UNIVERSITI UTARA MALAYSIA

PRACTICUM REPORT
SEM I 2017/2018 (A171)

PERSATUAN AKADEMIA UNIVERSITI UTARA MALAYSIA (PERSATU) ANDROID APPLICATION

BY:
MODAK SUBIR (235846)

SCHOOL OF COMPUTING
COLLEGE OF ARTS AND SCIENCES

PERSATUAN AKADEMIA UNIVERSITI UTARA MALAYSIA (PERSATU) ANDROID APPLICATION

School of Computing (SOC).
| University Utara Malaysia | 06010 | Sintok |
| Kedah Darul Aman | Malaysia |

This report is prepared to fulfil the requirement of
STIX3912 Practicum

By:
MODAK SUBIR
235846

ACKNOWLEDGEMENT

"If I lose, it will not mean that it was impossible to win."

- Che Guevara

Working in the School of Computing, University Utara Malaysia was interesting. During these six months of internship, I learnt a lot on Information Technology, especially on Android Application Development.

Successfully completion of any type of project requires helps from a number of persons. I have also taken help from different people for the preparation of this report. Now, there is a little effort to show my deep gratitude to that helpful person.

I convey my sincere gratitude to my Company Supervisor Madam Noraziah Che Pa, Senior Lecturer, School of Computing, University Utara Malaysia. Without her kind direction and proper guidance this study would have been a little success. In every phase of the project her supervision and guidance shaped this report to be completed perfectly.

Therefore, I am grateful to the colleagues of School of Computing, UUM to give a clear idea about the PERSATU.

I also want to give thanks my university supervisor Mohd Adan Bin Omar. He helps me out with all heart and full commitment.

Last but not the least, my parents and my elder brother are also an important inspiration for me. So with due regards, I express my gratitude to them.

SCHOOL OF COMPUTING
COLLEGE OF ARTS AND SCIENCES

FEBRUARY 2018

DISCLAIMER

STIX3912 PRACTICUM

I am responsible for the accuracy of all opinion, technical comment, factual report, data, figures, illustrations and photographs highlighted in this report. I bear full responsibility that the report submitted has been reviewed and subject to copyright or ownership rights. Universiti Utara Malaysia will not bear any liability for the accuracy of any comment, report and other technical and factual information, and the copyright or ownership right claims.

MODAK SUBIR

235846

EXECUTIVE SUMMARY

Persatuan Akademia Universiti Utara Malaysia (PERSATU) is an organization of Universiti Utara Malaysia (UUM) staff. PERSATU organizes various social and cultural activities for the welfare of the university staff. A website was developed for the PERSATU to get information about its activities and EXCO but it is not enough. Now it is essential to develop an Android based mobile application to make the communication easier among the members and also to check the activities and notification in real time.

Today it is critical to use the old methods of communication and advertisement about any kind of information by posturing, and in this modern era most of the University staffs are using smart phone for well communication and get the news as fast as possible.

To get the information of PERSATU, members and publics must browse the website which takes much time. Mobile application is easier to operate. It also reduce time. Anytime anywhere anyone can get the information only if they have an Android phone and internet connection. Mobile application makes life more comfortable.

PERSATU Android app will have the features such as the information and contact details of the members, List of activities, important dates, gallery and notification about the activities.

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURE

ABBREVIATION

SOC	SCHOOL OF COMPUTING
UUM	UNIVERSITY UTARA MALAYSIA
ADMIN	SYSTEM ADMINISTRATION
PERSATU	PERSATUAN AKADEMIA UNIVERSITI UTARA MALAYSIA
APP	APPLICATION

CHAPTER 1: INTRODUCTION

University Utara Malaysia (UUM) is the organization where I undergo my industrial training for six months. During this period, I am assigned the task to the School of Computing and my role was to develop an Android application for PERSATUAN AKADEMIA UNIVERSITI UTARA MALAYSIA (PERSATU). In this Chapter, I will provide a brief explanation about School of Computing (SOC), as well as its vision, mission and objectives, also the department organizational structure and activities.

1.1 Organization Background

University Utara Malaysia (UUM) is Malaysia's sixth public university established on 16 February 1984 with the sole intention to providing quality business and management education in Malaysia. Situated in the state of Kedah, UUM spans on 1,061 hectares of green, lush campus making it a conducive place to building one's capacity through education, research and training.

School of Computing (SOC) is the academic arm of Universiti Utara Malaysia that focuses on educating and nurturing the innovation of ideas, knowledge and skills related to Computing. SOC is based on four computing platforms; Information Technology, Information System, Computer Science and Software Engineering. All the undergraduate and postgraduate programs offered are tailored to ACM standard with the reviews and guidance from the Academic and Industry advisory committee including Microsoft Malaysia, Malaysia Digital Economy Corporation (MDEC), Malaysians Communication and Multimedia Corporation (MCMC), CyberSecurity Malaysia, CISCO and Malaysia E-Government Services Unit. The two flagship programs, B.Sc. with Honors (Information Technology) and M.Sc. (Information Technology), give the students basic and advanced components of computing that are ample and appropriate to complement our graduates with competitive skills and thoughtful human touch.

For several years since 2011, SOC has been on top among other schools in UUM in the academic achievement including research and publication. The power of these success come from the hardworking and boundless effort of our dedicated researchers. Moving towards to the 2nd Phase of UUM Strategic Planning (2016-2020), SOC aims to be among the top 100 QS World Ranking by subject (Computer Science and Information System). In achieving this target, the School recently has set up the School Center of Excellence (SCoE). Institute for Advanced and Smart Digital Opportunities (IASDO) is coined to spur research and innovation on digital life, digital education, digital services, and big data. Together with IASDO, four research laboratories (InterNetWorks, Data Science, Human-Centered Computing, and Optical Computing) are introduced to strategically plan and drive the research agenda up to the international level. The school also plays an active role as a training provider to other institutions, agencies and communities through our human development unit; Computing Professional Enrichment and Development Division (CoPED).

SOC continues to increase its visibility at the international level through smart and strategic collaborations with several universities including in Indonesia, Thailand, Brunei Darussalam, Turkey, South Korea, Japan, Bahrain, Russia, Iraq, New Zealand and Australia. One of the biggest achievement is UUM, through SOC,

will be organizing a high impact international conference, PACIFIC ASIA CONFERENCE ON INFORMATION SYSTEM 2017 (PACIS 2017), next year in the Island of Langkawi, a world heritage Geopark. PACIS is a very high impact conference under the ASSOCIATION OF INFORMATION SYSTEM (AIS) and is governed and guided by prominent scholars from all over the countries. It is no doubt that through this big event and great partnership, SOC and UUM will continuously "soaring upward"

Supervisor Company

Madam Noraziah Che Pa
Senior Lecturer
Computational Intelligence Group
Human Centred Computing Research Lab
School of Computing, UUM College of Arts & Sciences
University Utara Malaysia, 06010 UUM Sintok, Kedah, Malaysia
Email: aziah@uum.edu.my

1.1.1 Executive Members

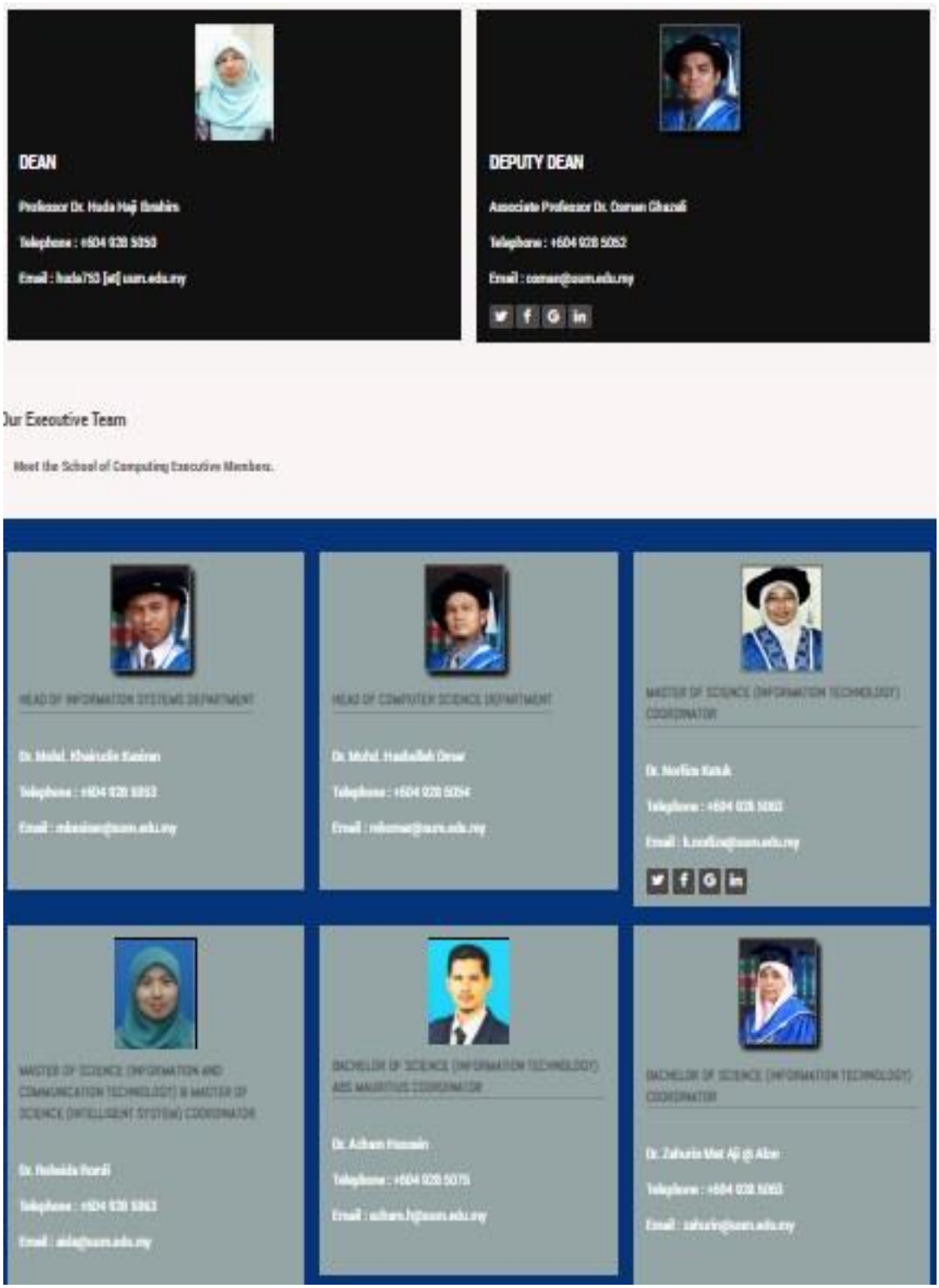


Figure 1.1: SOC Executive Members

1.1.2 Vision and Mission

Vision

To be acknowledge as a center of excellence and main reference in Enterprise Computing.

Mission

To actualize the aspiration of SOC as the centre of excellence and main reference in

i) Teaching and learning
ii) Research and innovation
iii) Publication and consultation
iv) Professional training in the Enterprise Computing related areas.

1.2 Chapter 1 Summary

This chapter discusses about introducing the organizational background, staff and structure, vision and mission and organization activities. I was undergo my industrial training in University Utara Malaysia (UUM), a premier public university in Malaysia. UUM aims to provide quality business and management education to its student. During this six-month period, I was placed in the School of Computing. SOC is an arm under UUM which is the department of students both undergraduate and postgraduate. My task during this training period was to develop the PERSATU Android application. This system will be discussed in greater detail in Chapter 2.

CHAPTER 2: PROJECT DESCRIPTION

2.1 Introduction

Persatuan Akademia Universiti Utara Malaysia (PERSATU) is an organization of Universiti Utara Malaysia (UUM) staff. PERSATU organizes various social and cultural activities for the welfare of the university staff. A website was developed for the PERSATU to get information about its activities and EXCO but it is not enough. Now it is essential to develop an Android based mobile application to make the communication easier among the members and also to check the activities and notification in real time.

Today it is critical to use the old methods of communication and advertisement about any kind of information by posturing, and in this modern era most of the University staffs are using smart phone for well communication and get the news as fast as possible.

To get the information of PERSATU, members and publics must browse the website which takes much time. Mobile application is easier to operate. It also reduce time. Anytime anywhere anyone can get the information only if they have an Android phone and internet connection. Mobile application makes life more comfortable.

PERSATU Android app will have the features such as the information and contact details of the members, List of activities, important dates, gallery and notification about the activities

2.2 Problem Statement

There is no mobile application that can provide information to the PERSATU members. PERSATU members are facing difficulties in obtaining the latest information regarding the latest news, activities and message from the EXCO. PERSATU have existing websites but it is still under development. It is not easy to browse the website in a mobile device. In this modern era, most of the University every single department having their own mobile application. That can help students and staffs to get the information faster via using smart phone for well communication and get the news as fast as possible. In this case, PERSATU are left behind and can’t provide the best service to the staffs as fast as possible. So it is the best time to develop an Android application for PERSATU to provide better experience in terms of activities and information.

2.3 Project Objective

The objective of this project are:

a) To develop a mobile platform for PERSATU members.
b) To plan how to develop this application.
c) To gather requirements.
d) To design the flow and interfaces.
e) To test the system

2.4 Project Scope

PERSATU will be an Android mobile-based application.

The app will be connected with the PERSATU website database. This app will have sign-in option with email and password, notification and information about PERSATU activities. It will be developed for PERSATU members and publics.

The duration of the project is up to six months according to the practicum duration. The application must be developed as proposed in the deadline. Within the first month, works is to propose the documentation which includes the project proposal preparation and the project requirement analysis. By the end of the months number five, project must be completed and there will be lecturer visiting to the company.

2.5 Project Significance

The development of this mobile application will help the members in obtaining the latest information about member's welfare and support. This mobile application will help the members to get important information regarding current activities. Members will be well informed about the upcoming opportunities through the application. Members will communicate through messaging.

2.6 Chapter 2 Summary

This chapter discusses about the project description. The project will help the PERSATU members to get the information about PERSATU and at the same time it will help PERSATU admin to easier to send the information to the members faster. In this chapter clearly explain about the Project Background, Project Problem Statement, and Project objective, Project Scope, Project Significance and the Duration of the project.

CHAPTER 3: PROJECT PLANNING

3.1 Methodology

There are several methods that can be used to develop PERSATU. Based on the comparison between several method such as waterfall, incremental and RAD (Rapid Application Development), the RAD (Rapid Application Development) model was chosen in development this mobile applications. This is because the RAD method has several features that must be needed to build PERSATU.

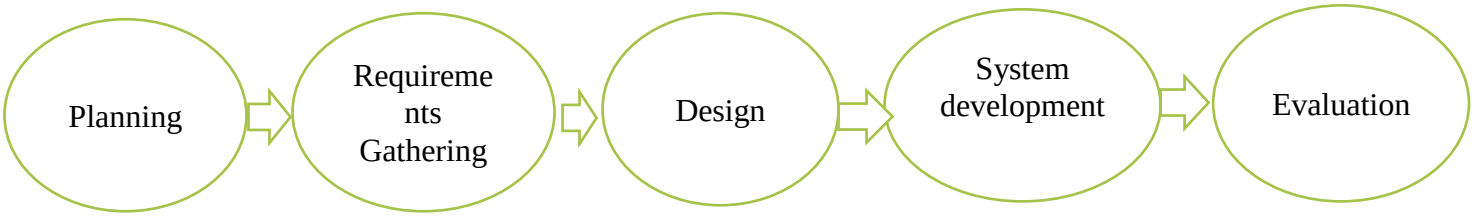


Figure 3.1: Project methodology

3.1.1 1st Phase: Planning

Planning is very important phase to run a project successfully. To build the Android based application PERSATU at first it need to plan that how to build the application. What will be the environment and which software & programming language will be used that will be planned. It will also be planned that how much time needed every week and what will be cost. Also will meet the members to get sufficient information about the PERSATU.

3.1.2 2nd Phase: Requirements Gathering

Requirements Gathering is one of the vital phase of Software development project. A successful project starts with a difficult set of discussions on what should be done. It's the main responsibility of IT Business Analyst to gather the Requirements from the clients. Sometimes it is harder to get the correct requirements from the clients. A project will be rich if the Analyst can gather correct and complete requirements.

It is important to pick the right methods which work best for gathering requirements. Clear, concise, correct and measurable set of Requirements ensure developing quality software as per client needs.

3.1.2.1 Requirements Gathering Techniques

There are many techniques available for gathering the requirements. Different techniques have different scenario. To gather the correct and complete requirements most of the time Analyst uses multiple techniques. Some of the most common techniques are Interviews, Questionnaires, Prototyping, Document Analysis and Observation.

To gather requirements for this project, interviews of clients have done. Asking certain Questions regarding to their requirements make it beneficial to get correct requirements. Asking question about the problem of current system, what actually they need and also the activities of PERSATU helps a lot to gather requirements. Document analysis and Observation are also done to get correct and important requirements.

The following functional requirements (FR) and non-functional requirements (NFR) have to be addressed in the project.

FR1: Two types of user: A user can use the application as a member or as a admin. As a member a user can get all the facilities of the application.

FR2: Log In: Admin can log in by using email and password. Email and password are stored in Firebase Real time database.

FR3: Contribution: Member can enter both apply contribution and gallery of contribution. Member can apply for contribution though the application.

FR4: Get notification: A user can get notification of activities of PERSATU.

FR5: Request membership: Guest user can request membership. Member can see profile.

FR6: See exco profile: A user can see exco profiles.

NFR1: The app should be intuitive to use and the user interface should be easy to understand. All interactions should be completed in less than three clicks.

NFR2: Conformance to guidelines: The design of the app should conform to the usability guidelines for the chosen operating system.

