV file to upload if the import barangay button is clicked.	Y	Uploaded files will be viewed in the database
	If the import barangay button clicks and the valid file, the system will display a success message.	Y	Success message of "Uploaded to the database."
	If the file is not valid or no file was inserted.	Y	An error message of "CSV has invalid data."
Import User Button	The town admin can select a CSV file to upload if the import barangay button is clicked.	Y	Uploaded files will be viewed in the database.
	If the import barangay button clicks and the valid file, the system will display a success message.	Y	Success message of "Users has been registered successfully."
	If the file is not valid or no file was inserted.	Y	An error message of "CSV has invalid data."

Table 6 shows the importing of users' information. The town admin can select the CSV file to upload. As shown in the table, the system was successfully tested. If the import municipality, import barangay, and import user are valid, the system will display a success message. If the file is not valid or inserted, the system will display the error message.

Table 7. Posting of Events Test Script

Date	October 27, 2021		
Tested By	Edline R. Mangaliman		
Test Case Number	002		
Test Case Name	Posting of Events		
Test Case Description	It allows the barangay officials to post events and announcements in the barangay.		
	Item(s) to be tested		
1	Post Event button		
	Procedural Steps		
1	Click the Post Event button Input the name of the announcement Input the location of the announcement Input the exact date of the announcement Input the exact time of the announcement Input the details of the announcement Click submit button		
	Specifications		
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output
Post Event button	If the submit button is clicked and the event is added, the system will display a success message.	Y	Success message of "Event has been added."
	If the input is not valid or no information is inserted.	Y	An error message of "Required field."

Table 7 displays the Posting of Events module. All buttons are tested and get the expected result. As shown in the table, If the submit button is successful, the system will display "event has been added," If the input is not valid or no information inserted, it will display the error message.

Table 8. Viewing of Events Test Script

Date	October 27, 2021		
Tested By	Edline R. Mangaliman		
Test Case Number	003		
Test Case Name	View Events		
Test Case Description	It allows the residents and barangay officials to view the posted events in their residing barangay.		
	Item(s) to be tested		
1	View Events Button		
	Procedural Steps		
1	Click the view events button Click back button		
	Specifications		
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output
View Events Button	If the view events button is clicked, the event's details will be shown.	Y	The table of the events posted by the barangays will be shown.
	If there are no posted events, the residents cannot access the view events.	Y	The button for viewing events will be disabled.

Table 8 exhibits the test script from the View events. In this, the view button is tested successfully. They can view the events, and if there is no posted button, view events will be disabled.

Table 9. Adding of Reports Test Script

Date	October 27, 2021		
Tested By	Edline R. Mangaliman		
Test Case Number	004		
Test Case Name	Adding of reports		
Test Case Description	It allows the residents to add a report that happened in their barangay.		
Item(s) to be tested			
1	Add Report button		
2	Previous button		
3	Next button		
4	Submit button		
5	Cancel button		
Procedural Steps			
1	Click the add report button Input the location of the incident Input the location details (street, etc.) Input the incident date Input the incident time Click the next button Input the people involve Specify the names of the people involved Click the submit button		
2	Click the previous button		
3	Click the next button		
4	Click the submit button		
5	Click the Cancel button		
Specifications			
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output
Add report button	If the submit button clicks and the report is added, the system will display a success message.	Y	Success message of "Report has been added."
	If the input is not valid or no information is inserted.	Y	An error message of "Required field."

Table 9 shows the test script from the Adding of reports module. All buttons are tested and receive an expected result. If the submit button is successful, the system will display "Report has been added." If the input is not valid or no information is inserted, the system will say "Required field."

Table 10. Notifying the Residents Test Script

Date	October 27, 2021		
Tested By	Densin L. Ramos		
Test Case Number	005		
Test Case Name	Notifying the Residents		
Test Case Description	This allows the Barangay officials to inform the residents		
	Item(s) to be tested		
1	Notification button		
	Procedural Steps		
1	Click the notification button Click the back button		
	Specifications		
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output
Notification button	If the notification button is clicked, the system will display the notification of their submitted reports.	Y	It shows the report's details and a message that barangay officials are on their way to the incident.

Table 10 shows the Notifying the Resident test script that allows the barangay officials to inform the residents by clicking the notification button. Buttons are tested successfully and meet the expected result.

Table 11. 2D Mapping Test Script

Date	October 27, 2021		
Tested By	Jaquelene Kate B. Gusi		
Test Case Number	006		
Test Case Name	2D Mapping		
Test Case Description	It allows pinpointing the exact location of the incidents		
	Item(s) to be tested		
1	View Reports button		
2	Locate button		
	Procedural Steps		
1	Click the view reports button		
	Click the location link address		
2	Click locate button		
	Specifications		
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output
View reports button	If the location link is clicked, the system will redirect to a 2D map using google maps.	Y	The google maps and the distance between the barangay and incident will be displayed.
Locate button	If the locate button is clicked, the system will redirect to a 2D map using google maps.	Y	The google maps and the distance between the barangay and incident will be displayed.

Table 11 shows the 2D Mapping test script. If the location link and locate button is clicked, the system will redirect to a 2D map using google map. The google map displayed the distance between the barangay and the incident. All the buttons were tested and passed. Therefore, it got the expected results.

Table 12. Viewing of Reports Test Script (Barangay Side)

Date	October 27, 2021		
Tested By	Densin L. Ramos		
Test Case Number	007		
Test Case Name	Viewing of Reports (Barangay Side)		
Test Case Description	It allows the barangay officials and residents to view the submitted reports.		
Item(s) to be tested			
1	View Reports button		
2	Notify button		
3	Delete button		
4	Locate button		
5	Back button		
Procedural Steps			
1	Click the view reports button		
2	Click notify button		
3	Click delete button		
4	Click locate button		
5	Click back button		
Specifications			
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output
View report button	If the view reports button is clicked, the system will display the report details.	Y	The report details will be displayed, including the type, location, people involved, etc.
Notify button	If the notify button is clicked, the system will inform the resident.	Y	Clicking the notify button will result in a push notification about the reported incident that will be resolved. They can also check in the notification inbox; it will show the notifications about events and reported incidents.

Table 12 displays the test script of Viewing of Reports, Barangay Side. In this form, buttons such as; View Reports, Notify, Delete, Locate, and Back buttons are tested successfully. All of the buttons as regards View Reports come to expect.

Table 13. Viewing of Reports Test Script (Resident Side)

Date	October 27, 2021		
Tested By	Densin L. Ramos		
Test Case Number	008		
Test Case Name	Viewing of Reports (Residents Side)		
Test Case Description	This allows the barangay officials and residents to view the submitted reports.		
Item(s) to be tested			
1	View Reports button		
2	Edit button		
	Save Button		
3	Delete button		
4	Locate button		
5	Back button		
Procedural Steps			
1	Click the view reports button		
2	Click edit button		
	Click save button		
3	Click delete button		
4	Click locate button		
5	Click back button		
Specifications			
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output
View report button	If the view reports button is clicked, the system will display the report details.	Y	The report details will be displayed, including the type, location, people involved, etc.
Edit button	If the edit button is clicked, the system will display the report details of the residents.	Y	The details of the report will be displayed.
Save button	If the save button is clicked, the incident details will be updated.	Y	Success message of "Report has been updated."

Table 13 shows the test script of Viewing Reports on the resident side. In this form, buttons such as; View Reports, Notify, Delete, Locate, and Back buttons are tested successfully. All of the buttons as regards View Reports come to expect.

Table 14. Monitoring the status of incident Test Script

Date	October 27, 2021		
Tested By	Jaquelene Kate B. Gusi		
Test Case Number	009		
Test Case Name	Monitoring the Status		
Test Case Description	It allows the Bataan admin to monitor the status of incident reports.		
Item(s) to be tested			
1	List of barangays button		
2	Back to the home button		
Procedural Steps			
1	Click the specific barangays button		
2	Click back to the home button		
Specifications			
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output
List of barangays button	If the Bataan admin clicks on a particular town, the summary report of incidents will be shown.	Y	The classification of the reports will be displayed.
Back to the home button	If the back to the home button is clicked, the system will redirect to the homepage of Bataan admin.	Y	Back to homepage

Table 14 exhibits Monitoring the status of the incident. The buttons list of barangays and back to home are tested and get the expected result.

Table 15. Generating of Statistical Report of incident Test Script

Date	October 27, 2021		
Tested By	Densin L. Ramos		
Test Case Number	010		
Test Case Name	Generating Statistical Report		
Test Case Description	It allows to Generate the statistical reports of the incident		
Item(s) to be tested			
1	Pie Chart		
2	Leader Boards		
Procedural Steps			
1	Show the highest rate of reported incidents		
2	Show the list of highest reported incidents by their classification		
Specifications			
Input	Expected Output/Result	Pass (Y/N)	Actual Result/Output
Pie Chart	If the pie chart shows the reported incidents, it will be generated to the pie chart	Y	The pie chart will display the generated rate of reported incidents.
Leader Boards	If the leader boards appear, the ranking will be displayed.	Y	The leader boards will display the lowest to highest reported incidents that happened.

Table 15 displays the Generating Statistical Report of the incident. The Pie chart and Leaderboard's testing are tested successfully.

Project Evaluation

This section displays the procedures that were formulated to evaluate the project. The evaluators were composed of fifty (50) respondents, which consisted of twenty-five (25) residents and twenty-five (25) barangay officials. The testing method must examine if the system is functioning effectively for the end-users. The testing approach must determine whether the system works correctly for the end-users. The researchers put up the application, delivered the survey form to the respondents, discussed the flow of the application and how it works, assessed the application based on ISO 25010 criteria, and evaluated the application's performance using the survey form. The researchers took the evaluation forms from the respondents and assessed the information; they then computed the data using the weighted formula. The overall rating was interpreted using the numerical range and the Likert scale's equivalent descriptive interpretation.

Table 16. Evaluation of Software Quality: Functional Suitability

Functional Suitability	Average Mean	Descriptive Interpretation
A. functional Completeness	4.72	Excellent
B. Functional Correctness	4.64	Excellent
C. Functional Appropriateness	4.76	Excellent
MEAN	4.71	Excellent

Table 16 exhibited the evaluation in terms of Functional Suitability. It got a mean rating of 4.71 with a descriptive interpretation of Excellent since the application achieved every requirement. The Respondents are satisfied with the suitability of this system.

Table 17. Evaluation of Software Quality: Performance Efficiency

Performance Efficiency	Average Mean	Descriptive Interpretation
A. Time Efficiency	4.78	Excellent
B. Resource Utilization	4.82	Excellent
C. Capacity	4.70	Excellent
MEAN	4.77	Excellent

Table 17 exhibited the evaluation in terms of Performance Efficiency. It got a mean rating of 4.77 with a descriptive interpretation of Excellent. Meaning the system's functionality met the respondent's expectations.

Table 18. Evaluation of Software Quality: Compatibility

Compatibility	Average Mean	Descriptive Interpretation
A. Co-existence	4.76	Excellent
B. Interoperability	4.66	Excellent
MEAN	4.71	Excellent

Table 18 displayed the evaluation in terms of Compatibility. It got a mean rating of 4.71 with a descriptive interpretation of Excellent since the system achieved every requirement. Meaning the ability of the system to be compatible has satisfied its respondents.

Table 19. Evaluation of Software Quality: Usability

Usability	Average Mean	Descriptive Interpretation

A. Appropriateness Recognizability	4.80	Excellent
B. Learnability	4.72	Excellent
C. Operability	4.70	Excellent
D. User Error Protection	4.76	Excellent
E. User Interface Aesthetics	4.68	Excellent
F. Accessibility	4.78	Excellent
MEAN	4.74	Excellent

Table 19 presents the evaluation of the system in terms of Usability. It got a mean rating of 4.74 with the descriptive interpretation of Excellent since the application achieved every requirement. The respondents' feedback on the system's usability was excellent.

Table 20. Evaluation of Software Quality: Reliability

Reliability	Average Mean	Descriptive Interpretation
A. Maturity	4.84	Excellent
B. Availability	4.68	Excellent
C. Fault Tolerance	4.70	Excellent
D. Recoverability	4.72	Excellent
MEAN	4.74	Excellent

Table 20 showed the evaluation of the system in terms of Reliability. It got a mean rating of 4.74 with a descriptive interpretation of Excellent since the application achieved every requirement. Respondents are satisfied with the reliability of the system.

Table 21. Evaluation of Software Quality: Security

Security	Average Mean	Descriptive Interpretation
A. Confidentiality	4.76	Excellent
B. Integrity	4.76	Excellent
C. Non-Repudiation	4.70	Excellent
D. Accountability	4.68	Excellent
E. Authenticity	4.78	Excellent
MEAN	4.74	Excellent

Table 21 finalized the evaluation of the system in terms of Security. It got a mean rating of 4.74 with a descriptive interpretation of Excellent since the application achieved every requirement. Respondents said that requesting an account to access the application was a great addition.

Table 22. Evaluation of Software Quality: Maintainability

Maintainability	Average Mean	Descriptive Interpretation
A. Modularity	4.76	Excellent
B. Reusability	4.76	Excellent
C. Analyzability	4.76	Excellent
D. Modifiability	4.80	Excellent
E. Testability	4.74	Excellent
MEAN	4.76	Excellent

Table 22 presented the evaluation of the system in terms of Maintainability. It got a mean rating of 4.76 with a descriptive interpretation of Excellent since the application

achieved every requirement. The respondents were satisfied with this system's maintainability.

Table 23. Evaluation of Software Quality: Portability

Portability	Average Mean	Descriptive Interpretation
A. Adaptability	4.80	Excellent
B. Installability	4.72	Excellent
C. Replaceability	4.78	Excellent
MEAN	4.77	Excellent

Table 23 presents the evaluation of the system in terms of Portability. It got a mean rating of 4.77 with a descriptive interpretation of Excellent since the application achieved every requirement. Meaning the respondents were satisfied with the portability of this system.

Table 24. Summary of Project Evaluation

SOFTWARE QUALITY FACTOR	AVERAGE MEAN	DESCRIPTIVE INTERPRETATION
A. Functional Suitability	4.71	Excellent
B. Performance Efficiency	4.77	Excellent
C. Compatibility	4.71	Excellent
D. Usability	4.74	Excellent
E. Reliability	4.74	Excellent
F. Security	4.74	Excellent

G. Maintainability	4.76	Excellent
H. Portability	4.77	Excellent
OVERALL MEAN:	4.74	Excellent

Table 24 presented the summary of the project evaluation. It got a mean rating of 4.74 with a descriptive interpretation of Excellent since the application achieved every requirement. The overall feedback of the respondents is satisfied and gives an overall excellent rating.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter includes a summary of findings, conclusions, and recommendations.

Summary of Findings

Based on the analysis of data, the findings are as follows:

1. On the result of the evaluation of the Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application:
 - 1.1 The Functional Suitability characteristic got a mean rating of 4.71 with the descriptive interpretation of Excellent. The result
 - 1.2 The Performance Efficiency characteristic got a mean rating of 4.77 with the descriptive interpretation of Excellent. The result showed...
 - 1.3 The Compatibility characteristic got a mean rating of 4.71 with the descriptive interpretation of Excellent. The result exhibited that the web site's information and the system were compatible with Android devices.
 - 1.4 The Usability characteristic got a mean rating of 4.74 with the descriptive interpretation of Excellent. The result showed that the application was easy to use and understand.
 - 1.5 The Reliability characteristic got a mean rating of 4.74 with the descriptive interpretation of Excellent. The result showed that the system could recover against failure and carry on with the process after failure.

1.6 The Security characteristic got a mean rating of 4.74 with the descriptive interpretation of Excellent. The result exhibited that the application was protected and only displayed reliable information.

1.7 The Maintainability characteristic got a mean rating of 4.76 with the descriptive interpretation of Excellent. The result presented that the application was easy to modify.

1.8 The Portability characteristic got a mean rating of 4.77 with the descriptive interpretation of Excellent. The result showed that the mobile application could be accessed on any smartphone as long as there was an internet connection.

Conclusions

The following conclusions are gathered based on the evaluation:

1. The developed Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application allow the residents to report any incident quickly. Quick response and incident reporting mobile application that will greatly facilitate not only the residents in Bataan but also the barangay officials to improve the response time in emergencies, and local government services to rescue the victims quickly.
2. The system was developed using Java, Firebase, Android Studio, and Microsoft Windows as a software requirement and laptop, mobile phone, and router for the hardware requirements.

3. The tests procedures are done, and as a result, the system passed the requirements because the application was tested using evaluation criteria and the test script forms.
4. Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application have been rated Excellent with an overall mean of 4.74. In addition, the system passed the evaluation's criteria: functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability.

Recommendations

Based on the foregoing conclusions, the following are recommended for the further improvement of the project:

1. To develop an IOS version of the application.
2. To automatically contact any Fire Department/Station anytime a fire occurs in any barangay. This will alert the fire department to any fire incidents that require a quick response.
3. To add archived reports in order to view incident reports that have been resolved.
4. To provide an Add Edit function from an uploaded CSV file for barangay admin to edit and maintain resident information.

