ACTIV8 ME – FITNESS SELF-MANAGEMENT APPLICATION

BY

CHUA CHU YAN

A REPORT

SUBMITTED TO

Universiti Tunku Abdul Rahman

in partial fulfillment of the requirements

for the degree of

BACHELOR INFORMATION SYSTEMS (HONOURS) INFORMATION SYSTEMS ENGINEERING

Faculty of Information and Communication Technology
(Kampar Campus)

JAN 2024

UNIVERSITI TUNKU ABDUL RAHMAN

REPORT STATUS DECLARATION FORM

Title: ACTIV8 ME – FITNESS SELF-MANAGEMENT APPLICATION

Academic Session: JAN 2024

I CHUA CHU YAN

(CAPITAL LETTER)

declare that I allow this Final Year Project Report to be kept in

Universiti Tunku Abdul Rahman Library subject to the regulations as follows:

1. The dissertation is a property of the Library.
2. The Library is allowed to make copies of this dissertation for academic purposes.

Verified by,

(Author's signature)

(Supervisor's signature)

Address:

52, LORONG BUKIT MINYAK UTAMA

30, TAMAN BUKIT MINTAK UTAMA

14000, BUKIT MERTAJAM

PULAU PINANG.

CHAI MEEI TYNG

Supervisor's name

Date: 20 APRIL 2024

Date: 21 APRIL 2024

FACULTY OF INFORMATION AND COMMUNICATION

UNIVERSITI TUNKU ABDUL RAHMAN

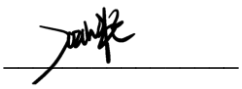
Date: 20 APRIL 2024

SUBMISSION OF FINAL YEAR PROJECT

It is hereby certified that Chua Chu Yan (ID No: 21ACB01463) has completed this final year project entitled "Activ8 Me – Fitness Self-Management Application" under the supervision of Ts Dr Chai Meei Tyng (Supervisor) from the Department of Computer Science , Faculty of Information and Communication.

I understand that University will upload softcopy of my final year project in pdf format into UTAR Institutional Repository, which may be made accessible to UTAR community and public.

Yours truly,



(*Chua Chu Yan*)

DECLARATION OF ORIGINALITY

I declare that this report entitled "**ACTIV8 ME – FITNESS SELF-MANAGEMENT APPLICATION**" is my own work except as cited in the references. The report has not been accepted for any degree and is not being submitted concurrently in candidature for any degree or other award.

Signature : 

Name : Chua Chu Yan

Date : 20/4/2024

ACKNOWLEDGEMENTS

I would like to convey my sincere gratitude and appreciation to my supervisor Dr. Chai Meei Tyng, for her unwavering support and invaluable counsel throughout my final year project. Dr Chai's extraordinary expertise, remarkable compassion, and her readiness to offer constructive feedback have played the vital role in the successful completion of this project.

I am grateful for her continual availability and fast responses to my inquiries have been instrumental in assisting me stay on track and fulfil all the project deadlines. Her insightful discussions and thoughtful feedback at each stage of the project have enhanced my comprehension of the subject matter.

ABSTRACT

The deliverable of this project is a mobile application project regarding to fitness self-management. Its focus is to design and develop for an integrated fitness and diet application that can comprehensively promote health through a variety of food and exercise regimens. The fitness self-management will address the shortcomings of existing fitness self-management. A BMI calculator will be included to help users concentrate more on their body measurements. Besides, a daily activity report with crucial details will be added. Additionally, the fitness software will be designed to be more user-friendly for female users by considering their menstrual cycle. Software like Android Studio and Firebase will be used in this project. However, for the hardware, more than one Android smartphone and at least one laptop running Windows 11 would be used for the project's development. The programming part will be done in Java language. This project will analyse five existing famous fitness applications under the term Google Fit, MyFitnessPal, Lifesum, Da-fit, and Fitbit to have a better knowledge of health management app. Hence, Agile methodology is adopted in this project to realize the deliverable. The project will go through a few iterations of the requirements, design, and implementation phases while also adding more functionality to the app until the project is accomplished. In brief, the results demonstrate that a mobile application with unified functionality is efficient in giving fitness enthusiasts, and indirectly a larger population that might need to modify their lifestyles for the better, all-inclusive information on exercise and diet.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

BMI	Body Mass Index
API	Application Programming Interface
WHO	World Health Organization
IDE	Integrated Development Environment
RAM	Random-Access Memory
KG	Kilogram
M	Meter
VRAM	Video RAM

CHAPTER 1 INTRODUCTION

Health is the pivotal of human life. Recently, with the global pandemic in the year 2019, maintain good physically health become a significant difficulty. Even if having a healthy lifestyle is getting increasingly fashionable, big portions of individual still encounter fatal health issue. In 2015, these illnesses lead to over 40 million people died [1]. Some of them may be avoided or reversed by making daily decisions that assist us rather than harm us. The World Health Organization (WHO) estimates that 80% of premature deaths might be prevented [7].

Apart from that, according to the statistic stated by World Health Organization (WHO), individuals between the 18 and 64 years-old should engage in moderate-intensity aerobic physical activity for at least 150 to 300 minutes or vigorous-intensity aerobic physical activity for at least 75 to 150 minutes weekly to lessen the negative effects of excessive sedentary behaviour on health [8]. As the COVID-19 spreading, most of the regions start to lockdown. People sought alternative forms of exercise while gyms were closed. 59 million health and fitness apps were downloaded during the week of March 22, 2020, a 40% increase above the weekly average for January and February 2020 [9].

Adults can use the BMI to determine their dietary state. It is determined by multiplying a person's weight in kilogrammes by their square of height in metres (kg/m^2). The BMI ranges are based on the link between obesity and disease and mortality brought on by excessive body fat. As a disease risk indicator, BMI was developed [1]. BMI was created as a disease risk indicator [1]. Today's most of health applications are missing this capability. Additionally, the generator of activity reports is important for users to refer to their daily progress. Users of health applications risk becoming lost on their fitness journey if without the activity report. Last but not least, it is encouraged that the health self-management system pays more attention to women's menstrual cycles. If a female user forgets their period date and continues with a strenuous workout, it will be harmful to the user's body as well. Launching a user-friendly female application can attract in more users.

In this project, a platform will be created to let the sport lover to better monitor their nutrient intake and workout routine. Besides, the health fitness self-management

system will be going to build for female-friendly by giving more though to women's menstrual cycle. Not only that, during this project, the health application is launched by adding the features of BMI calculator, female-friendly area which is menstruation calendar which is rarely to see in existing health fitness self-management mobile application as well as, generating activity reports.

1.1 Problem Statement and Motivation

Nowadays, the fitness self-management system is facing the following problems.

1.1.1 Lacking the Function of BMI Calculator

The lack of a BMI calculator is the main problem with most fitness self-management systems nowadays. The most popular and fundamental approach for gauging one's health is BMI. It provides an estimate of body fat and a reliable indicator of one's vulnerability to diseases that may develop as body fat increases. Diseases such as high blood pressure, diabetes, heart disease as well as other symptoms will be caused by a high BMI. For instance, there are a few fitness self-management applications in the market such as Google Fit: Health and Activity Tracking [2], Calories Counter – MyFitnessPal [3], Lifesum – Diet Plan, Macro Calculator and Food Diary [4], Da – fit [5], FitBit [6], Noom Weight Loss Coach [10], and Pam App [11], all of them are lacking the feature of calculating the BMI. Lacking this capability makes it unfamiliar to those just beginning their fitness journey. The system would be encouraged to include a BMI calculator function therefore the novices might refer to the BMI rate as their health goal.

1.1.2 Less of the Daily Activity Report Generator

For the fitness self-management application, the daily activity report is crucial since it provides a daily summary for the user to review. The activity report includes daily information, such as weight, BMI, water intake, exercise, calories burned, and so on. After the report has been successfully generated, the user can access their daily activity report to plan and organise their upcoming training schedule. Additionally, users can easily refer to their previous progress as a reference for future planning.

1.1.3 Missing the Menstruation Calendar and Notification

In recent years, an increasing number of women have begun workout. The addition of a platform that enables female users to track their menstruation time will make fitness self-management systems more user-friendly for female users. The system will then estimate the female user's next menstruation date as a reminder to encourage them to perform milder exercises like yoga, Pilates, and many others. Rarely how can an existing fitness self-management application include this capability.

1.2 Objectives

1.2.1 To keep track whether the ability of fitness self-management system has the potential to create activity reports and calculate BMI.

The creation of activity reports with BMI included is important for the future fitness self-management system. Since the activity report contains numerous vital details, such BMI, water intake, calories earned, workout burnt calories, and so forth. In order to plan their upcoming fitness routine, users can also refer back to the previous report. It is being worked on if the activity report is produced successfully once the users have entered their daily weight. Apart from that, if the BMI computation is successful in displaying the proper BMI result, it is regarded as possessing this capability.

1.2.2 To develop a fitness application that will enable users to better monitor their exercise routines, water intake and daily nutrition.

The major objective of the project is to enable users to continuously use the app to monitor their current exercises, water statistics as well as daily nutrition. Their information will be stored in the database as well as later shown to the users as needed. Since they are able to keep track of and view the saved data in an orderly format, the user may get a clearer notion of their future lifestyle. Besides that, the recipes for nutritious meals and beverages will be provided as a guide for daily meal plan [12]. Eating well-balanced meals can help people stay healthy and prevent diseases like cancer, heart disease, and others.

1.2.3 To build a female-friendly fitness self-management application that gives more thought to the women's menstrual cycle.

The addition of female users' menstrual cycles and their recording in the database to predict the next menstrual date is an innovation. As a result, the system will prompt the female user to reduce their exercise intensity. It is crucial to be aware that too much exercise can make a woman miss her menstruation. Due to hormonal and physical changes, endurance and high-performance athletes may skip or stop menstruating.

1.3 Project Scope

According to the aforesaid matters, the project's deliverable is a mobile fitness app that allows users to track their meal and water intake, and workout information such as calories consumed and burnt, water intake's amount, and so forth. There will be a tonne of material available on the mobile application in the meantime in order to create beneficial and hands-on health advice to users to enhance their healthy life.

The workout module is the main component of the Activ8 Me, fitness health application. This module has a number of elements, which are divided into two big categories: indoor exercise and outdoor exercise. The new system for indoor training will show a list of individual exercises like the glute bridge, jumping jacks, crunches, Russian twists, and so forth. In contrast, the user able to record down their daily exercise routine manually.

Apart from that, the food and water module are part of the system. The system will give the user access to the recipe for a nutritious meal and beverage as a guide. Besides, since water is essential for a healthy lifestyle, the water module allows users to enter their daily water intake.

On the top of that, the menstruation calendar will be incorporated into the system. The female user able to insert their previous menstruation date, and the system will estimate the next menstruation date as a reminder to female user.

Last but not least, the user can view activity reports either daily or monthly. For the daily report, it utilized pie chart to show the statistic for user's daily routine included water intake, meal intake, workout calories burnt, and BMI per day. To illustrate the data of monthly report, line chart is wielded to let user have a clear sight about day by day's comparison.

1.4 Contributions

This project will bring a lot of benefit to the users to better manage their nutrient intake and workout routine. The BMI calculator will be included in the health self-management system and will be able to calculate one's body fat percentage and serve as a trustworthy predictor of illness susceptibility. The high BMI will result in a number of ailments, including high blood pressure, diabetes, heart disease, and other conditions. The fitness self-management application will incorporate this BMI calculator by requiring users to provide their pertinent information, including height and weight. After that, the system will calculate the BMI by the actual formula which is weight (kg) / [height (m)]^2. A BMI of 25.0 or higher is regarded as overweight, whereas a healthy range is between 18.5 and 24.9; a BMI below 18.5 is regarded as underweight [1].

Other than that, the application will allow users to view a report on their daily activities. BMI, weight, height, exercise progress, water intake, calories burned, and other elements were included in the report. After users have entered all necessary data, a report will be generated. The activity report will present the information on a single screen. Information can be analysed by users. In order to plan their fitness routine, customers can also refer back to the previous report.

Last but not least, the menstruation calendar will be added into the fitness self-management application. The female user able to insert their previous menstruation date, and the system will estimate the next menstruation date as a reminder to female user. Additionally, the system will alert female users one day in advance of their anticipated menstruation date. The female users are always able to open the portal of menstruation tracking platform to check their next estimate menstruation period date. Hence, it able to prevent female users doing excessive workout before and during their menstruation period.

1.5 Report Organization

This report was divided into a few chapters, the introduction being the first one to start. This chapter includes thorough mentions of the project's problem statements, objectives, motivation, and scope to give audiences a general understanding of the topic in question. Afterward, an analysis of several existing fitness applications is being done in Chapter 2. Besides, Chapter 3 is indicated about the system methodology and approach that utilized. Within this chapter, Use Case Diagram and description, wireframe as well as equation are involved in. Furthermore, Chapter 4 is referred to System Design which demonstrates system Block Diagram, Flowchart, Entity Relational Diagram (ERD), Gantt Chart as well as how the database keeping information, compile the program and how to generate the project from code to APK. However, Chapter 5 is regarding to System Implementation which will include hardware and software setup, setting and configuration, description on application as well as implementation issues and challenges. Additionally, system evaluation and discussion are consisted in Chapter 6. The system evaluation will be conducted by using Blackbox testing, the result of the testing will be in this chapter. Last but not least, the conclusion and recommendations will have in last chapter, Chapter 7.

CHAPTER 2 LITERATURE REVIEW

2.1 Review of the Existing Systems/Applications

Presently, fitness applications are extremely popular. Recent studies show that 42% of smartphone or tablet owners use one or more fitness apps [13]. As wearable technology spreads and becomes more widely available, more customers are linking their smart wearables to applications in order to track their fitness and health. A recent burst of new goods promising to track steps or count calories in order to help customers get fitter, stronger, and healthier has been seen. Several of these apps, meanwhile, struggle to hold users' interest over time. Thus, a literature review will be conducted by reviewing some similar systems.

2.1.1 Google Fit: Health and Activity Tracking

- **Brief**

  Google Fit: Health and Activity Tracking [2] is a physical activity tracking platform developed by Google. A single set of APIs is used to combine data from various apps and devices. In order to give users an all-encompassing view of their fitness, Google Fit [2] utilises sensors in their activity tracker or mobile device to record physical fitness activities like walking, cycling, etc.

- **Strength**

  Google Fit: Health and Activity Tracking [2] supports the capability of personalization workout plans. Instead of adopting the fixed training plan that the system has produced, the user can arrange their workout activities according to their ability. Additionally, Google Fit: Health and Activity Tracking [2] offers activity reports including data on daily steps, time spent walking, a comparison chart for the days, and more. In furthermore, it offers the user the ability to create goals and keep track of their progress over time. This system places a strong emphasis on intercommunal communication since it allows users to share their daily progress with others. Last but not least, creating an account is essential in order to guarantee the user's privileges and data security.

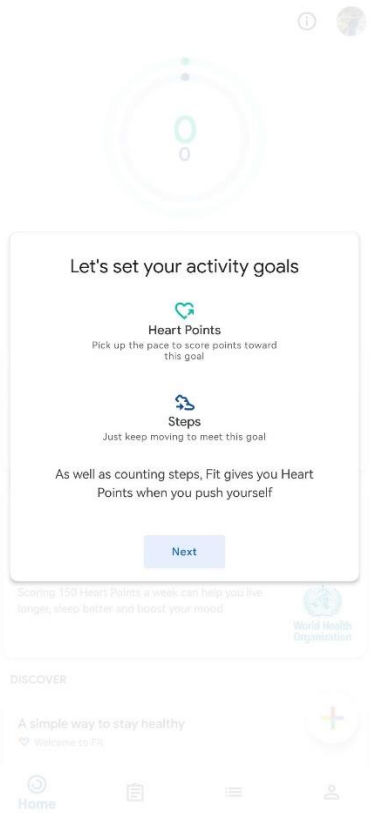


Figure 2.1 Google Fit Activity Goal Setting

- **Limitation**

  According to Google Fit: Health and Activity Tracking's [2] app functionality, tracking BMI is not a feature that is available in body measurements. Besides that, the menstruation calendar and notification generating functions are excluded too. It is also foreign to a new user of the system because it lacks a search window.