NFR3: Target platform: The app has to be developed in Java.

NFR4: Backend system: The customer provides a backend system with a couple of services that have to be used in the app.

3.1.2.2 Additional constraints:

- The version control system must be git.
- Source code documentation must be in HTML format.

3.1.2.3 Target Environment:

The application should be demonstrated in Java.

3.1.2.4 Deliverables:

- Requirements Analysis Document (RAD)
- System Design Document (SDD)
- Source code under version control including source code documentation

3.1.2.5 Client Acceptance Criteria:

The app must demonstrate at least the following functionality: Admin can sign in and can use full features. User can browse exco profile, can see the activities, Gallery of contribution. The app communicates with the backend system provided by the customer and conforms to the usability requirements.

3.1.3 3rd Phase: Design

A good design can make an application attractive to its users. So design is a very important phase. In this phase flow, interface and database were designed. Flow chart of the development process and UML diagram were designed. Database design was done in this phase by using UML diagram. Also user interface was designed to make the app more popular among the users.

3.1.3.1 UML Diagrams

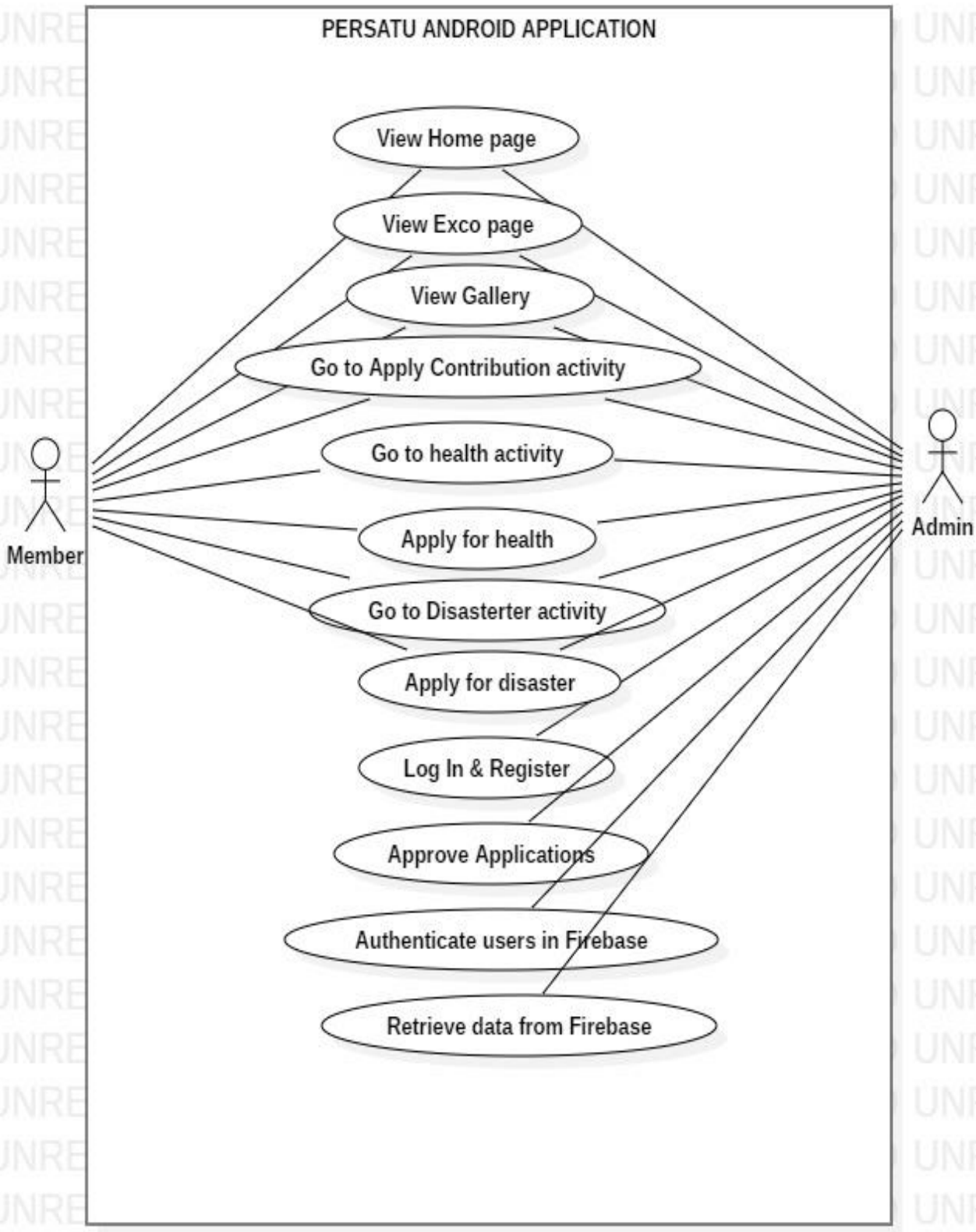


Figure 3.2: Use Case of PERSATU Android Application

1. PERSATU_01 Member Home Page

   Member can click Home button to see home page.

Use Case Diagram

Figure 3.3: Use Case Diagram for Member Home Page

Activity Diagram

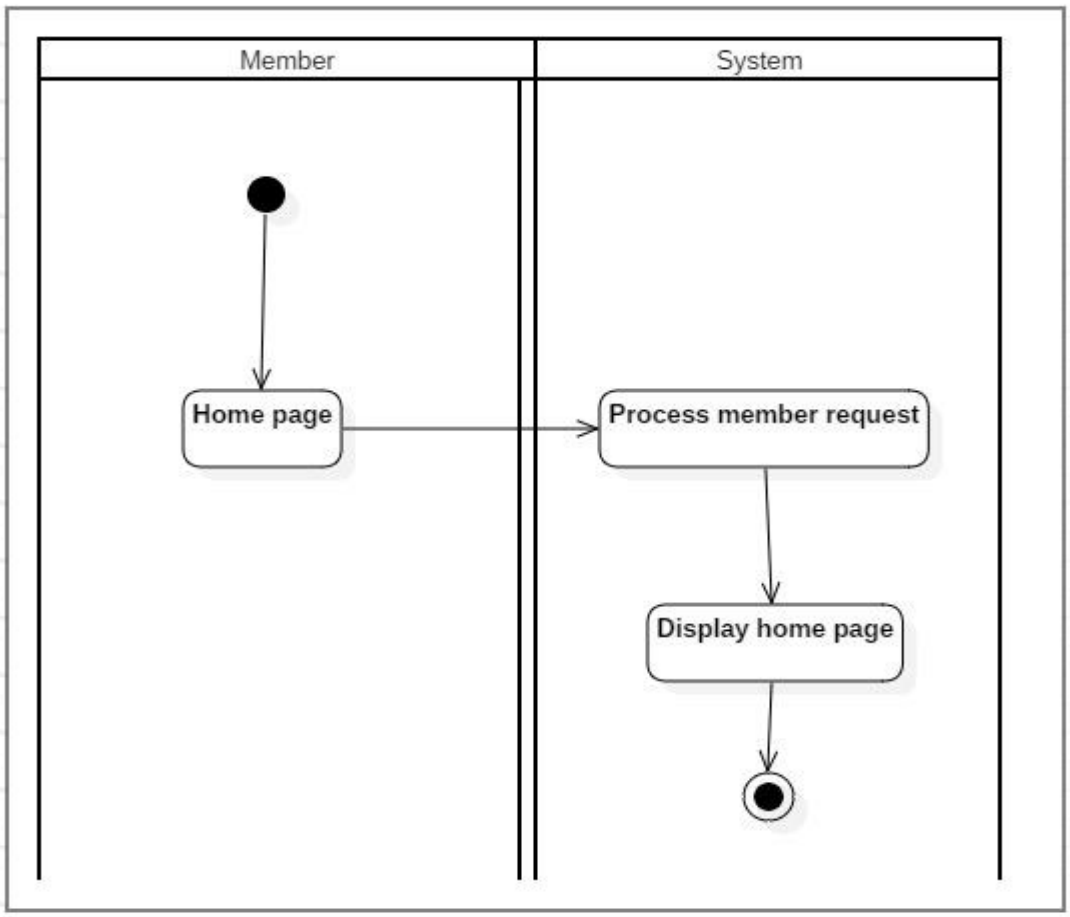


Figure 3.4: Activity Diagram for Member Home Page

Sequence Diagram

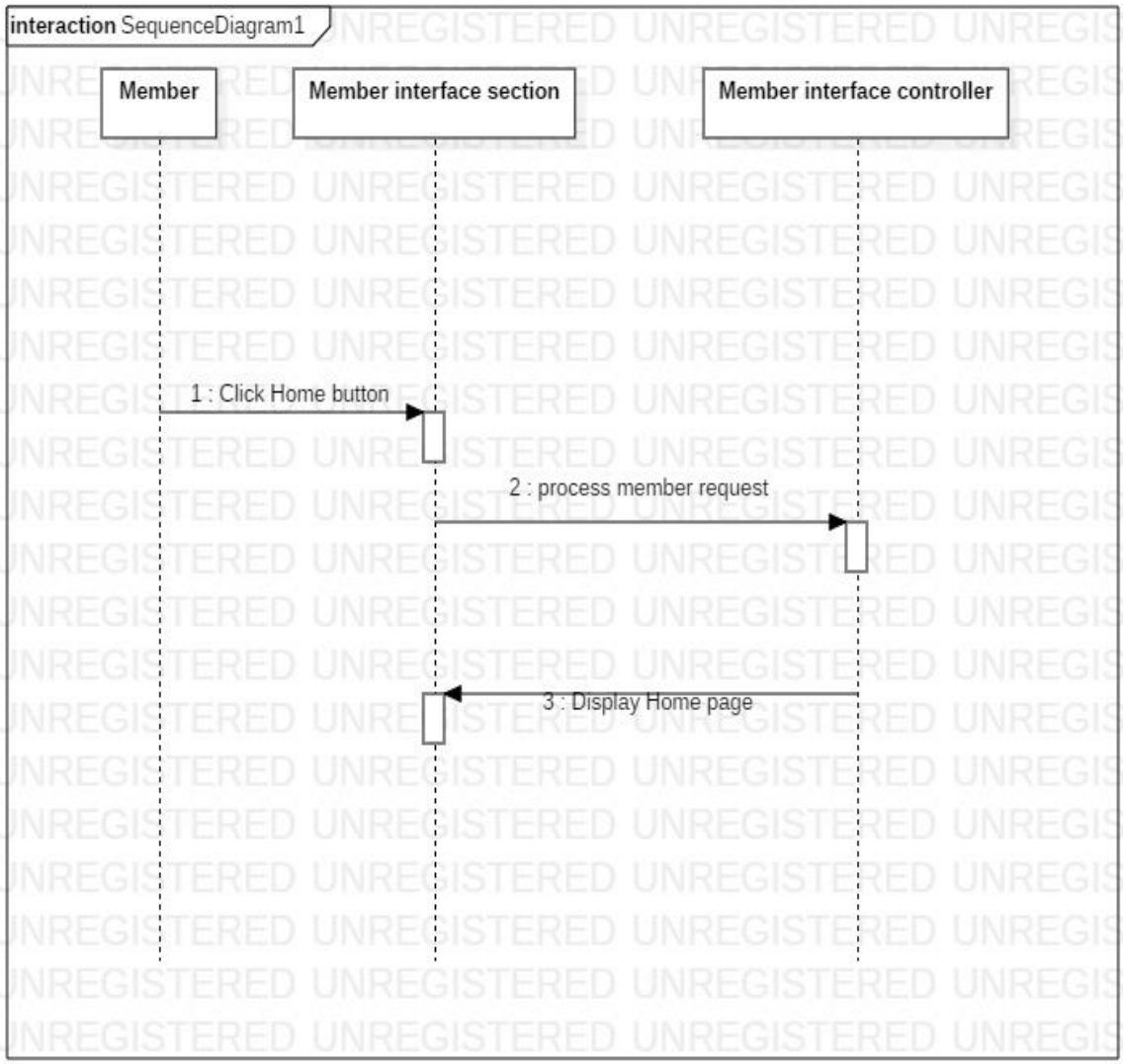


Figure 3.5: Sequence Diagram for Member Home Page

2. PERSATU_02 Member Exco Page

   Member can click Exco button and see Exco profile.

Use Case Diagram

Figure 3.6: Use Case Diagram for Member Exco activity

Activity Diagram

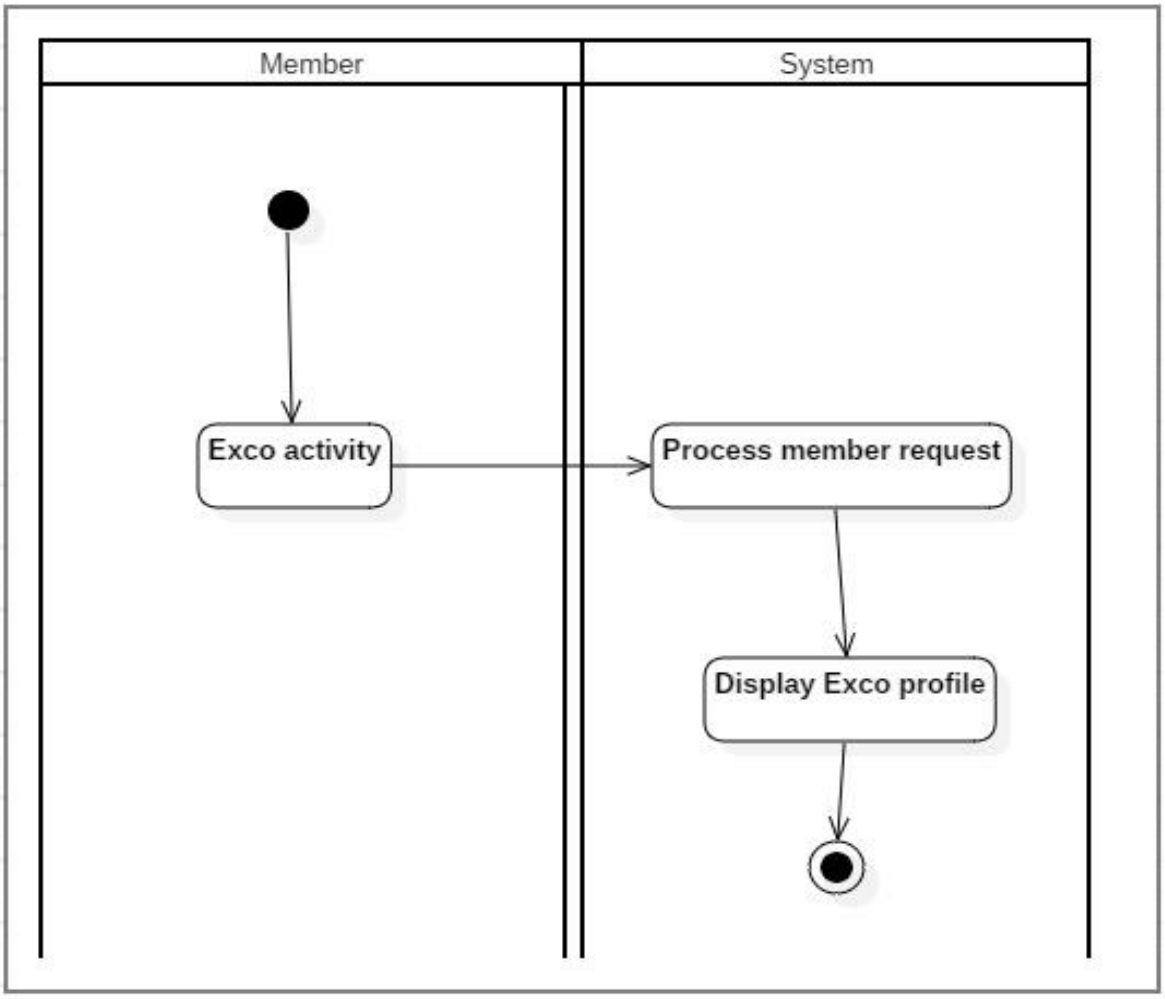


Figure 3.7: Activity Diagram for Member Exco activity

Sequence Diagram

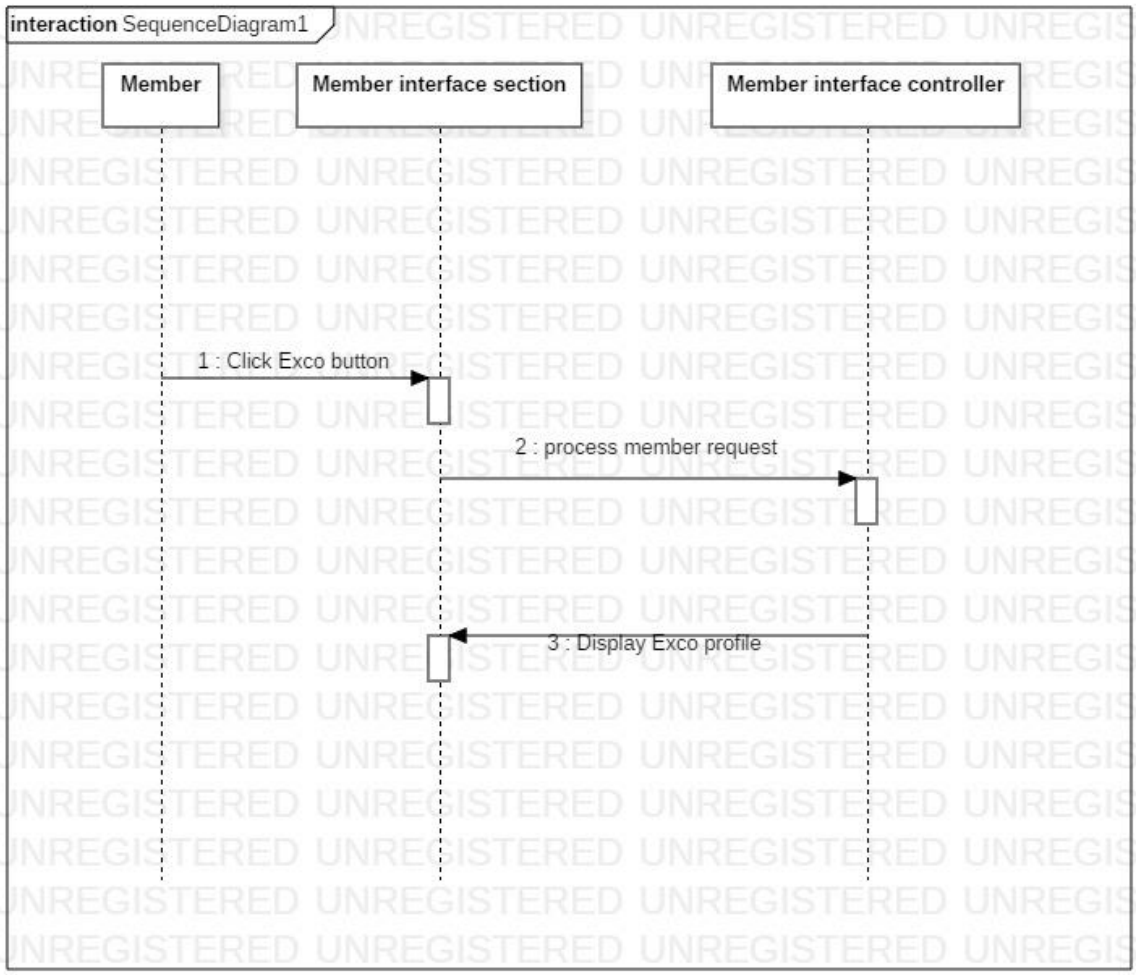


Figure 3.8: Sequence Diagram for Member Exco activity

3. PERSATU_03 Member Gallery Activity

   Member can click Gallery button and see photos.