Bibliography

Abstract:

Ignaco, M.A. (2019). Development of Mobile Application for Incident Reporting [Abstract]. Retrieved from <https://dl.acm.org/doi/10.1145/3349266.3351382>

A Journal Article:

Hamilton J. (2021, October 08). Verification and Validation. Retrieved from <https://www.mitre.org/publications/systems-engineering-guide/se-lifecycle-building-blocks/test-and-evaluation/verification-and-validation>

System Testing. (2019, August 09). Retrieved from <https://www.geeksforgeeks.org/system-testing/>

Blog post:

06: *Mapping the Third Dimension.* (2016). Retrieved from <https://learn.arcgis.com/en/arcgis-book/chapter6/>

Banks, F. (2017, March 23). What Are Conceptual Models and How Can You Use Them? Retrieved from <https://airbrake.io/blog/sdlc/conceptual-model>

Banks, F. (2020, November 11). What is Rapid Application Development?. Retrieved from <https://airbrake.io/blog/sdlc/rapid-application-development>

Choudary, A. (2020, November 25). What is Integration Testing? A Simple Guide on How to Perform Integration Testing. Retrieved from <https://www.edureka.co/blog/what-is-integration-testing-a-simple-guide-on-how-to-perform-integration-testing/>

ISO/IEC 25010 Software Quality Model. (2021, March 10). Codacy [Blog post]. Retrieved from <https://blog.codacy.com/iso-25010-software-quality-model/>

Knight, M. (2017, December 23). What is a Data Dictionary?. Retrieved from <https://www.dataversity.net/what-is-a-data-dictionary/>

Stevenson, D. (2018, September 25). What is Firebase? The complete story, abridged - Firebase Developers. Retrieved from
<https://medium.com/firebase-developers/what-is-firebase-the-complete-story-abridged-bcc730c5f2c0>

The Easy Guide to UML Activity Diagrams. (2021, July 8). Retrieved from
<https://creately.com/blog/diagrams/activity-diagram-tutorial/>

The Importance of a Quick Response: Proper Incident Management Techniques. (2018, August 27). Retrieved from <https://ehsq.cority.com/blog/the-importance-of-proper-incident-management-techniques/>

Page from a website:

2D Mapping. (2019). Retrieved from <https://crescentflightops.com/2d-mapping>

2D Maps. (2019). Retrieved from
<https://knowledge.autodesk.com/support/3ds-max/learn-explore/caas/CloudHelp/cloudhelp/2020/ENU/3DSMax-Lighting-Shading/files/GUID-734C2152-1B75-45E5-B25F-EA12E63DC62C.htm.html>

Android Technology. (2016, October 20). Retrieved from
<https://studymoose.com/android-technology-essay>

Computer Basics: Laptop Computers. (2018). Retrieved from
<https://edu.gcfglobal.org/en/computerbasics/laptop-computers/1/>

Contributor, T. (2018, October). Android Studio. Retrieved from
<https://searchmobilecomputing.techtarget.com/definition/Android-Studio>

Contributor, T. (2020, July 24). Use Case Diagram. Retrieved from
<https://whatis.techtarget.com/definition/use-case-diagram>

Incident Report Guide: All You Need To Know. (2021, September 27). Retrieved from <https://safetyculture.com/topics/incident-report/>

Lynch, J. (2018, November 5). Safety Management Software and Mobility - A Powerful Tool. Retrieved from
<https://imectechnologies.com/2018/11/05/safety-management-software-and-mobility/>

Mayan, K. (2019, December 14). Waterfall Model in Software Engineering. Retrieved from
<https://www.tutorialandexample.com/waterfall-model-in-software-engineering>

Online Gantt Chart Software for Project Management. (2021). Retrieved from
https://instagantt.com/?gclid=Cj0KCQjwwY-LBhD6ARIsACvT72P5WpbC6P6H5RJGExj-RV5b9dXoJalor1UWGjzIRuw509UuBpwU5lsaAlp_EALw_wcB

Spotlight is moving. (2018, July 19). Retrieved from
<https://safetyculture.com/spotlight-moving/>

The Ultimate Guide to Performance Testing and Software Testing: Testing Types, Performance Testing Steps, Best Practices, and More. (2021, April 06). Retrieved from
<https://stackify.com/ultimate-guide-performance-testing-and-software-testing/>

What is Incident Reporting?. (2019, April 29). Retrieved from <https://incidentreport.net/>

WWW Document:

Baktha, K (2017, September 9). Mobile Application Development: All the Steps and Guidelines for Successful Creation of Mobile Apps: Case Study. Retrieved from
<https://ijcsmc.com/docs/papers/September2017/V6I9201704.pdf>

Balucanag, J. (2019). Barangay Local Government Unit. Retrieved from
<https://www.slideshare.net/jobitonio/barangay-local-government-unit>

Hovorushchenko, T., and Pomorova, O. (2016). Evaluation of Mutual Influences of Software Characteristics Based ISO 25010:2011. Retrieved from
https://www.researchgate.net/publication/309150276_Evaluation_of_mutual_influences_of_software_quality_characteristics_based_ISO_250102011

Johari, A. (2021, September 30). What is Java? A Beginner's Guide To Java and It is Evolution. Retrieved from <https://www.edureka.co/blog/what-is-java/>

Mroczkowska, A. (2021, February 1). What is a Mobile App? | App Development Basics for Businesses Droids on Roids. [Blog post]. Retrieved from <https://www.thedroidsonroids.com/blog/what-is-a-mobile-app-app-development-basics-for-businesses>

WWW Document - corporate author:

Computer Hope. (2019, May 4). What is a Router? Retrieved from <https://www.computerhope.com/jargon/r/router.htm>

WWW Document - no author:

Barangays. (2018, March 23). Retrieved from <https://www.philatlas.com/barangays.html>

Emergency Response. (2018, November 8). Retrieved from <https://www.safeopedia.com/definition/195/emergency-response>

Mobile Application (Mobile App). (2020, August 7). Retrieved from <https://www.techopedia.com/definition/2953/mobile-application-mobile-app>

Microsoft Windows. (2017, January 25). Retrieved from <https://www.techopedia.com/definition/3390/microsoft-windows>

SDLC | Software Development life Cycle. (2019, September 01). Retrieved from <https://www.tutorialandexample.com/sdlc-software-development-life-cycle/>

SMS Based Information Broadcasting and Incident Reporting with Decision Support and Mobile Application System. (2018, January 23). Retrieved from <https://www.inettutor.com/source-code/sms-based-information-broadcasting-and-incident-reporting-with-decision-support-and-mobile-application-system/>

Software Development Life Cycle. (2019). Retrieved from <https://www.javatpoint.com/software-development-life-cycle>

What Does Database Management System (DBMS) Mean?. (2020, August 18). Retrieved from <https://www.techopedia.com/definition/24361/database-management-systems-dbms>

What is Android? 7 Unique Features of Android Operating System. (2020, October 25). Retrieved from <https://www.fita.in/unique-features-of-android-operating-system/>

What is Android™ Technology?. (2021). Retrieved from
<https://www.infobloom.com/what-is-android-technology.htm>

What is an Entity Relationship Diagram (ERD)? . (2016, August 06). Retrieved from
<https://www.lucidchart.com/pages/er-diagrams>

WWW Document - no author, no date:

WWW javatpoint. (n.d.). Unit Testing. Retrieved from
<https://www.javatpoint.com/unit-testing>

APPENDIX A

Title Proposal

Project Title: *A Proposed Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application*

Summary

The Barangay Quick Response was used in the study to improve the developed system and to know the importance of responding. Using quick responses, it helps residents to report incidents and responses. By using Barangay Quick Response it serves as a guide to the residents and barangay officials can easily report incidents and post announcements. The study is to create a mobile application that is capable of locating the exact location of the incident.

Project Background

The action or response of barangay officials to an incident within their control is known as barangay quick response. Daily, we cannot count the number of people involved in an incident with their neighbors. Different situations are occurring everywhere. Furthermore, that is why the barangay is here to clear up any misunderstandings or rescue situations. An example of an incident is a motorcycle accident, which occurs frequently. Suppose someone is hurt or needs to be brought to the hospital. In that case, barangay officials will reply to the appropriate authority, such as the marshal or the police, and an ambulance will be dispatched.

The Current State of Technology

It is vital to stay one step ahead of the curve to take advantage of new technologies. Having a mobile application, computerized system, and website can help

everyone start saving time and effort by reducing the time it takes to complete a task that would otherwise take a lot of time and effort if done manually. It can also help by providing accurate, quick results and responses that everyone requires. The "New Media" has aided in delivering news, information, and data to the public in various methods. Whether it is about health, disasters, or emergencies, it has made people's lives more accessible, convenient, and up to date in many ways. The role of social media and wireless reporting systems in public health, disaster management, and criminal management is discussed in the following papers. A way of sending and receiving emergency information through a wireless network from a centralized place. The approach employs cellular phones in emergency communications and includes two embodiments that use location-aware technologies in security applications in portable form. Cell phones with built-in digital cameras enable the collection and remote submission of suspicious circumstances to law enforcement via photos or video.

Project Problem Statement

The barangay quick response is a method for individuals who have been in an accident or those who have misunderstandings that lead to different results and fights to get urgent assistance. If the problem is not only understood but also addressed, barangay authorities present it to the barangay hall for discussion and resolution. When there are occurrences in the barangay, such as motorcycle accidents, theft, and etc, barangay officials help the rescuers or individuals assigned there to organize the incident.

Project Assumption

Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application is a mobile application and a website. They can access this as long as there is a stable internet connection that assists barangay officials in improving their barangay's emergency response time. The Bataan admin manages town admin, the town admin manages the barangay officials, and barangay officials manage residents' information. The residents can access the application according to their residing barangay, in which all of the vital information can be viewed, edited, deleted, or just continually updated.

The following are the benefits that the proposed system will provide:

- Barangay Officials can quickly rescue and know the exact location
- Residents can easily report an incident
- Residents will be updated with the affairs and circumstances.
- Bataan admin can monitor the incidents that happened in Bataan

Proponents:

Gusi, Jaquelene Kate B.

Mangaliman, Edline R.

Pangilinan, Angelika G.

Ramos, Densin L.

Approved by:

Maria Diorella A. Paguio, M. Eng.

Roda A. Pangilinan, Ph.D.

Janice Christian M. Sacdalan, MIT

Joseph Ross E. Cortel, MIT

Cristina G. Rivera, MSCS

Cherry A. Cholera, Ph.D.

Marissa B. Ramos, MIT

Aida T. Solomon, M. Eng.

Arlyne M. Naoe, MEM

Ruben D. Espejo, MSCS

Janette S. Ambito, MIT

Noel N. Tolentino

APPENDIX B

**Adviser's
Commitment**

This agreement is binding the Student/s and their thesis adviser for the duration and completion of their research project. As an agreement, the following will be expected from both parties.

- Student/s is/are expected to put /their work into their thesis.
- Faculty advisers are expected to guide students to produce their best work.
- Both jobs are time-consuming and must be carried out by students and faculty members working together in a disciplined way over a sustained period.
- Both parties are responsible for seeing that the necessary work is completed on time. A clear schedule should be made and agreed upon by both parties for their meetings to supervise the progressive elaboration of the research project.

Whereas the thesis adviser is expected to perform the following duties:

- The thesis adviser is expected to mentor the students throughout the project development by guiding the preparation and completion of the project.
- Periodic meetings and performance reviews are expected to be given out by the thesis adviser to their adviser/s to monitor the status of the research project.
- The thesis adviser shall be the source of encouragement and support for the students to ensure that the system's objectives will be achieved.

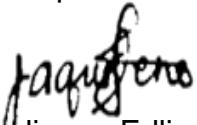
The signature below indicates that both parties agree to the duties and responsibilities set forth as stipulated in the Thesis/Research Methodology Manual.

Title: *A Proposed Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application*

Course/Section: BS Information Technology – NW4C

Advisee's Full Name Signature/s/Date

Gusi, Jaquelene Kate B.



Mangaliman, Edline R.



Pangilinan, Angelika G.



Ramos, Densin L.



Adviser's Full Name Signature/Date

Cherry A. Collera, Ph.D.

APPENDIX C

Milestone Contract and Checklist

This contract is authorized in Regulations for four-year BS Information Technology, Bs Computer Science, and BS Entertainment and Multimedia Computing. The student shall submit the contract for approval of the college responsible for the thesis in accordance with the deadlines stipulated. Any changes to the contract during its duration (e.g. syllabus, adviser, leave of absence/extension, etc.) should be processed by the college.

1. STUDENTS DETAILS (Last Name, First Name, Middle Initial)

Member 1:

Gusi, Jaquelene Kate B.

Member 2:

Mangaliman, Edline R.

Member 3:

Pangilinan, Angelika G.

Member 4:

Ramos, Densin L.

2. ADVISER(S)

State the name of the principal adviser and any co-adviser(s) or external adviser(s). The principal adviser has the overall responsibility for following up the contract on behalf of the college and ensuring the student receives academic supervision for the entire duration of the contract. The student has the right to receive academic supervision during the period he/she shall work on their undergraduate thesis (in accordance with the program description). If the adviser plans to have a sabbatical during the duration of the contract, the student should be informed of this at the time of entering into the contract.

Principal adviser:

Cherry A. Collera

Office address/Phone/E-mail:

237-2010

Co-/external adviser: _____

3. THESIS PROJECT

- a. **Working Title:** Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application

The copy of the approved Title Proposal should be attached. It should include

- Research Problems
 - Methodology
 - Objectives
 - Schedule/timetable
- Technical/Scientific partners (if any)

- b. **Implementation of Thesis Project:**

Each group members takes responsibility for the project's objectives. All students are entitled to implement their theses on a group basis which will consist of 2-4 members. However, 5 members will be permitted if the class population exceeded the grouping requirements.

Group project with 4 members

- c. **Timetable for thesis project**

- Date of Approval – Title Defense March 11, 2021
- Date of Approval – Proposal Defense May 19, 2021
- Date of Approval – Final Defense January 12, 2022

- Date of Book Submission _____

d. Planned Progress:

For part-time students, the academic progress must constitute a minimum ____ %. Undergraduate theses of 30 credits should normally be implemented on a full-time basis. Students who have engagements as part-time lab assistants and equivalent may apply for the length of study to be adjusted.

- Full time student (100%)
- Part-time student ____ %

4. REQUIREMENTS FOR EQUIPMENT/RESOURCES

In the event that resources at an external institution shall be used, this must be specified in point 6 b)

a. The student's place of work (office/lab):

b. Requirements for equipment/resources:

Will, there be a requirement for (any of) the following resources during the thesis project:

Access to/purchase of equipment or software

PLEASE SPECIFY

Access to systems

PLEASE SPECIFY

Access to background information and data(set)

PLEASE SPECIFY

Expenses (if any):

Approved by the person responsible for resources at the college:

Approved by the person responsible for resources at the external institution:

5 NOTES

6. SIGNATURES

The student, principal adviser, other advisers, and college dean have reached agreements concerning all points covered in the contract.

Student/Date:

Principal Adviser/Date:

Co-/External Adviser/Date:

Co-/External Adviser/Date:

College Dean:

APPENDIX D

Letter of Intent

May 7, 2021

Mr. Lester Guila
Team Leader, Barangay Tanod

Barangay Cupang Proper
Wakas, Jaena Balanga, Bataan

Dear Sir:

Good day!

We, the 4th year students of Bachelor of Science in Information Technology major in Network and Web Application, are currently enrolled in the ICTC2023 (Capstone Project I) course. The final requirement of this course is to create a **Bataan iResponse: A barangay Quick Response and Incident Reporting Mobile Application.**

At this moment, we are looking for a company, an agency, or an organization that will help us explore our study and start with the development of the system.

In this regard, we humbly ask you are an excellent office to allow us to conduct a **Virtual Interview** during your available time this week. A *Virtual Invitation to Interview link* will be sent to your email once you have agreed to our request.

You can rest assured that any information you share with us will be treated confidentially. We are looking forward to being partners in this endeavor. Thank you very much and more power!
Very truly yours,

Gusi, Jaquelene Kate B.

Jaquelene
Mangaliman, Edline R.

Edline
Pangilinan Angelika G.

Ramos
Ramos Densin L.

DR
Endorsed by:
Cherry A. Collera, PhD.

ICTC2023 Instructor
Noted by:
Cristina G. Rivera, MSCS
Dean, CICT

Approved by:

Mr. Lester Guila

Team Leader, Barangay Tanod

Email:

APPENDIX E

Transcript of

Interview

Title of the Study: Bataan iResponse: Barangay Quick Response and Incident Reporting Mobile Application

Date and Time: May 14, 2021 7:30 pm

Venue: Barangay Cupang Proper

Proponent: what are the types of incidents that occur in barangay?

Interviewee: Motorcycle Accidents

Proponent: How do you receive the reports of incidents in Bataan?

Interviewee: We received the incident report from the people there, and they told us the incident happened.

Proponent: How do you respond when you receive reports of an incident?

Interviewee: We will go to the incident scene and call rescuers.

Proponent: Do you respond or rescue quickly?

Interviewee: Yes, we can rescue quickly, especially if close to our location.

Proponent: Who will report to you if the incident is resolved?