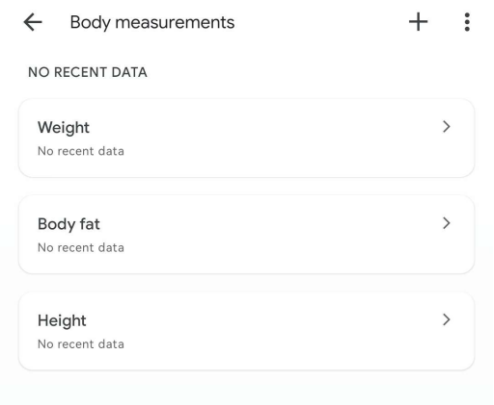


Figure 2.2 Google Fit Body Measurements Page

- **Recommendation**

  It is advised to include the BMI result in the activity report so that the user may readily refer to it. The next step is to develop a female-friendly space that has a menstrual calendar function and sends notifications prior to the estimated menstruation day. The system is recommended to incorporate a search panel inside the page in order to deal with users who are unfamiliar with how the system works.

2.1.2 Calorie Counter – MyFitnessPal

- **Brief**

  Calorie Counter - MyFitnessPal [3] is a self-management tool for fitness with a focus on weight loss. The software uses gamification elements to motivate users to keep up with their dietary and fitness aims. To keep track of their intake, users may manually look for nutrients in the app's vast pre-existing database or scan the barcodes of various food products. MyFitnessPal [3]'s calorie counter gives access to 14 million different foods and has metrics for tracking calories and exercise. Users can combine their fitness data onto a single platform by linking their Calorie Counter - MyFitnessPal [3] account with others like FitBit [6], Samsung Health [14], and Apple Watch [15].

- **Strength**

  The functionality of goal setting is offered by the calorie counter in MyFitnessPal [3]. This application's goal setting is divided into a few categories, including objectives for weight loss goal, dietary improvement’s goal, physical fitness goal, and more. Moreover, it allows users to share their training progress with other people. In order to protect the user's rights and the security of the data, it is also required to register for an account prior to logging into the system.

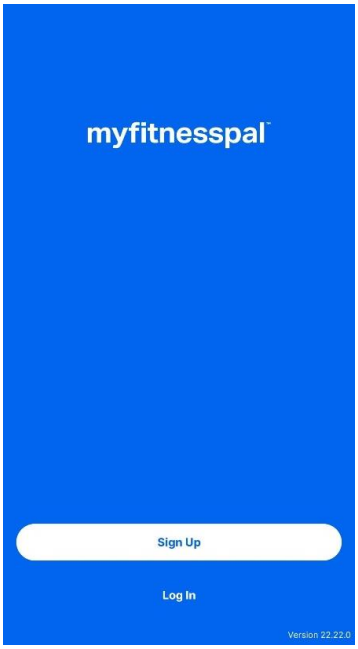


Figure 2.3 MyFitnessPal User Login

- **Limitation**
  Calorie Counter - MyFitnessPal [3] does not offer customized features, resulting in the inability of the user to create their fitness plan. Likewise, it has the drawback of not supporting the generation of activity reports. The user was unable to access their daily workout summary. The lack of a function that displays BMI precludes Calorie Counter – MyFitnessPal [3] users from tracking their basic body fat measurements. Additionally, the system does not provide menstrual cycle notifications, which are unfamiliar to female users. A new user of the system finds it unfamiliar because a search window is missing.

- **Recommendation**
  It is advised that the Calorie Counter - MyFitnessPal [3] implement the missing functionality to address the aforementioned constraint and satisfy user desire. The addition of a portal that allows users to customize their fitness schedule is also advised. Furthermore, a session of activity reporting is created for users to examine daily progress. Then, add the BMI calculator via the report of activity summary. Moreover, a menstrual reminder is generated to advise female users to scale back their exercise. Last but not least, a search panel at the top of the navigation bar to assist the inexperienced user in using the application.

2.1.3 Lifesum - Diet Plan, Macro Calculator & Food Diary

- **Brief**

  An app for digital self-care called Lifesum [4] enables users to eat healthier in order to achieve their weight and health objectives. Find a healthy diet that fits the user's lifestyle and eating habits. Use one of the many active diets, such as Clean Eating and High Protein, to take control of the user's everyday routines. According to Lifesum [4], users should receive four pre-planned recipes each day and stick to a 7–21-day meal plan. There are a variety of meal plans available, including Keto Burn and Vegan for a Week, depending on the user's health objectives.

- **Strength**

  In order to create a customised plan depending on the user's needs, the Lifesum [4] app asks users for details like their height, weight, age, and specific goals when they first join up. Additionally, it contains a weekly health test that provides information on the user's habits as well as possible areas for improvement. Besides that, it has a goal-setting feature that can guide and remind the user to reach their objective over time. Subsequently, it indicates other users how the individual is progressing with their training. In order to protect the user's rights and the security of the data, it is also required to register for an account prior to logging into the system.

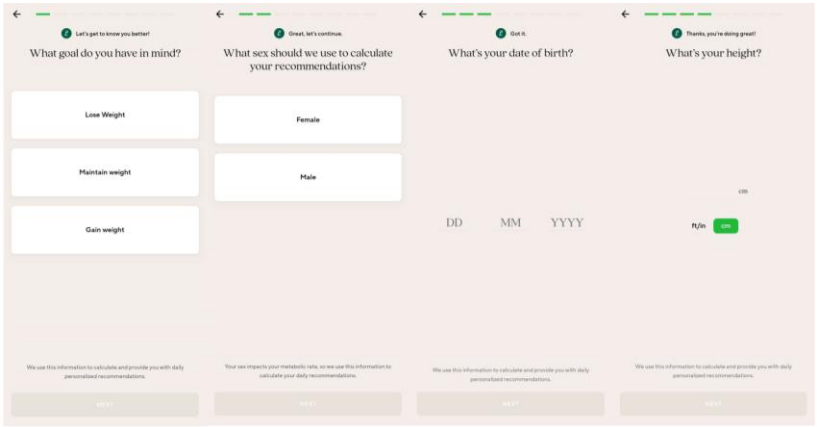


Figure 2.4 Lifesum Personalization

- **Limitation**

The lack of customised options in Lifesum [4] unable to let users developing their own exercise plans. The production of activity reports is not supported, which is another downside. The user was unable to see their summary of their daily workouts. Lifesum [4] cannot track their fundamental body fat measurement due to the lack of function that displays BMI. Menstrual cycle notifications are also lacking from the system. The lack of a search window makes the system strange to a new user.

- **Recommendation**

  It is advised that in order to address the aforementioned restriction and fulfil user demand, Lifesum [4] incorporate the lacking feature. It is also suggested to include a portal where users can choose their own workout routine. Additionally, users can review daily progress in an activity reporting session that is designed for them. Besides, adding the BMI calculator in the activity summary data. Moreover, a menstrual reminder is created to suggest that female users milder on their exercise. Designing a search panel at the top of the navigation bar to help a novice user navigate the application.

2.1.4 Da-fit

- **Brief**

  A health management tool called Da-fit [5] was introduced by Mo Young Limited firm [16] and is used to track physical activity. It features precise motion recording, sleeping information, and exercise analysis. It has the capacity to store all the information obtained by a smartwatch or activity tracker. The user of this application can quickly browse through all their activity status thanks to the straightforward, well-organized layout.

- **Strength**

  Da-fit [5] allows users to customise their fitness schedule to suit their preferences. Secondly, it has the benefit of creating activity reports every day so that users can assess their progress. Furthermore, the user has to enter their goal in order for the system to suggest a training regimen for them. Additionally, the system places a strong emphasis on community communication as it gives users the ability to share progress.

Figure 2.5 Da-fit Goal Setting

- **Limitation**

  Due to the absence of a function that displays BMI, Da-fit [5] is unable to track their basic body fat measurement. Notifications for menstrual cycles are also lacking from the system. The system seems strange to a new user because there isn't a search box. Additionally, the system doesn't include the feature that requires new users to create an account.

- **Recommendation**

  Lack of a BMI calculator can be remedied by incorporating this feature through Da-fit's [5] activity report. Furthermore, a menstrual reminder is developed to advise female users to scale back their exercise. Establishing a search panel at the top of the menu to guide a new user through the programme. As it benefits from data storing, it is advised to include the account registration for signing up purposes.

2.1.5 Fitbit

- **Brief**

  The fitness app Fitbit [6] focuses on the areas of diet and weight control. It has technologies for daily readiness scores, health indicators including SpO2 and AFib assessments, stress management, continuous heart rate monitoring, sleep tracking, voice assistance, and more. It can connect to the smartwatch and retrieve information, which it can then record. It has a high rating in the Play Store, receiving 4.2 stars out of 5. Additionally, it is the first top-grossing health and fitness app available on Google Play.

- **Strength**

  Fitbit [6] allows users to customise their fitness schedules to suit their preferences. Additionally, it has the benefit of creating activity reports every day so that users can assess their progress. Beyond that, the user must specify their goal in order for the system to suggest a training regimen for them. Additionally, it encourages individuals to update the community on their exercise progress. Apart from that, it has a unique feature that female users are familiar with menstruation notification. Last but not least, creating an account is necessary for new users before they can log in to the system to ensure the security of the users' data.

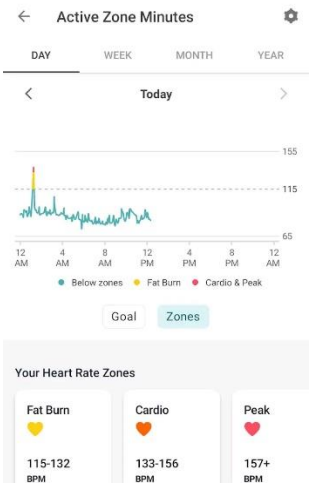


Figure 2.6 Fitbit Activity Report

- **Limitation**

  Fitbit [6] is unable to monitor their basic body fat measurement because it lacks a feature that displays BMI. Since there isn't a search box, the application feels lost when using the application to a new user.

- **Recommendation**

  The activity data on the Fitbit [6] can be used to add a BMI calculator, which will solve the problem that aforementioned. Adding a search panel to the menu at the top will help a new user navigate the application.

No	Categories			Application Name	Rating	Personalised	Activity Reports	Tracks BMI	Menstruation Calendar and Notification	Search Panel	Account Registration
	Workout Tracking	Nutrition	Weight Management								
1	✓			Google Fit: Health and Activity Tracking	3.9	✓	✓	×	×	×	✓
2		✓	✓	Calorie Counter- MyFitnessPal	4.7	×	×	×	×	×	✓
3		✓	✓	Lifesum - Diet Plan, Macro Calculator & Food Diary	4.4	×	×	×	×	×	✓
4	✓			Da-fit	3.6	✓	✓	×	×	×	×
5		✓	✓	Fitbit	4.0	✓	✓	×	✓	×	✓
6	✓	✓	✓	Activ8 Me	–	✓	✓	✓	✓	✓	✓

Table 2.1 Similar Systems Comparison

CHAPTER 3 SYSTEM METHODOLOGY/APPROACH

3.1 Method Involve

3.1.1 Agile Methodology

The Agile Methodology has been selected as the preferred system technique for this project due to its inherent flexibility and adaptability compared to other methodologies. It allows for quick adjustments and refinements, even during the final stages of development, ensuring continuous improvement as tasks are reviewed, tested, and refined iteratively. By focusing on deliverables and conducting frequent testing throughout each project cycle, Agile enables faster project delivery, which is particularly advantageous given the project's tight timeline. Moreover, the iterative nature of Agile allows for ongoing progress and the opportunity to address any errors or necessary adjustments promptly. In essence, Agile methodology facilitates continuous improvement, review, and evolution at every phase of the project.

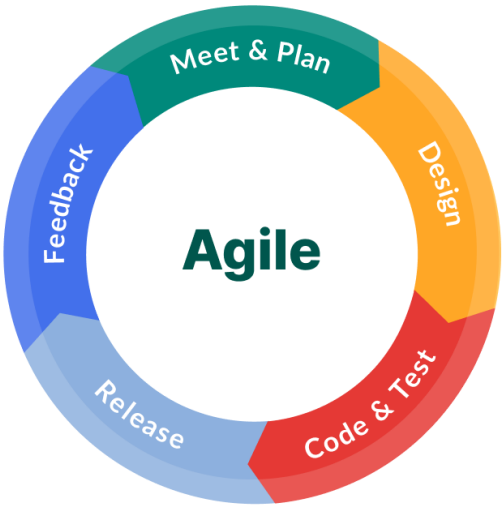


Figure 3.1 Agile Methodology Flow

3.2 System Design Diagram/Equation

To begin with, to commence a project's development phare, the design phase assumes paramount importance. Incorporating use-case diagram and activity diagrams within the design phase is essential for providing a comprehensive understanding of the project's structure and functionality.

3.2.1 Use-Case Diagram and Description

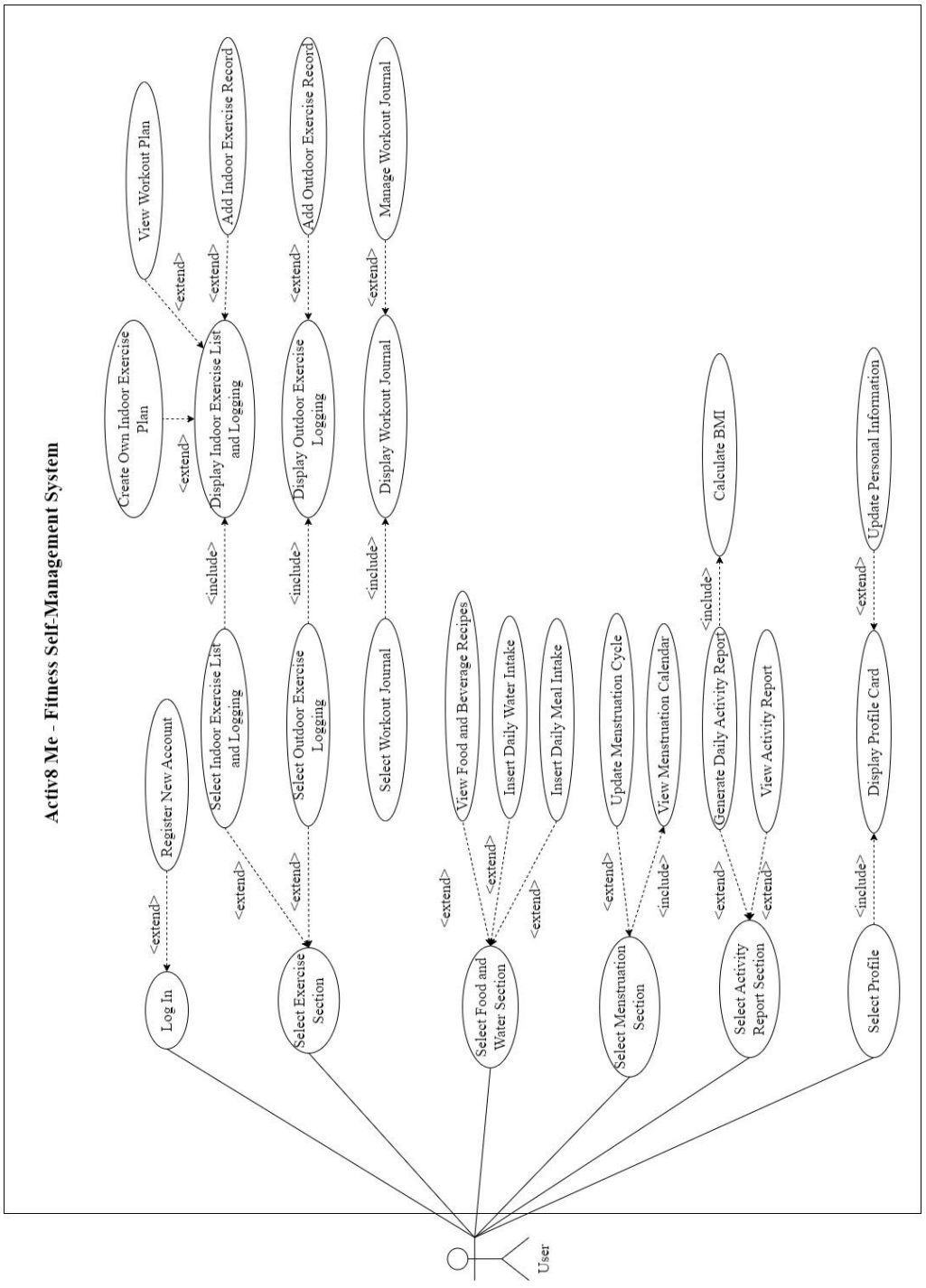


Figure 3.2 Activ8 Me – Fitness Self-Management Use-Case

The figure 3.2 indicates the use case of fitness self-management application. The actor user, able to log in the application. It has an extend which is registering a new account. This feature is used by those who are new to the app. Besides that, the user able to select exercise module, then in this module, it has two extend which is selecting indoor exercise list and logging as well as selecting outdoor exercise logging. After selecting the function, the users will be prompted to encounter the list of exercises based on their choice. For the indoor exercise list, it has three extends, which are creating their own exercise plan, viewing their workout plan as well as adding the indoor exercise record. In contrast, for the outdoor, it has functions of adding the outdoor exercise record. Besides, the users are able to write down their feeling through workout journal section.