Use Case Diagram

Figure 3.9: Use Case Diagram for Member Gallery activity

Activity Diagram

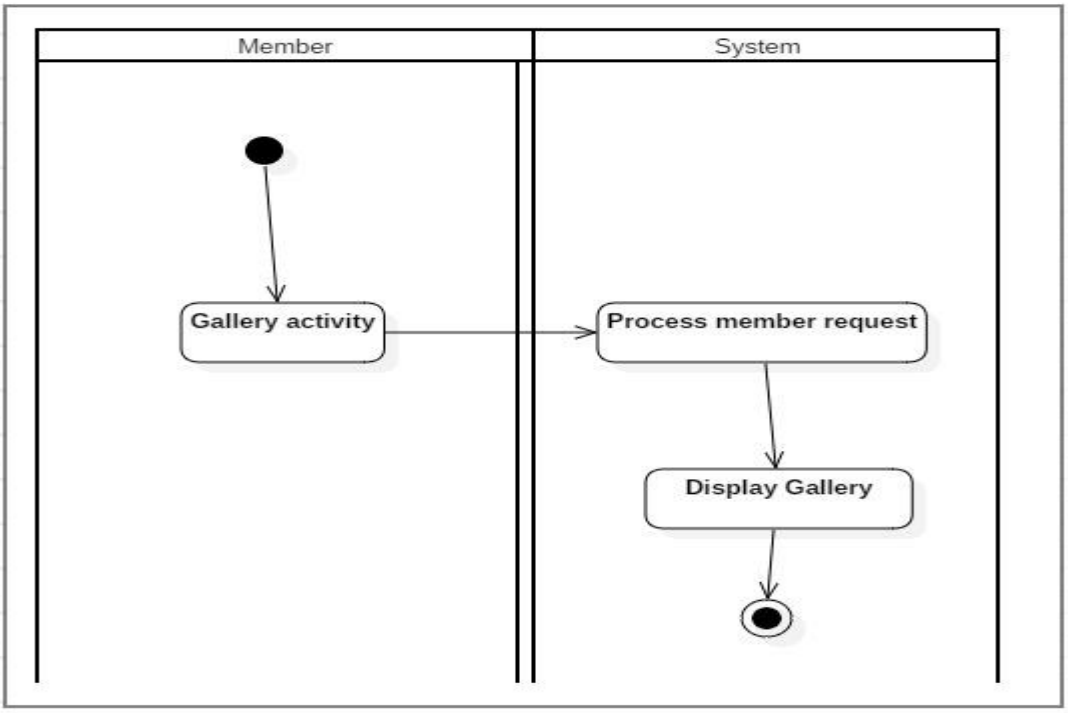


Figure 3.10: Activity Diagram for Member Gallery activity

Sequence Diagram

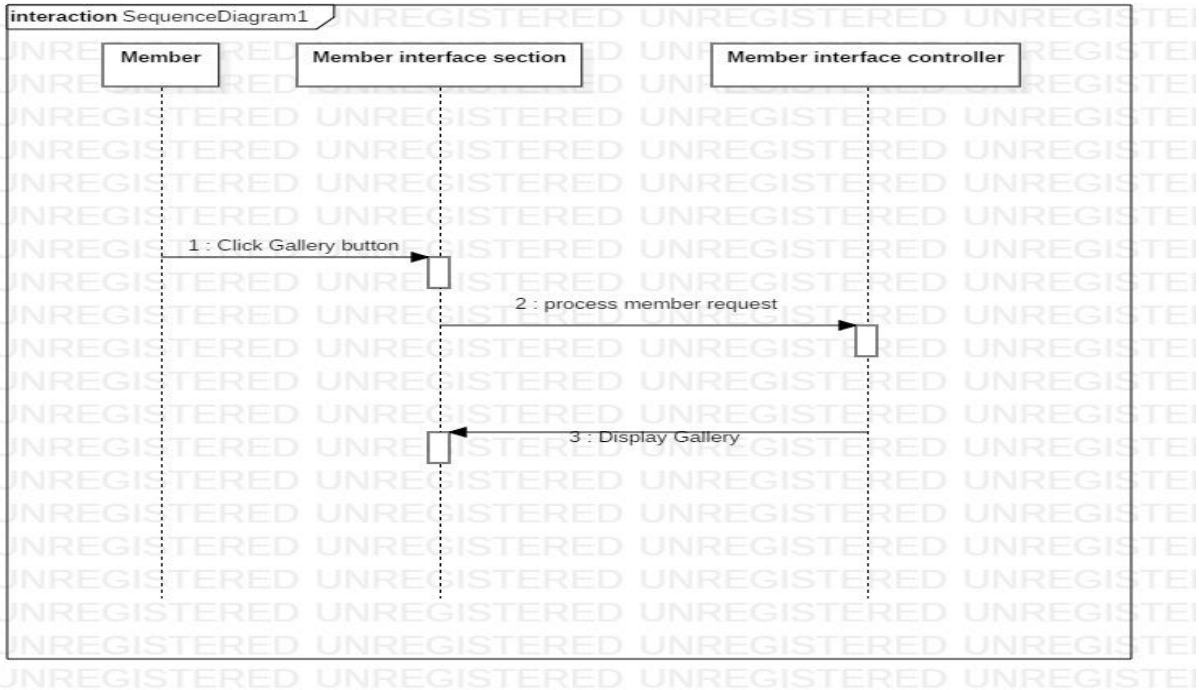


Figure 3.11: Sequence Diagram for Member Gallery activity

4. PERSATU_04 Member Button Activity

   User can click Member button and view Apply Contribution activity.

Use Case Diagram

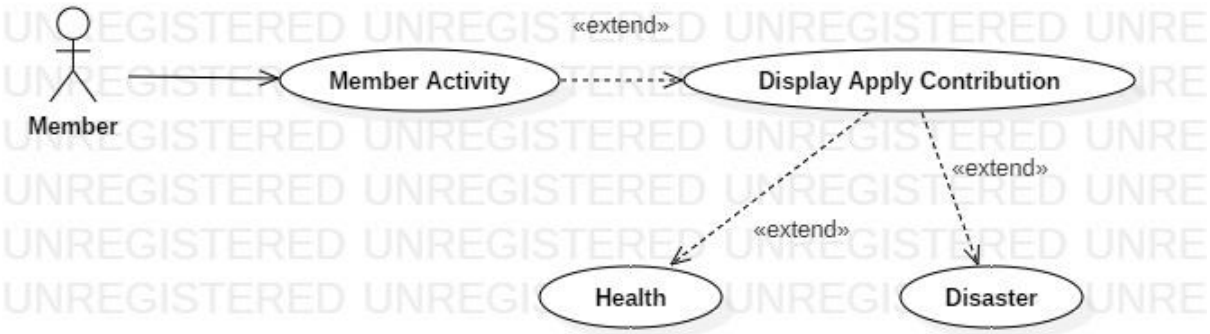


Figure 3.12: Use Case Diagram for Member Button activity

Activity Diagram

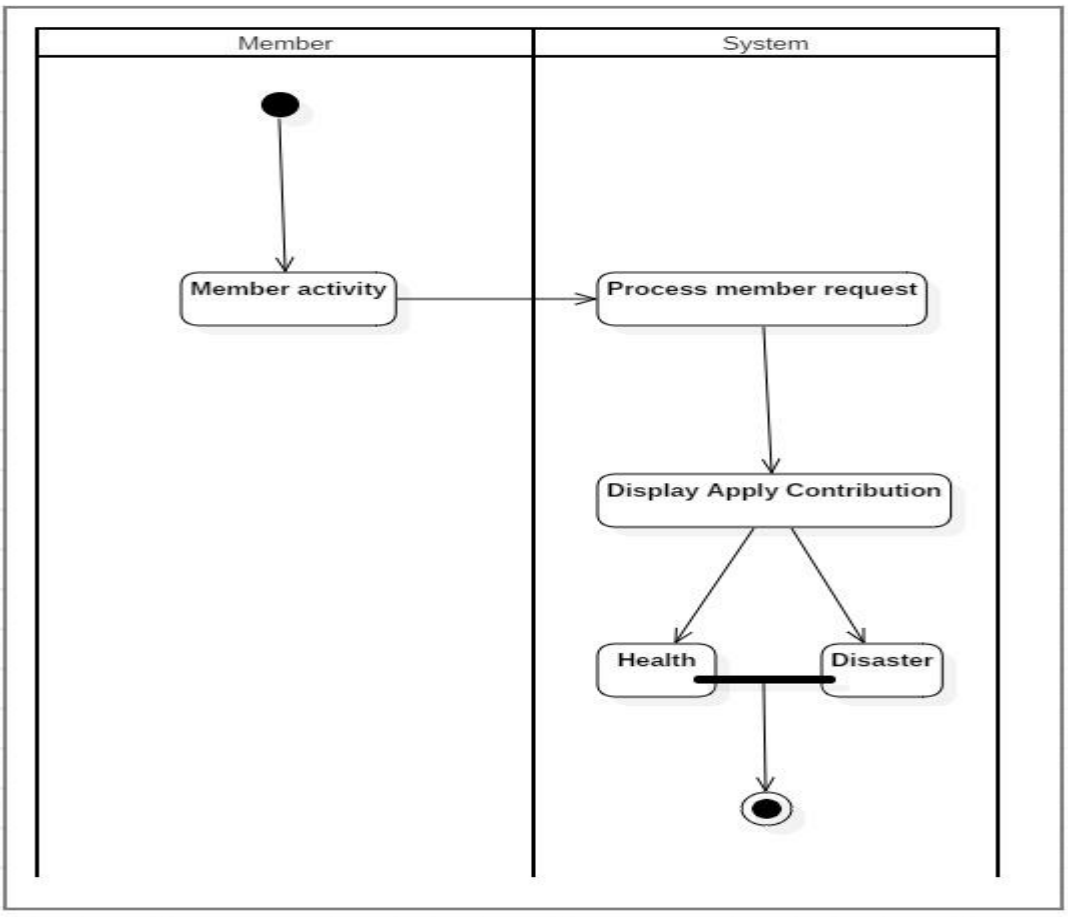


Figure 3.13: Activity Diagram for Member Button activity

Sequence Diagram

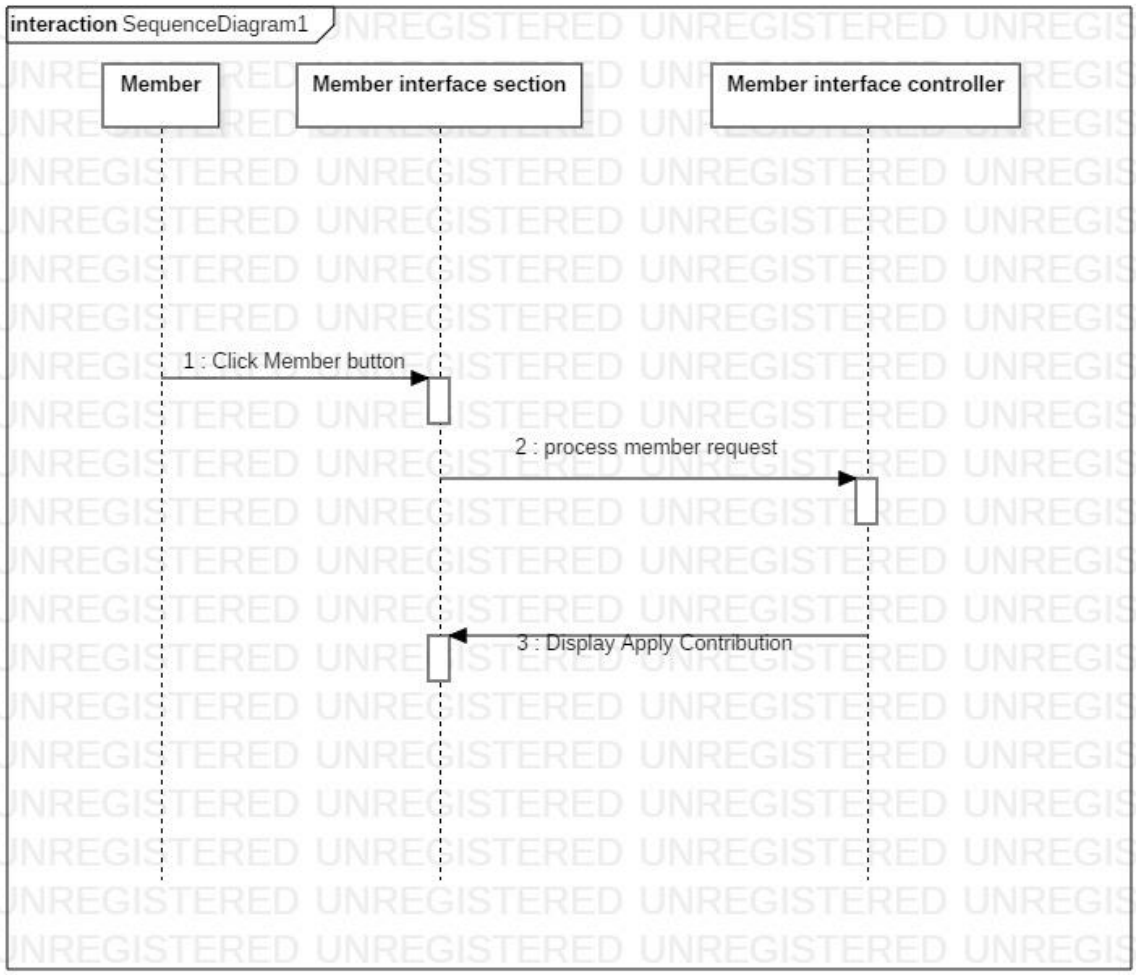


Figure 3.14: Sequence Diagram for Member Button activity

5. PERSATU_05 Health Button Activity

   User can click Health button and apply for health.