Interviewee: We know that the incident has been resolved because of the rescuers and their people.

Proponent: Is the exact place where the incident took place immediately known?

Interviewee: Not immediately. Even if we have CCTV, some areas are not covered by it.

Proponent: What is the process when you have already received reports of an incident?

Interviewee: We go to it right away. We called rescuers to go to the location where the incident was. We also write in the logbook the incident that happened.

Proponent: What emergency measures are used?

Interviewee: First aid kit.

Proponent: What do you think should be done to improve our system?

Interviewee: For me, to improve your system, you will provide that the resident who will use the application can insert or attach a picture to see more of the situation there.

Proponent: In what way are emergency hotlines contacted?

Interviewee: We have a list of numbers of Balanga rescues. That is where we call them to rescue.

Proponent: What mobile devices are being used?

Interviewee: We use walkie talkie radio.

Proponent: Are the reports of incidents recorded? If yes, where do you put it? Can others see the reports of incidents?

Interviewee: Yes, all reports of the incident happening are recorded. We put it in our logbook.

Add pictures taken during the interview here.



APPENDIX F

Topical Outline

Title of Thesis Project:

Bataan iResponse: A barangay Quick Response and Incident Reporting Mobile Application

1. INTRODUCTION

- 1.1 Barangay
- 1.2 Quick Response
- 1.3 Incident Reporting
- 1.4 Barangay Incident Reporting Application

2. BASIC CONCEPTS

- 2.1 Database Management System
- 2.2 Android Technology
- 2.3 2D Mapping
- 2.4 Mobile Application

3. SIMILAR MACHINES/APPLICATIONS

- 3.1 Incident Reporting, Safety Compliance Inspections
- 3.2 1st Incident Reporting
- 3.3 Spotlight- Incident Reporting

4. DESIGN CONSIDERATIONS/CRITERIA IN TERMS OF RELIABILITY

4.1 Hardware Requirements

4.1.1 Laptop

4.1.2 Mobile phone

4.1.3 Router

4.2 Software Requirements

4.2.1 Java

4.2.2 Firebase

4.2.3 Android Studio

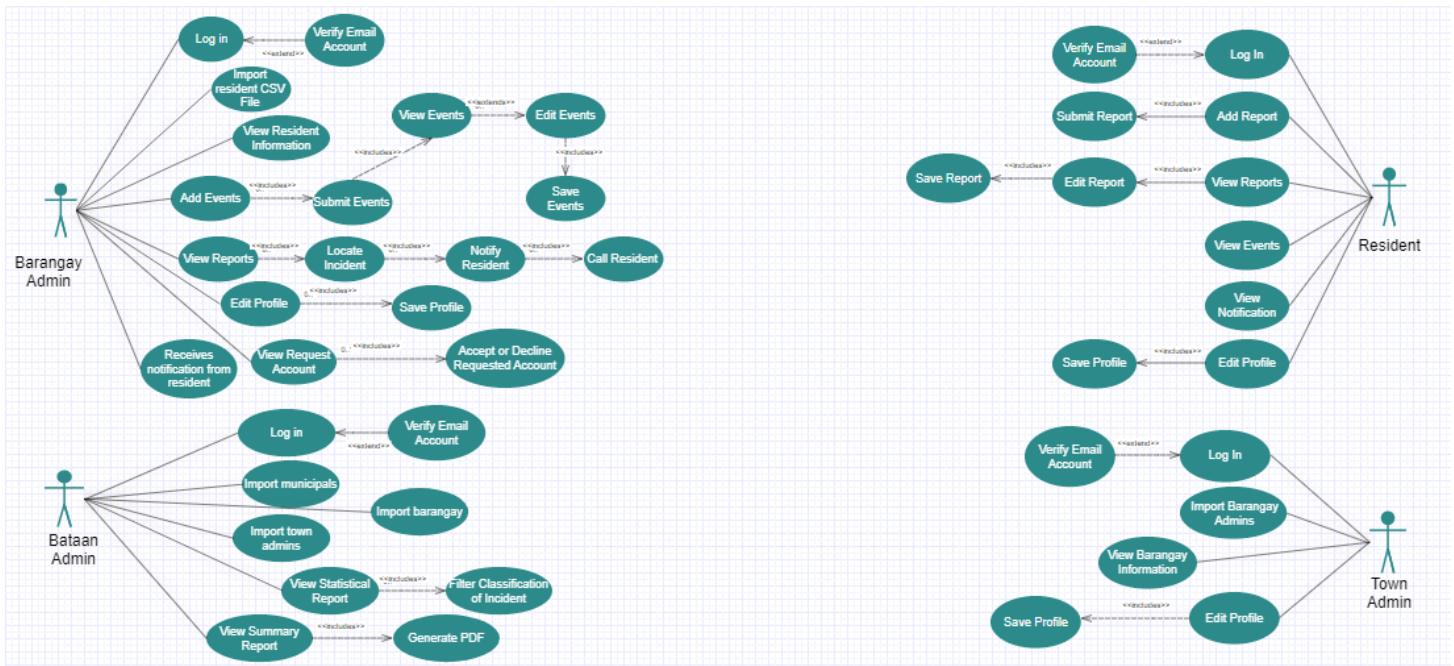
4.2.4 Microsoft Windows

5. EVALUATION SCHEME MODEL

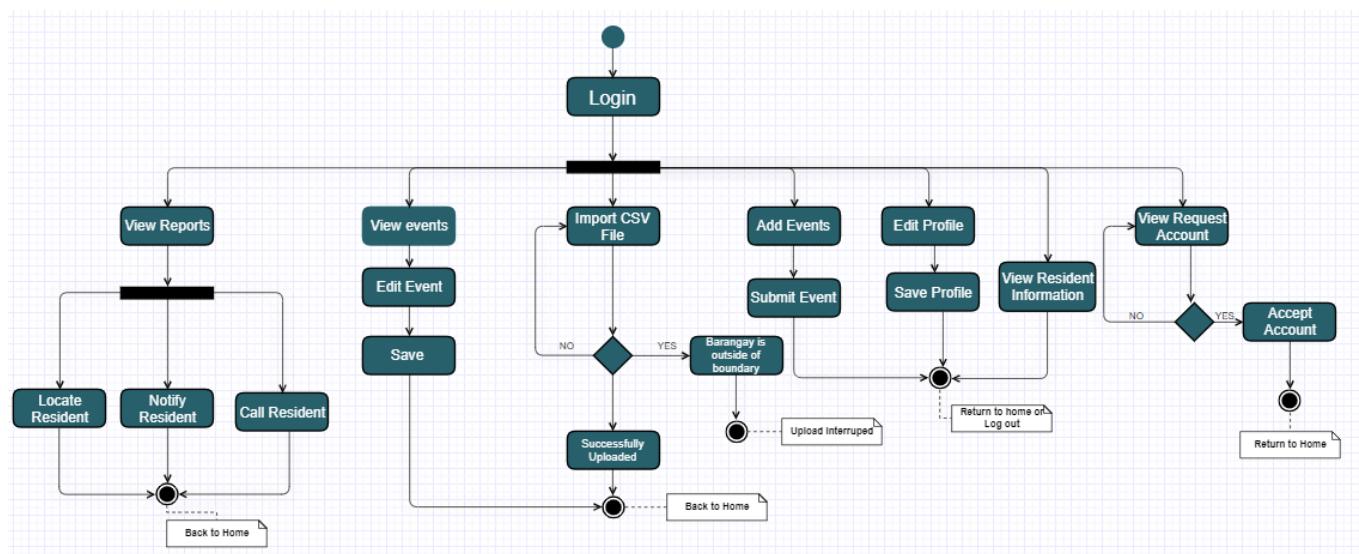
5.1 ISO 25010

APPENDIX G

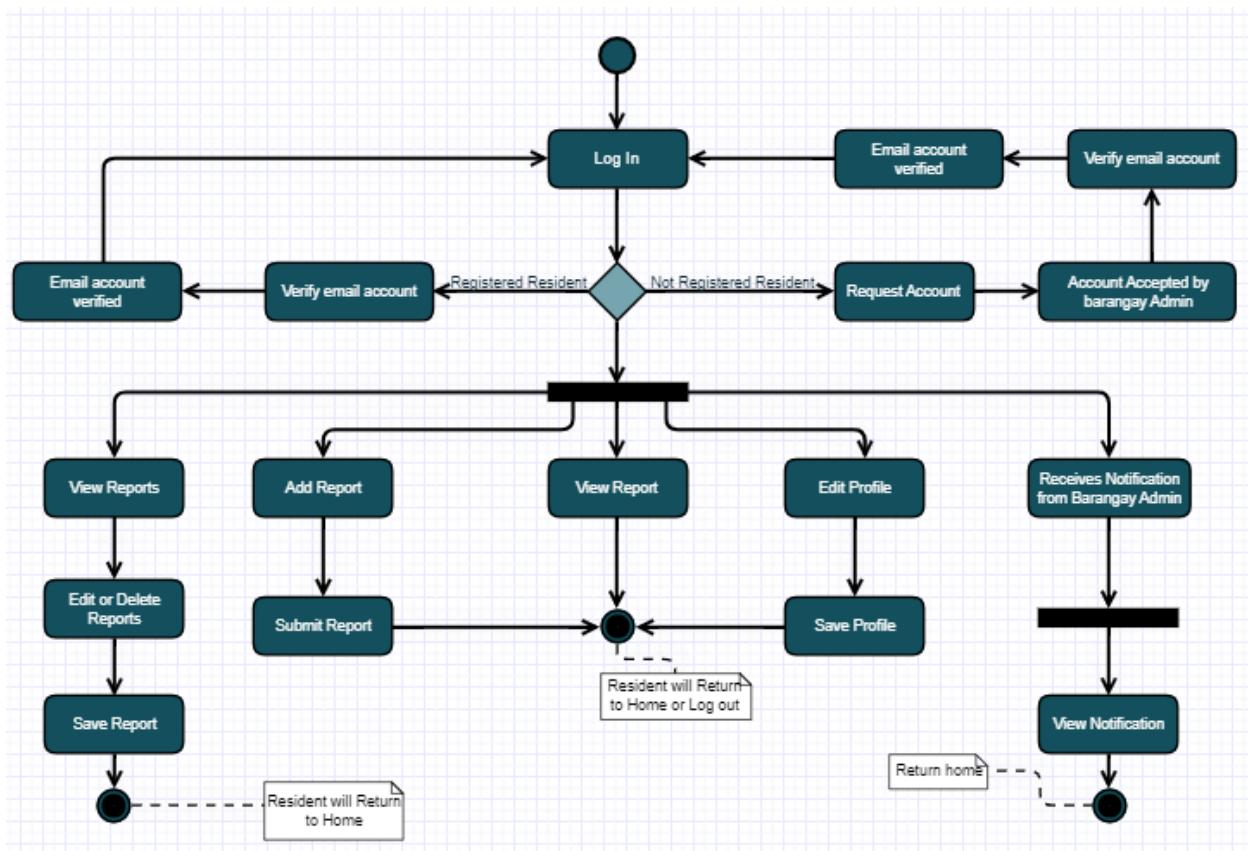
Additional Diagrams



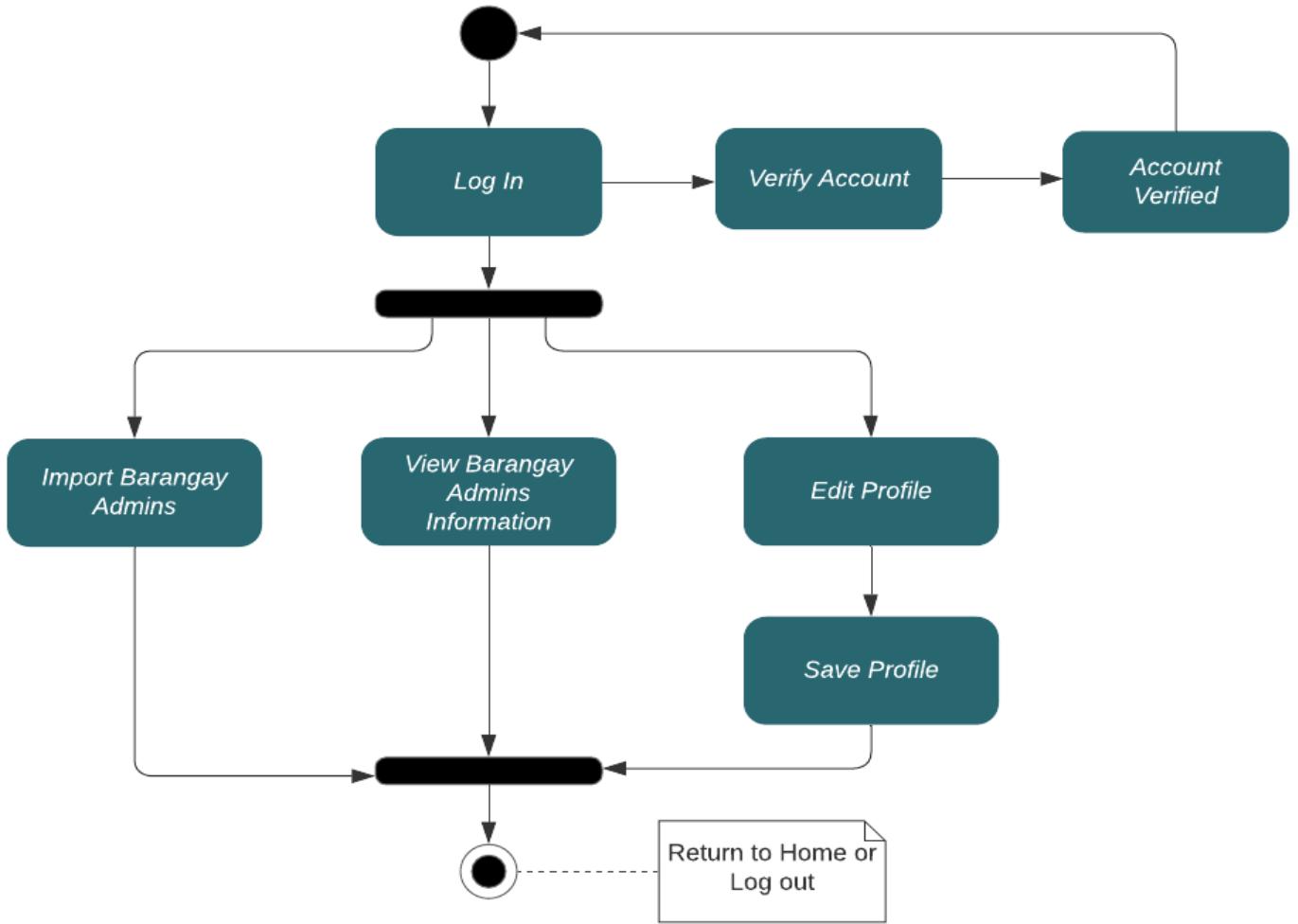
Use Case Diagram



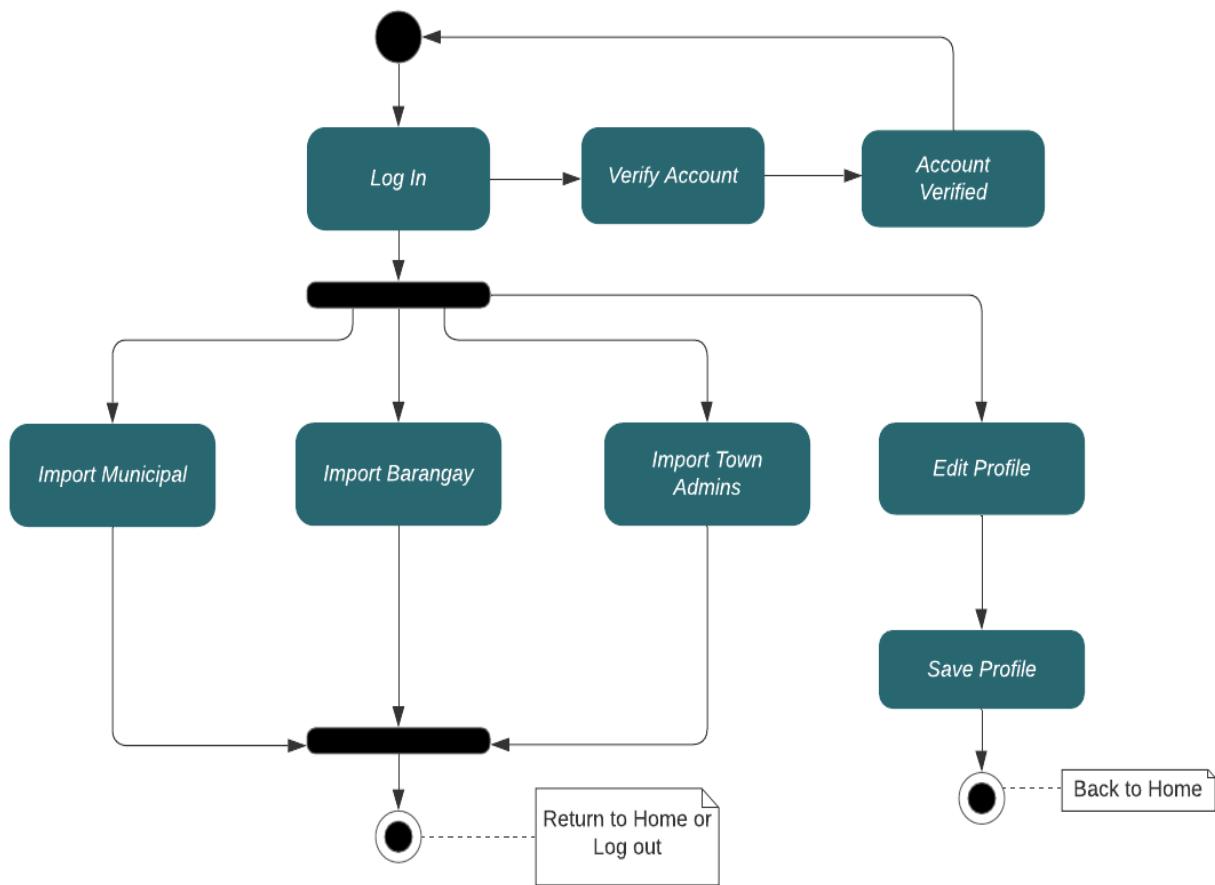
Activity Diagram (Barangay Side)