Apart from that, the user able to select the food and water section. It also occupies three extends which are view food and beverage recipes, insert daily meal intake as well as insert daily water intake. Beyond that, the subsequent feature is selecting menstruation section which is familiar to female user. It is extended to update menstruation cycle and the extend of viewing menstruation calendar. After the female user enter their menstruation cycle, the system will estimate the next menstruation date to remind the female users. On the top of that, the users able to select the activity report section. It is extended to firstly, generate daily activity report as well as monthly report. In this feature, the system will retrieve user's weight per day, then generate an activity report which is including the BMI result.

For the personal profile, the users able to select the profile and display their own profile card as well as uploading their preferrable profile image. If the users are willing to change their profile details, they also encouraged to click the edit button to update the latest information.

3.2.2 Wireframe

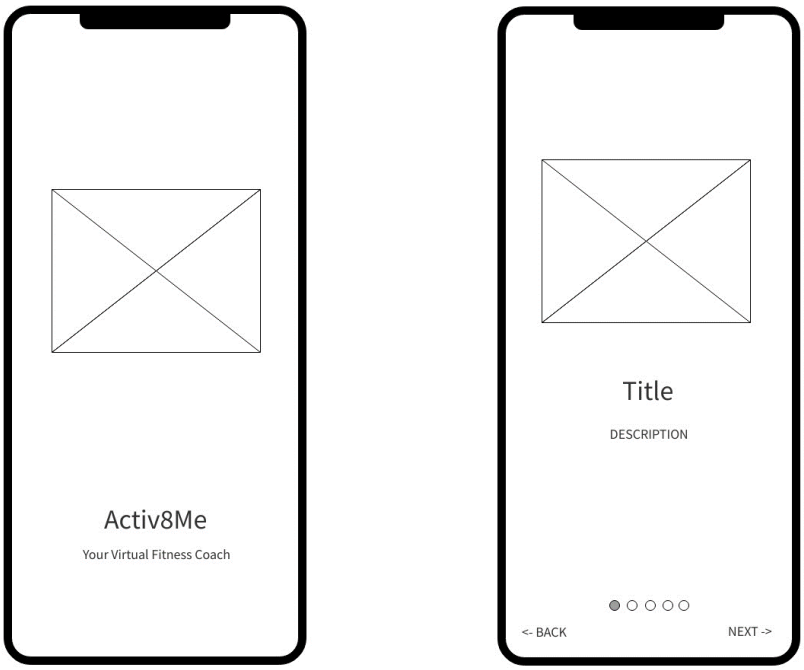


Figure 3.3 Splash Screen & Walkthrough Screen Wireframe

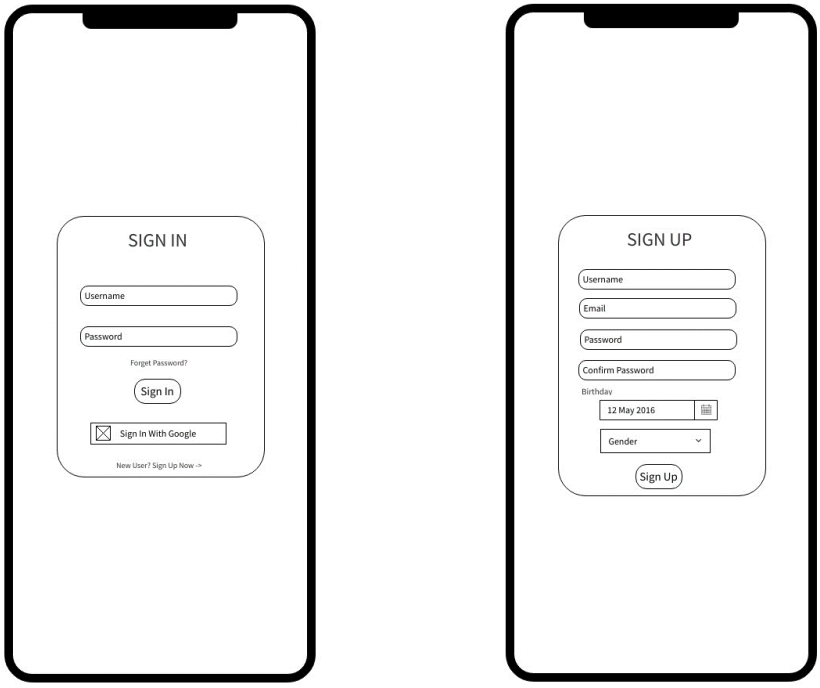


Figure 3.4 Sign in & Sign-Up Wireframe

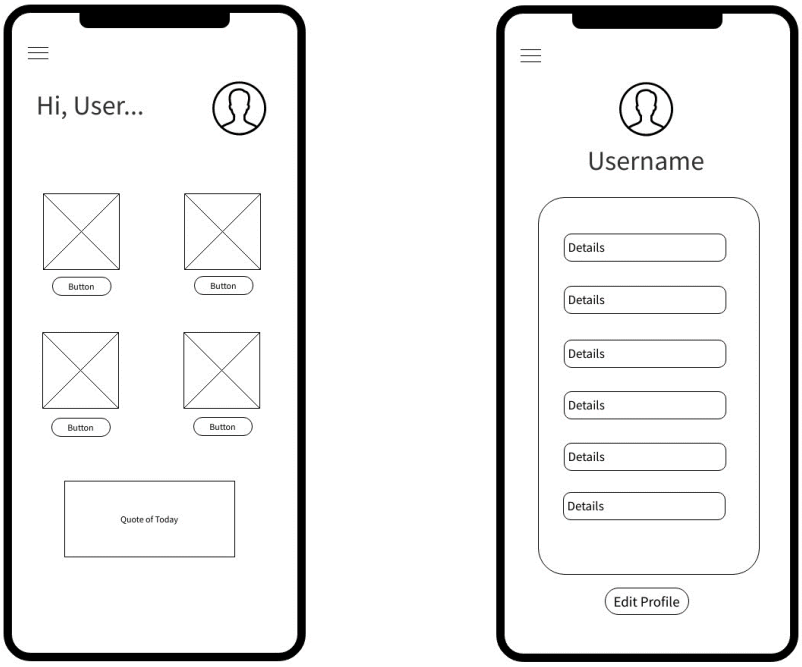


Figure 3.5 Main Page & Profile Wireframe

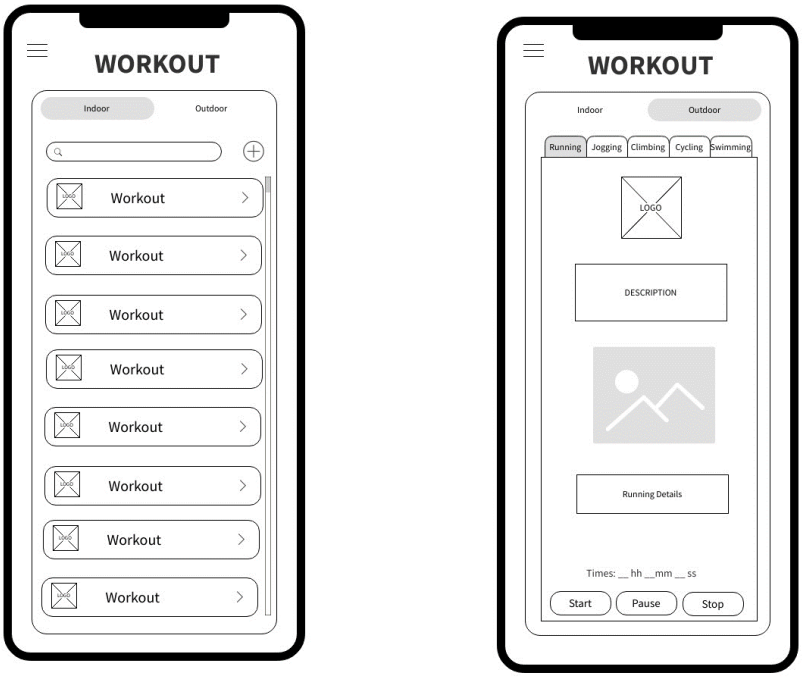


Figure 3.6 Workout Wireframe

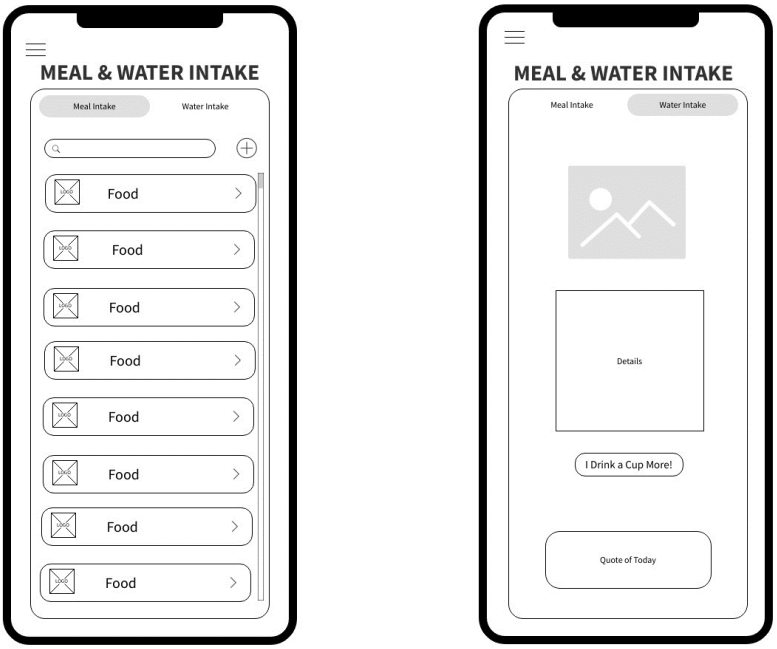


Figure 3.7 Meal and Water Intake Wireframe

Figure 3.8 Menstruation & Daily Report Wireframe

3.2.3 Equation

- **Body Mass Index (BMI)**

  Body Mass Index, as known as BMI, is a common measurement of a person's body fat based on the calculation of weight and height. It is calculated based on dividing the weight (in kg) by their height (in m), which is indicated by the following formula:

$$BMI = \frac{Weight\ (kg)}{Height^2\ (m)}$$

  Typically, the BMI ranges can classify into different categories as follow:

BMI value	Status
<18.5	Underweight
18.5 to 24.9	Normal range
25 to 29.9	Overweight
30 to 34.9	Class I obesity
35 to 39.9	Class II obesity
> 40	Class III obesity

Table 3.1 BMI Ranges

- **Water Intake Per Day**

  Based on the weight and exercise duration, calculate how much water should the people drink per day, the calculation shown as below:

  Before factoring in physical activity:

$$\text{weight(lbs)} \times 0.5 = \text{oz. of water per day}$$

$$\text{previous result} + \left(\frac{x\ minutes\ of\ exercise}{30\ minutes} \times 12\ \text{oz.}\right) = \text{oz. of water per day}$$

- **Meal Intake Per Day**

  Based on the weight, height, and age, calculate out how much calories need to be consumed per day.

$$\textit{Male: } \left(10 \times weight(kg)\right) + \left(6.25 \times height\ (cm)\right) - (5 \times age) + 5 = BMR$$

$$\textit{Female: } \left(10 \times weight(kg)\right) + \left(6.25 \times height\ (cm)\right) - (5 \times age) - 161 = BMR$$

- **Next Menstrual Cycle Start Date**

  The calculation for predicting the start day of the next menstrual cycle is as follows:

$$\text{Last day of the last menstrual cycle} + \text{Length of the menstrual cycle} = \text{Next Menstrual Cycle Start Date}$$

Chapter 4 System Design

4.1 System Block Diagram

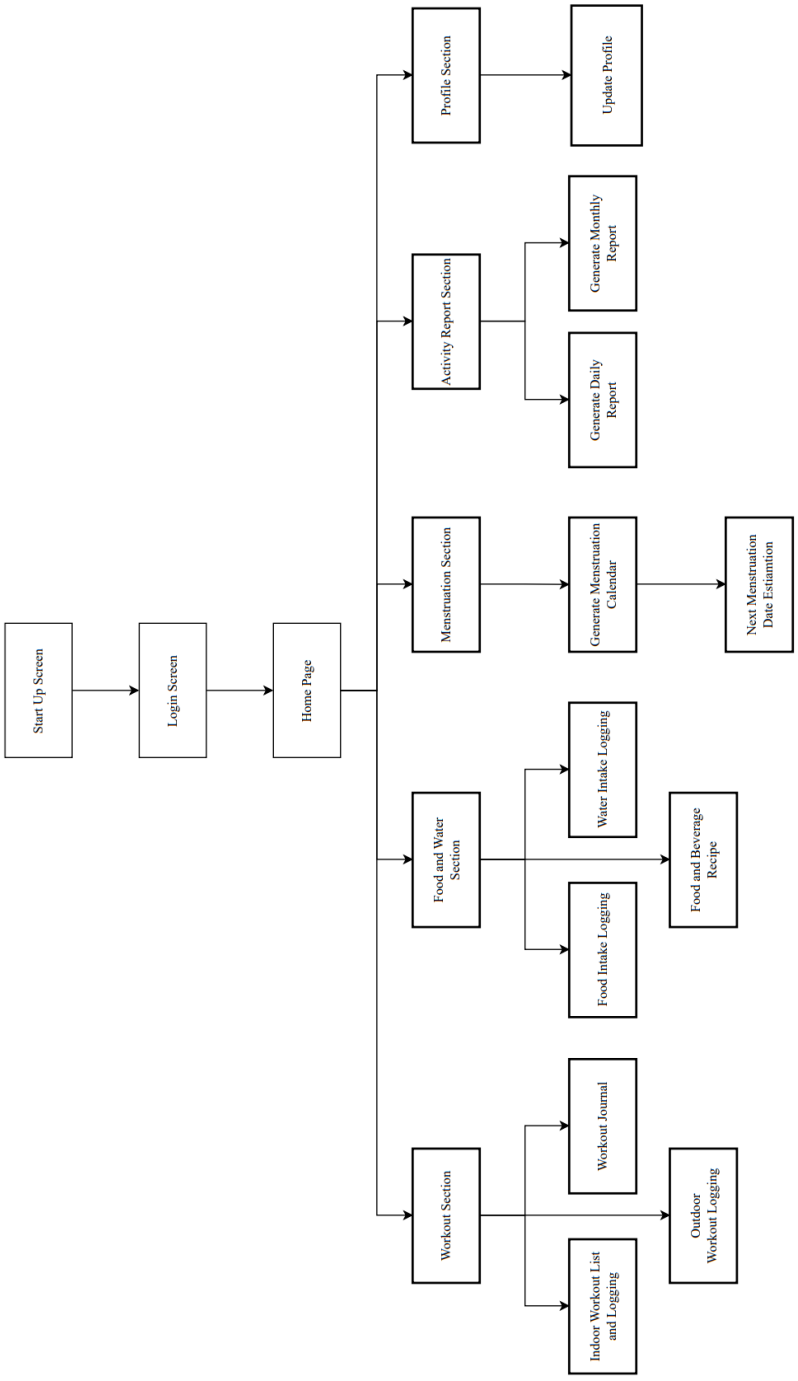


Figure 4.1 Activ8 Me Block Diagram

Firstly, the user will bring to a startup screen which included splash screen and slider adapter's features introduced page. After few seconds, the user will be able to sign in themselves.