Use Case Diagram

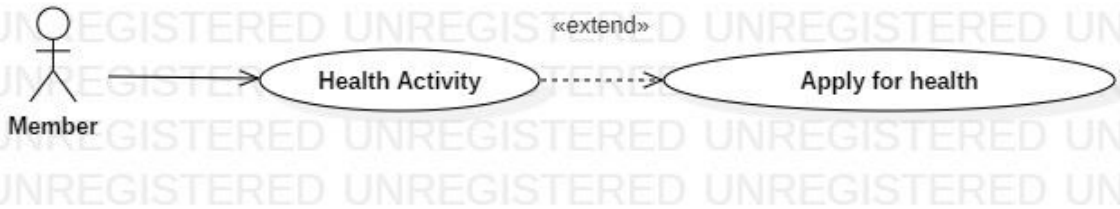


Figure 3.15: Use Case Diagram for Health activity

Activity Diagram

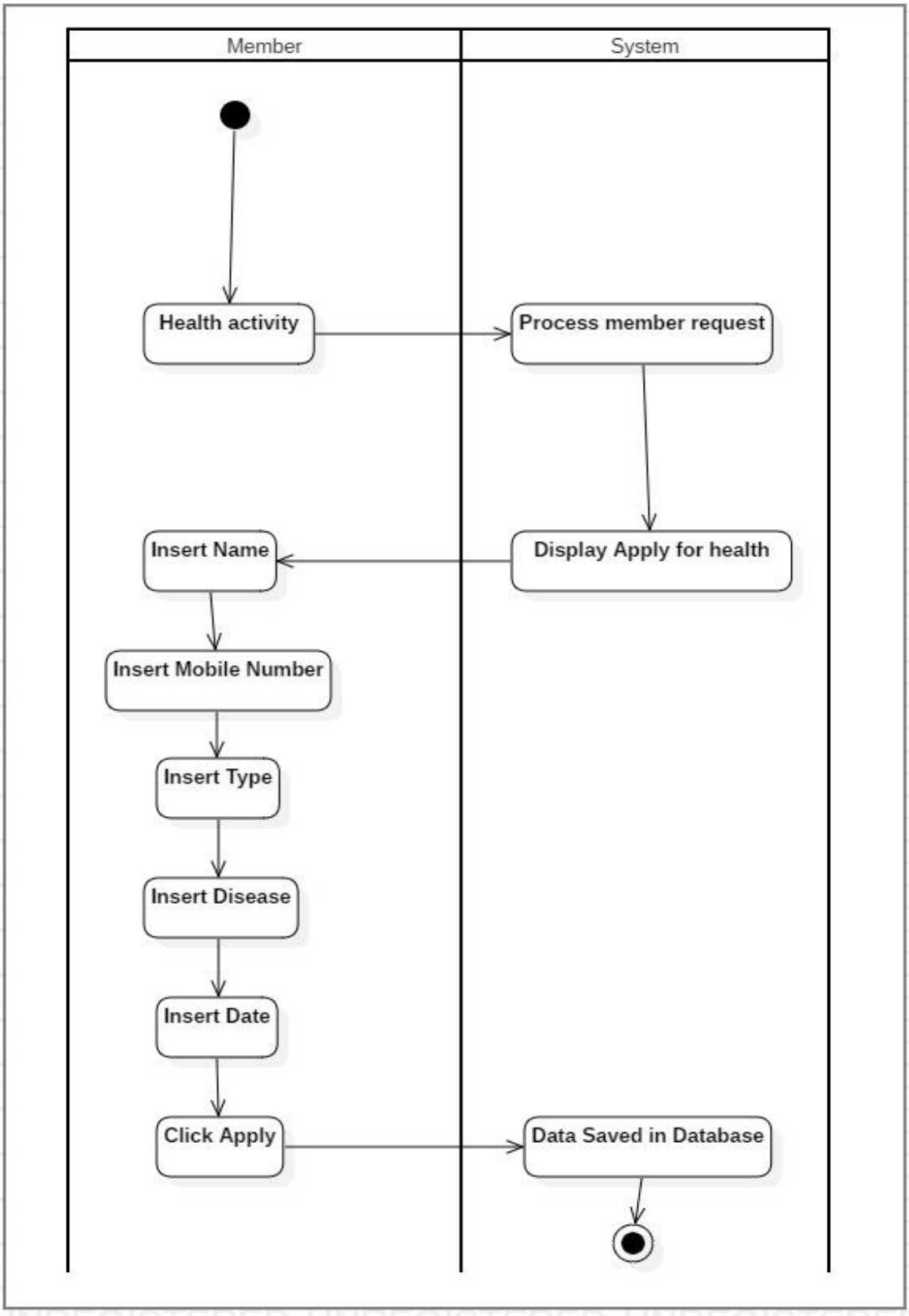


Figure 3.16: Activity Diagram for Health activity

Sequence Diagram

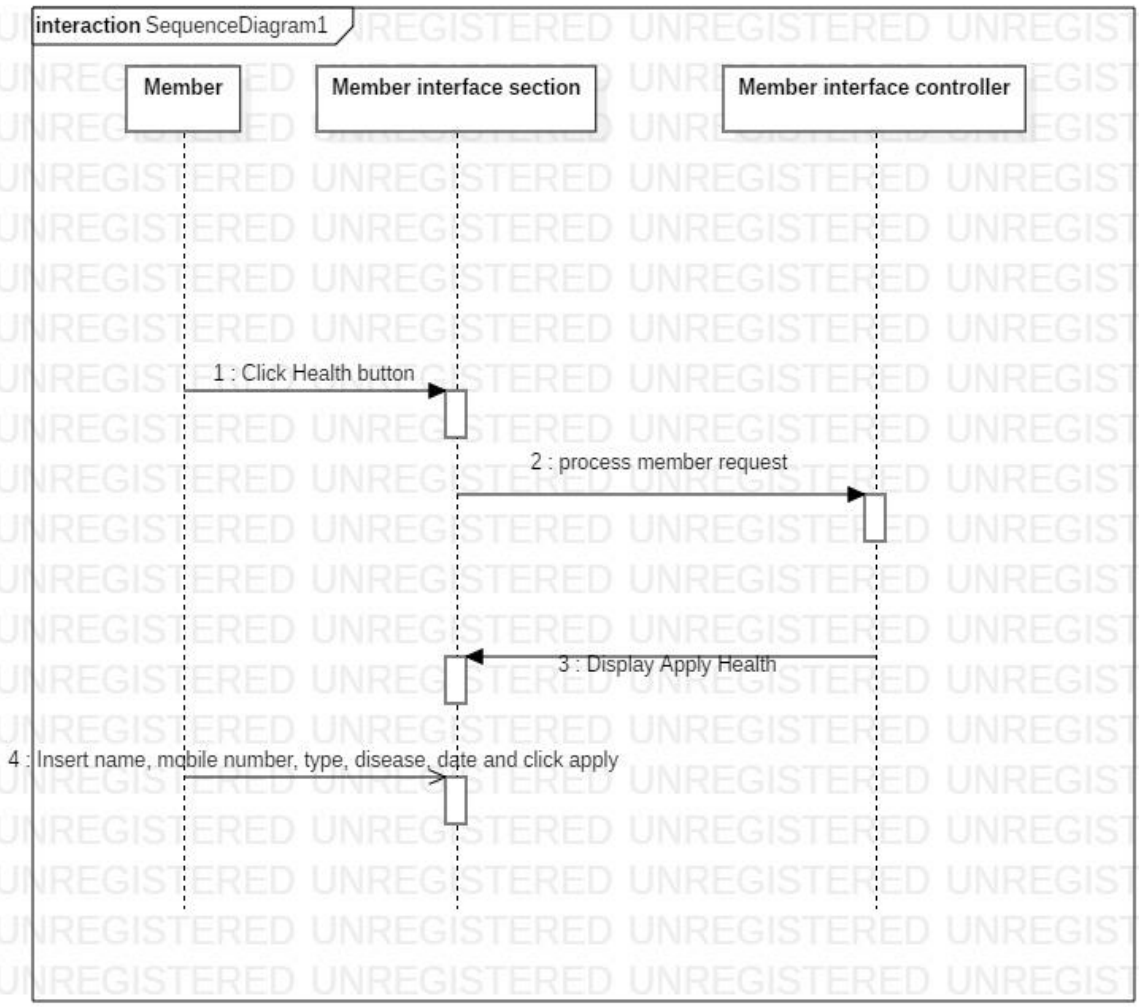


Figure 3.17: Sequence Diagram for Health activity

6. PERSATU_06 Disaster Button Activity.

   User can click Disaster button and apply for disaster.

Use Case Diagram

Figure 3.18: Use Case Diagram for Disaster activity

Activity Diagram

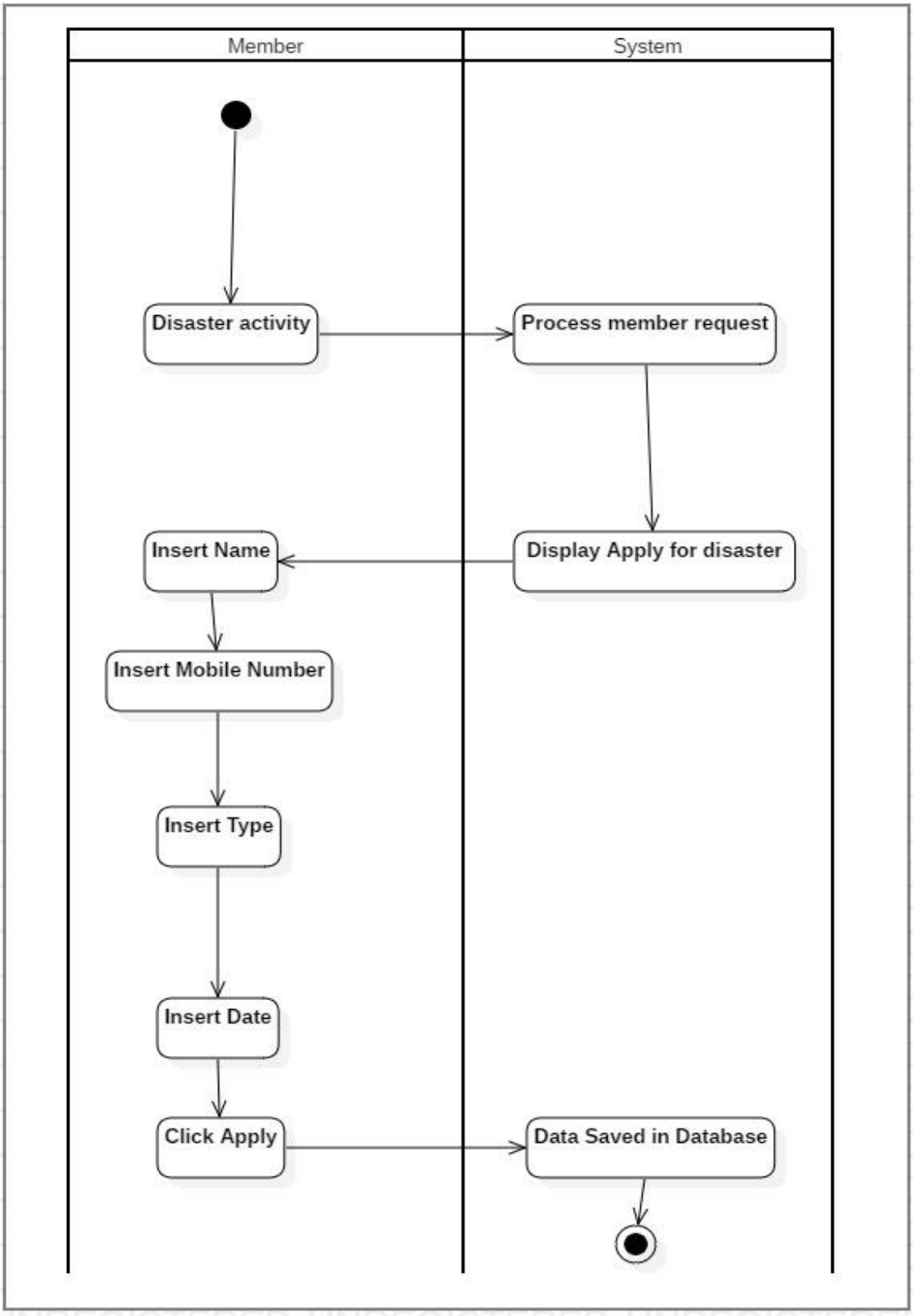


Figure 3.19: Activity Diagram for Disaster activity

Sequence Diagram

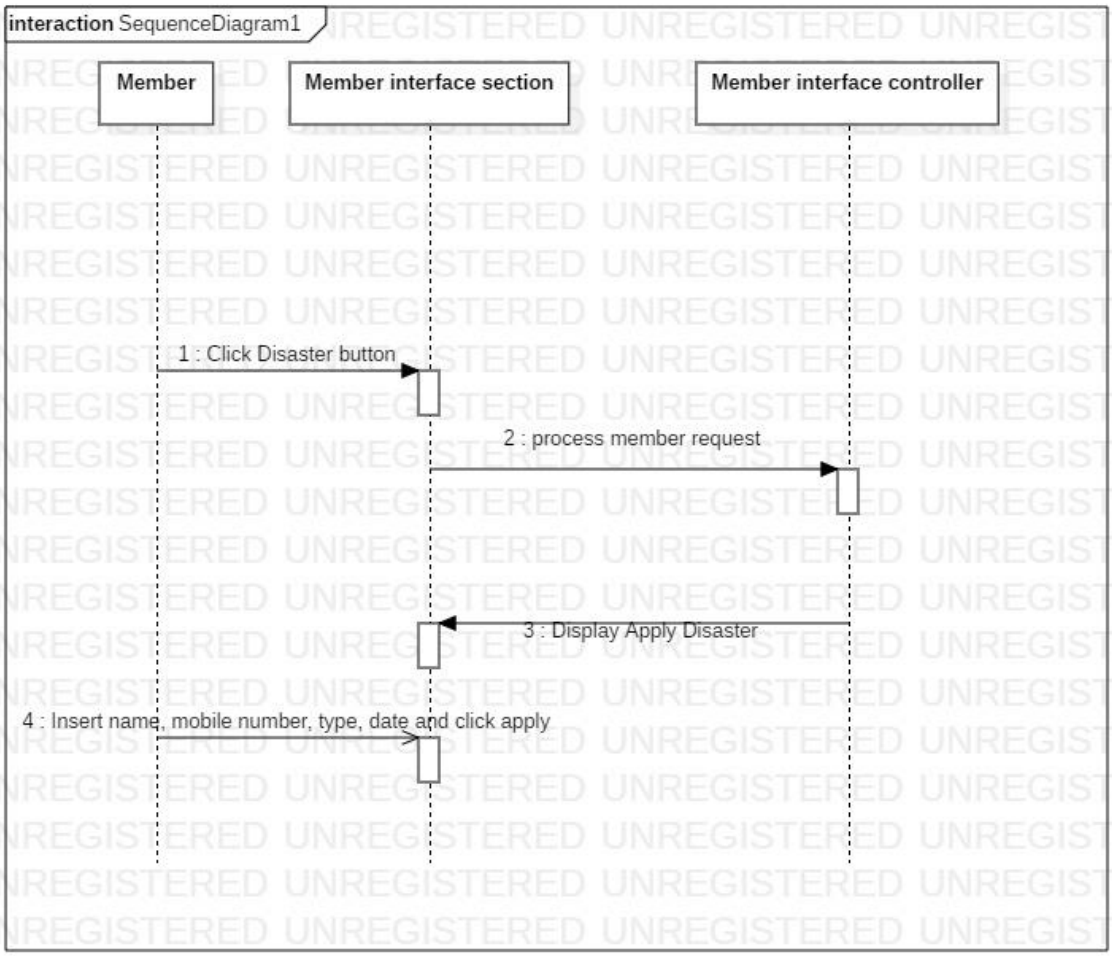


Figure 3.20: Sequence Diagram for Disaster activity

7. PERSATU_07 Admin log in Activity.

   User should logged in to perform as Admin.