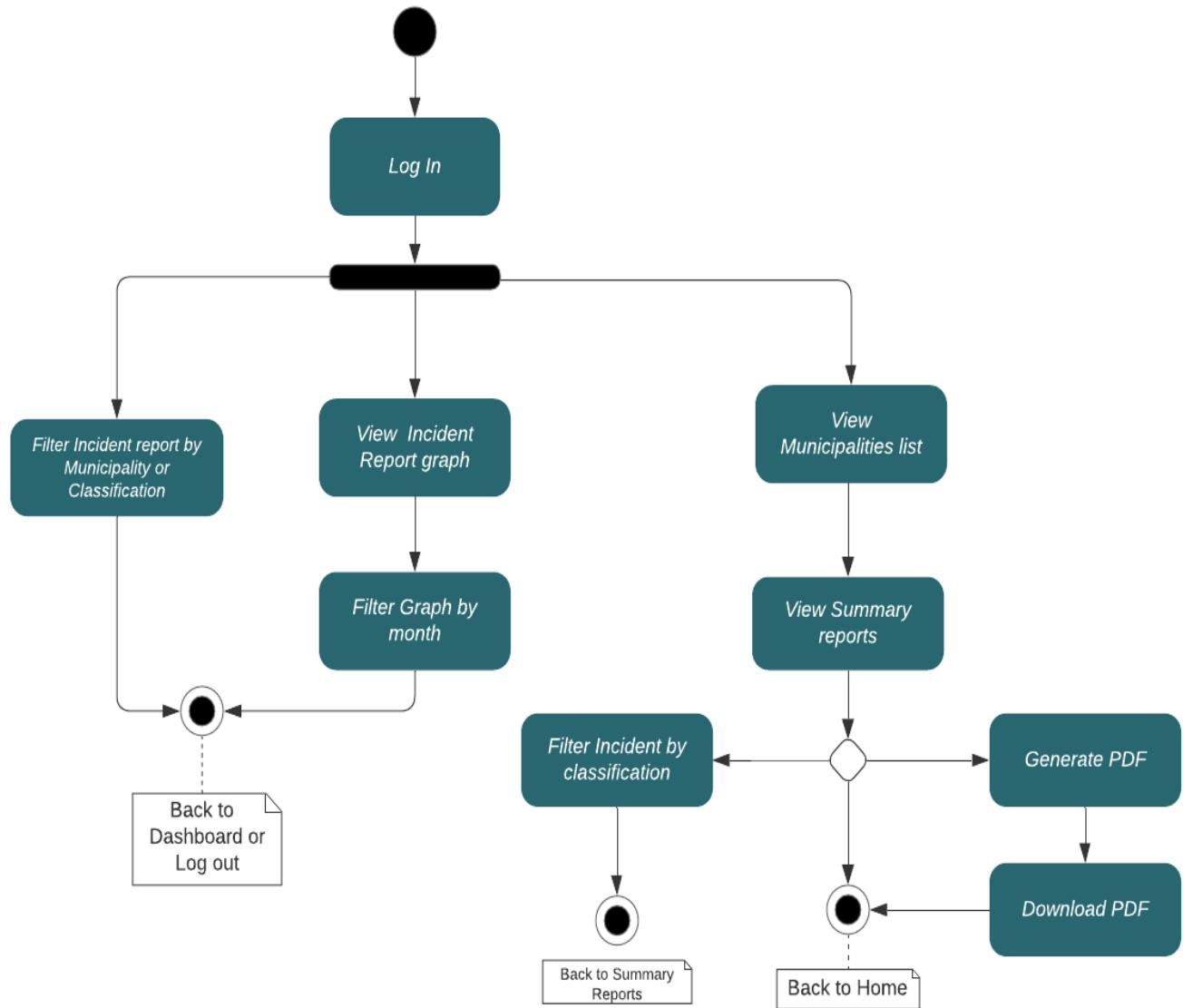
Activity Diagram (Resident Side)



Activity Diagram (Town Admin Side)



Activity Diagram (Bataan Admin in Mobile Application)



Activity Diagram (Bataan Admin in Web Application)

APPENDIX H

Data Dictionary

DATA DICTIONARY

System: Bataan iResponse: Barangay Quick Response and Incident Reporting

Subject: Users Table

PK	FK	Field name	Data Type	Description
YES		Id	uuid	User's universally unique identifier
	YES	baranggay_id	uuid	Barangay universally unique identifier
	NO	contact_number	string	User's contact number
	NO	Email	string	User's email
	NO	full_name	string	User's full name
	YES	municipal_id	uuid	Municipalities universally unique identifier
	NO	role	string	User's role

Users Table

DATA DICTIONARY

System: Bataan iResponse: Barangay Quick Response and Incident Reporting

Subject: Events Table

PK	FK	Field name	Data Type	Description
YES		Id	uuid	Events universally unique identifier
	YES	baranggay_id	uuid	Barangay universally unique identifier
	NO	description	text	Description for events
	NO	from	time	Event time
	NO	to	time	Event time
	YES	municipal_id	uuid	Municipalities universally unique identifier
	YES	user_id	uuid	User's universally unique identifier
	NO	what	string	Event title
	NO	when	date	Event date
	NO	where	string	Event location

Events Table

DATA DICTIONARY				
System: Bataan iResponse: Barangay Quick Response and Incident Reporting				
Subject: Reports Table				
PK	FK	Field name	Data Type	Description
YES		Id	uuid	Reports universally unique identifier
	YES	user_id	uuid	Users universally unique identifier
	NO	action	string	Action taken for the reported incident
	YES	barangay_id	uuid	Barangay universally unique identifier
	NO	classification	string	Incident Classification
	NO	classification_type	string	Type of Incident
	NO	date	date	Incident date
	NO	description	text	Incident description
	NO	involve	integer	Count of people involved
	NO	location_details	string	Location of Incident
	YES	municipal_id	uuid	Municipal universally unique identifier
	NO	people	text	Name of people involved
	NO	time	time	Incident time

Reports Table

APPENDIX I

Evaluation

Instrument

Good day!

We are currently developing our project entitled Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application. Please evaluate our system based on the criteria below. Thank you.

NAME: _____	AGE: _____
COMPANY/SCHOOL: _____	COURSE/POSITION: _____

INSTRUCTION: Read each question carefully and check (/) the corresponding number of choices.

5 – EXCELLENT 4 – VERY GOOD 3 – GOOD 2 – FAIR 1 – POOR

* Please use appropriate ratings for acceptance testing

FUNCTIONAL SUITABILITY	5	4	3	2	1
The system covers all the specified tasks and user objectives.					
The system provides the correct results with the needed degree of precision					
The system facilitates the accomplishment of specified tasks and objectives.					
PERFORMANCE EFFICIENCY					
The response and processing times of the system meet the requirements.					
The amounts and types of resources used by the system meet requirements					
The maximum limits of the system meet requirements.					
COMPATIBILITY					
The system can perform its required functions efficiently while sharing a common environment and resources with other systems.					
The system or system components can exchange information to other systems.					

USABILITY						
The system is appropriate to the needs of the user.						
The system can be used by specified users with effectiveness, efficiency, freedom from risk and satisfaction.						
The system has attributes that make it easy to operate and control.						
The system protects users from making errors.						
The user interface enables pleasing and satisfying interaction for the user.						
The system can be used by people with the widest range of characteristics and capabilities.						
RELIABILITY						
The system meets needs for reliability under normal operation.						
The system is operational and accessible when required for use.						
The system operates as intended despite the presence of hardware or software faults.						
The system can recover affected data and re-establish the desired state.						
SECURITY						
The system ensures that data are accessible only to those authorized to have access.						
The system prevents unauthorized access to, or modification of, computer programs or data.						
The actions or events can be proven to have taken place and cannot be rejected later.						
The actions of users can be traced.						
The identity of a user can be authenticated and proved to be the one claimed.						
MAINTAINABILITY						
The system is composed of modules such that a change to one component has minimal impact on other components.						
A system component can be used in more than one system, or in building other components.						

The system can be assessed and diagnosed for deficiencies or errors.					
The system can be effectively and efficiently modified without introducing defects or degrading quality.					
The system can be tested to determine whether test criteria have been met.					
PORTABILITY					
The system can effectively and efficiently be adapted for different or evolving hardware or software environments.					
The system can be successfully installed and/or uninstalled in a specified environment.					
The system can replace another specified software product for the same purpose in the same environment.					

Are you in favor of implementing the Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application

YES NO

Comments and Suggestions: _____

Proponents:

Gusi, Jaquelene Kate B.
 Mangaliman, Edline R. Mangaliman
 Pangilinan, Angelika G.
 Ramos, Densin L.

BSIT NW4C

APPENDIX J

Summary of

Evaluation Results

SOFTWARE QUALITY FACTOR	AVERAGE MEAN	DESCRIPTIVE INTERPRETATION
A. Functional Suitability	4.71	Excellent
B. Performance Efficiency	4.77	Excellent
C. Compatibility	4.71	Excellent
D. Usability	4.74	Excellent
E. Reliability	4.74	Excellent
F. Security	4.74	Excellent
G. Maintainability	4.76	Excellent
H. Portability	4.77	Excellent
OVERALL MEAN:	4.74	Excellent

APPENDIX K

Progress Report

Weekly Progress Report

DATE: **March 23, 2021**

FROM: **Group 5
BSIT-NW4C
BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND
INCIDENT REPORTING MOBILE APPLICATION**

RE : **PROGRESS STATUS REPORT**

SOFTWARE: (%)

Date: _____
Finished Activity: _____
Description: _____

Date: **March 29, 2021**
Next Activity: **Log In/Sign Up Feature of the Bataan iResponse**
Description: **This shows the login and sign up module of Bataan iResponse.**

DOCUMENTATION: (0.5%)

Date: **March 23, 2021**
Finished activity: **Topical outline and Transcript of interview**
Description: **The topical outline shows the blueprint of the research paper and transcript interview shows is a written record done by the researchers.**

Date: **March 29, 2021**
Next activity: **Draft copy of Chapter 1**
Description: **The chapter 1 consists of background of the study, statement of the problem, and scope and delimitations of the study.**

Weekly Progress Report

DATE: March 29, 2021

FROM: Group 5
BSIT-NW4C
**BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND
INCIDENT REPORTING MOBILE APPLICATION**
RE : PROGRESS STATUS REPORT

SOFTWARE: (10%)

Date:	<u>March 29, 2021</u>
Finished Activity:	<u>Log In/Sign Up Feature of the Bataan iResponse</u>
Description:	<u>This shows the log in and sign up module of Bataan iResponse</u>
Date:	<u>April 7, 2021</u>
Next Activity:	<u>Home Page of the Bataan iResponse Mobile Application</u>
Description:	<u>This shows the homepage of the application and the other module will be shown here.</u>

DOCUMENTATION: (10%)

Date:	<u>March 29, 2021</u>
Finished activity:	<u>Draft copy of Chapter 1</u>
Description:	<u>The chapter 1 consists of background of the study, statement of the problem, and scope and delimitations of the study.</u>
Date:	<u>April 7, 2021</u>
Next activity:	<u>Draft copy of Chapter 2</u>
Description:	<u>The chapter 2 consists of the conceptual work and related literature of the study.</u>

Weekly Progress Report

DATE: April 20, 2021

FROM: Group 5
BSIT-NW4C
BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND INCIDENT REPORTING MOBILE APPLICATION
RE : PROGRESS STATUS REPORT

SOFTWARE: (25%)

Date: April 20, 2021
Finished Activity: Resident Home Page, Resident Profile, Add Reports, View Events.
Description: The activities that have already been done are for the residents' reporting for incidents.

Date: April 27, 2021
Next Activity: Database for user's information
Description: This manage the data entered by users and to normalize the database such that the data cannot be

DOCUMENTATION: (35%)

Date: April 20, 2021
Finished activity: Updated copy of Chapter 2
Description: Review of Related Literature is the topic of this chapter. It highlight the previous research and relevant information to the study.

Date: April 27, 2021
Next activity: Draft copy of Chapter 3
Description: This chapter outlines the methods used in the study

Weekly Progress Report

DATE : September 23, 2021

FROM : **Group 5**

BSIT-NW4C

**BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND
INCIDENT REPORTING MOBILE APPLICATION**

RE :

PROGRESS STATUS REPORT

SOFTWARE: (57%)

Date:	<u>September 23, 2021</u>
Finished Activity:	<u>Creation Single User for Residents</u>
Description:	<u>It is used by residents who are new to the barangay. For example, the resident is not registered in the barangay but wants to use the application and report, that resident must request an account.</u>
Date:	<u>September 23, 2021</u>
Finished Activity:	<u>Bataan Admin and Town Admin</u>
Description:	<u>Bataan Admin will manage Town Admin while Town Admin will manage Barangay admin.</u>
Date:	<u>September 30, 2021</u>
Next Activity:	<u>Town Admin Home Page</u>
Description:	<u>This includes what the town admin can do, like importing barangay admin information and viewing barangay admin reports about incidents.</u>

DOCUMENTATION: (60%)

Date: September 23, 2021

Finished Activity: Revised Copy of Chapter 1 to 3

Description: This includes the updated copy of chapter 1 to chapter 3 starting with the introduction to methodology.

Date: September 30, 2021

Next Activity: Draft Copy of Chapter 4

Weekly Progress Report

DATE : October 19, 2021

FROM : Group 5

BSIT-NW4C

BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND
INCIDENT REPORTING MOBILE APPLICATION

RE :

PROGRESS STATUS REPORT

SOFTWARE: (62.86%)

Date: October 19, 2021

Finished 2D Mapping

Activity:

Description: This module shows the distance between the barangay and the incident.

Date: October 26, 2021

Finished Notification Module

Activity:

Description: This module presents the residents and barangay being notified about submitted reports.

DOCUMENTATION: (75%)

Date: October 19, 2021

Finished Draft Copy of Chapter 4

Activity: It consists of the overview, limitations, and scope of the system.

Description:

Date: **October 26, 2021**
Next Activity: **Updated Copy of Chapter 4**
Description: **It consists of the overview, limitations, and scope of the system.**

Weekly Progress Report

DATE: October 27, 2021

FROM: Group 5

BSIT-NW4C

BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND
INCIDENT REPORTING MOBILE APPLICATION

RE : PROGRESS STATUS REPORT

SOFTWARE: (67%)

Date: October 27, 2021
Finished Activity: Monitoring of Incidents Module
Description: This displays the reported incidents submitted by every town in Bataan.

Date: November 3, 2021
Next Activity: Generating the statistical reports
Description: This shows the statistical reports of incidents

DOCUMENTATION: (85%)

Date: October 27, 2021
Finished activity: Updated copy of Chapter 4
Description: The chapter 4 consists of the overview, limitations, and scope of the system.

Date: November 3, 2021
Next Activity: Updated copy of chapter 4

Description: The chapter 4 consists of the overview, limitations, and scope of the system.

Weekly Progress Report

DATE : November 4, 2021

FROM : Group 5

BSIT-NW4C

BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND
INCIDENT REPORTING MOBILE APPLICATION

RE :

PROGRESS STATUS REPORT

SOFTWARE: (67.14%)

Date: November 4, 2021

Finished Notification Inbox

Activity:

Description: This module shows that residents and the barangay can view the notification.

Date: November 10, 2021

Finished Statistical Report (Pie Chart)

Activity: This module presents statistical reports of incidents for Bataan

Description: admin

DOCUMENTATION: (85%)

Date: November 4, 2021

Finished Activity: **Draft Copy of Chapter 4**
Description: **It consists of the overview, limitations, and scope of the system.**

Date: **November 10, 2021**
Next Activity: **Updated Copy of Chapter 4**
Description: **It consists of the overview, limitations, and scope of the system.**

Weekly Progress Report

DATE : November 10, 2021

FROM : Group 5

BSIT-NW4C

BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND
INCIDENT REPORTING MOBILE APPLICATION

RE : PROGRESS STATUS REPORT

SOFTWARE: (81.43%)

Date: November 10, 2021

Finished Notification Inbox

Activity:

Description: This module shows that residents and the barangay can view the notification

Date: November 17, 2021

Next Activity: Statistical Report (Pie Chart)

Description: This module presents statistical reports of incidents for Bataan admin

DOCUMENTATION: (90%)

Date: November 10, 2021

Finished Draft Copy of Chapter 4

Activity: It consists of the overview, limitations, and scope of the system.