After the users successfully to homepage, the app separates into four main modules which are workout, food and water, menstruation as well as activity report section. For the first module, workout section, it is depicted into three sections which are indoor, outdoor and journal sections. The user able to select the prepared workout plan to embark on their workout journey or create their own workout plan. Within the workout plan, the animation and description in the workout plan will start concurrently with the duration. Besides, the user also able to manually key in their indoor activities record. For the outdoor page, the user able to insert their daily outdoor record through the section. A journal section also added within the section which is able to let the user to record down the day's workout feeling and so on.

For the second module, food and water section, it contains food and beverage recipes to guide the users' meals and water intake logging. The water and meal intake logging are the site for recording down the total amount of water intake in a day as well as meal that have users ate per day. Apart from that, the menstruation section is designed for female users to record their menstruation cycle. Then, the system will generate a menstruation calendar for the users. The last major component is activity report section. The system will generate daily and monthly report which contained meal, water, workout as well as weight summary by demonstrating attractive pie chart or line graph. Last but not least, the profile section, the users able to view their profile card as well as update their information through this module.

4.2 Flowchart

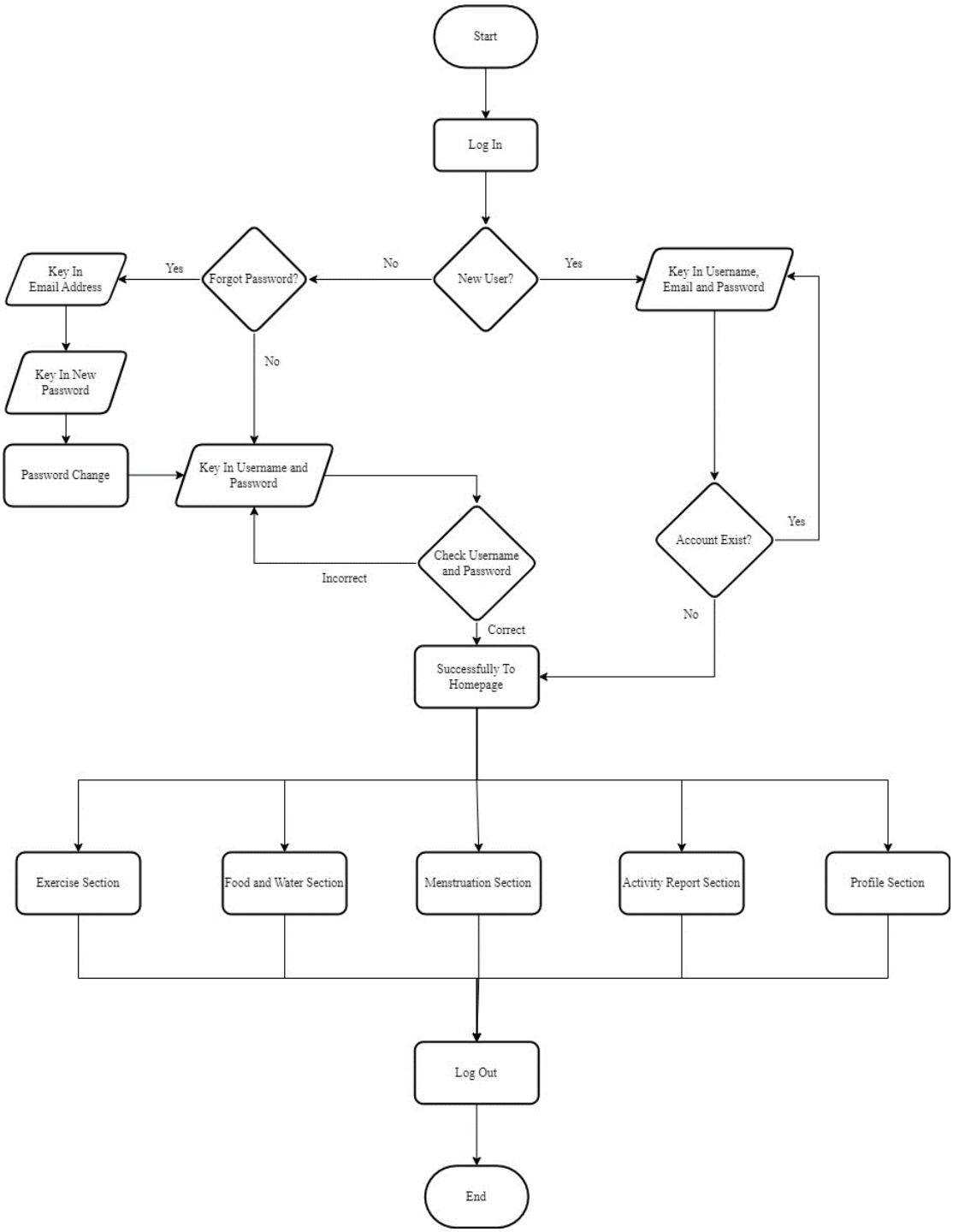


Figure 4.2 Flowchart of Fitness Self-Management System

The users are presented with a login screen when they first launch the application and are required to check in before they can access the app's home page. If they are not existing users, they can create new accounts at the registration screen. They will be redirected to the homepage following either of the two actions. The homepage featured various modules, including sections for Exercise, Food and Water, Menstruation, Activity Report, as well as Profiles. Consequently, the fitness app come into the end.

4.3 Entity Relationship Diagram (ERD)

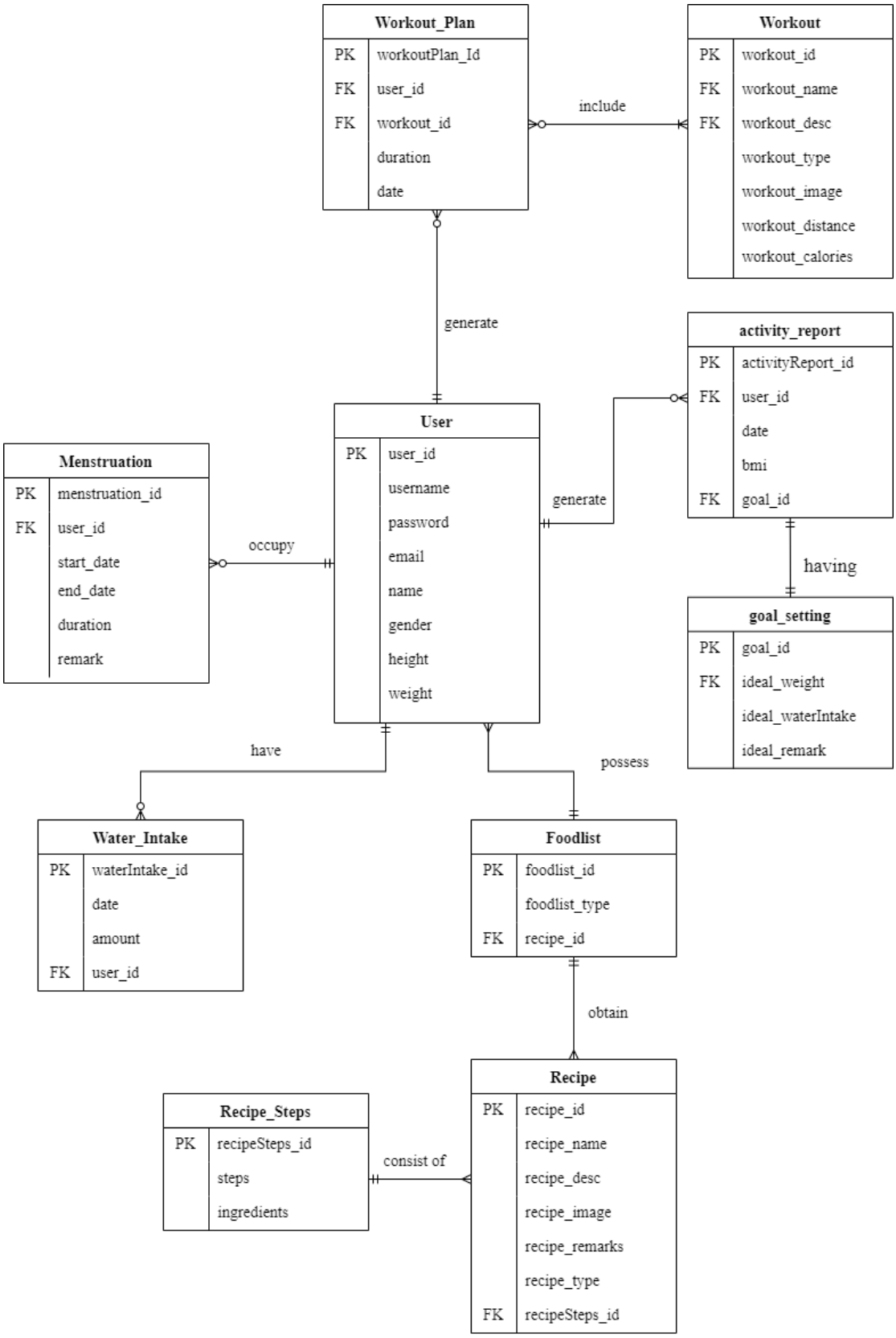


Figure 4.3 ERD of Fitness Self-Management System

From the figure 4.3, it consists of ten entities and each other is dependencies to each other. To begin with, a user able to generate zero to many workouts plans according to their preferrable. However, a workout plan only can be generated by one and only one user. Subsequently, a workout plan needs to include at least one workout. Whereas workout can be included in zero to many workout plans.

Apart from that, the user able to generate zero to many activity reports. Nevertheless, an activity report only able generated by one and only one user. An activity report included one and only one goal setting. While a goal setting only able be set by one activity report.

Beyond that, a user able occupy zero to many menstruation records. As it is not urged to utilize by all users. This entity is only friendly to female user. Whereas a menstruation record is referred to only one user.

On the top of that, a user able to have zero to many waters' intake records. However, a waters' intake record is referred to only one user. A user only able to possess only one food list. But a food list able to be possessed by numerous users. The food list obtains many food and beverage recipes however, these recipes are only possessed by a food list. These recipes consist of the steps and ingredients which are store in recipe_steps entity. The recipe_steps is consisted of numerous recipes. Nevertheless, the recipe only contains one recipe_steps.

4.4 Database Management and Application Deployment

4.4.1 Google Firebase Setup

- **Firebase Authentication**
  - Create a new Firebase Project through Firebase Console.
  - In the Firebase Console, select created project.
  - Navigate to the “Authentication” section, choose the authentication methods (email/password and Google sign-in).
- **Firebase Realtime Database**
  - In the Firebase Console, select the existing project.
  - Navigate to the “Database” section, click on “Create Database” and choose “Realtime Database”.
  - Set unique security rules and enable to create own database.

4.4.2 Step to Generate APK

- After done developing phase, click on the “Build” in Android Studio.
- Select “Build Bundle(s)/APK(s)”
- Choose “Build APK(s)”
- Locate the prepared APK through file explorer.
- Download the APK on the devices.

4.5 Gantt Chart

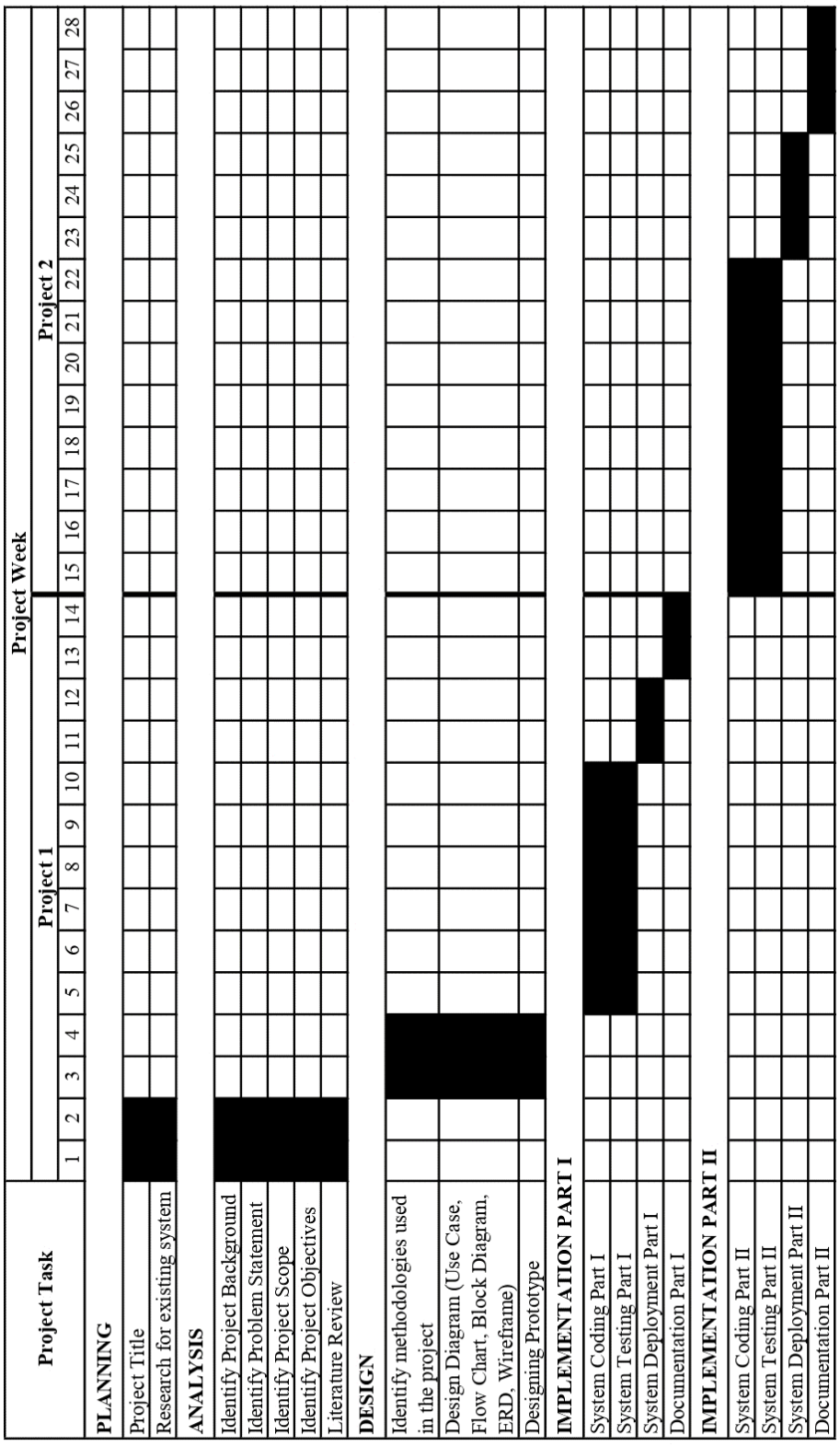


Figure 4.4 Gantt Chart

Chapter 5 System Implementation

5.1 Hardware Setup

Two major hardware platforms are involved in this project:

- **Android Mobile Devices**: Huawei P30 with android version is used for demonstration and testing purpose. This device with the SDK version 28 (Android 9) as well as EMUI 12.0.0. The specification for the device is 8GM RAM and 128GB internal storage.
- **Laptop**: The project is developed on the MSI Pulse GL66 laptop using code. The minimum specifications for a laptop are 8GB DDR3L RAM, an Intel i7 8th core, an NVIDIA GeForce MX150 with 2GB VRAM, and a 500GB hard drive.