Use Case diagram

Figure 3.21: Use Case Diagram for Admin log in

Activity Diagram

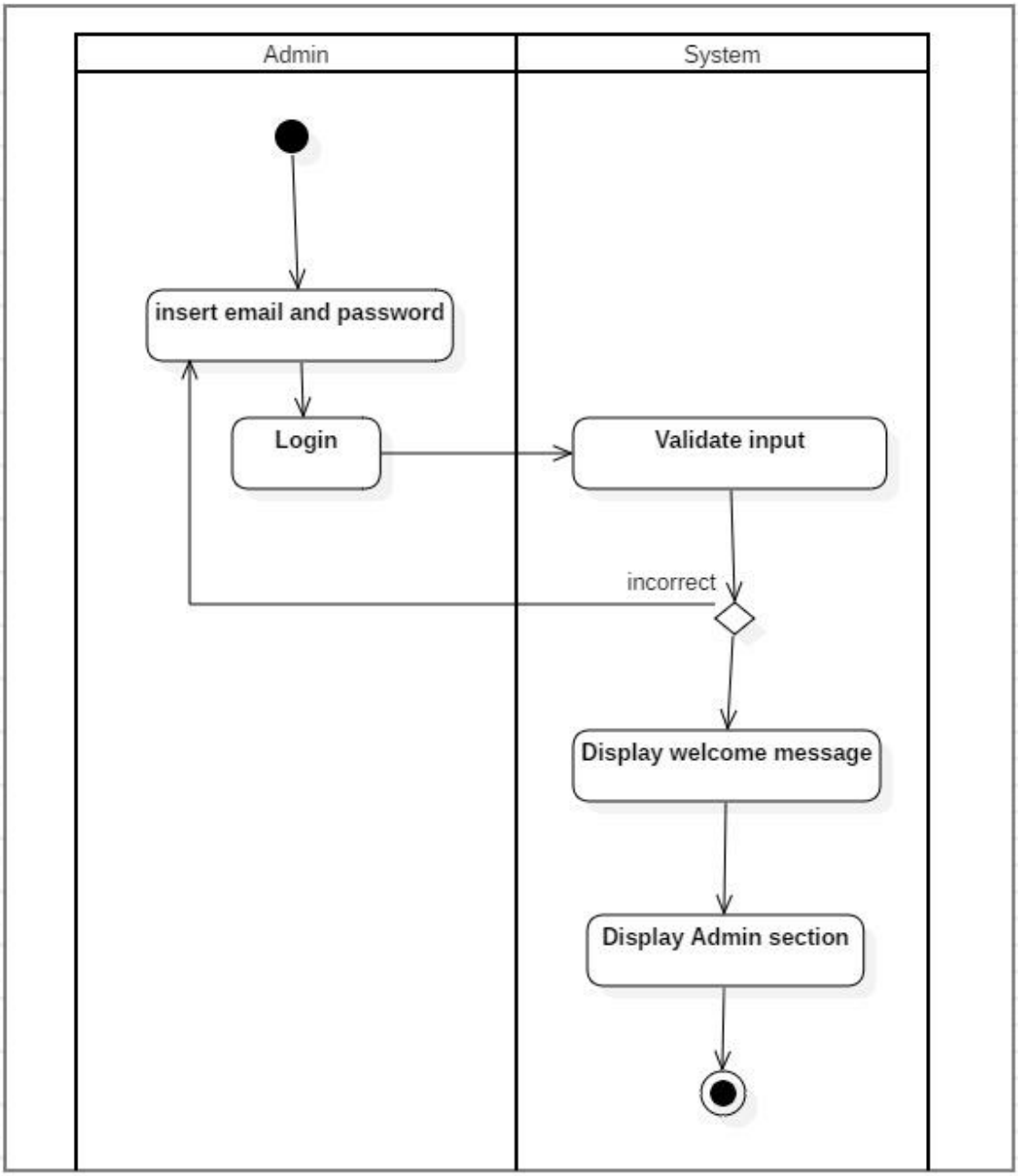


Figure 3.22: Activity Diagram for Admin log in

Sequence Diagram

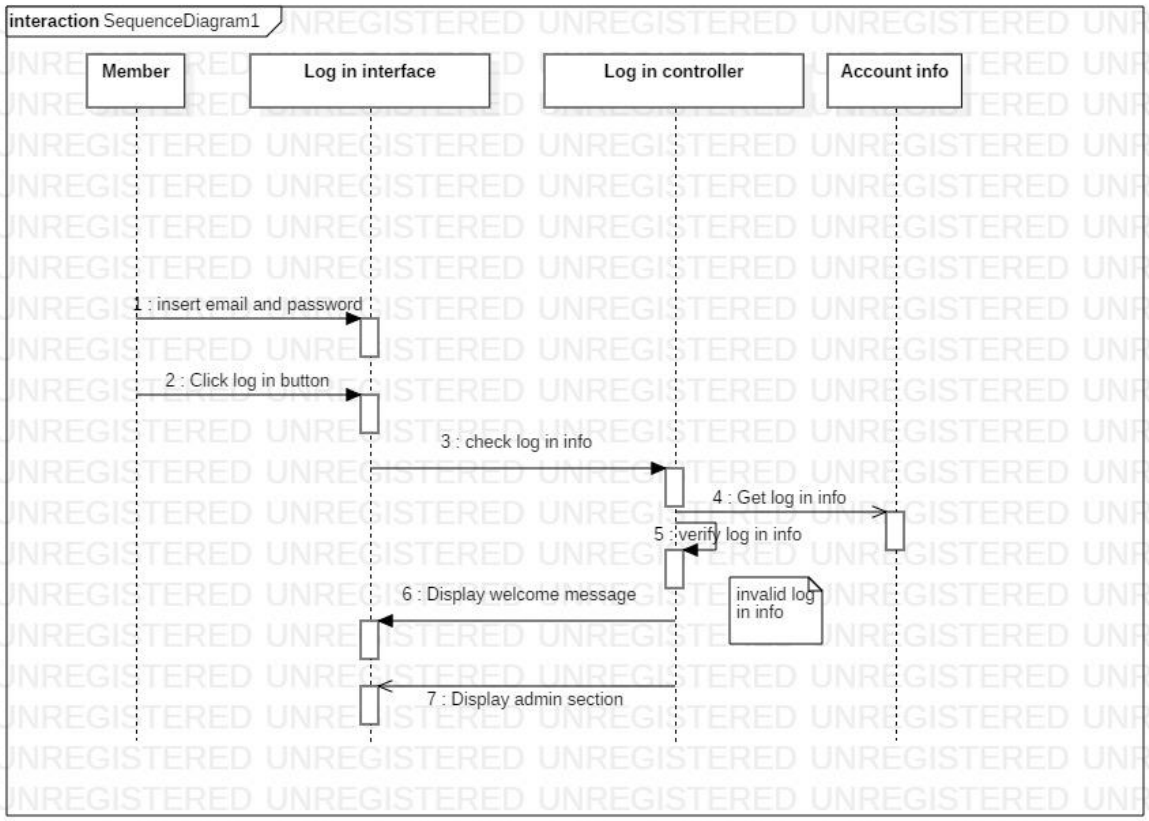


Figure 3.23: Sequence Diagram for Admin log in

8. PERSATU_08 Admin Sign up Activity.

   User should Sign Up to perform as Admin.