Description:

Date: November 17, 2021

Next Activity: **Project Evaluation on chapter 4**
Description: **This section is composed of the process of collecting and analyzing information of the study.**

Weekly Progress Report

DATE : **December 2, 2021**

FROM : **Group 5**
BSIT-NW4C
BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND INCIDENT REPORTING MOBILE APPLICATION

RE :
PROGRESS STATUS REPORT

SOFTWARE: (88.57%)

Date: **December 2, 2021**
Finished **Filtering by classification of incidents**
Activity:
Description: **This module shows the filtering of incidents and show the percentage for graph**

Date: **December 9, 2021**
Next Activity: **Generating PDF for summary reports**
Description: **This module shows the generating pdf for a summary of the reports submitted and show the action taken.**

DOCUMENTATION: (95%)

Date: **December 2, 2021**
Finished **Draft copy of Chapter 5**
Activity: **It consists of the summary of findings, conclusions, and recommendations**
Description:

Date: December 9, 2021
Next Activity: Updated copy of Chapter 1 to chapter 5
Description: this consists of the updated version of documentation of the study.

Weekly Progress Report

DATE : December 8, 2021

FROM : Group 5

BSIT-NW4C

BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND
INCIDENT REPORTING MOBILE APPLICATION

RE :

PROGRESS STATUS REPORT

SOFTWARE: (88.57%)

Date: December 8, 2021
Finished Activity: Showing of action taken and filtering by municipality
Description: This module shows the filtering of the municipality in Bataan

Date: December 8, 2021
Next Activity: Generating PDF for summary reports
Description: This module shows the generating pdf for a summary of the reports submitted and shows the action taken.

Date: December 8, 2021
Next Activity: Graph percentage
Description: This shows the percentage of the graph in the generating module

DOCUMENTATION: (98%)

Date: December 8, 2021
Finished Updated copy of Chapter 5
Activity: Chapter 5 consists of the summary of findings, conclusions, and
Description: recommendations

Date: December 15, 2021
Next Activity: Updated copy of Chapter 1 to chapter 5
Description: This consists of the updated version of documentation of the study.

Weekly Progress Report

DATE : December 10, 2021

FROM : Group 5

BSIT-NW4C

BATAAN IRESPONSE: A BARANGAY QUICK RESPONSE AND
INCIDENT REPORTING MOBILE APPLICATION

RE :

PROGRESS STATUS REPORT

SOFTWARE: (96%)

Date: December 10, 2021

Finished Activity: Generating PDF for summary reports

Activity:

Description: This module shows the generating pdf for a summary of the reports submitted

Date: December 10, 2021

Next Activity: Graph percentage

Description: This shows the percentage of the graph in the generating module

Date: December 17, 2021

Next Activity: Basis for action taken

Description: This shows the action that will be taken care of base on the classification level of the incident

DOCUMENTATION: (98%)

Date: December 10, 2021

Finished Activity: Updated copy of Chapter 5

Description: Chapter 5 consists of the summary of findings, conclusions, and recommendations

Date: **December 17, 2021**
Next Activity: **Updated copy of Chapter 1 to chapter 5**
Description: **this consists of the updated version of documentation of the study.**

APPENDIX L

Consultation Forms



BATAAN PENINSULA STATE UNIVERSITY

MAIN CAMPUS

College of Information and Communications Technology
City of Balanga, 2100 Bataan

(047) 237.2010
[www.bpsu.edu.ph](http://bpsu.edu.ph)
bpsu.cict016@gmail.com

THESIS CONSULTATION FORM

COURSE CODE/TITLE: ICTC2113 – CAPSTONE PROJECT 2

DATE: SEPTEMBER 23, 2021

TIME: 3:00 P.M

FORMAT OF CONSULTATION:

Scheduled Meeting

Online (Chat/Email)

SMS

Others

NATURE OF CONSULTATION:

Scheduled Meeting

Online (Chat/Email)

SMS

Others

SUMMARY OF CONSULTATION:

- Checking docs and system (57.14%)

ACTION POINTS:

ASSISTED BY / CONSULTED WITH:

Cherry A. Collera
Signature over Printed
Name of Faculty

CONFORME:

Jaquelene Kate B. Gusi
Edline R. Mangaliman
Angelika L. Pangilinan
Densin B. Ramos
Name/Signature of Student(s)



BATAAN PENINSULA STATE UNIVERSITY

MAIN CAMPUS

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www.bpsu.edu.ph
bpsu.cic@016@gmail.com

THESIS CONSULTATION FORM

COURSE CODE/TITLE: ICTC2113 – CAPSTONE PROJECT 2

DATE: OCTOBER 4, 2021

TIME: 3:00 P.M

FORMAT OF CONSULTATION:

- | | |
|--|--|
| <input type="checkbox"/> Scheduled Meeting | <input type="checkbox"/> Online (Chat/Email) |
| <input type="checkbox"/> SMS | <input type="checkbox"/> Others |

NATURE OF CONSULTATION:

- | | |
|--|--|
| <input type="checkbox"/> Scheduled Meeting | <input type="checkbox"/> Online (Chat/Email) |
| <input type="checkbox"/> SMS | <input type="checkbox"/> Others |

SUMMARY OF CONSULTATION:

- Checking docs and system (57.14%)

ACTION POINTS:

ASSISTED BY / CONSULTED WITH:

Cherry A. Collera
Signature over Printed
Name of Faculty

CONFORME:

Jaquelene Kate B. Gusi
Edline R. Mangaliman
Angelika C. Panqilinan
Densin B. Ramos
Name/Signature of Student(s)



BATAAN PENINSULA STATE UNIVERSITY

MAIN CAMPUS

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City of Balanga, 2100 Bataan

(047) 237.2010

www.bpsu.edu.ph

bpsu.cict016@gmail.com

THESIS CONSULTATION FORM

COURSE CODE/TITLE: ITC2113 – CAPSTONE PROJECT 2

DATE: OCTOBER 7, 2021

TIME: 4:00 P.M

FORMAT OF CONSULTATION:

Scheduled Meeting

Online (Chat/Email)

SMS

Others

NATURE OF CONSULTATION:

Scheduled Meeting

Online (Chat/Email)

SMS

Others

SUMMARY OF CONSULTATION:

- Checking docs and system (60%)

ACTION POINTS:

- Window view changes when the phone is rotated

ASSISTED BY / CONSULTED WITH:

Cherry A. Collera
Signature over Printed
Name of Faculty

CONFORME:

Jaqueline Kate B. Gusi
Edline R. Mangaliman
Angelik G. Pangilinan
Densin B. Ramos
Name/Signature of Student(s)



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bpsu.cict2016@gmail.com

THESIS CONSULTATION FORM

COURSE CODE/TITLE: ICTC2113 – CAPSTONE PROJECT 2

DATE: OCTOBER 21, 2021

TIME: 4:00pm

FORMAT OF CONSULTATION:

- Scheduled Meeting Online (Chat/Email)
 SMS Others

NATURE OF CONSULTATION:

- Scheduled Meeting Online (Chat/Email)
 SMS Others

SUMMARY OF CONSULTATION:

- Checking docs and system (67.14%)

ACTION POINTS:

ASSISTED BY / CONSULTED WITH:

Cherry A. Collera
Signature over Printed
Name of Faculty

CONFORME:

Jaquelene Kate B. Gusi
Edline R. Mangaliman
Angelika C. Pangilinan
Densin B. Ramos
Name/Signature of Student(s)



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THESIS CONSULTATION FORM

COURSE CODE/TITLE: ICTC2113 – CAPSTONE PROJECT 2

DATE: NOVEMBER 04, 2021

TIME: 3:00 P.M

FORMAT OF CONSULTATION:

- | | |
|---|--|
| <input type="checkbox"/> Schedule Meeting | <input type="checkbox"/> Online (Chat/Email) |
| <input type="checkbox"/> SMS | <input type="checkbox"/> Others |

NATURE OF CONSULTATION:

- | | |
|---|--|
| <input type="checkbox"/> Schedule Meeting | <input type="checkbox"/> Online (Chat/Email) |
| <input type="checkbox"/> SMS | <input type="checkbox"/> Others |

SUMMARY OF CONSULTATION:

- Checking docs and system (81.43%)

ACTION POINTS:

- Show % in graph representation

ASSISTED BY / CONSULTED WITH:

Cherry A. Collera

Signature over Printed

Name of Faculty

CONFORME:

Jaquelene

Jaquelene Kate B. Gusi

Edline R. Mangaliman

Angelika G. Pangilinan

Densin B. Ramos

Name/Signature of Student(s)



BATAAN PENINSULA STATE UNIVERSITY

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www.bpsu.edu.ph
bpsu.cict2016@gmail.com

THESIS CONSULTATION FORM

COURSE CODE/TITLE: ITC2113 – CAPSTONE PROJECT 2

DATE: November 15, 2021

TIME: 3:00 P.M

FORMAT OF CONSULTATION:

- | | |
|--|--|
| <input type="checkbox"/> Scheduled Meeting | <input type="checkbox"/> Online (Chat/Email) |
| <input type="checkbox"/> SMS | <input type="checkbox"/> Others |

NATURE OF CONSULTATION:

- | | |
|--|--|
| <input type="checkbox"/> Scheduled Meeting | <input type="checkbox"/> Online (Chat/Email) |
| <input type="checkbox"/> SMS | <input type="checkbox"/> Others |

SUMMARY OF CONSULTATION:

- Checking docs and system (84.29%)

ACTION POINTS:

- Filtering & Real Time (Capability G)

ASSISTED BY / CONSULTED WITH:

Cherry A. Collera
Signature over Printed
Name of Faculty

CONFORME:

Jaquelene Kate B. Gusi
Jaquelene Kate B. Gusi
Edline R. Mangaliman
Edline R. Mangaliman
Angelika G. Pangilinan
Angelika G. Pangilinan
Densin B. Ramos
Densin B. Ramos
Name/Signature of Student(s)



BATAAN PENINSULA STATE UNIVERSITY

MAIN CAMPUS

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THESIS CONSULTATION FORM

COURSE CODE/TITLE: ICTC2113 – CAPSTONE PROJECT 2

DATE: NOVEMBER 25, 2021

TIME: 4:00 P.M

FORMAT OF CONSULTATION:

- Scheduled Meeting Online (Chat/Email)
 SMS Others

NATURE OF CONSULTATION:

- Scheduled Meeting Online (Chat/Email)
 SMS Others

SUMMARY OF CONSULTATION:

- Checking docs and system (88.57%)

ACTION POINTS:

- Filter by town or barangay, show action taken, PDF (Capability F)
- Include month or period covered, PDF (Capability G)

ASSISTED BY / CONSULTED WITH:

Cherry A. Collera
Signature over Printed
Name of Faculty

CONFORME:

Jaquelene Kate B. Gusi
Jaquelene Kate B. Gusi
Edline R. Mangaliman
Edline R. Mangaliman
Angelika C. Pangilinan
Angelika C. Pangilinan
Densin B. Ramos
Densin B. Ramos
Name/Signature of Student(s)

APPENDIX M

Request for Oral

Presentation

Thesis Title: Bataan iResponse: A Barangay Quick Response and Incident Reporting Mobile Application

This is to report that the Evaluation Committee for:

Member 1: Jaquelene Kate B. Gusi
Member 2: Edline R. Mangaliman
Member 3: Angelika G. Pangilinan
Member 4: Densin L. Ramos

had received the thesis for the purpose of examination and now requests that the final oral examination be set for

(MM/DD/YYYY) (Time) (Room)

By the signature below each member of the Evaluation Committee agrees that he/she considers the thesis and the thesis abstract to be in satisfactory form for the purpose of final oral examination, that he/she is agreeable to proceeding with the final examination, and then he/she is willing to attend this examination on the date specified.

THESIS COMMITTEE APPROVALS:

Cherry A. Collera, Ph.D.
Adviser (Print Name)

Signature

Gusi, Jaquelene Kate B.
Mangaliman, Edline R.
Pangilinan, Angelika G.
Ramos, Densin L.