5.2 Software Setup

5.2.1 Firmware or OS

The firmware or operating system (OS) for each of the hardware platforms are:

- **Android Mobile Devices**: The Huawei P30 is running on the Android operating system, specifically Android version 9 (as known as Android Pie). Besides, it's running Huawei's EMUI 12.0.0 user interface on top of Android.
- **Laptop**: MSI Pulse GL66 is running on the Windows 11 operating system which is the latest version of Microsoft's Windows operating system at the time of the project's development.

5.2.2 Database

- **Firebase Realtime Database:** Using NoSQL databases located in the cloud that provide real-time data syncing and storing. Since all data can be stored on the cloud to prevent data loss, it is especially well-suited for real-time applications. Additionally, the benefit of cloud storage for logging in with the same data across devices.
- **Firebase Authentication:** It is commonly used to store credentials and emails, as well as social media logins like Google login. Tasks related to user management, including account verification, password resets, and user registration, can be handled by it.

5.2.3 Programming Language

Java is the chosen programming language for Android development in this project, benefiting from its official support and extensive ecosystem. Leveraging Java streamlines app development, ensuring compatibility and performance across various Android devices. The decision to use Java aligns with industry standards and facilitates efficient development practices.

5.2.4 Application

Android Studio is utilized to accomplish the Activ8 Me, fitness self-management mobile application. By utilizing this software, it is considered as software development kit (SDK) which is popular for creating Android mobile applications. Since Android Studio is a more stable IDEs in terms of responsiveness and crashing.

5.3 Setting and Configuration

The users' setting and configuration requirements are demonstrated below:

1. Users are required to own an Android device and download the application.
2. Users are required to have Internet access.
3. Users are required to have own account before log in the application.

5.4 System Operation

5.4.1 Splash Screen

Figure 5.4.1 Splash Screen of Activ8 Me

This splash screen is designed for the representation of the Activ8 Me app. Besides, to make the screen more engaging, the animation from top to centre is utilized (Figure 5.4.1).

5.4.2 Walkthrough Screens

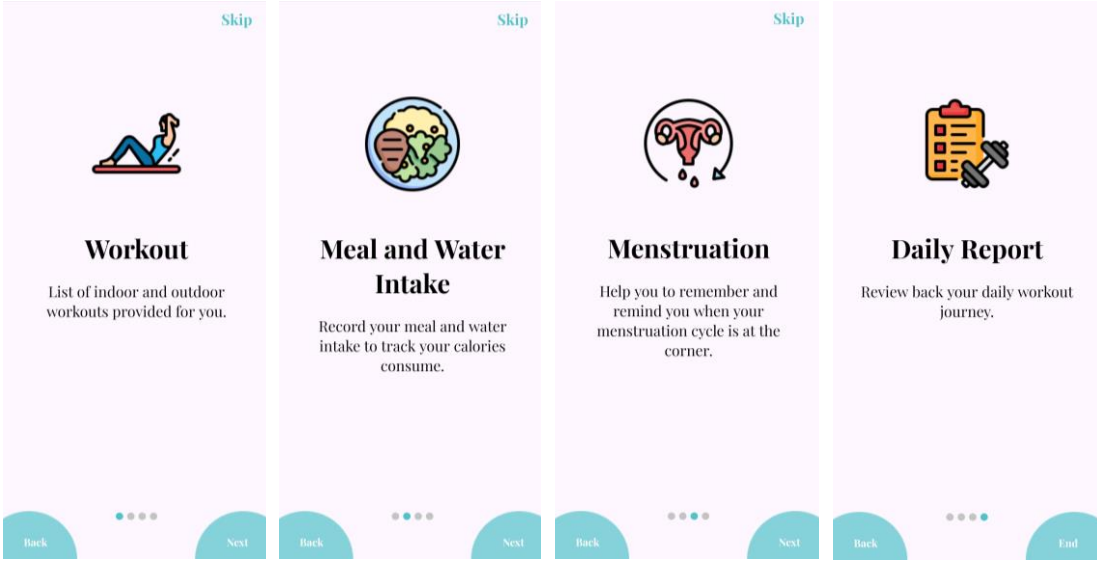


Figure 5.4.2 Walkthrough Screen of Activ8 Me

To enhance user experience by assisting the users better understanding on how to use the app effectively, Walkthrough screens as known as onboarding screens are designed to showcase its key features. From the afore figures, there are four major modules insides, which are workout module, meal and water intake module, menstruation module as well as daily report module. On the right top of each walkthrough screen has a shortcut to skip them (Figure 5.4.2).

5.4.3 Login Page

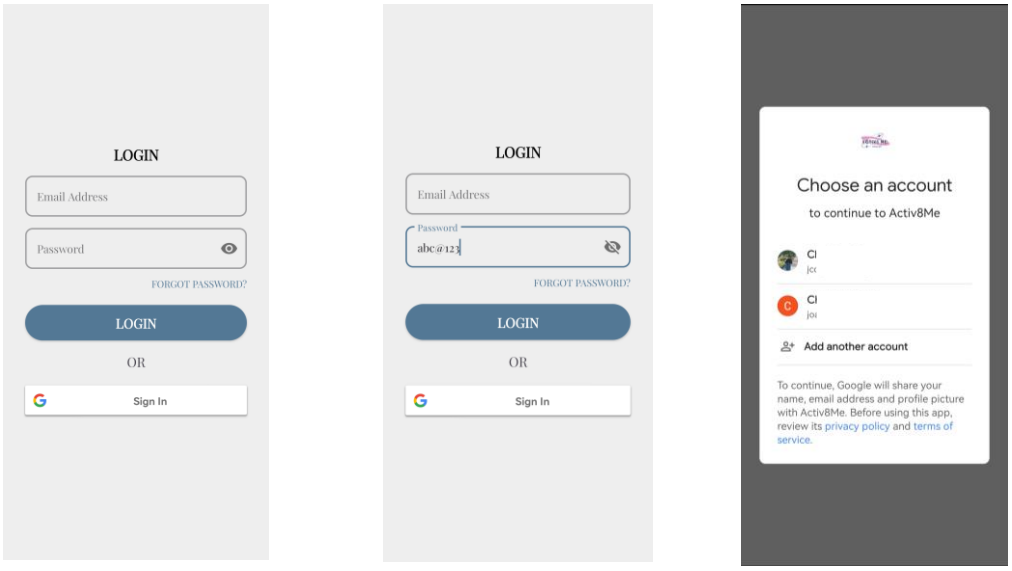


Figure 5.4.3 Login Page of Activ8 Me

Users are having two alternatives for logging into their respective accounts by filling up their email and password or instantly logging in via the Google Authentication button. The system will check the account exists or not, if no, then the system will directly create a new account. The password section is designed with the show password and hidden password. However, for the Google Sign in, the user can search for the login account (Figure 5.4.3).

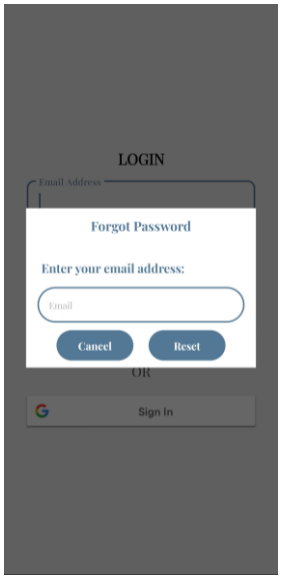


Figure 5.4.4 Forgot Password Dialog Box of Activ8 Me

Besides, users are able to click Forget Password text if they are forgetting their password by enter their email address through prompt dialog box. The system will bring Google's Authentication page and asked the user to change a new password through email address (Figure 5.4.4).

5.4.4 Main Page

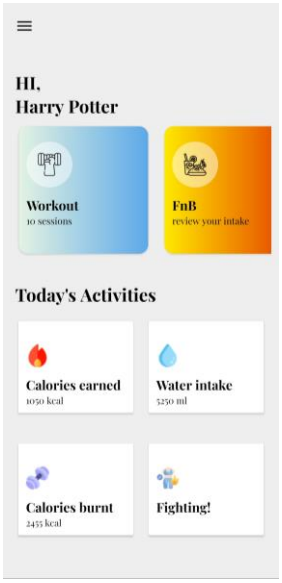


Figure 5.4.5 Main Page of Activ8 Me

This page features a user dashboard for Activ8 Me. At the top, there is a scrollable slider Recycler View which displaying the project's modules such as "Workout", "FnB (Food and Beverage)", "Menstruation", "Report" and "Profile". Below, there are card views presenting summary statistics for the user's activities, including "Calories earned", "Water intake", and "Meal intake". Each card provides a snapshot of the corresponding activity's progress or status, such as the number of meal calories intake, or the amount of water consumed as well as number of calories burnt through workout. Overall, the layout offers a concise overview of the user's nutrition and workout metrics.

5.4.5 Navigation Bar

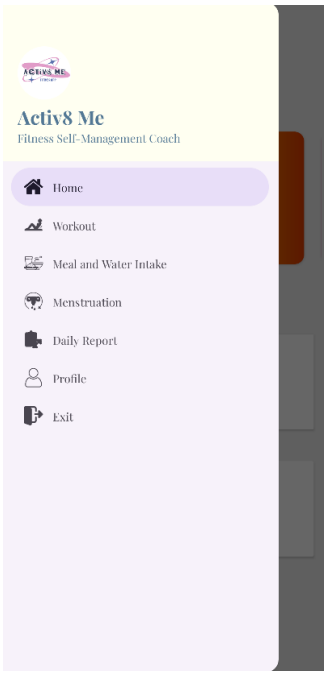


Figure 5.4.6 Navigation Bar of Activ8 Me

The list of menus will display to users after they clicked on the menu button which located on the top-left corner of their home page. Users able to choose the respective feature available in the menu to navigate to the corresponding page. Users could also view their profile or log out within this navigation bar.

5.4.6 Workout Module

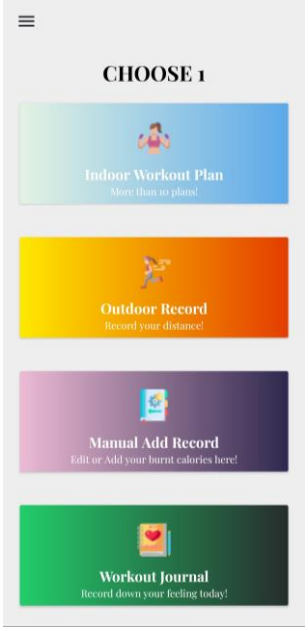


Figure 5.4.7 Workout Main Menu of Activ8 Me

Workout Module is mainly divided into four major parts, indoor workout plan, outdoor record, manual add record and workout journal. Each of the recycler view will bring to each section (Figure 5.4.7).

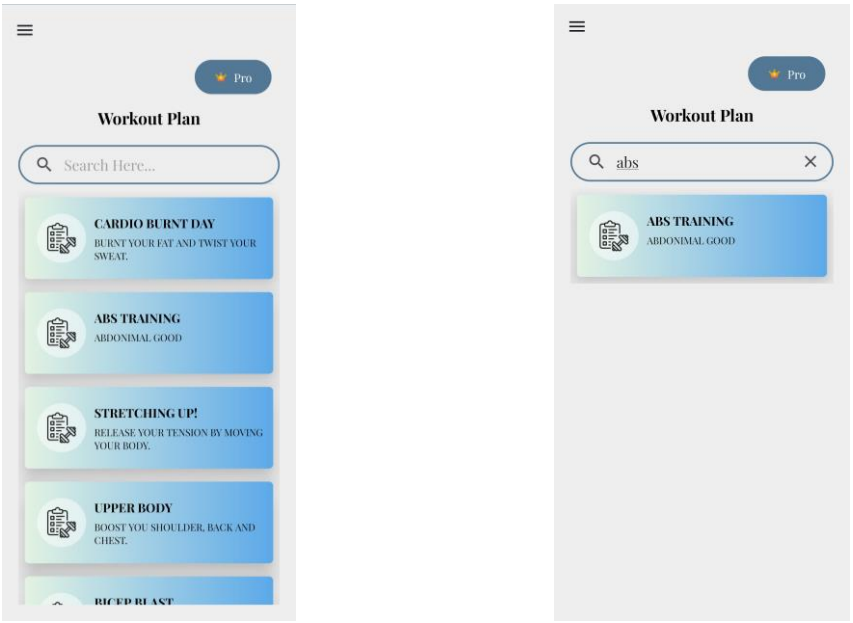


Figure 5.4.8 Workout Plan of Activ8 Me

This page displays various workout plans available within the Activ8 Me app. Users can browse and select workout plans from this section. Additionally, a search panel is

provided, allowing users to search for specific or preferred workout plans with ease. The search functionality enhances user experience by enabling quick access to desired workout plans tailored to individual preferences and fitness goals (Figure 5.4.8).

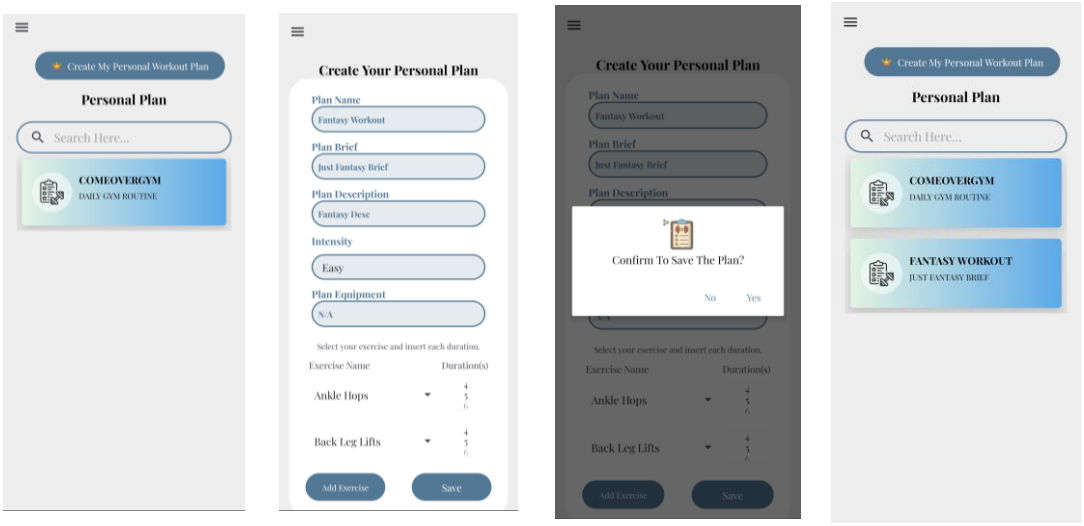


Figure 5.4.9 Personalized Workout Plan of Activ8 Me

The system is designed to enable users to personalize their workout plans by customizing the content. To access this feature, users can click on the "Pro" button located at the top right corner of the prepared workout plan page. Upon clicking, the system displays a list of previously created personalized workout plans, with a search bar available at the top for easy navigation. Users can create a new personalized plan by clicking the "Create My Personal Workout Plan" button, where they can input details such as plan name, briefing, description, intensity, equipment, exercise name, and duration. Before saving the data, a confirmation dialog will prompt users for confirmation. Once confirmed, the data will be saved and displayed in the list of personalized workout plans (Figure 5.4.9).