Use Case Diagram

Figure 3.24: Use Case Diagram for Admin sign up

Activity Diagram

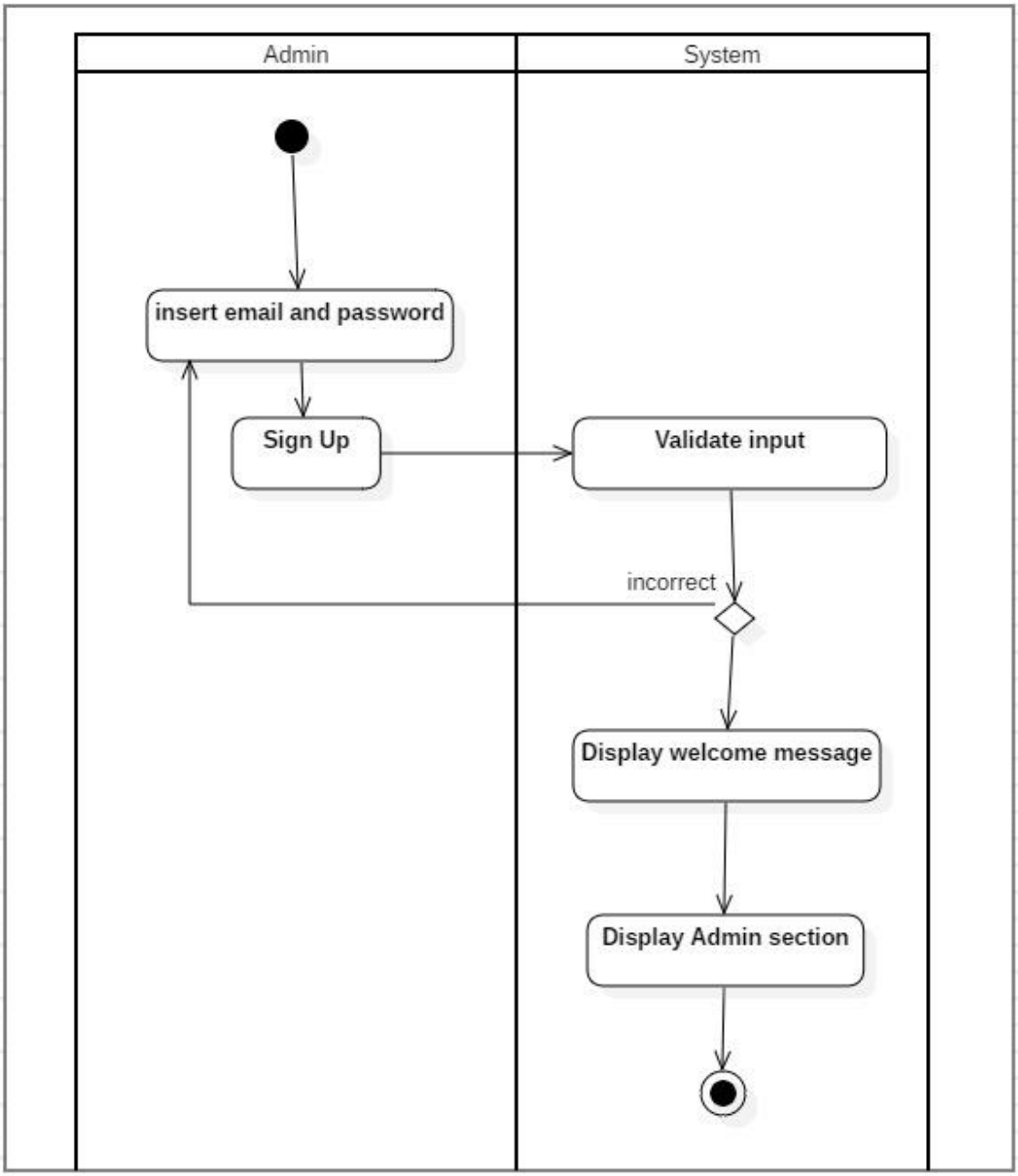


Figure 3.25: Activity Diagram for Admin sign up

Sequence Diagram

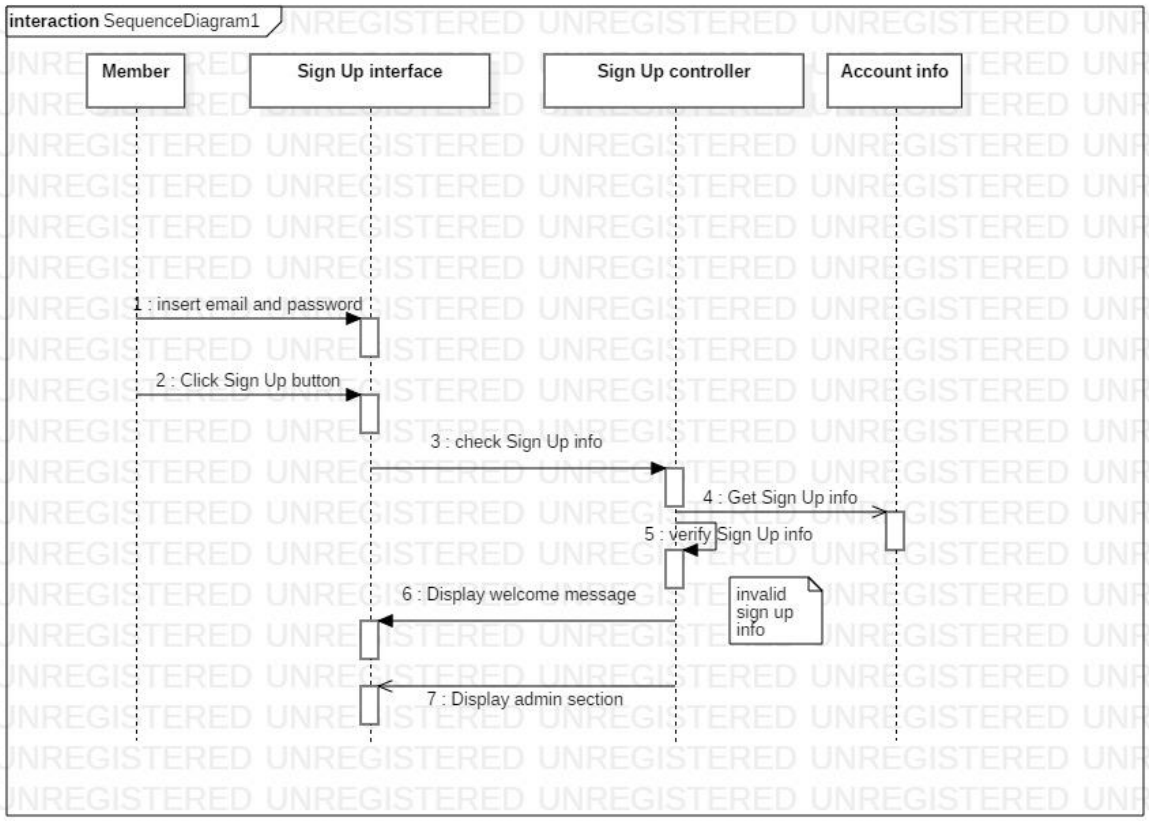


Figure 3.26: Sequence Diagram for Admin sign up

3.1.3.2 User Interfaces and source code

Splash Screen

Figure 3.27: Splash Screen

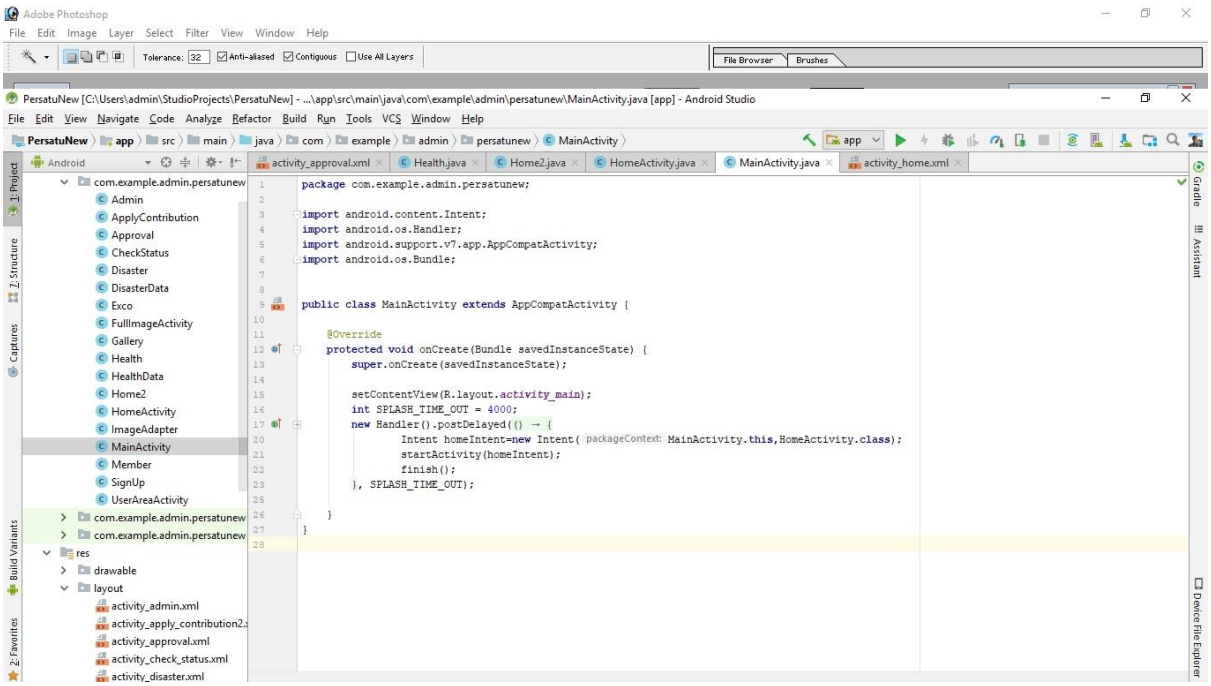


Figure 3.28: Splash Screen source code

Home Activity

Figure 3.29: Home Activity Screen

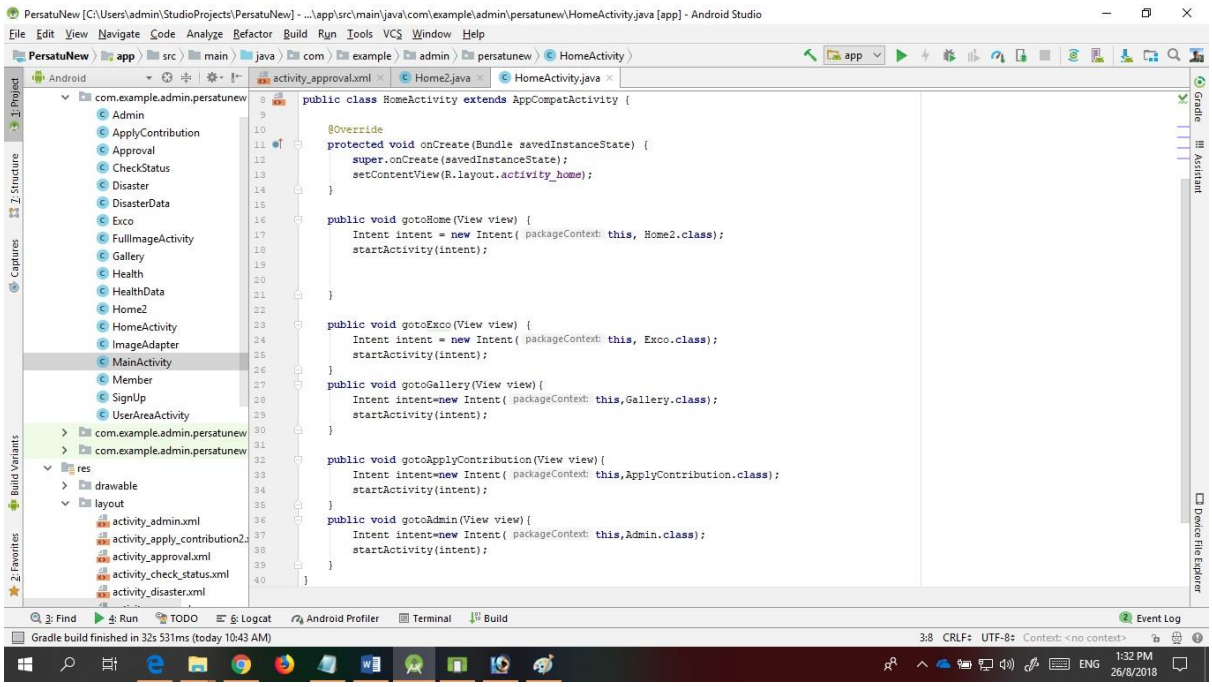


Figure 3.30: Home Activity source code

Inside Home Activity

Figure 3.31: Inside Home Activity Screen

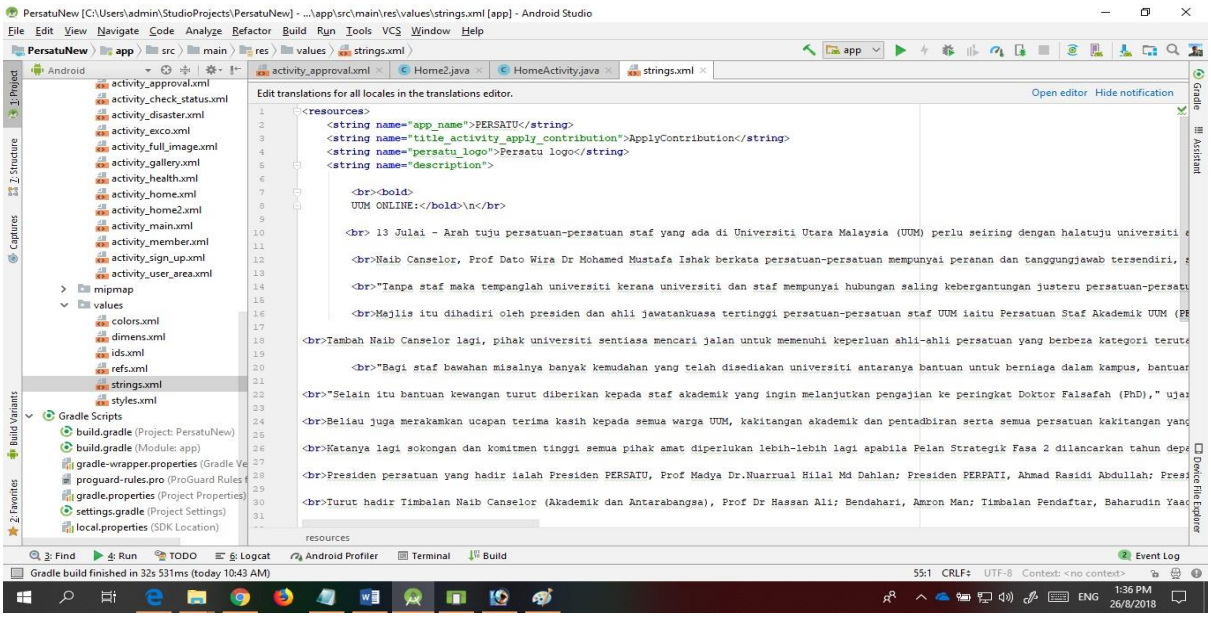


Figure 3.32: Home Activity String source code

Exco Activity

Figure 3.33: Exco Activity Screen

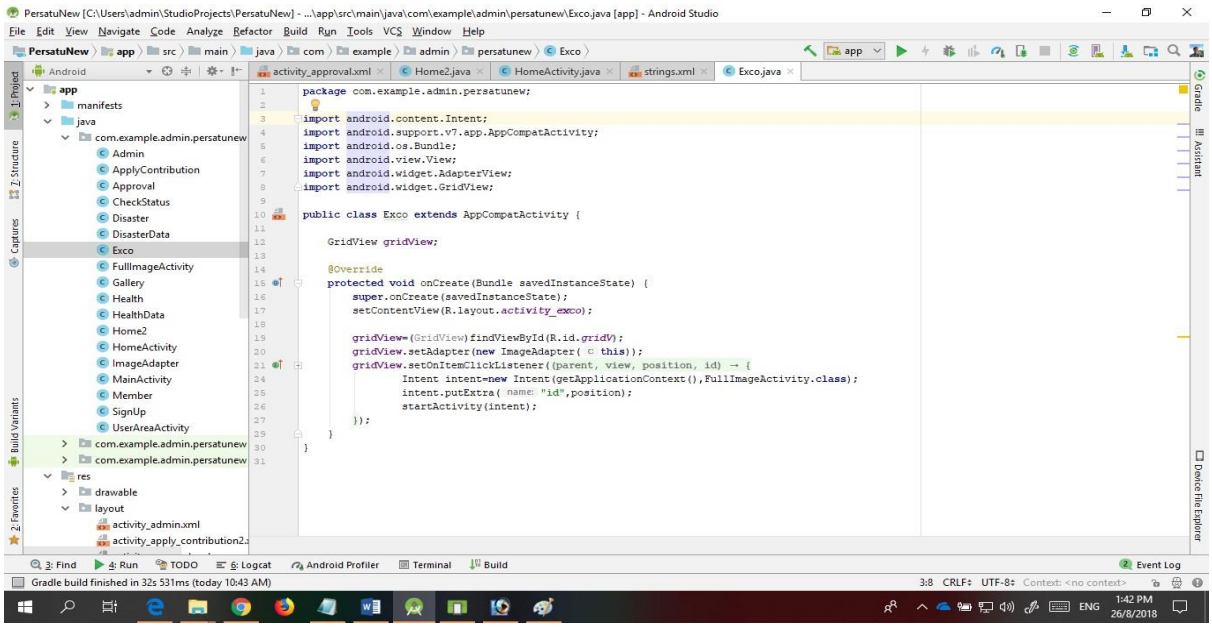


Figure 3.34: Exco Activity source code

Gallery

Figure 3.35: Gallery Activity Screen

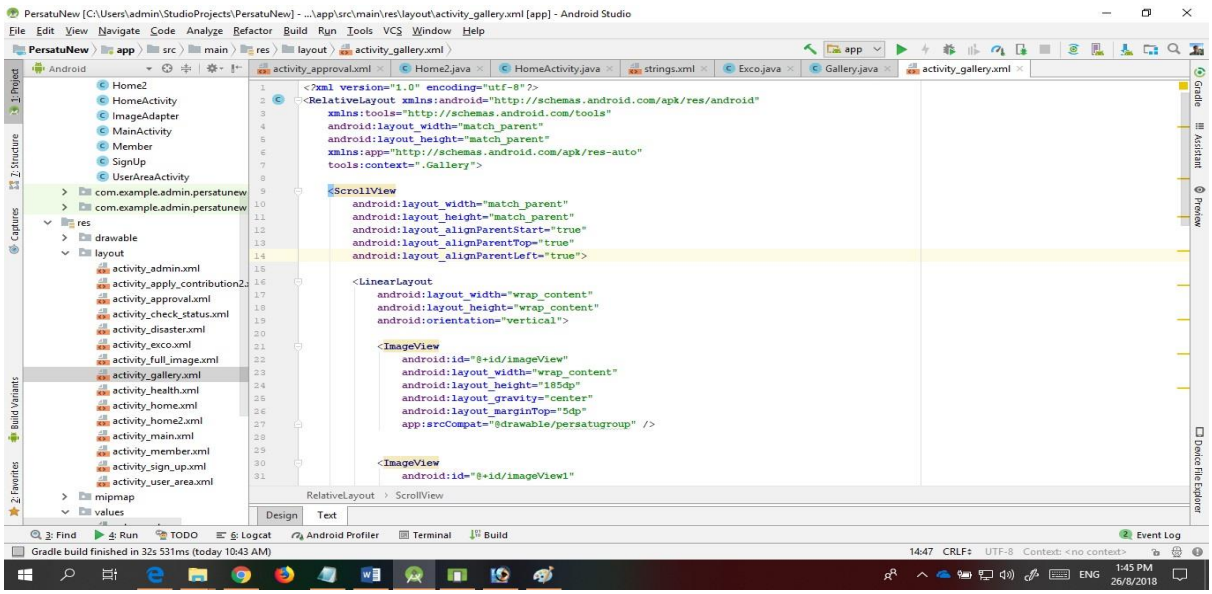


Figure 3.36: Gallery xml source code

Member Activity

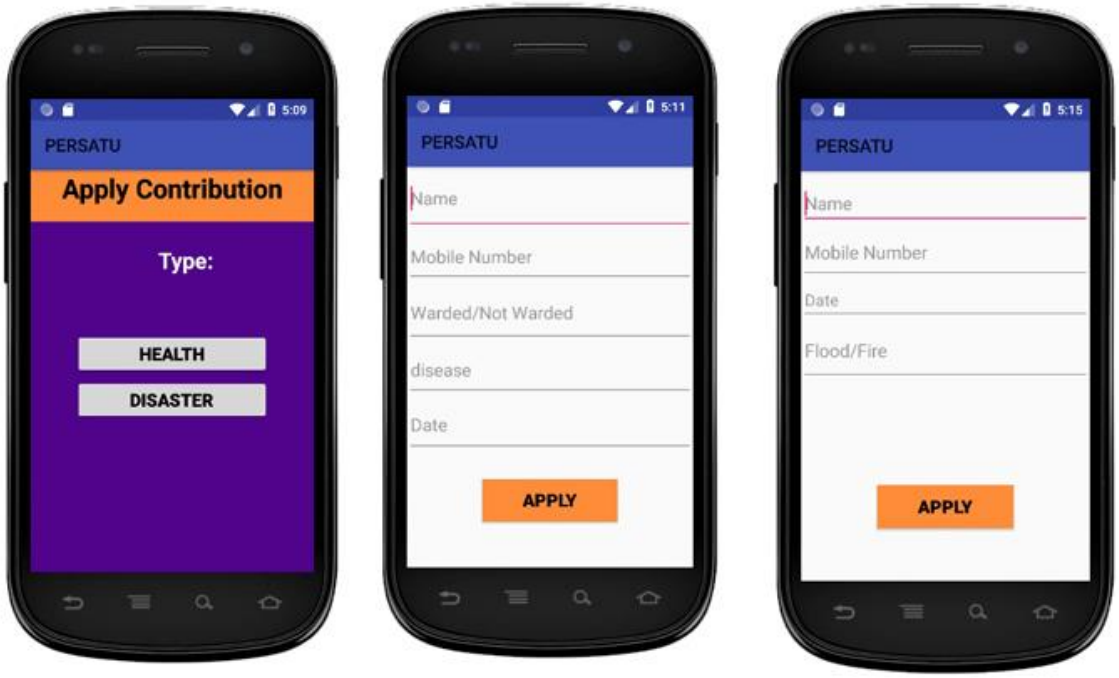


Figure 3.37: Member Activity Screens

Admin Login/Register

Figure 3.38: Admin Login/Register Screens

Firebase Authentication

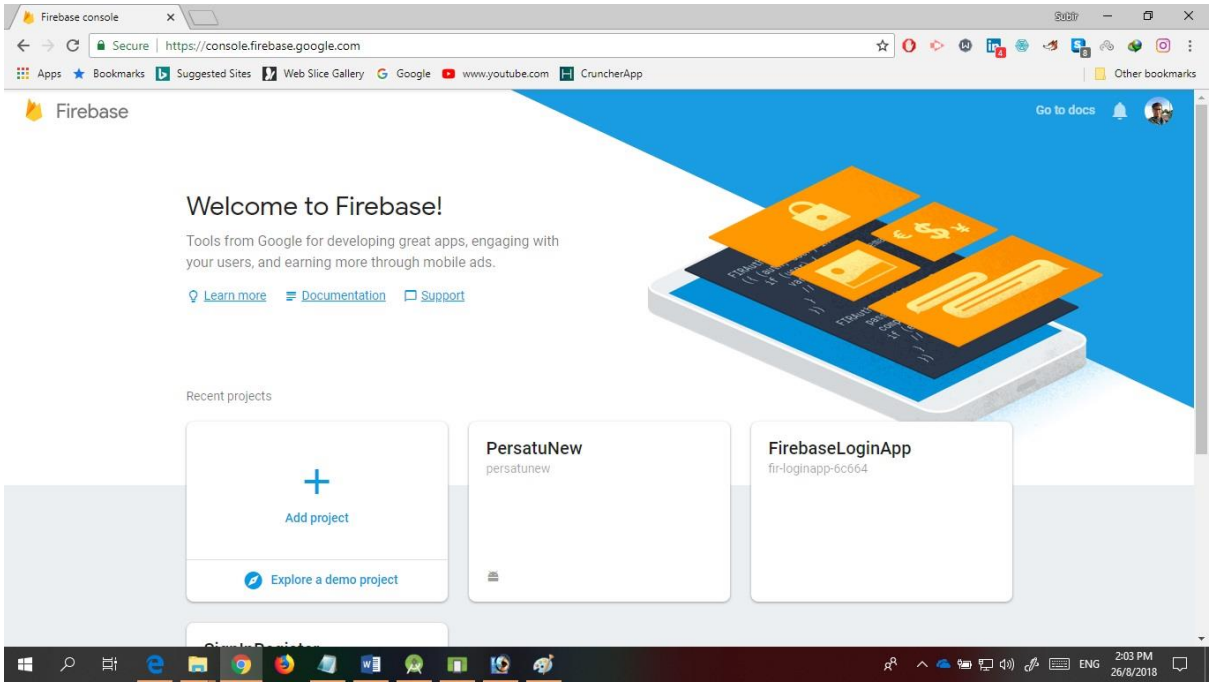


Figure 3.39: Firebase Projects

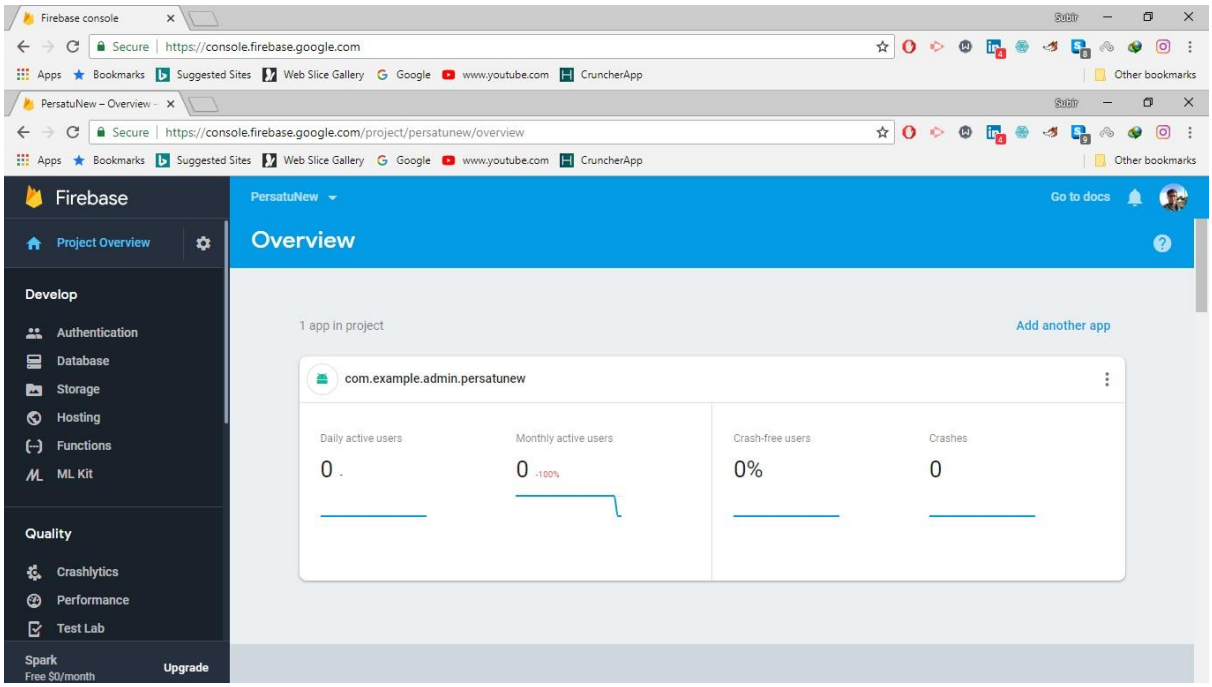


Figure 3.40: Firebase Project Overview

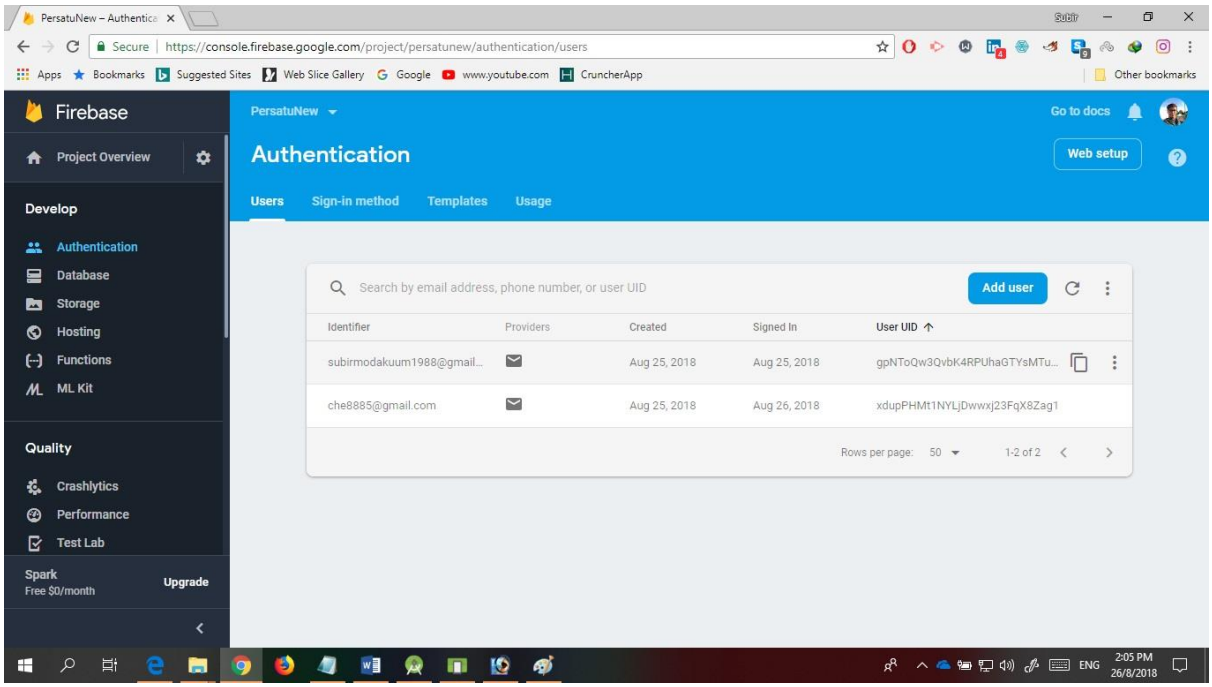


Figure 3.41: Firebase User Authentication with email and password

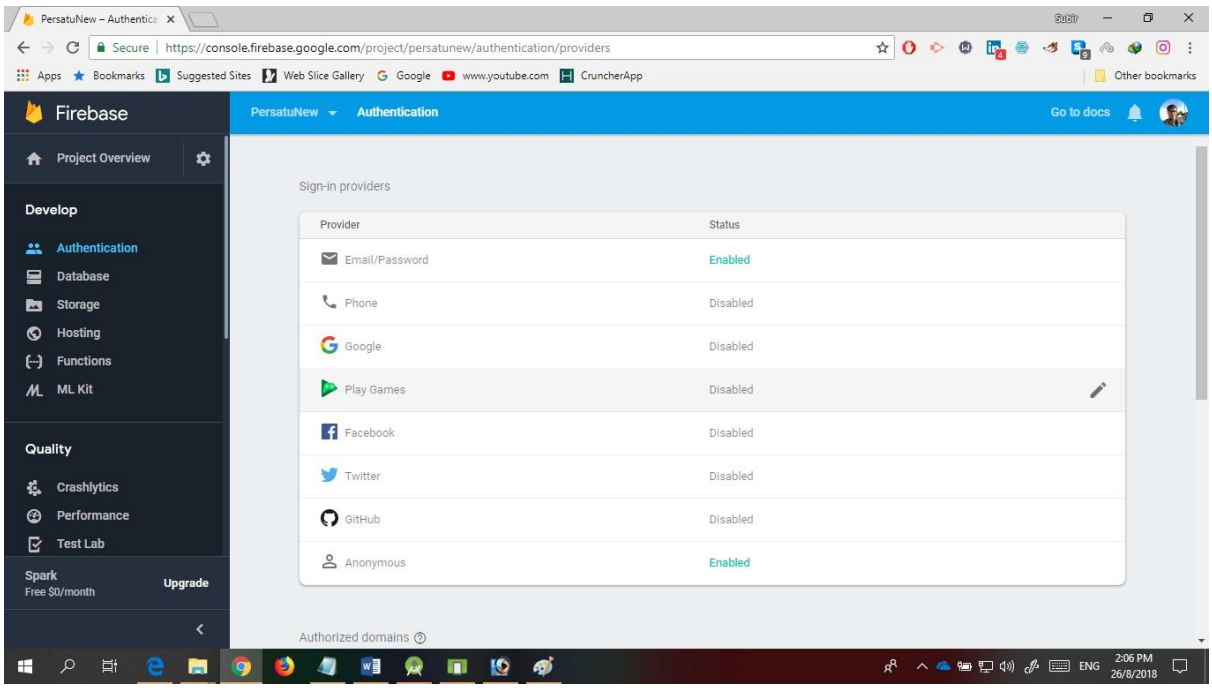


Figure 3.42: Firebase User Authentication Enabled

Firebase Realtime database

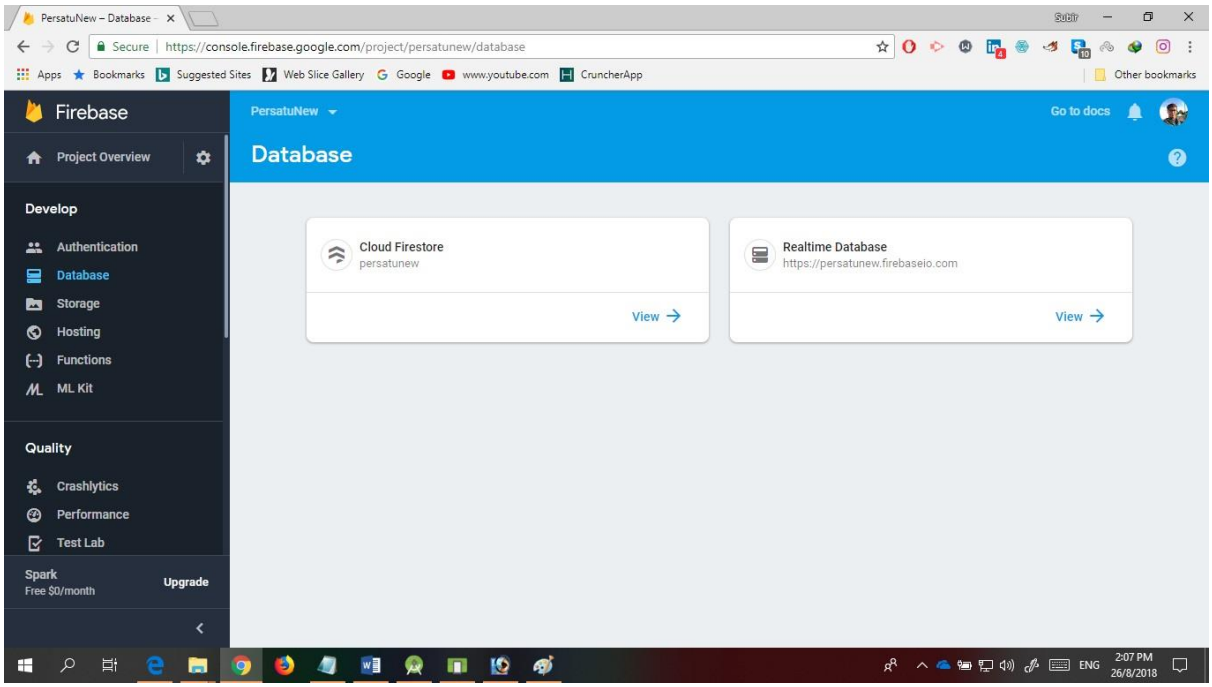


Figure 3.43: Firebase Database

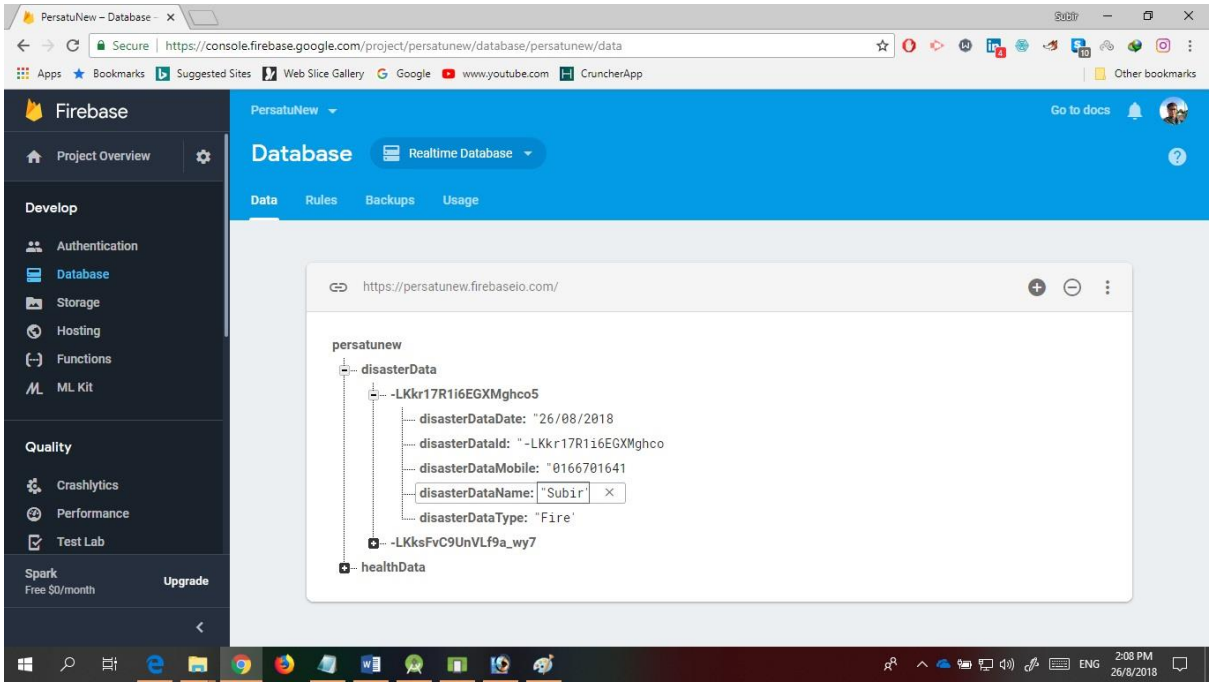


Figure 3.44: Firebase Database for Apply Disaster

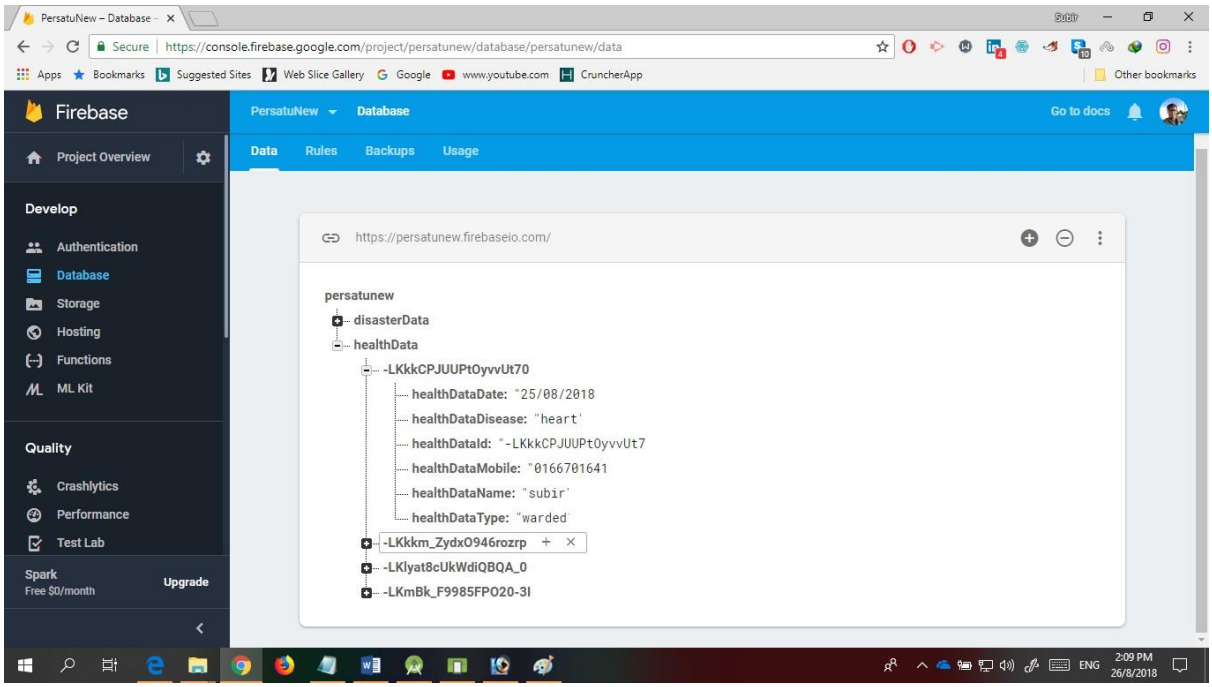


Figure 3.45: Firebase Database for Apply Health

3.1.4 4th Phase: System Development

After completing the design phase it was the time to develop the app. Development is the core of all phases. Because only after development the system will get the life and run. The Android Studio is a great platform for developers. It's convenient to use and installation is free. So in this system development phase Android Studio will be the main platform. Java source code will be used. Also Firebase will be used to create and maintenance the database of the system.

3.1.5 5th Phase: Evaluation

a) System testing: During the testing phase, software testing and user testing are conducted. Software testing is carried out by developer to find the syntax and logic error of the application. Syntax and logic error that are found on the application will be corrected and rebuild, this process is repeated until the system is robust. After software testing, then only user can test the system to analyze its' performance, usability, functionality, and satisfaction. The results from user testing will then be recorded for improvement and enhancement in the future.

b) User testing: After the full-scale testing is completed, the application will then implement it for the last time before officially presenting it to the users and launched at the Google Play Store. Description and other details of the application will be included in the download site and users will be able to download the application for free. Finally, all related documents along with completed final report will be submitted to the supervisor.