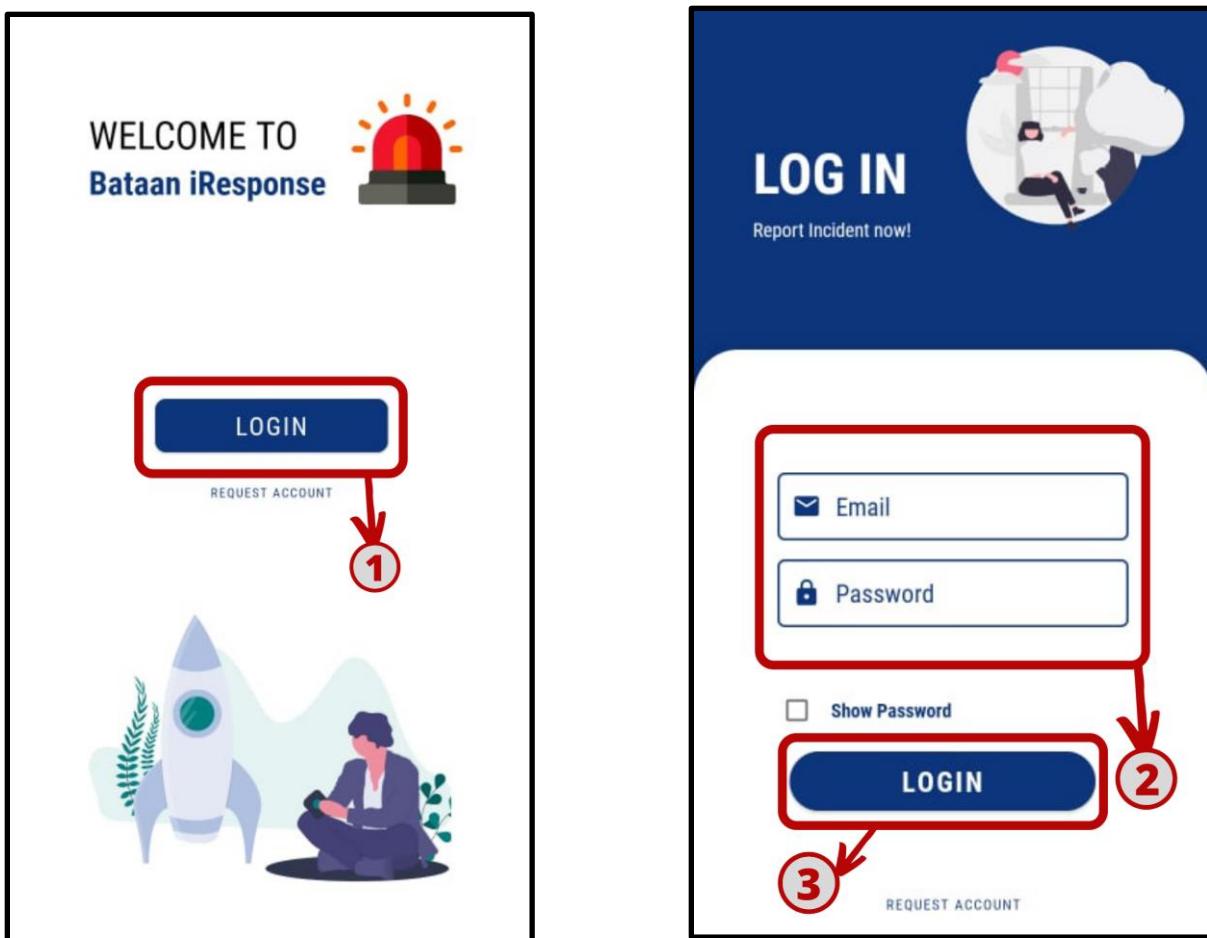
Print Name

Signature

APPENDIX O

User's Manual

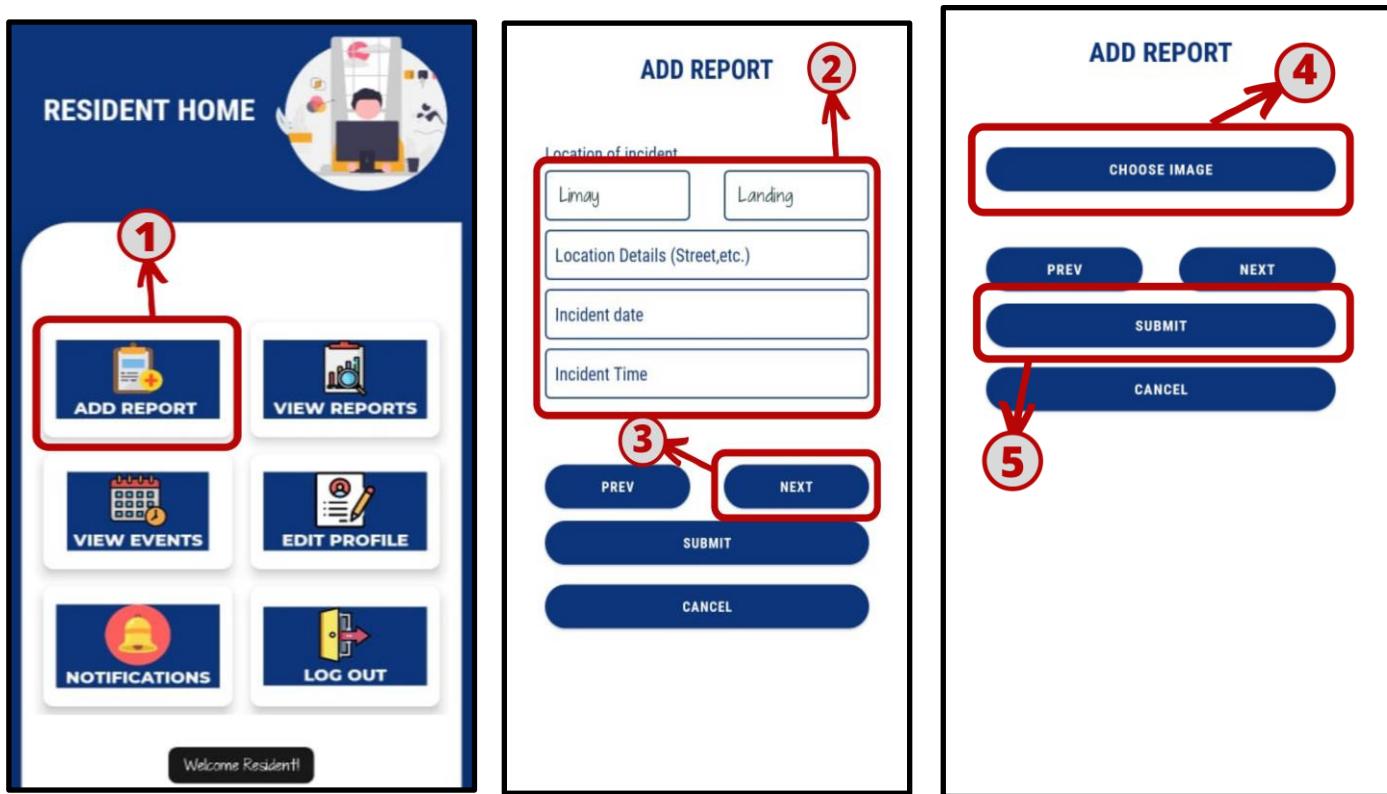
To access the mobile application, the residents who do not have an account need to request an account before logging in and the barangay admin can access the application after the town admin added the list of them. Once their account is processed, they need to verify their email account and log in. The following are steps to do it;



1. Click the login button
2. Click the text box and input email and password
3. Click the login button

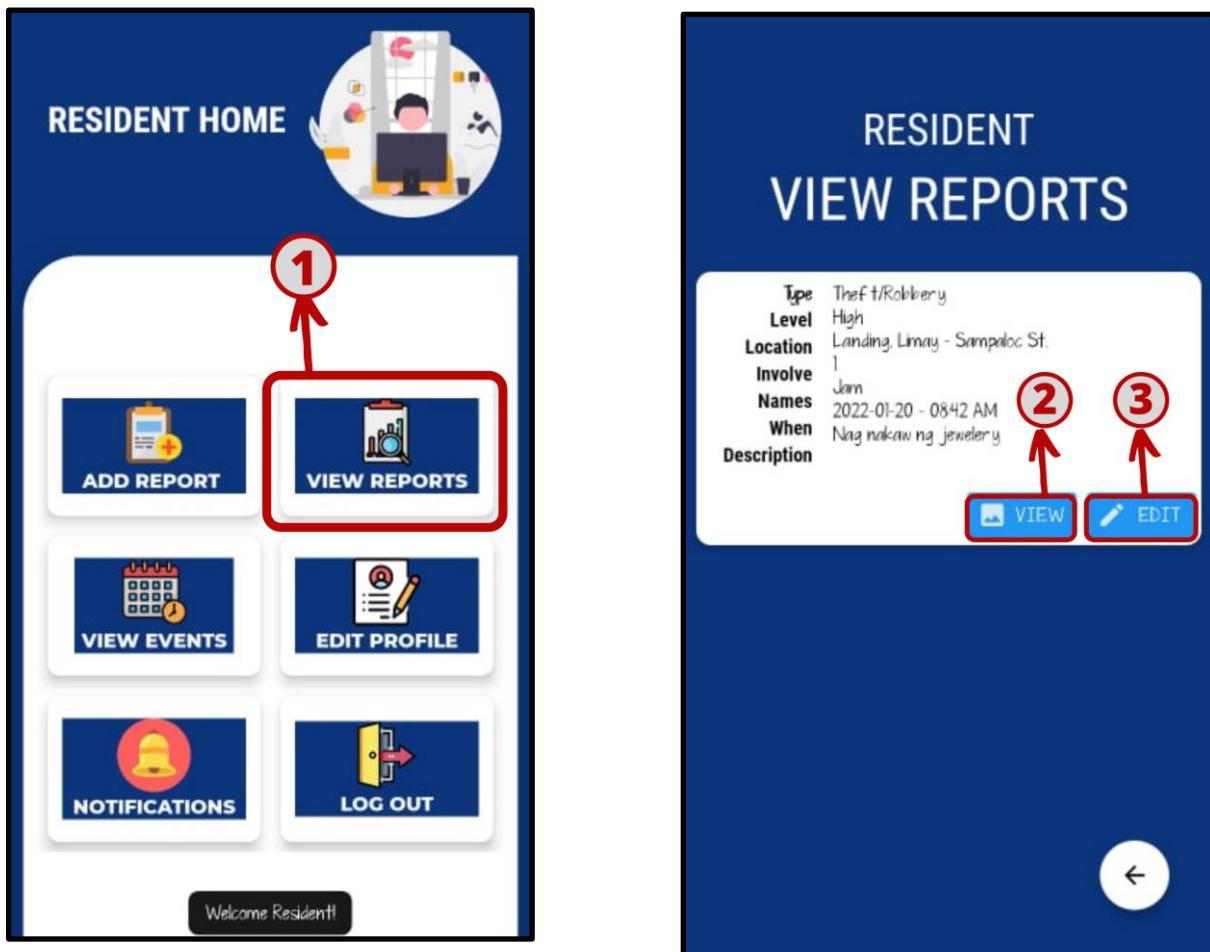
For Resident

- The developed system can allow the residents to add an incident report through the Add Report Module. The following are the steps to do it:



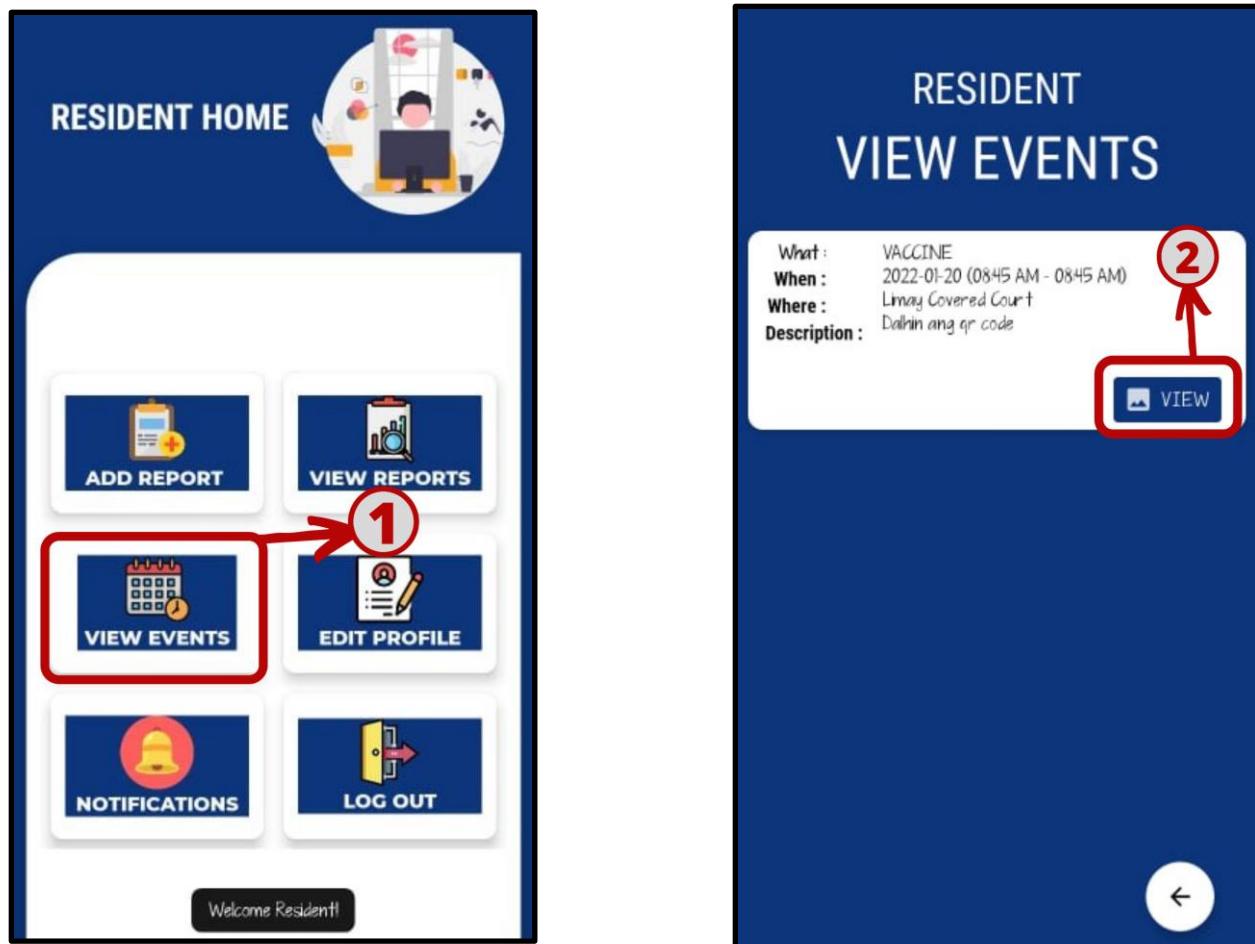
- Click the Add Report button.
- Click the text boxes and input the necessary information.
- Click the Next button to transfer to the next page.
- Click the Choose Image button to browse the gallery and pick the image.
- Click the submit button to successfully add the report.

- The developed system can allow the residents to view the reports that they submitted through View Reports Module. The following are the steps to do it:



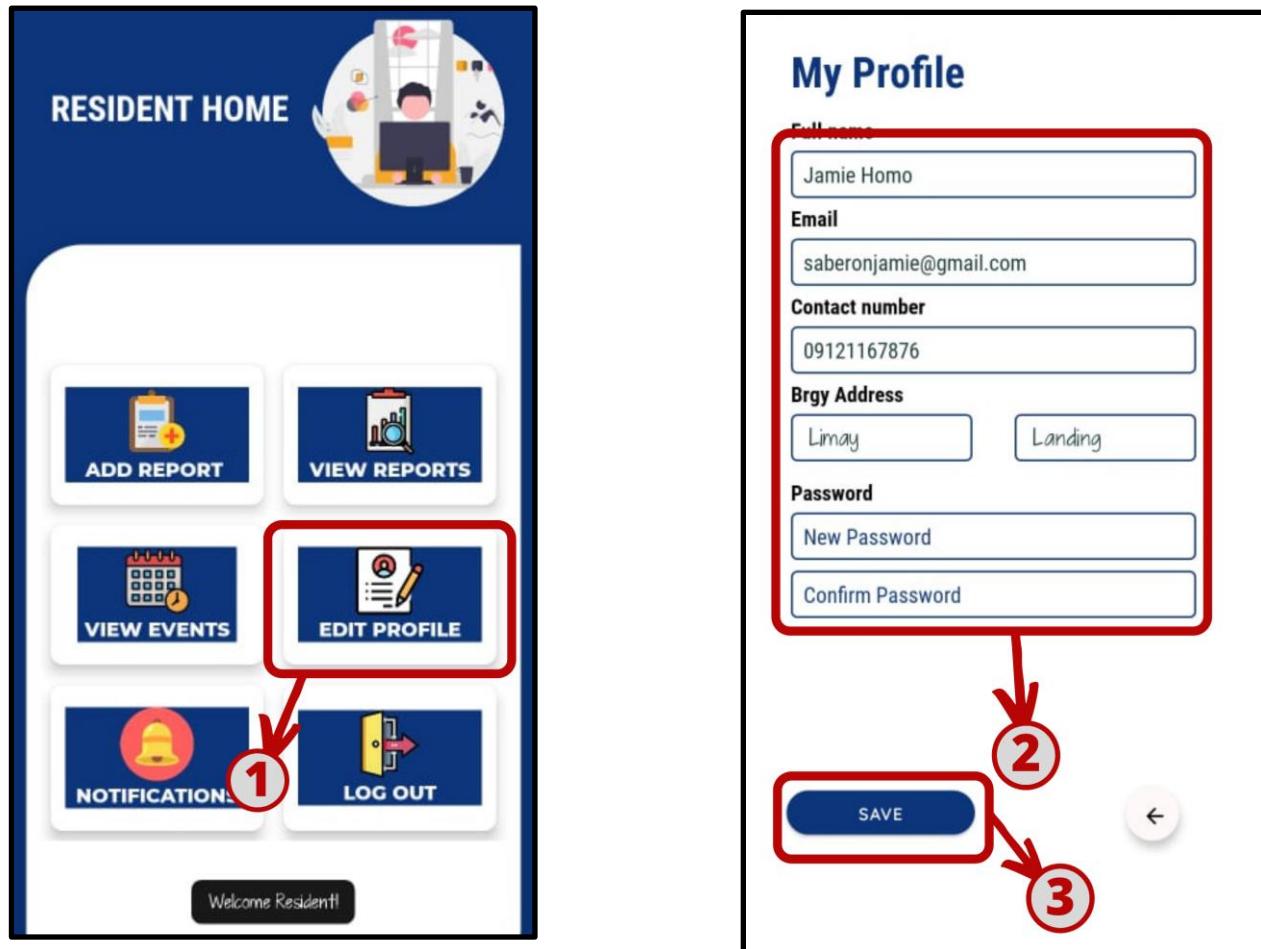
- Click the view report button
- Click the view button to see the resident reports
- Click the edit button to edit the reports

- The developed system can allow the residents to view the announcements posted by the barangay through View Events Module. The following are the steps to do it:



- Click the view events button.
- After clicking the Events button, you can view the image and click the view image.

- The developed system can allow the residents to edit their profile information through the Edit Profile Module. The following are the steps to do it:



- Click the Edit Profile button.
- Click the text box that you want to edit and input the details.
- Click the Save Button to successfully edit your profile information.

- The developed system can allow the residents to view the notification through the Notifications Module. The following are the steps to do it:

RESIDENT HOME

NOTIFICATIONS

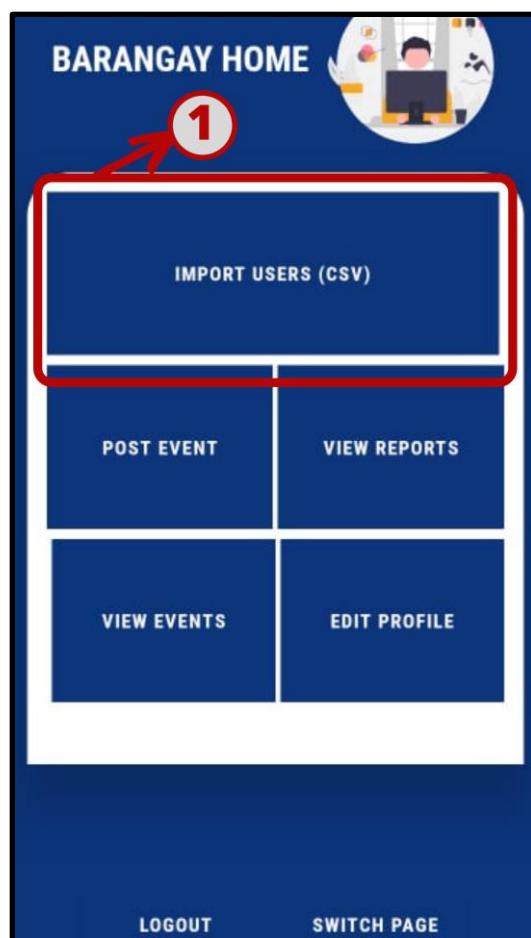
Help Incoming
Hi, Jamie Hom! This is Barangay Landing of Limay. We received your report on Theft/Robbery incident. We'll take care of the incident, thank you for reporting.