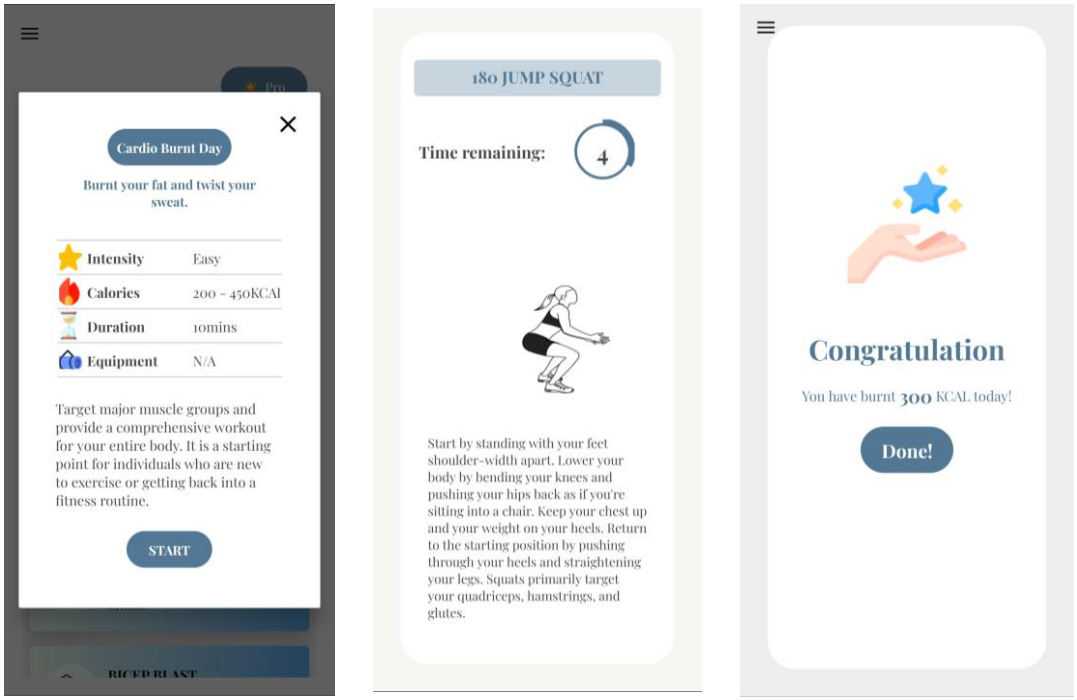


Figure 5.4.10 Workout Plan Activity of Activ8 Me

Both prepared and customized workout plans offer a detailed overview when clicked, presenting a brief about the workout plan in a dialog box. Upon clicking the start button, the workout begins sequentially, guiding users through each exercise. Once all exercises are completed, users are directed to a congratulatory page. This page records the calories burnt during the workout and saves this data into the database, providing users with a comprehensive overview of their fitness progress and achievements (Figure 5.4.10).

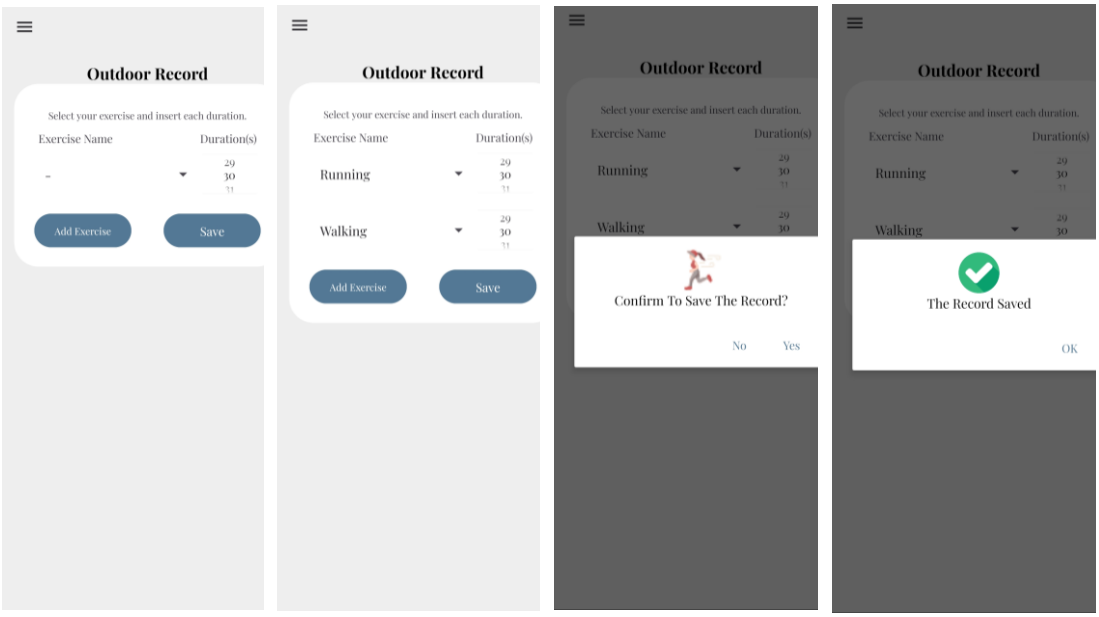


Figure 5.4.11 Outdoor Workout Record of Activ8 Me

Users can add outdoor exercise records by inserting exercise names and durations into the exercise column. Upon adding a record, a confirmation dialog box will appear to confirm the entry. After successfully saving the record, a notification dialog will also be displayed, providing feedback to the user that the record has been saved successfully (Figure 5.4.11).

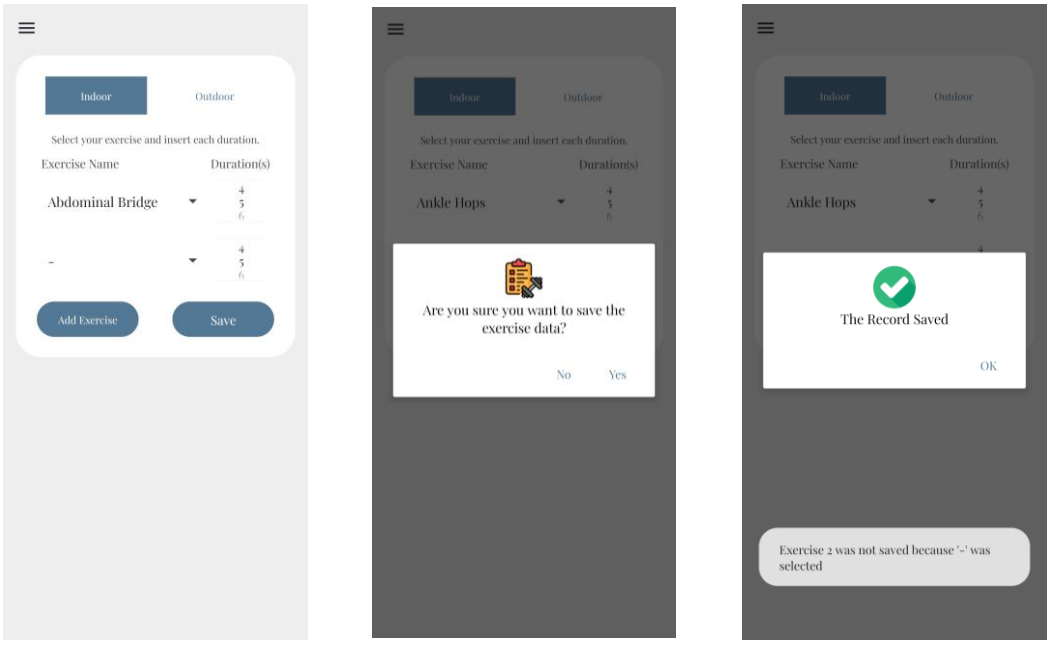


Figure 5.4.12 Indoor Manual Insert Workout Record of Activ8 Me

Indoor workout records can also be manually added through this page. Users can insert their indoor workout details, and upon confirmation, a dialog box will indicate successful saving of the record. Additionally, if a user accidentally clicks on "add column," the system will detect this action and refrain from storing the entry in the database, ensuring data integrity, and preventing unintended additions (Figure 5.4.12).

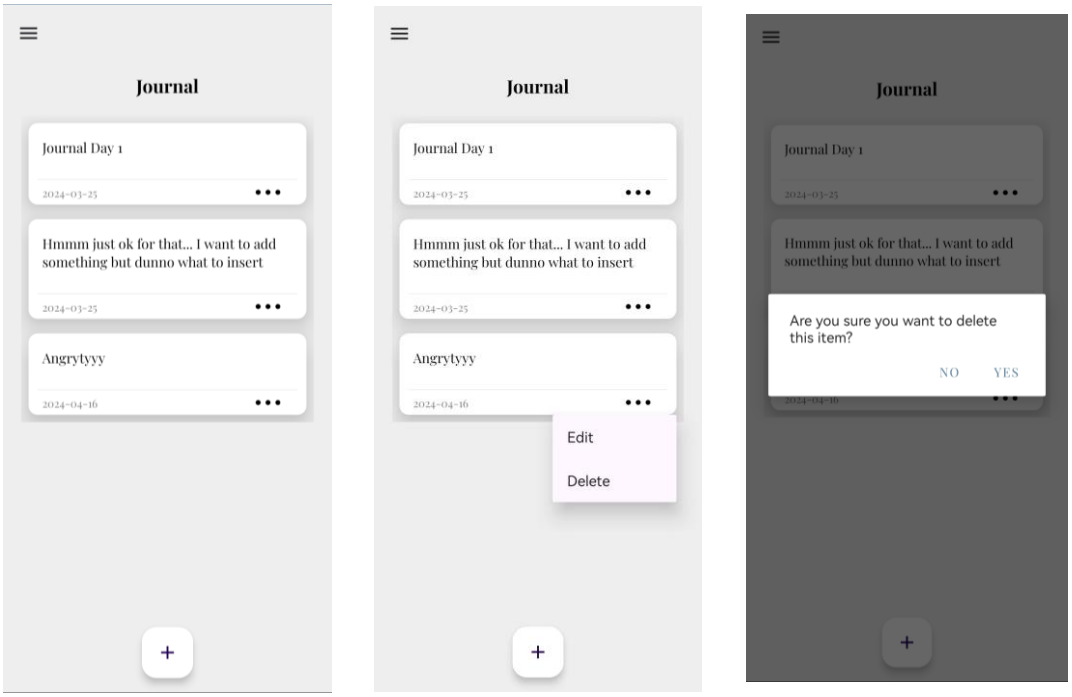


Figure 5.4.13 Workout Journal of Activ8 Me

The system now includes a new feature called the "Workout Journal," providing users with a platform to share their daily workout experiences and feelings. Users can choose to edit or delete existing journal records for added flexibility. If a user selects the delete option, the system will display a confirmation dialog box to ensure the user's intention before proceeding with the deletion. This feature enhances user engagement and allows users to reflect on their workout journey effectively (Figure 5.4.13).

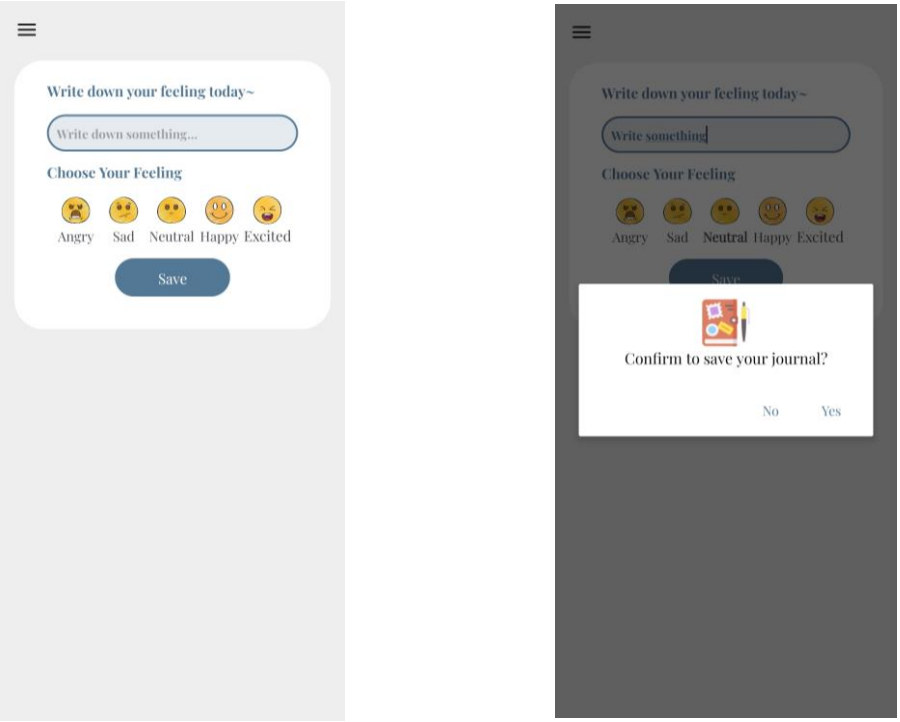


Figure 5.4.14 Workout Journal Insert Section of Activ8 Me

Within this page, users can input their workout content and select their current feeling. Upon saving their input, a confirmation dialog will be displayed, ensuring that the user's entry is successfully recorded. This streamlined process provides users with a seamless experience for documenting their workout journey and expressing their emotions associated with their fitness activities (Figure 5.4.14).

5.4.7 Meal and Water Module

Figure 5.4.15 Meal and Water Main Menu of Activ8 Me

This is the main menu for the Meal and Water Module, categorized into three components: meal intake, water intake, and meal recipe recommendations (Figure 5.4.15).

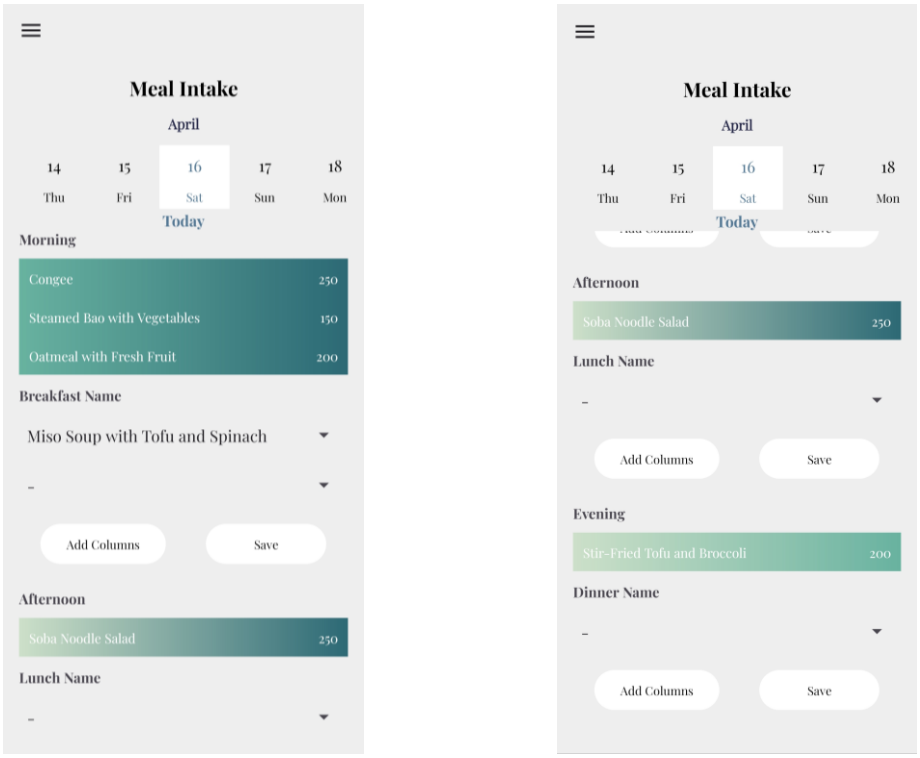


Figure 5.4.16 Meal Intake of Activ8 Me

In the Meal Intake page, the current date is displayed at the top, allowing users to easily identify the date for their meal entries. Users can insert their breakfast, lunch, and dinner by filling out each column accordingly. After saving their meal selections, the chosen meals will be indicated in the list above, with the corresponding calories displayed for each meal entry. This streamlined process facilitates efficient tracking of daily meal intake and calorie consumption for users (Figure 5.4.16).