3.2 Feasibility Study

Feasibility studies are undertaken once a project has proven to be potentially viable from technical and financial perspectives. Social and political criteria should also be part of a comprehensive feasibility study as they may have a significant bearing on project viability. In addition to socioeconomic due diligence, additional data should be collected to construct a social and cultural baseline and to identify stakeholders. Initial assessments should be made of potential socioeconomic impacts, and stakeholder analysis should inform the feasibility assessment of the socioeconomic environment of the proposed project.

3.3 Tools

PERSATU is an Android-based application for Android mobile. This application will be developed by using Java, CSS, HTML, JavaScript and Firebase. Firebase will be used to connect with real-time database. Android Studio will be used for the development because it is the best platform. Also it has good interface design environment and it is free to install.

3.4 Cost Estimation

Table 3.1: Cost estimation of the project.

Description	**Cost**
• Upgrade RAM and SSD	RM 800
• Survey Questioner	RM 100
• Documentation	RM 100
• Open Google Play store account	RM 100
	Total Cost = RM 1,100

CHAPTER 4: CONCLUSION

Having practicum training is not just about fulfilling a prerequisite course for a student to graduate. It allows students to explore and gain more real world working experiences. Besides, practicum training prepares a student with the skills and knowledge that match with the current market needs. Practicum training also changes the student's perception of real working life. Students usually think that after they have graduated there is no need to learn anymore, but in reality the real working life is far more challenging because technologies keep on growing and students need to ensure their knowledge are always up to date with the technologies as working is a never-ending learning process.

It was a great opportunity for me to do practicum in School of Computing, Universiti Utara Malaysia.

REFERENCES

Born, G. (2018). Android. Burgthann: Markt Technik.

Bruegge, B., & Dutoit, A. H. (2010). *Object-oriented software engineering: Using UML, patterns, and Java*. Boston, MA: Pearson.

Darcey, L., & Conder, S. (2012). Sams teach yourself Android application development in 24 hours. Indianapolis, IN: Sams.

Deitel, P. J., Deitel, H. M., Deitel, A., & Muthuraj, M. (2015). *Android: How to program*. Harlow: Pearson.

Haseman, C. (2012). Creating Android applications: Develop and design. Berkeley, CA: Peachpit Press.

Horton, J., Vasconcelos, H., & Portales, R. (2016). Android: Programming for developers: Develop your own responsive, reactive, and ready-to-deploy Android applications. Birmingham, UK: Packt Publishing.

Moroney, L. (2017). The Definitive Guide to Firebase Build Android Apps on Googles Mobile Platform. Berkeley, CA: Apress.

Ostrander, J. (2012). Android UI fundamentals: Develop and design. Berkeley, CA: Peachpit Press.

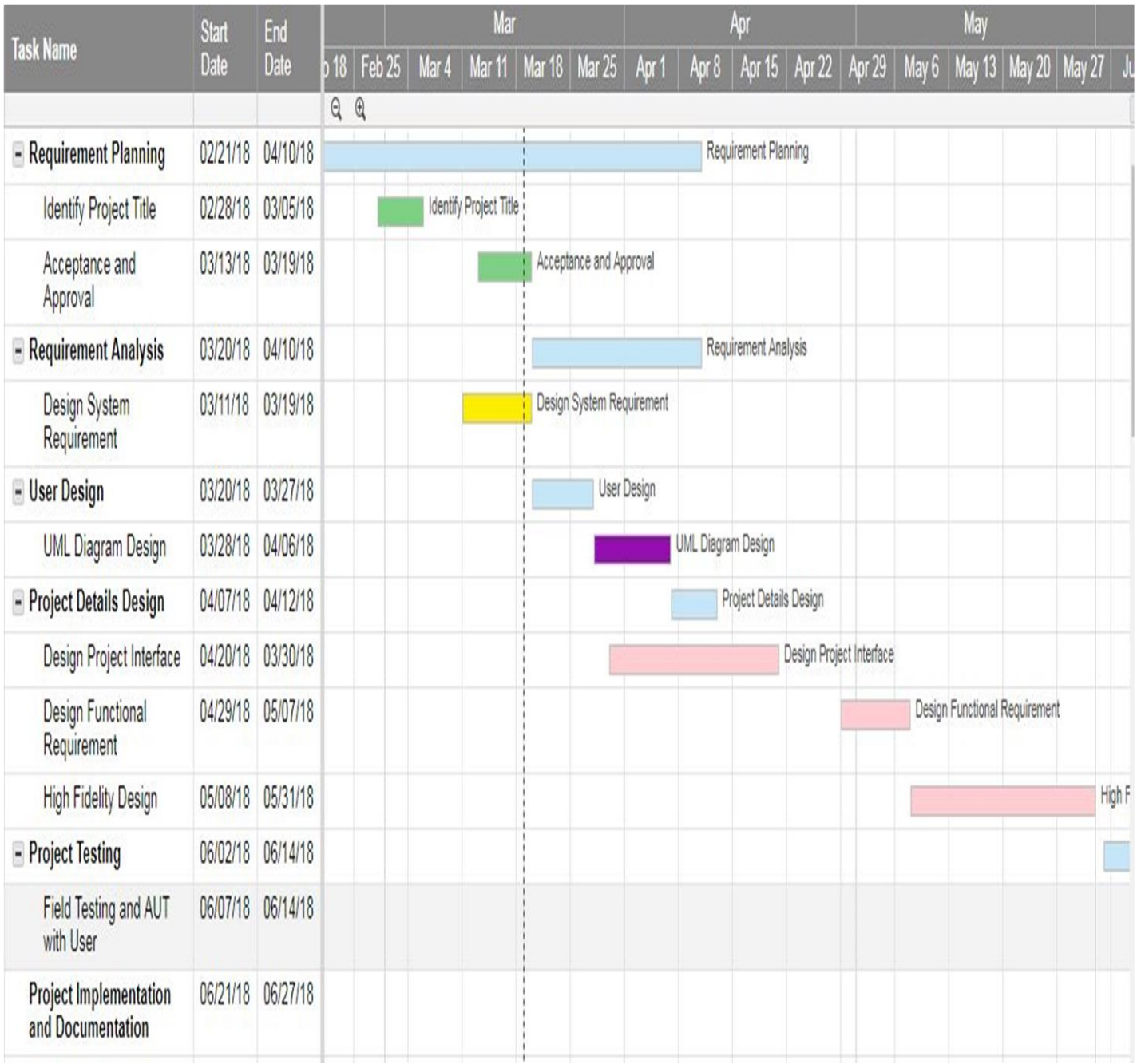
Subonis, T. (2017). Reactive Android Programming. Birmingham: Packt Publishing.