BACK

1. Click the Notifications button to view the resident's notification.

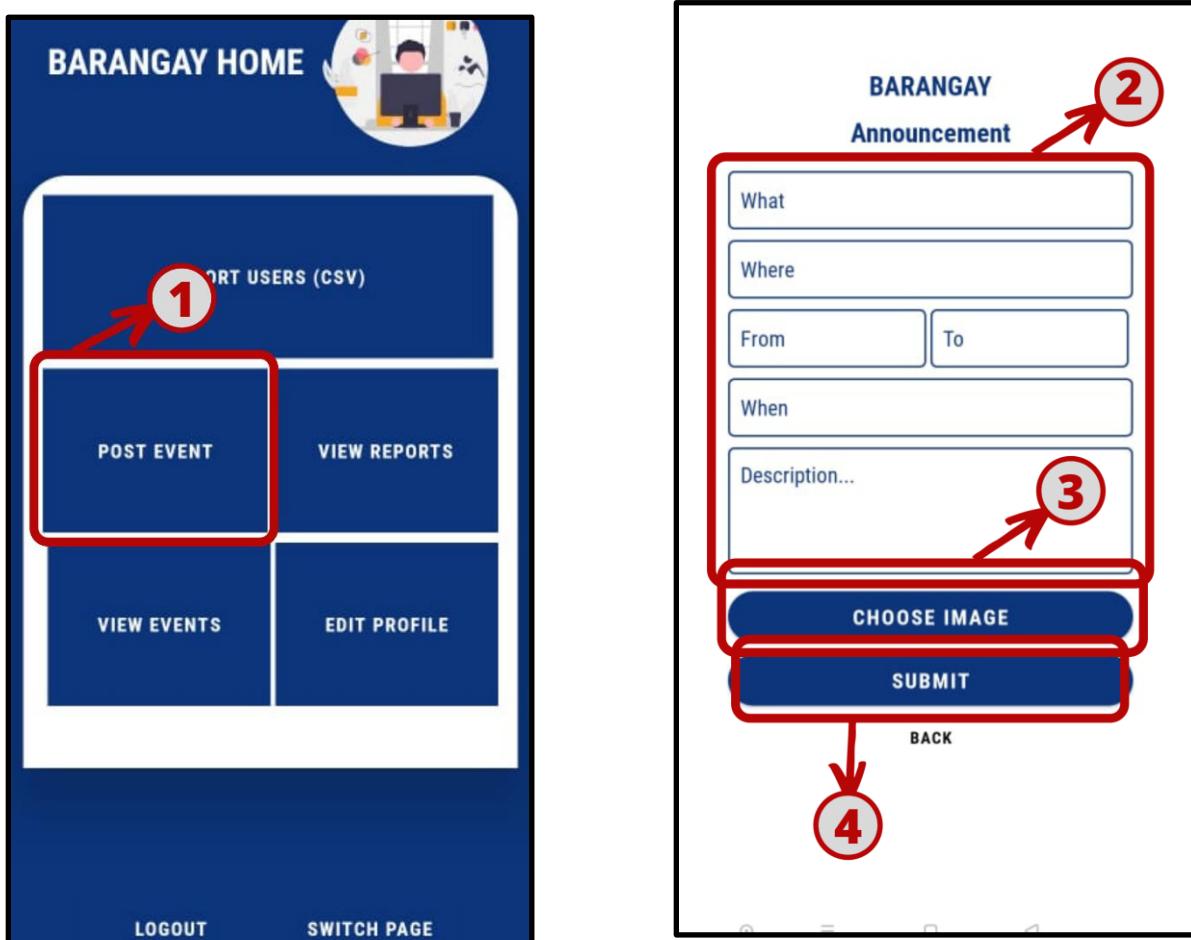
For Barangay Admin

- The developed system allows the barangay admin to import the resident's information through the Import Users (CSV) module. The following are the steps to do it:



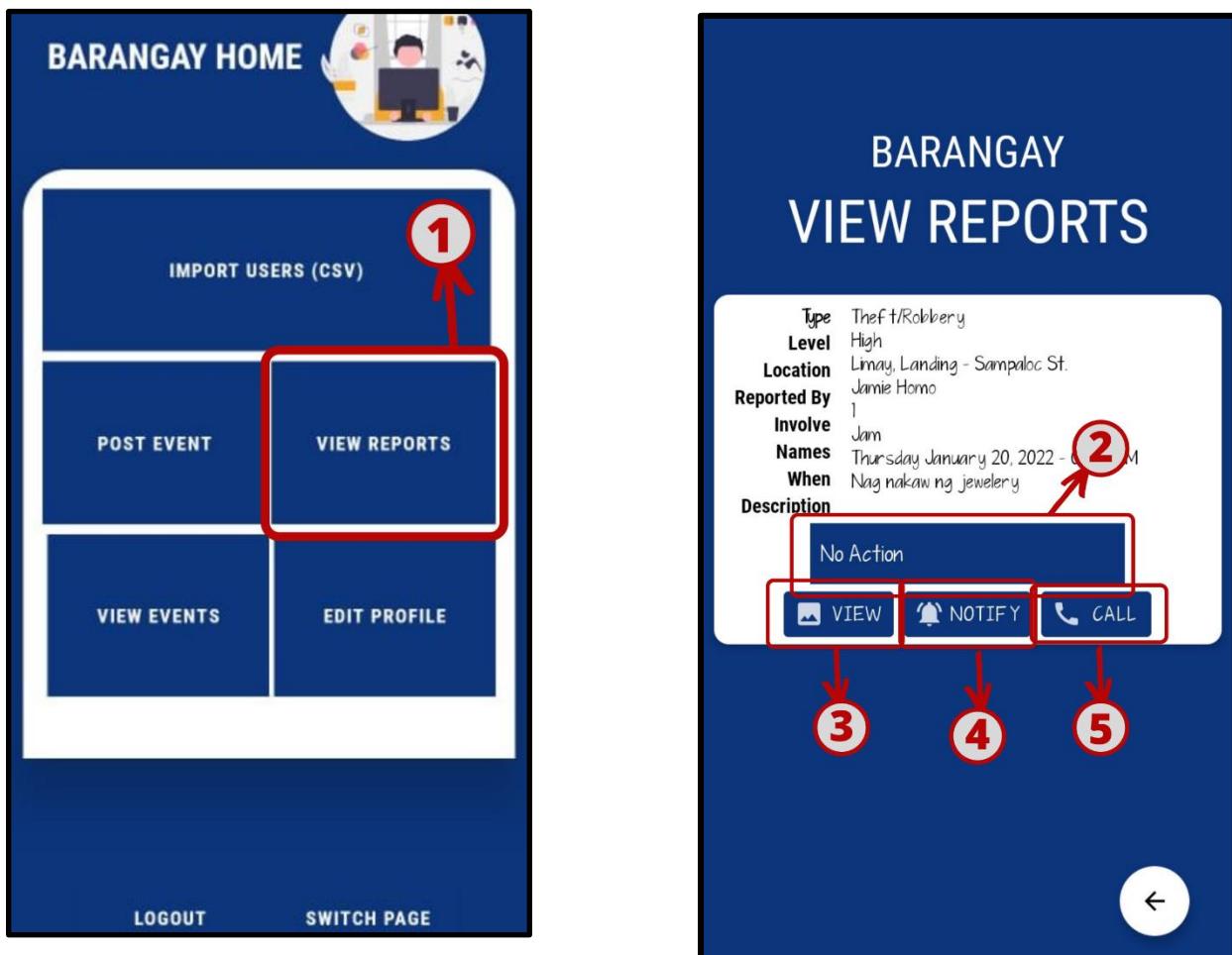
- Click the import users' button (CSV) then browse the file manager to choose your CSV file.

- The developed system can allow the barangay admin to post announcements to residents in their barangay. The following are the steps to do it:



- Click the Post Event button.
- Click the text boxes and input the needed information to add an announcement.
- Click the Choose Image button and browse the gallery to choose the picture that you want to attach.
- Click the submit button to successfully add an announcement.

- The developed system can allow the barangay admin to view the reports submitted through View Reports Module. The following are the steps to do it:



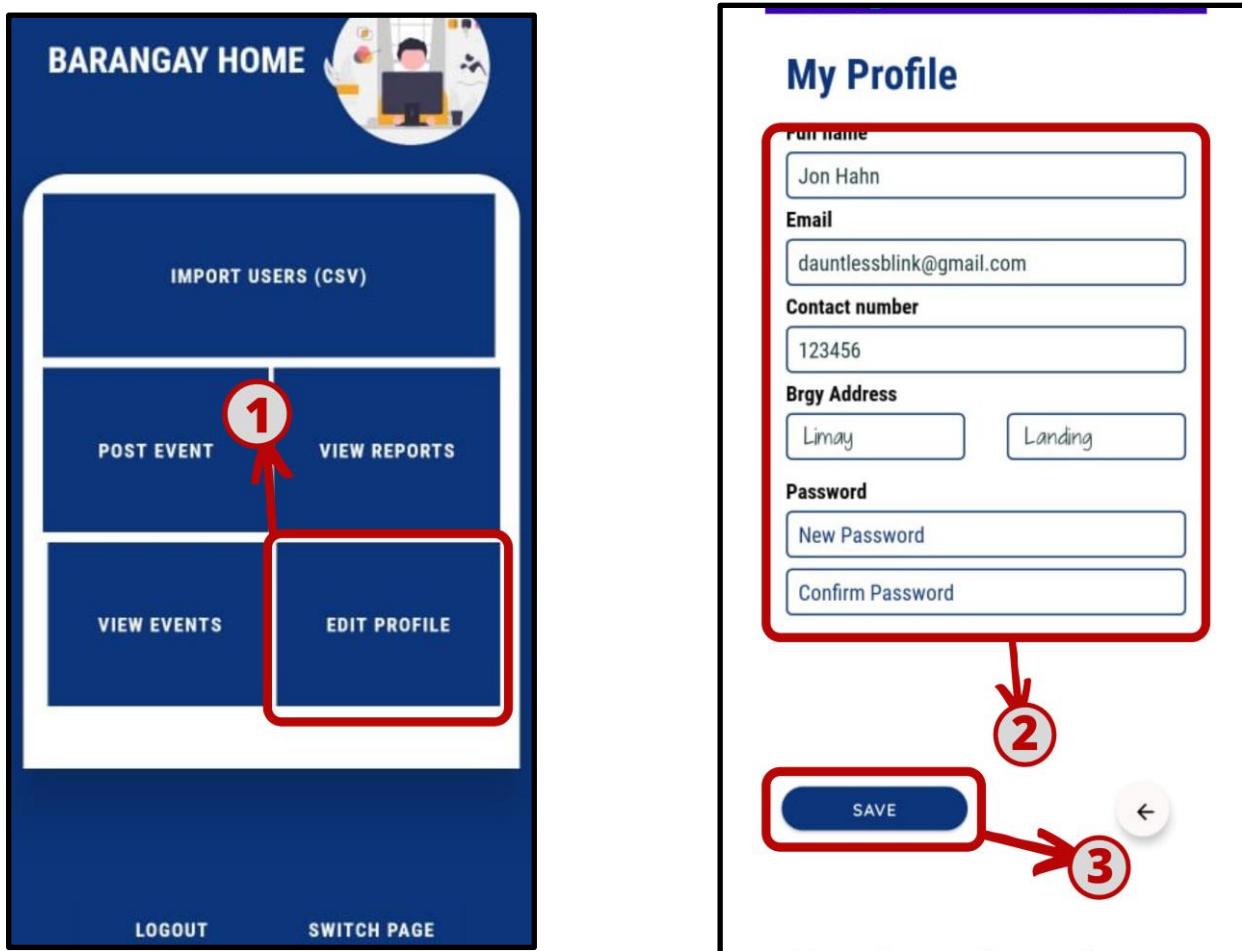
- Click the View Reports button.
- Click the No Action button to view the status level of the incident.
- Click the view button to view the attached image on the submitted incident report.
- Click the notify button to notify the residents that the barangays are on their way to the incident.
- Click the call button to contact the resident that submitted the incident report.

- The developed system can allow the barangay admin to view the events posted through View Events Module. The following are the steps to do it:



- Click the View Events Button
- Click the View Image button to view the image attached in the announcement.
- Click the Edit button to change the details of the posted announcement.

- The developed system can allow the barangay admin to edit their information through the Edit Profile module. The following are the steps to do it:



- Click the edit profile button
- Click the textbox you want to edit
- After you edit the information, you can click the save button to save the edited information.

- The developed system can allow the barangay admin to view the information of their residents. The following are the steps to do it:

BARANGAY HOME

1

RESIDENTS INFORMATION

RESIDENT ACCOUNT REQUEST

LOGOUT SWITCH PAGE

Barangay Residents

Full name	Email	Contact
Jamie Homo	saberor.jamie@gmail.com	091211678

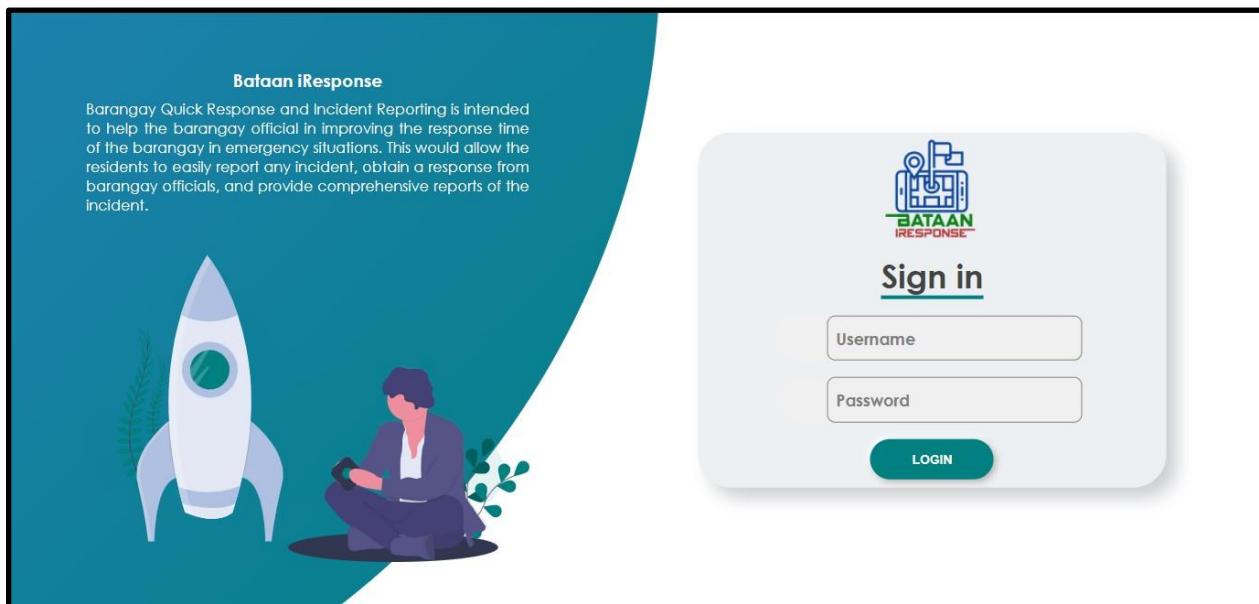
- Barangay admin can view the resident information by clicking on the resident information button

- The developed system can allow the barangay admin to accept or delete the account requested by the resident. The following are the steps to do it:

The image displays two screenshots of a mobile application interface. The left screenshot shows the 'BARANGAY HOME' screen. It features a blue header with the text 'BARANGAY HOME' and a circular profile picture of a person working at a desk. Below the header is a white rectangular area containing a dark blue rectangle with the text 'RESIDENTS INFORMATION' and a large red number '1' with a red arrow pointing to it. Underneath this is another dark blue rectangle with the text 'RESIDENT ACCOUNT REQUEST'. At the bottom of the screen are two buttons: 'LOGOUT' on the left and 'SWITCH PAGE' on the right. The right screenshot shows the 'BARANGAY APPLICANTS' screen, which has a dark blue header with the same text. Below the header is a white rectangular area containing three input fields: 'Full name', 'Email', and 'Contact'.