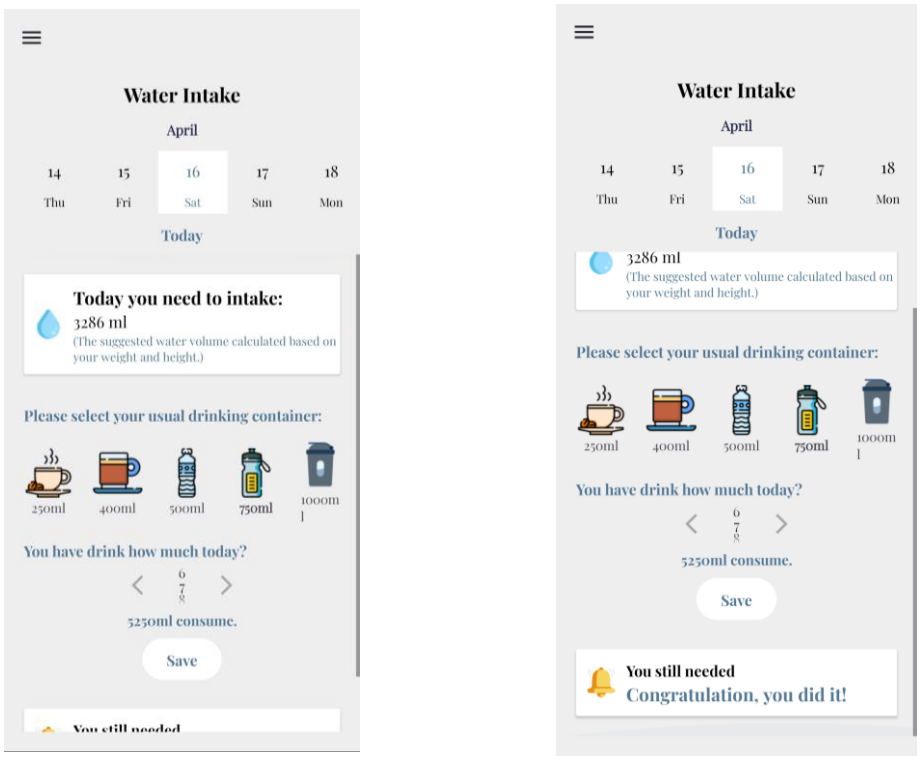


Figure 5.4.17 Water Intake of Activ8 Me

In the water intake page, the current date is displayed at the top. Below, users will find the recommended daily water intake calculated based on the formula provided in Chapter 3.2.4. Users are then prompted to select their drinking container size and input the number of cups consumed. After saving their data, the system provides message based on the user's water intake. If the user consumes the expected water volume, a "Congratulations" message is displayed. However, if the user hasn't consumed enough water, the system indicates how much water is left to reach the target. This functionality encourages users to stay hydrated and tracks their progress towards meeting their daily water intake goals (Figure 5.4.17).

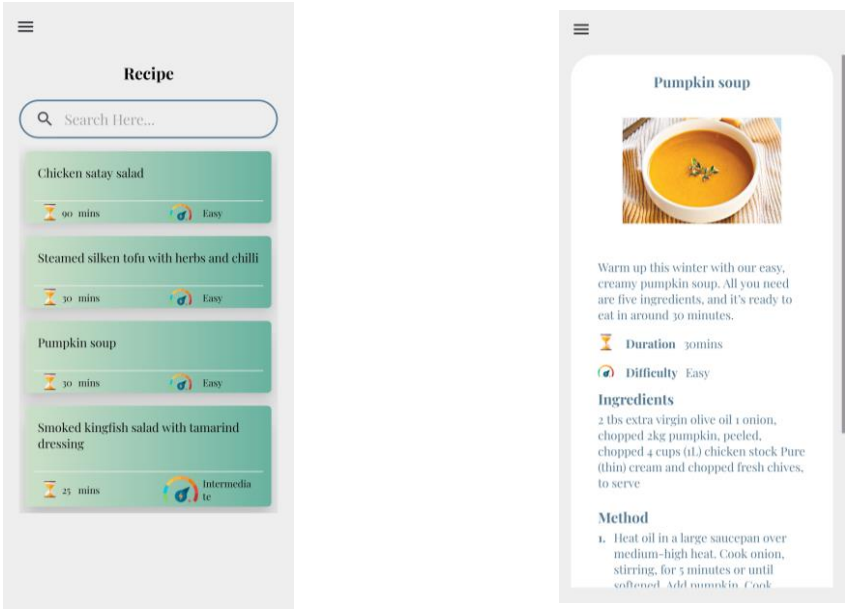


Figure 5.4.18 Meal Recipe of Activ8 Me

The page act like a digital recipe book, offering users a convenient way to discover and explore various healthy meal options. Users can search for specific recipes using the search bar or simply scroll through the list of recipes. Each recipe card provides essential details such as the name of the dish, estimated preparation time, and difficulty level, making it easy for users to find recipes that suit their preferences and cooking skills. Clicking on a recipe card reveals more detailed instructions and ingredients provided (Figure 5.4.18).

5.4.8 Menstruation Module

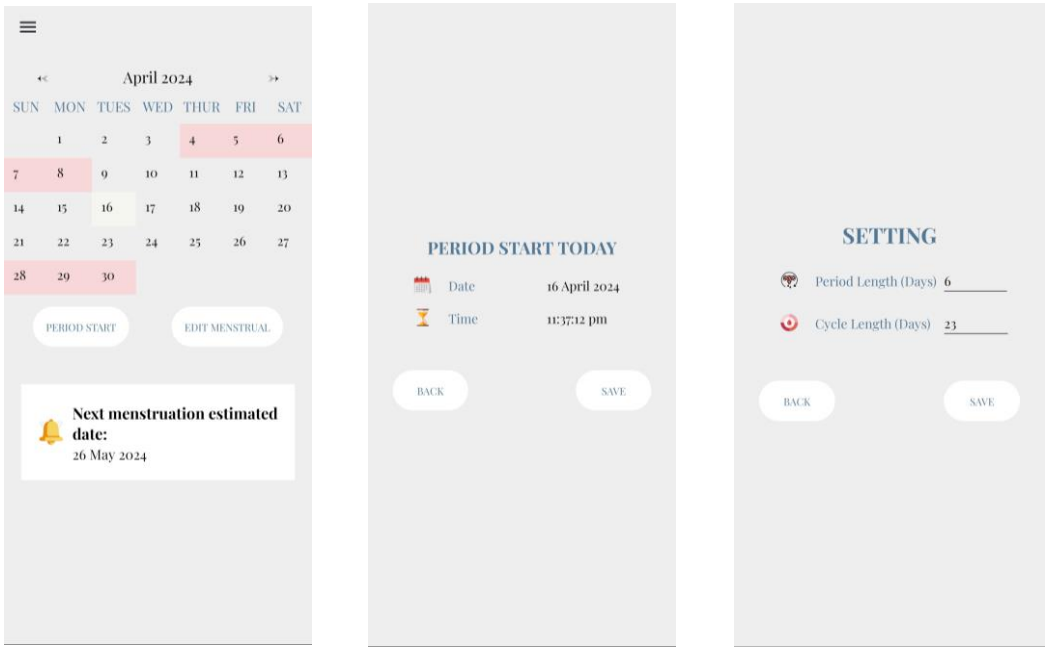


Figure 5.4.19 Menstruation Module of Activ8 Me

Menstruation's part is the special module in Activ8 Me, fitness application. This page is user friendly to the female-user. It is due to within this module, it helps female users to record down their menstrual cycle and remind them not to do too intensive workout during and before the menstruation. In this page, a calendar will be given, the pink colour's date is the date with menstrual. Subsequently, the card view of Next Menstruation Estimated Date will be displayed at the bottom of the list view.

Furthermore, if the users are willing to record the start of their menstrual, the users are required to select a specified date, then click the "PERIOD START" button. In result, the system will navigate the user to another page (PERIOD START TODAY) and reconfirm again to user whether save or not.

To track the next menstrual cycle, the system requests information on the user's cycle length and period length. Using this data, the system calculates the anticipated date of the next menstrual cycle (Figure 5.4.19).

5.4.9 Daily Report

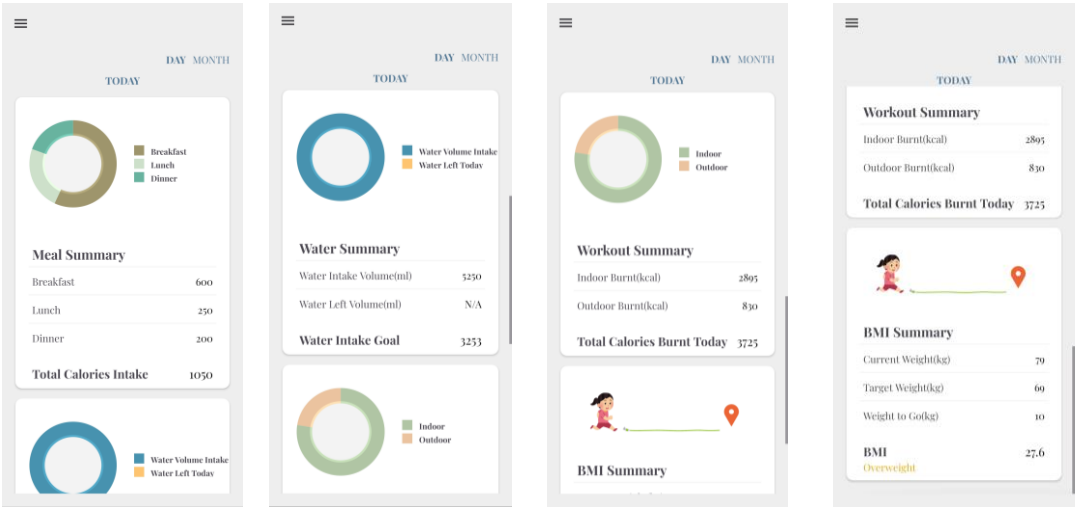


Figure 5.4.20 Daily Report of Activ8 Me

In the report module, users can access daily and monthly reports. The system displays "Today," allowing users to view previous date records by clicking and selecting the desired date. Each report is divided into four sections: meal summary, water summary, workout summary, and BMI summary. Meal, water, and workout summaries are represented as pie charts, with detailed information provided below each chart. However, the BMI summary only displays detailed information without a corresponding chart (Figure 5.4.20).

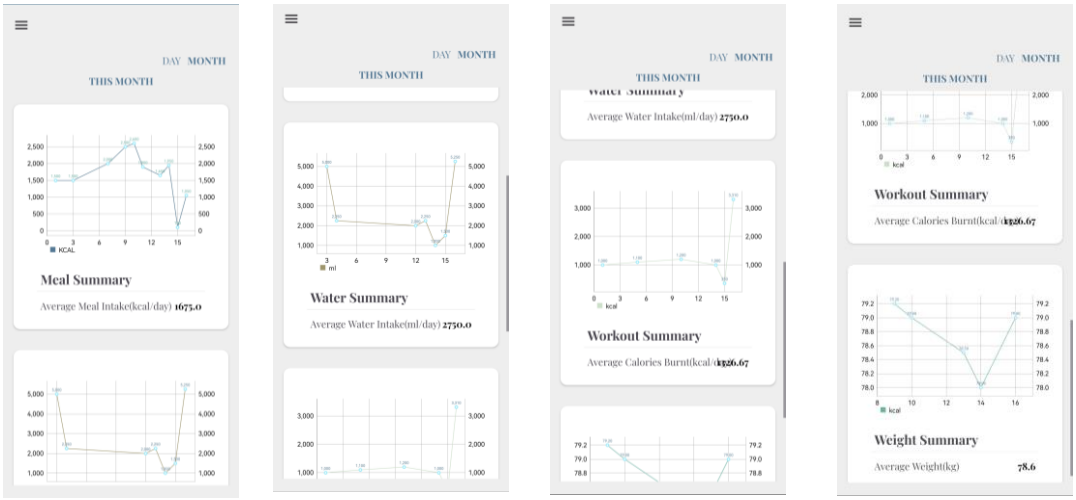


Figure 5.4.21 Monthly Report of Activ8 Me

In the monthly report, data is presented as a line graph, offering users a visual representation of their progress over time. By clicking the "THIS MONTH" title, users can switch between different months to view historical data. The report includes sections for meal, water, workout, and weight, displaying recorded data for each category. This comprehensive overview allows users to track their health and fitness trends on a monthly basis, facilitating better understanding and management of their overall well-being (Figure 5.4.21).

5.4.10 Profile Module

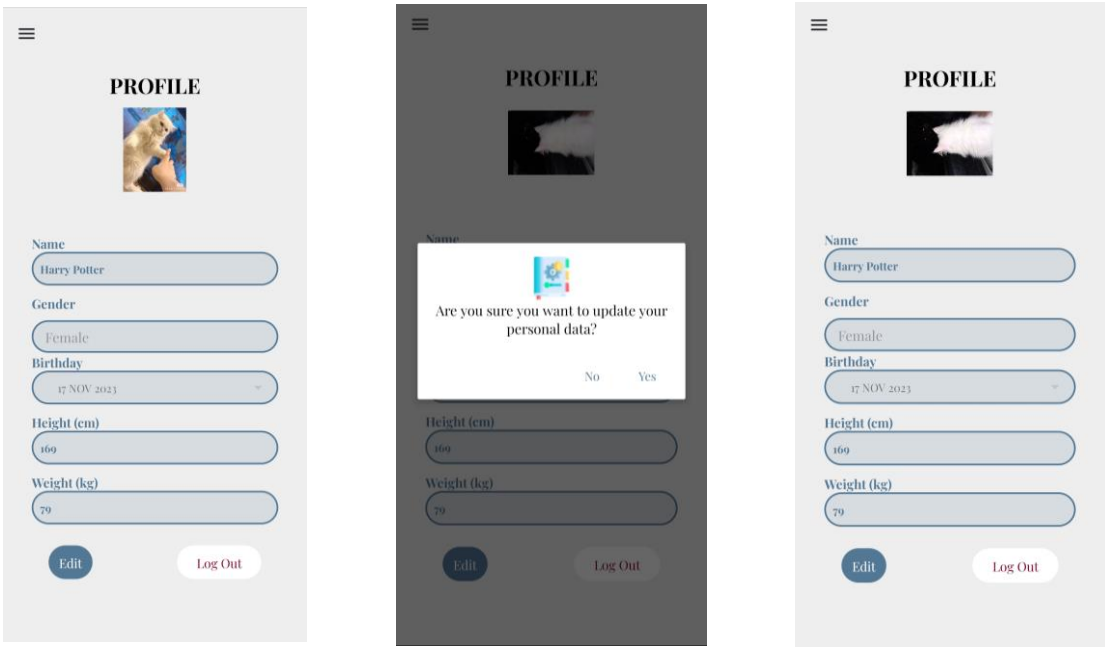


Figure 5.4.22 Profile of Activ8 Me

This page serves as the user profile, displaying personal information. Users can edit their profile by clicking the edit button, which allows them to modify editable text columns. Once changes are made, users can save their updated details, triggering a confirmation dialog box. Additionally, users can change their profile picture within the edit mode page, providing a comprehensive platform for managing and updating user profiles (Figure 5.4.22).

5.5 Implementation Issues and Challenges

During the implementation state, one of the key challenges while working with obsolete APIs during project 1 implementation is compatibility. Older APIs may not be optimized for the latest Android updates, which leads to compatibility issues. This may give rise to unexpected behaviour, crashes, or functionality that does not function properly on modern devices. To minimize compatibility concerns, it is required to employ version checks and conditionals in the code to ensure that the app modifies its behaviour based on the Android version it runs on.

Apart from that, device compatibility might be difficult to attain due to the numerous versions of operating systems, screen size, and resolution to consider. It can be difficult to create an app interface that looks and operates properly across a wide range of screen sizes and resolutions. It is a substantial issue to ensure that UI elements scale effectively, text readable, and touch targets are appropriately scaled for different screens.

5.6 Concluding Remark

In conclusion, the Activ8 Me fitness self-management mobile application is designed to provide users with a comprehensive platform for tracking and improving their health and fitness levels. By leveraging two major hardware platforms, including Android mobile devices and laptops, along with essential software components such as Firebase Realtime Database and Firebase Authentication, the application offers seamless user experiences across different devices. Utilizing Java programming language and Android Studio for development ensures compatibility and performance across various Android devices. The system's intuitive interface, coupled with features like workout plans, meal tracking, water intake monitoring, and menstrual cycle tracking, empowers users to take control of their fitness journey effectively. Despite challenges related to compatibility with older APIs and device variations, the implementation of version checks and UI scaling techniques helps mitigate these issues. Overall, Activ8 Me stands as a valuable tool for users striving to achieve their fitness goals and lead healthier lifestyles.