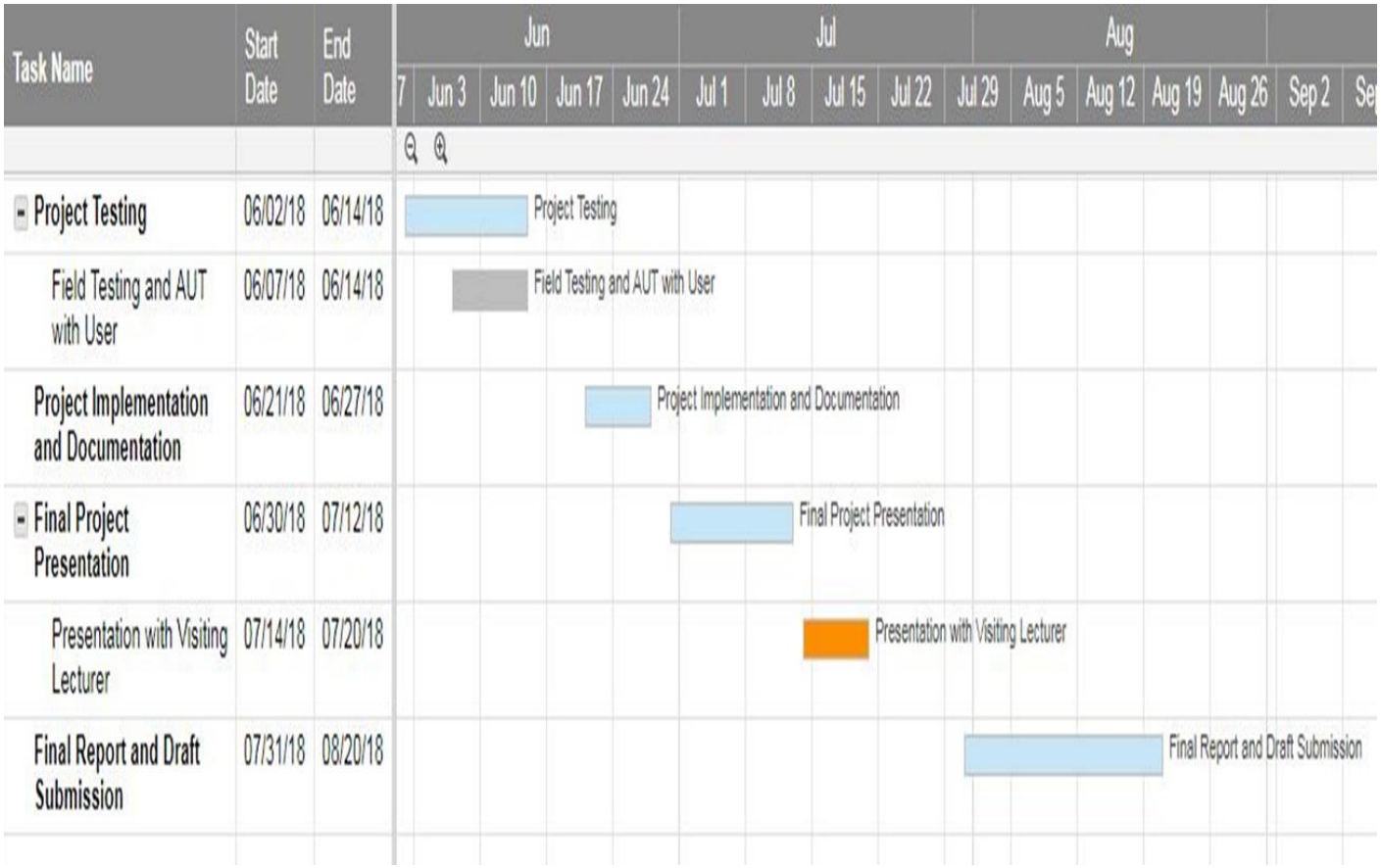
Yener, M., & Dundar, O. (2016). Expert Android Studio. Indianapolis (IN): J. Wiley & Sons.

APPENDICES

Appendix I

Gantt chart




Task Name
Start Date
End Date
Jun
Jul
Aug
7
Jun 3
Jun 10
Jun 17
Jun 24
Jul 1
Jul 8
Jul 15
Jul 22
Jul 29
Aug 5
Aug 12
Aug 19
Aug 26
Sep 2
Project Testing
06/02/18
06/14/18
Field Testing and AUT with User
06/07/18
06/14/18
Project Implementation and Documentation
06/21/18
06/27/18
Final Project Presentation
06/30/18
07/12/18
Presentation with Visiting Lecturer
07/14/18
07/20/18
Final Report and Draft Submission
07/31/18
08/20/18

Appendix II

Log Book

Date	What I learn
21/02/2018	First day at office. Collect office key and decorate my new office.
22/02/2018	Discuss about the project with company supervisor.
25/02/2018	Start to write project proposal.
26/02/2018	Learn how to write project background
27/02/2018	Join in badminton tournament. I meet the members of PERSATU. All day in Sports centre.
28/02/2018	Submit report duty form.
01/03/2018	Set up desktop computer in my office.
04/03/2018	Learn how to write objectives, scopes, significance, and problem statement of project.
05/03/2018	Gather requirements for the PERSATU app. Meet people and take interviews
06/03/2018	Gather requirements for the PERSATU app. Meet people and take interviews
07/03/2018	Gather requirements for the PERSATU app. Meet people and take interviews
08/03/2018	Gather requirements for the PERSATU app. Meet people and take interviews
11/03/2018	Insert requirement gathering in proposal.
12/03/2018	Show proposal to company supervisor and discuss about the corrections.
13/03/2018	Make correction and print the proposal.
14/03/2018	Always happy to learn new things. Start learning R programming from edx.com which is an online learning platform.
15/03/2018	Learning R is exciting! It's a 4 weeks course.
18/03/2018	Discuss about the design of the application with my company supervisor.
19/03/2018	Sketch UI design
20/03/2018	Join a workshop about android development. Learn more about android development.
21/03/2018	Show design to company supervisor. She discuss about the colour and interfaces
22/03/2018	Now the interface design is ready. It's time to develop the system.
25/03/2018	Upgrade my laptop
26/03/2018	Upgrade my laptop
27/03/2018	Upgrade my laptop. Lazy time.
28/03/2018	Download and install Android Studio. Make the System ready for development.
29/03/2018	Start developing the application.
01/04/2018	Working in the project and do the daily tasks as usual.
02/04/2018	Discuss with company supervisor about conference paper submission.
03/04/2018	Go out to the sports centre to collect data for the conference paper.

Date	What I learn
04/04/2018	Learn data visualization using R programming
05/04/2018	Learn how to extract data from micro-soft excel to R studio for data analysis.
08/04/2018	Go out for data collection in sports centre.
09/04/2018	Learn requirements gathering techniques in EDX online course.
10/04/2018	My laptop is now upgraded and ready to install Android Studio and all the SDK. I download and install necessary software for android development and make the environment better for building the application.
11/04/2018	Again go for data collection. Today is the final day of data collection. I get 102 data.
12/04/2018	Insert the data in micro-soft excel and analyse the data.
15/04/2018	I printed the analysed data and give it to my company supervisor. Now we are ready to publish the paper. I learn more about how to write research paper.
16/04/2018	Study in library about java programming.
17/04/2018	Start coding for the project.
18/04/2018	Learn how to design in android studio platform for mobile application.
19/04/2018	I do some office work. After that I meet my company supervisor and discuss about project design.
22/04/2018	Today I go to library for study about android development.
23/04/2018	I go to library and borrow some books about android development, software engineering, UX design and Python.
24/04/2018	I start to learn Python and it takes whole day. I need another 3-4 days to learn the basics.
25/04/2018	Learning python. It's 7pm and I am still in office.
26/04/2018	Learning Python.
29/04/2018	Today I want to learn something new about android development. So I open android studio and start coding. It takes all the day.
30/04/2018	Developing the project.
02/05/2018	Read about android studio and try to find solution about button click.
03/05/2018	My button click is not working still now. I am trying to find a solution.
06/05/2018	Now the app's button is working. I design the buttons and make it clickable. Also join Research and Innovation Program in DMAS.
07/05/2018	Learn R programming.
08/05/2018	Learn R programming.
09/05/2018	Learn R programming.
10/05/2018	Today is public holiday but I am in office. I learn R programing.
14/05/2018	Finish the course R programming in EDX online study platform and get the certificate! Happy to achieve the certification.
15/05/2018	Code the Home activity of the application. It's not easy. Complicated one. All day do code.
16/05/2018	Today I learn how to implement Splash screen in android application.
20/05/2018	First day after Eid ul Fitre. Less stuff in office. I work on the project.
21/05/2018	I learn how to implement scroll view in android studio. Also meet the supervisor to show her the progress of the project.
22/05/2018	Help my company supervisor on various tasks.
23/05/2018	Set the colour combination of the android application.
24/05/2018	Join a seminar in SOC.
27/05/2018	Code all the day.

Date	What I learn
28/05/2018	Today I learn how to implement grid view in android application. I use this grid view for gallery. Code for the grid view.
30/05/2018	Design and code for the grid view.
31/05/2018	Fix the layout layer problem.
03/06/2018	Try to learn about IoT. Take an online course which is held by Curtin University, Australia.
04/06/2018	Learn about IoT devices and their functions.
05/06/2018	Take a quiz on IoT and do well. Today I also learn about the IoT implementation on our everyday life such as in farming, in Cattle farm, automobile etc.
06/06/2018	I Learn about circuits and wires which are used in IoT applications.
07/06/2018	Today I Meet the company supervisor and show her the progress of my project. Also do some office tasks.
10/06/2018	Learn about PHPMyAdmin database system. Install xammp in my system.
11/06/2018	All day do code to develop the application.
12/06/2018	Buy some IoT devices to experiment on IoT.
13/06/2018	I go to library to study about Data engineering. Also borrow a book.
14/06/2018	I learn about probability to use it in data science. This is my 6^{th} course in online.
18/06/2018	Project is going well. Doing coding for the project.
19/06/2018	I am thinking about database to implement in my project. Look at different types of database tools such as MySQL, PHP, SQLite, Firebase. I choose firebase to connect data of the application.
20/06/2018	Learning Firebase user authentication. Watching Youtube videos and also study from Firebase website.
21/06/2018	Create login/register layout. Connect my application to the Firebase.
24/06/2018	Learn how to do user authentication using Firebase Auth.
25/06/2018	Stuck in Firebase Auth. Trying to find solution.
26/06/2018	I get the solution and now I can create user authentication for my application.
27/06/2018	Install Adobe Photo-shop. Edit some pictures which I need for the project.
28/06/2018	Go to library for study about database system.
01/07/2018	Try to connect Firebase Real-time database to my application. Do coding. Get some error. Work for whole day.
02/07/2018	Meet with company supervisor to discuss with her about database connection. For me now it's a big problem. I am getting frustrated.
03/07/2018	I learn how to do code for database connection in Firebase system.
04/07/2018	Coding all day and also learn something new.
05/07/2018	Coding all day.
08/07/2018	Talk with some experts of Android development about database connection and other issues.
09/07/2018	Coding all day. Almost fix the database connection problem.
10/07/2018	Coding all day to fix the database connection.
11/07/2018	Success! Application data is connected to Firebase Real-time database. At last I have done this.
12/07/2018	Today I modify the layout design of the application. I learn how to customize the button shape and also the Radio button.
15/07/2018	Meet with company supervisor and do everyday tasks of office.
16/07/2018	Get flue and fiver. Go to University hospital and take medicine. After that come to office and do nothing. Sick!
17/07/2018	Today I learn how to implement Spinner button on android studio. It works fine.
18/07/2018	I have interest to learn something new always. So I register a MOOC course in online about Internet of Things (IoT). I learn about the basics of IoT.

Date	What I learn
19/07/2018	Today I learn about the interoperability, re-designing of everyday objects, and IoT product design.
21/07/2018	Meet with company supervisor and discuss about the improvement of practicum project. We also discuss about a new project idea and agree to write a conference paper on it.
22/07/2018	Today I learn about IoT development kits such as pressure, relative humidity and temperature sensors, ambient light sensor and Bluetooth.
23/07/2018	Today I learn how to connect devices by using breadboard, resistors, LEDs and Arduino Uno. It's all about IoT.
24/07/2018	Today I try to learn about Data visualization principle using R language.
25/07/2018	Today I study about knowledge management and big data in business. At lunch time I go to the library and study about it.
26/07/2018	Today I meet the company supervisor and show the progress of the project. I also do some development of the project.
29/07/2018	Today I study on Monte Carlo simulation to solve some combination and permutation problem in R language.
30/07/2018	Today I learn about git, local repository, working directory, remote repository etc.
31/07/2018	Today I study about Agile methods.
01/08/2018	This is the final month of my practicum. I want to utilize this month properly. So today I start to learn about 4G/LTE. I learn today about UE, base station, Evolved Packet Core (EPC), Radio Access Network and other elements of 4G/LTE.
02/08/2018	Today I learn about Packet Gateway (PGW), routes data to the terminal and some security functions.
05/08/2018	Today I learn about ggplot and tidyvers packages of R programming.
06/08/2018	Today I again start to study on IoT. I learn more about sensors and actuators.
07/08/2018	I learn about the K_ASME key, which is used to secure exchanges between the UE and the visited network is calculated by the HSS from the random number used for authentication, from the identity of the visited network and from the secret key K.
08/08/2018	Coding all day
09/08/2018	Coding all day
12/08/2018	Coding and testing the application
13/08/2018	Do some office tasks and meet company supervisor. Show her the progress of the project. After that coding and testing.
14/08/2018	This is the last week of the practicum. I am busy with my project and also about my report draft.
15/08/2018	Preparing report draft.
16/08/2018	Preparing report draft.
19/08/2018	Preparing report draft.
20/08/2018	Today is the final day. I finish the practicum successfully. Now waiting for the final presentation. Hopefully I shall do my best in presentation. Thank you.

Appendix III

Practicum Attendance

UUM PRACTICUM ATTENDANCE TIMETABLE FOR - A171- SESSION (FEBRUARY 2018)

Student's Name: **Modak Subir**

Matric No. : **235846** Programme : **U5A - Bachelor of Science with Honours (Information Technology).**

Supervisor of the student is required to complete this attendance timetable. This form must be verified and returned to the student's Report Supervisor in UUM. Student is not allowed to take leave throughout practicum period.

02 FEBRUARY 2018

Su	28	4	11	18	A	25
Mo	29	5	12	19	A	26
Tu	30	6	13	20	A	27
We	31	7	14	A 21	A	28
Th	1	8	15	A 22		1
Fr	2	9	16	HW 23	HW	2
Sa	3	10	17	HW 24	HW	3

03 MARCH 2018

Su	25	A	4	A	11	A	18	A	25
Mo	26	A	5	A	12	A	19	A	26
Tu	27	A	6	A	13	A	20	A	27
We	28	A	7	A	14	A	21	A	28
Th	A	1	A		A	15	A	22	A	29
Fr	HW	2	HW	9	HW	16	HW	23	HW	30
Sa	HW	3	HW	10	HW	17	HW	24	HW	31

04 APRIL 2018

Su	A	1	A	8	A	15	A	22	A	30
Mo	A	2	A	9	A	16	A	23	A	30
Tu	A	3	A	10	A	17	A	24		1
We	A	4	A	11	A	18	A	25		2
Th	A	5	A	12	A	19	A			3
Fr	HW	6	HW	13	HW	20	HW	27	HW	4
Sa	HW	7	HW	14	HW	21	HW	28	HW	5

05 MAY 2018

SU	29	A	6	HW	13	A	20	A	27
MO	30	A	7	A	14	A	21	A	28
TU	HW	1	A	8	A	15	A	22	HW	29
WE	A	2	A	9	A	16	A	23	A	30
TH	A	3	HW/A	10	HW	17	A	24	A	31
FR	HW	4	HW	11	HW	18	HW	25	HW	1
SA	HW	5	HW	12	HW	19	HW	26	HW	2

06 JUNE 2018

Su	27	A	3	A	10	HW	17	A	24
Mo	26	A	4	A	11	A	18	A	25
Tu	29	A	5	A	12	A	19	A	26
We	30	A	6	A	13	A	20	A	27
Th	31	A	7	A	14	A	21	A	28
Fr	HW	1	HW	8	HW	15	HW	22	HW	29
Sa	HW	2	HW	9	HW	16	HW	23	HW	30

07 JULY 2018

Su	A	1	A	8	A	15	A	22	A	29
Mo	A	2	A	9	A	16	A	23	A	30
Tu	A	3	A	10	A	17	A	24	A	31
We	A	4	A	11	A	18	A	25		1
Th	A	5	A	12	A	19	A	26		2
Fr	HW	6	HW	13	HW	20	HW	27	HW	3
Sa	HW	7	HW	14	HW	21	HW	28	HW	4

08 AUGUST 2018

Su	29	A	5	A	12	A	19	26
Mo	30	A	6	A	13	A	20	27
Tu	31	A	7	A	14	R	21	28
We	A	1	A	8	A	15	R	22	29
Th	A	2	A	9	A	16		23	30
Fr	HW	3	HW	10	HW	17		24	31
Sa	HW	4	HW	11	HW	18		25	HW	1

Please use the following indicators :

A - Attend. NA - Not Attend.
ML - Medical Leave. R - Rplaced Day.
HW - Holiday / Weekend.
CET - Course / External Training.
T - Total Practicum Day.

Completed & Checked by : Madam Noraziah Che Pa
(Organisation's Supervisor)

A : _____ days

NA + ML : _____ days

R : _____ days

T : _____ days

Attandence Marks : $\frac{A + R}{T} \times 100\ \%$

Important Note : NA & ML should be replaced (with approval from the Dean PPA CAS) to complete the total number of practicum days.