1. Residents can request an account by clicking on the resident account request button.

- The developed system allows the Bataan admin to log In. The following are the steps to do it:



1. Click the username textbox to add the admin account
2. Click the password and enter the admin password
3. Click the login button to log in

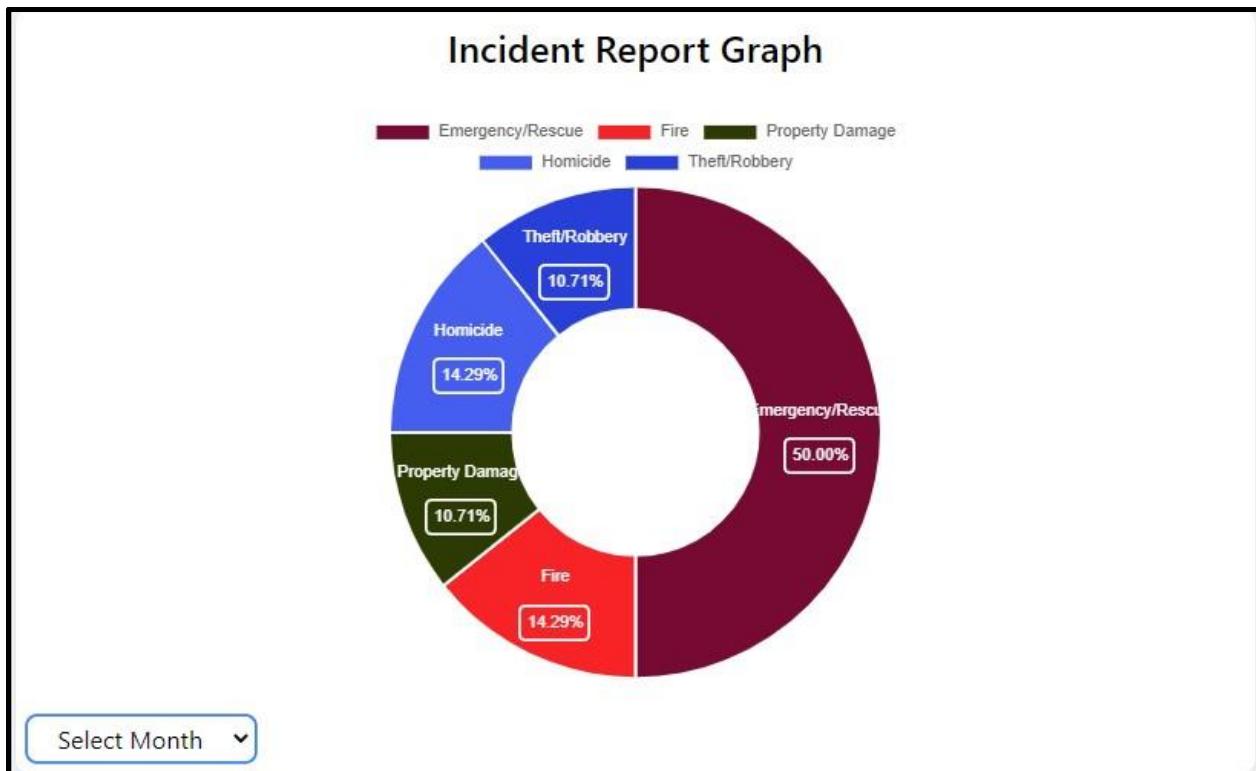
- The developed system allows the Bataan admin to view the incident leaderboard. The following are the steps to do it:

The screenshot shows the Bataan Response > Dashboard page. At the top, there is a blue header bar with the text "Bataan Response > Dashboard" and a "Log Out" button. Below the header, there is a search bar labeled "Filter by Category" with a dropdown menu for "Category" and a dropdown menu for "Select municipality". The main content area is titled "Incident Leaderboard" and features a trophy icon. It displays three categories: "Emergency/Rescue" (Dinalupihan), "Fire" (Limay), and "Property Damage" (Mariveles). Each category is represented by a blue horizontal bar with its name and the corresponding municipality name at the end.

Category	Municipality
Emergency/Rescue	Dinalupihan
Fire	Limay
Property Damage	Mariveles

1. After logging in, the Bataan admin can view the leaderboard which barangay has the most incidents reported.

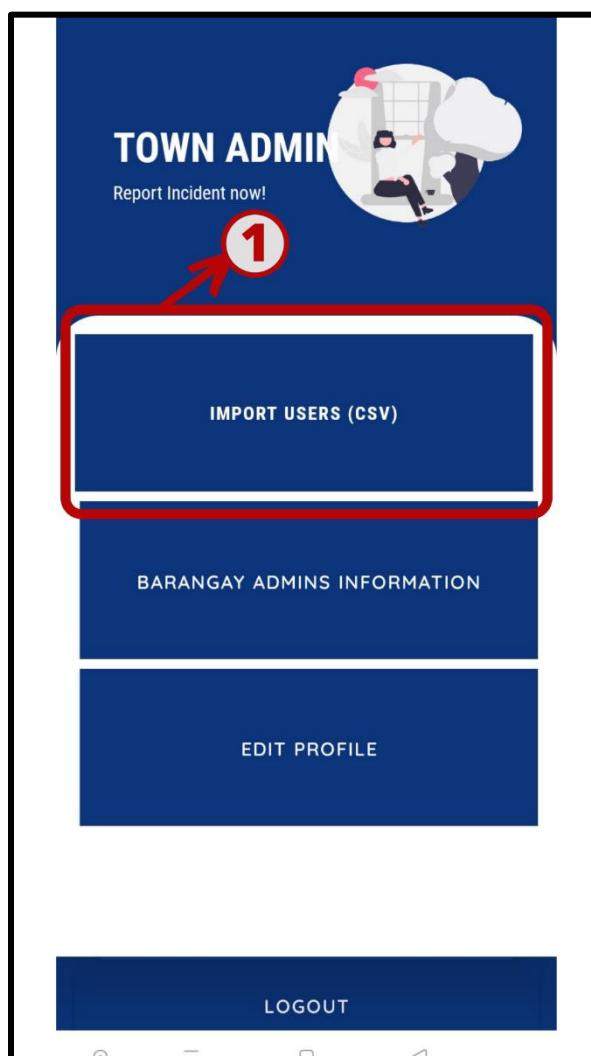
- The developed system can allow the barangay admin to view the incident report graph. The following are the steps to do it:



- Bataan admin can view the graph and view the most incidents reported.
- You can select a month to view the reported incident for the month you choose.

For Town Admin

- The developed system allows the town admin to import the barangay admin information through the Import Users (CSV) module. The following are the steps to do it:



- Click the import users' button (CSV) then browse the file manager to choose your CSV file.

- The developed system allows the town admin to view the barangay admins information. The following are the steps to do it:

TOWN ADMIN

Report Incident now!

1

IMPORT USERS (CSV)

BARANGAY ADMINS INFORMATION

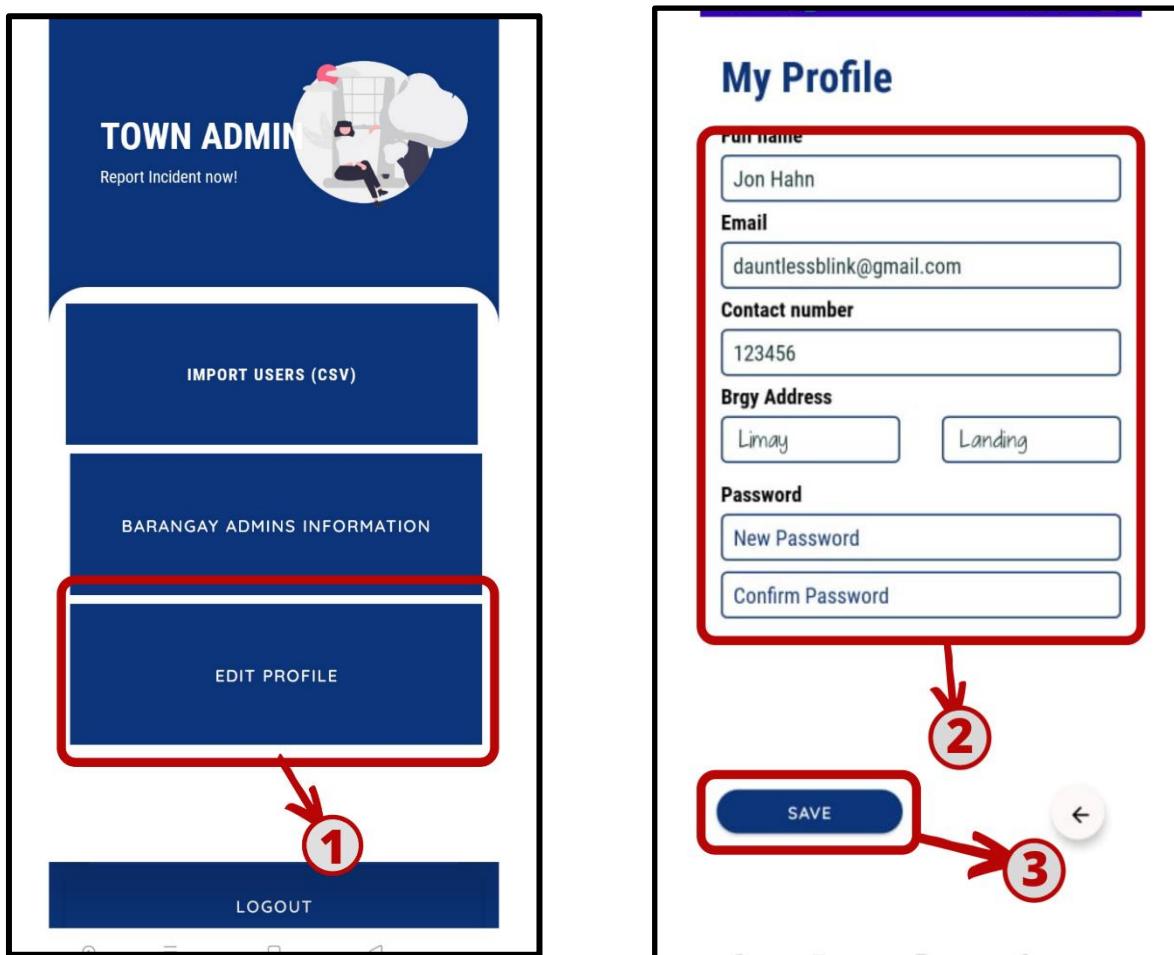
EDIT PROFILE

LOGOUT

Full name	Email	Contact
Jon Prits	dauntlesslink@gmail.com	123456

- click the barangay admins information to view the information of the barangay admins in their perspective municipality.

- The developed system allows the town admin to edit their profile information through Edit Profile module. The following are the steps to do it:



1. click the Edit Profile button.
2. Click the text box that you want to edit your information.
3. Click the save button to successful update your information.

Researcher's Profile

JAQUELENE KATE B. GUSI

Saint Anne Subd. Cupang
Proper Balanga Bataan
09123484810
gusijaqueline@gmail.com



COMPUTER SKILLS

- Microsoft OFFICE (Word, Excel, PowerPoint)
- Knowledgeable in Web Design (HTML, CSS)
- Graphics Editing (Photoshop)

SEMINARS/ TRAINING ATTENDED

PhilHealth - Balanga Branch Office Staff Trainee (OJT)

December 2017

PSITE RAITE

Bataan Peninsula State University
November 2021

AWARDS/RECOGNITION

Microsoft Technology Associate

June 2021

Cyber Security Foundation Professional

Certificate

March 2021

EDUCATION

TERTIARY

BS Information Technology
Bataan Peninsula State University
2018-Present

SECONDARY

City of Balanga National Highschool
Eastwoods Academy

PRIMARY

Cupang Elementary School

PERSONAL INFORMATION

Age	:	21 yrs. Old
Date of Birth	:	May 19, 2000
Gender	:	Female
Civil Status	:	Single
Height	:	155cm
Weight	:	47 kgs.
Nationality	:	Filipino
Religion	:	Roman Catholic

CHARACTER REFERENCES

Cherry Collera

Thesis Adviser
Bataan Peninsula State University
Main Campus, Balanga Bataan
cacollera@bpsu.edu.ph

Cristina G. Rivera, MSCS

Dean/CICT
Bataan Peninsula State University
Main Campus, Balanga Bataan

Jennice Anne Marie Tolentino

Senior High School Adviser
EASTWOODS Academy
09167061707

I hereby certify that the above-stated information is true and correct to the best of my knowledge and belief.

A handwritten signature in black ink, appearing to read "jaqueline kate b. gusi".

JAQUELENE KATE B. GUSI

(Signature Over Name)

EDLINE R. MANGALIMAN

99 Mh Del Pilar St. Bayan
Orani, Bataan
09300484016
edlinekonata@gmail.com



COMPUTER SKILLS

- Microsoft OFFICE (Word, Excel, PowerPoint)
- Graphics Editing (Photoshop, Illustrator)
- WEB Development & Design (PHP, HTML, CSS)

SEMINARS/ TRAINING ATTENDED

PSITE RAITE

Bataan Peninsula State University
November 2021

AWARDS/RECOGNITION

Microsoft Technology Associate

June 2021

Cyber Security Foundation Professional

Certificate

March 2021

EDUCATION

TERTIARY

BS Information Technology
Bataan Peninsula State University
2018-Present

SECONDARY

Bataan National High School
Roman Superhighway,
City of Balanga, Bataan

PRIMARY

Orani North Elementary School
National Road Balut Orani, Bataan

PERSONAL INFORMATION

Age	:	22 yrs. Old
Date of Birth	:	November 5, 1999
Gender	:	Female
Civil Status	:	Single
Height	:	158cm
Weight	:	46 kgs.
Nationality	:	Filipino
Religion	:	Roman Catholic

CHARACTER REFERENCES

Cherry Collera

Thesis Adviser
Bataan Peninsula State University
Main Campus, Balanga Bataan
cacollera@bpsu.edu.ph

Cristina G. Rivera, MSCS

Dean/CICT
Bataan Peninsula State University
Main Campus, Balanga Bataan

Reson D. Gregorio

Senior High School Adviser
Bataan National High School
Balanga, Bataan.
resongregorio@deped.gov.ph

I hereby certify that the above-stated information is true and correct to the best of my knowledge and belief.

A handwritten signature in black ink, appearing to read "Edline R. Mangaliman".

EDLINE R. MANGALIMAN

(Signature Over Name)

ANGELIKA GALICIA PANGILINAN



0036 Sampaloc St.
Landing, Limay, Bataan.
Tel [Mobile Number]: (+63) 9509274763
Email Address: pangilinanangel20@gmail.com

COMPUTER SKILLS

- Proficient in Microsoft Office (Word, Excel, PowerPoint, Access)
- Proficient in Adobe (Photoshop)
- Knowledgeable in Web Design (HTML, CSS)
- Knowledgeable in Scripting Language (PHP, JavaScript)

SEMINARS/ TRAINING ATTENDED

ADMIN OFFICE ASSISTANT (OJT)

Whessoe Philippine Construction inc.
September 2018

BE WEB APP READY

Limay Senior High School
August 2018

PSITE RAITE

Bataan Peninsula State University
November 2021

AWARDS/RECOGNITION

Microsoft Technology Associate

June 2021

Cyber Security Foundation Professional

Certificate

March 2021

EDUCATION

COLLEGE

BS Information Technology
Bataan Peninsula State University
2018-Present

SENIOR HIGH SCHOOL

Computer Programming

Limay Bataan
2017-2018

JUNIOR HIGH SCHOOL

Mariveles National High School (Alion)
2013-2016

PERSONAL INFORMATION

Age	:	21 yrs. Old
Date of Birth	:	April 20, 2000
Gender	:	Female
Civil Status	:	Single
Height	:	5'1
Weight	:	56 kgs.
Nationality	:	Filipino
Religion	:	Roman Catholic

CHARACTER REFERENCES

Cherry Collera

Thesis Adviser
Bataan Peninsula State University
Main Campus, Balanga Bataan
cacollera@bpsu.edu.ph

Cheyser Charreese Gatchula

Computer Programming Adviser
Limay Senior High School
Tundol, Limay Bataan.
09985359425

Ronald Flores

SAP FICO Developer
UnionBank of the Philippines
Puksuan, Orani Bataan.
09493306006

I hereby certify that the above-stated information is true and correct to the best of my knowledge and belief.

ANGELIKA GALICIA PANGILINAN
(Signature Over Name)

DENSIN L. RAMOS



Sta. Monica Tuyo Balanga city, Bataan
09109183311
densramos97@gmail.com

COMPUTER SKILLS

- Microsoft OFFICE (Word, Excel, PowerPoint)
- Graphics Editing (Photoshop)
- Knowledgeable in Web Design (HTML, CSS)

SEMINARS/ TRAINING ATTENDED

PSITE RAITE

Bataan Peninsula State University
November 2021

AWARDS/RECOGNITION

Microsoft Technology Associate

June 2021

Cyber Security Foundation Professional Certificate

March 2021

WORK EXPERIENCE

Mentoring For Work Service Inc.

Service Crew
January, 2019

Eddie and Yahu "G" Food Corp.

Service Crew
March 2020

EDUCATION

TERTIARY

BS Information Technology
Bataan Peninsula State University
2018-Present

SECONDARY

EASTWOODS Academy

A.H Banzon st. Ibayo Balanga city Bataan

PRIMARY

Balanga Elementary School
Talisay Balanga City, Bataan

PERSONAL INFORMATION

Age	:	23 yrs. Old
Date of Birth	:	November 19, 1998
Gender	:	Male
Civil Status	:	Single
Height	:	178cm
Weight	:	55 kgs.
Nationality	:	Filipino
Religion	:	Iglesia ni Cristo

CHARACTER REFERENCES

Cherry Collera

Thesis Adviser
Bataan Peninsula State University
Main Campus, Balanga Bataan
cacollera@bpsu.edu.ph

Krit Angeles

Assistant Restaurant Manager
Eddie and Yahu "G" Food Corp. Main Capitol
Drive Balanga City Bataan
09073463572

Eric Almoguerra

College & Senior High Teacher
EAST Academy
Ibayo, Balanga City, Bataan.

I hereby certify that the above-stated information is true and correct to the best of my knowledge and belief.


DENSIN L. RAMOS

(Signature Over Name)