Chapter 6 System Evaluation and Discussion

6.1 System Testing

In this chapter, black box testing is systematically applied to each module of the Activ8 Me application, ensuring thorough validation of its functionality. The login module undergoes scrutiny to verify secure user authentication and password retrieval mechanisms. The dashboard's usability and data presentation are rigorously tested to ensure users can access vital health metrics effortlessly. Similarly, the meal and water intake module are examined to confirm accurate tracking and calculation of dietary and hydration data. The workout module is tested for seamless plan selection and workout session initiation. Additionally, black box testing validates the menstrual module's ability to accurately predict menstrual cycles and provide relevant reminders. Lastly, the profile module is assessed to ensure user profile management functions smoothly. Throughout these tests, the focus remains on ensuring the application delivers a seamless user experience while adhering to functional requirements.

6.2 Testing Setup and Result

6.2.1 Login Page

Test #	Test Description	Test Data	Expected Result	Actual Result	Pass/Fail
1	Sign in using new email and password	Insert new email (baneto@gmail.com) and password (abc@123)	Able to create a new account and log in into main page	Successfully created a new account and bring into main page	Pass
2	Sign in using used email and correct password	Insert created user's email (baneto@gmail.com) and password (abc@123)	Able to log in the account and bring to main page	Successfully sign in into correct account and bring to main page	Pass
3	Sign in using used email and incorrect password	Insert created user's email (baneto@gmail.com) and password (123@abc)	Unable to log in the account	Unsuccessfully sign in into main page	Pass
4	Sign in using Google Login with an account previously created using the same email	Select user's account (baneto@gmail.com)	Able to log in the account and bring to main page	Successfully sign in into correct account and bring to main page	Pass
5	Sign in using Google Login with new email	Select user's account (apple@gmail.com)	Able to create a new account and log in into main page	Successfully created a new account and bring into main page	Pass
6	Forget Password	insert baneto@gmail.com	A new Google Authentication change password link sent to email account, able to click on the link and change password	Successfully get change password link and change password	Pass

Table 6.2.1 Login Page Black Box Testing Table

6.2.2 Main Page

Test #	Test Description	Test Data	Expected Result	Actual Result	Pass/Fail
7	Retrieve Username and show as title	Username retrieved from database (Baneto)	Display title as "Hi, Baneto"	Successfully display username after "Hi", title showing as "Hi, Baneto"	Pass
8	Retrieve user's calories intake, water intake and calories burnt data and display through cardview (with existing data)	Calories intake, water intake and calories burnt's information are able to retrieve from database (Calories intake: 1000kcal; Water intake: 2000ml; Calories burnt: 800kcal)	Display data in each card view (Calories intake: 1000kcal; Water intake: 2000ml; Calories burnt: 800kcal)	Successfully showing the accurate data (Calories intake: 1000kcal; Water intake: 2000ml; Calories burnt: 800kcal) in the cardview	Pass
9	Retrieve user's meal, water and workout data and display through cardview (without data)	Calories intke, water intake and calories burnt's information are not appear in database	Display "N/A" if no data occur	Successfully display "N/A" through the cardview	Pass

Table 6.2.2 Main Page Black Box Testing Table

6.2.3 Workout Module

Test #	Test Description	Test Data	Expected Result	Actual Result	Pass/Fail
10	Created workout plan able to be display list by list, each of them able to click and brief dialog show	Click on "Cardio Burnt Day" recycler view	Able to show list of workout plan, click on the "Cardio Burnt Day" workout plan list, then the brief dialog box prompt out	Successfully show the list of workout plans, upon clicking on the "Cardio Burnt Day", a brief dialog box prompt out	Pass
11	Search workout plan's name with keyword	Search "abs"	Workout plan named "ABS Training" found and resulted	Successfully found "ABS Training"	Pass
12	Show a created customized workout plan through the list	Retrieve user's existing customized workout plan and display in the list	Able to display list of existing customized workout plan, then click for brief dialog prompt out	Successfully prompt out the workout plan's brief dialog box upon clicking the selected workout plan	Pass
13	Insert required information to create a customized workout plan	Insert necessary information such as Plan Name (Fantasy Workout), Plan Brief (Just Fantasy Brief), Plan Description (Fantasy Desc), Intensity (Easy), Plan Equipment (N/A), Exercise Name (Ankle Hops, Back Leg Lifts), and Duration (5)	Able to retrieve the information and save into database as well as show as recycler view list through the personal plan's main menu page.	Successfully retrieved the accurate data and store in database. Then, the created personal workout plan also indicated through the personal plan's main menu page	Pass
14	Search customized workout plan's name with keyword	Search "Fan"	Able to display "Fantasy Workout"'s recycler view.	Successfully found "Fantasy Workout" through the list	Pass
15	Click on Start Button to start the workout plan	Select "Cardio Burnt Day" and start on it	Start with the first workout "180 Jump Squat", the animation is workable and the timer is decreasing every seconds, the description of the workout also retrieved and show in the same page. Then, continue to the subsequent workout. Finally, accomplished the workout, a congratulation's page will show, meanwhile, the workout plan's calories will store into database	Successfully navigate to the first workout "180 Jump Squat", animation and timer work well and the description display clearly. At the end, a congratulation page prompt and workout calories saved in the database.	Pass

Table 6.2.3 Workout Black Box Testing Table

16	Select outdoor exercise and duration	Select option "Running" and "30", "Walking" and "30" as exercise name and duration	Able to find "Running" and "Walking" and number picker of duration able to select	Successfully found the select the "Running", "Walking" and both for "30" minutes	Pass
17	Click on Add Exercise Column to add more exercise	-	Able to add more column	Successfully added more column with selections	Pass
18	Click on Save button to save the inserted outdoor data (with useful selection)	Save the "Running" and "30", "Walking" and "30" as exercise name and duration	Able to retrieve "Running" and "30", "Walking" and "30" as exercise name and duration then store in database	Successfully retrieve "Running" and "30", "Walking" and "30" as exercise name and duration then store in database	Pass
19	Click on Save button to save the inserted outdoor data (with dummy selection)	Select "-" for the exercise name	The system detected "-" just skipped and not store in database	Successfully detecting the "-" selection and now storing into database	Pass
20	Insert indoor exercise and duration	Select "Abdominal Bridge" and "5"	Able to retrieve "Abdominal Bridge" and "5"	Successfully found "Abdominal Bridge" and date picker to "5"	Pass
21	Click on Add Exercise Column to add more exercise	-	Able to add more column	Successfully added more column with selections	Pass
22	Click on Save button to save the inserted indoor data (with useful selection)	Save the "Abdominal Bridge" and "5" as exercise name and duration	Able to retrieve Abdominal Bridge" and "5" as exercise name and duration then store in database	Successfully retrieve Abdominal Bridge" and "5" as exercise name and duration then store in database	Pass
23	Click on Save button to save the inserted indoor data (with useful selection)	Select "-" for the exercise name	The system detected "-" just skipped and not store in database	Successfully detecting the "-" selection and now storing into database	Pass
24	Create new journal	Insert "Angrytyyy" and select "Happy" as feeling	The data will be stored in database and display through the journal list	Successfully stored in database and display in the list	Pass
25	Edit existing journal	Select "Angrytyyy" to edit, change "Angrytyyy" to "Angryyyyy", emotional to "Angry"	The data will be updated through the database	The updated data will store in database	Pass
26	Delete existing journal	Select "Angryyyyy" to delete	The data deleted from database and remove from the list	The data successfully deleted and removed from the list	Pass
27	Display existing journal	Showing retrieved data from database in recycler view form	Retrieve data from database and display in the recycler view journal list	Successfully retrieved data and display in the list	Pass

Table 6.2.4 Workout Black Box Testing Table (Cont.)

6.2.4 Meal and Beverage Module

Test #	Test Description	Test Data	Expected Result	Actual Result	Pass/Fail
28	Select Breakfast Name	Select "Congee"	"Congee" is able to be selected and display on the column	Successfully selected "Congee" and display "Congee" at the column	Pass
29	Add Breakfast Column	Select and add more column	More breakfast column added	Successfully added more columns	Pass
30	Save Breakfast and display at the top morning listview	Save "Congee" and "Steamed Bao with Vegetables"	"Congee" and "Steamed Bao with Vegetable" saved into database and display through the list view (Congee 250 and Steamed Bao with Vegetables 150)	Successfully saved "Congee" and "Steamed Bao with Vegetable" and display through the list view with accurate data	Pass
31	Select Lunch Name	Select "Soba Noodle Salad"	"Soba Noodle Salad" is able to be selected and display on the column	Successfully selected "Soba Noodle Salad" and display "Soba Noodle Salad" at the column	Pass
32	Add Lunch Column	Select and add more column	More lunch column added	Successfully added more columns	Pass
33	Save Lunch and display at the top morning listview	Save "Soba Noodle Salad"	"Soba Noodle Salad" saved into database and display through the list view (Soba Noodle Salad 250)	Successfully saved "Soba Noodle Salad" and display through the list view with accurate data	Pass
34	Select Dinner Name	Select "Stir-Fried Tofu and Broccoli"	"Stir-Fried Tofu and Broccoli" is able to be selected and display on the column	Successfully selected "Stir-Fried Tofu and Broccoli" and display "Stir-Fried Tofu and Broccoli" at the column	Pass
35	Add Dinner Column	Select and add more column	More lunch column added	Successfully added more columns	Pass
36	Save Dinner and display at the top morning listview	Save "Stir-Fried Tofu and Broccoli"	"Stir-Fried Tofu and Broccoli" saved into database and display through the list view (Stir-Fried Tofu and Broccoli 200)	Successfully saved "Stir-Fried Tofu and Broccoli" and display through the list view with accurate data	Pass

Table 6.2.5 Meal and Water Black Box Testing Table

37	Calculate suggested water volume based on weight	Weight is "70kg", estimated water volume "3286ml"	The estimated water volume shown in the cardview	Successfully calculated and show in the cardview	Pass
38	Select usual drinking container and bottle number	Select "750ml" and "7" bottle	The"750ml" text bold and "7" number selected	Successfully select "750ml" and "7"	Pass
39	Save water volume into database	Save "750ml" and "7" bottle	The "750ml" save as "selectedBottleVolume " and 750ml x 7 bottle "5250ml" as waterIntakeVolume	Successfully save in the database	Pass
40	Display water left volume message (if no water left)	Save "750ml" and "7" bottle	Display "Congratulation" through the message cardview	Successfully display "Congratulation" through the message cardview	Pass
41	Display water left volume message (if water left)	Save "750ml" and "2" bottle	Display "1786ml left" through the message cardview	Successfully display "1786ml left" through the message cardview	Pass
42	Display a list of meal recipe recycler view	-	Display prepared recipe list	Successfully display prepared recipe list with accurate data	Pass
43	Select and display recipe details	Select "Pumpkin Soup"	Show "Pumpkin Soup" details	Successfully display "Pumpkin Soup" details	Pass

Table 6.2.6 Meal and Water Black Box Testing Table (Cont.)

6.2.5 Menstruation Module

Test #	Test Description	Test Data	Expected Result	Actual Result	Pass/Fail
44	Set period length and cycle length setting	Set period length(5) and cycle length (18)	Period length (5) and cycle length (18) stored in database	Successfully stored in database	Pass
45	Set period start day	Set today (4.Apr.2024) as period start day	Period day stored in database	Successfully stored in database	Pass
46	Display menstruation event in calendar	Date (4.Apr.2024 - 8.Apr.2024) is set as menstrual date	Date (4.Apr.2024 - 8.Apr.2024) in calendar display as pink tiles	Successfully display pink tiles on date Date (4.Apr.2024 - 8.Apr.2024)	Pass
47	Display next menstruation estimated date	Calculate 18 days after (26.May.2024) for next menstruation estimated date	Next menstruation date set to 26 May 2024	Successfully menstruation date as actual date	Pass

Table 6.2.7 Menstruation Black Box Testing Table

6.2.6 Report Module

Test #	Test Description	Test Data	Expected Result	Actual Result	Pass/Fail
48	Retrieve meal, water, workout and BMI summary and relavant details from database and generate as pie chart and text details (Today)	Meal Summary (Breakfast 600, Lunch 250, Dinner 200, Total Calories Intake 1050); Water Summary (Water Intake Volume 5250, Water Left Volume N/A, Water Intake Goal 3253); Workout Summary (Indoor kcal 2898, Outdoor kcal 830, Total Calories Burnt 3725), BMI Summary (Current weight 79, target weight 69, weight to go 10, BMI 27.6-Overweight)	The piechart will show animation by having color differentiate each element, the detail shown accurate based on the data retrieved from database	Successfully generate the accurate piechart and correct details display at cardview	Pass
49	Retrieve meal, water, workout and BMI summary and relavant details from database and generate as pie chart and text details (14-4-2024)	Meal Summary (Breakfast 300, Lunch 350, Dinner 300, Total Calories Intake 950); Water Summary (Water Intake Volume 2500, Water Left Volume 1000, Water Intake Goal 3500); Workout Summary (Indoor kcal 2400, Outdoor kcal 400, Total Calories Burnt 2800), BMI Summary (Current weight 70, target weight 69, weight to go 1, BMI 24.8-Normal)	The piechart will show animation by having color differentiate each element, the detail shown accurate based on the data retrieved from database for date (14-4-2024)	Successfully generate the accurate piechart and correct details display at cardview	Pass
50	Retrieve meal, water, workout and BMI summary and relavant details from database and generate as line chart and text details (This Month)	[Meal] - 1:1500, 3:1500, 7:2000, 9:2500, 10:2600, 10:1900, 13:1658 (Date: kcal); [Water] - 3: 5000, 4:2250, 12:2000, 13:2250 (Date:ml); [Workout] 1:1000, 5:1100, 10:1200, 13:1000, 15:350, 16:3310 (Date:kcal); [Weight] 9:79.2, 10:79, 13:78.5, 14:78.9, 16:79 (Date:kg)	The line chart shown based on the data retrieved and calculate the average kcal or kg or ml for respectively cardview for April	Successfully generate accurate line graph, the chart able to enlarge for more details as well as calculate accurate average for this month (April)	Pass

Table 6.2.8 Report Black Box Testing Table

51	Retrieve meal, water, workout and BMI summary and relavant details from database and generate as line chart and text details (March)	[Meal] - 1:2500, 3:1200, 7:2200, 9:2500, 10:2300, 10:1500, 13:1658 (Date: kcal); [Water] - 3: 2000, 4:2250, 12:2300, 13:2250 (Date:ml); [Workout] 1:1200, 5:150, 10:1530, 13:1020, 15:350, 16:3310 (Date:kcal); [Weight] 9:79.2, 10:79, 13:78.5, 14:78.9, 16:79 (Date:kg)	The line chart shown based on the data retrieved and calculate the average kcal or kg or ml for respectively cardview for March	Successfully generate accurate line graph, the chart able to enlarge for more details as well as calculate accurate average for other month (March)	Pass

Table 6.2.9 Report Black Box Testing Table (Cont.)

6.2.7 Profile Module

Test #	Test Description	Test Data	Expected Result	Actual Result	Pass/Fail
52	Retrieve user details and display in profile page	Name: Harry Porter, Gender: Female, Brithday:17 Nov 2002, Height:169, Weight:70	Every result display accurate in each column	Successfully display each data into accurate column	Pass
53	Select Edit button to make the user details to editable	Click on weight, weight become edittable	Weight able edit to other number	Successfully edit the weight to other number	Pass
54	Save the updated user details	Set weight: 72, gender: male	Save weight:72 and gender: male to database and display through the page as well as save button change to edit button	Successfully save weight and gender changes to database and show in the page	Pass
55	Update profile picture	Select image to a new image	upload a new image and store imageurl to database	Successfully get a new image through the profile page	Pass

Table 6.2.10 Profile Black Box Testing Table

6.3 Project Challenges

During the development of the Activ8 Me application, several challenges emerged. Firstly, adapting to new versions of Android Studio and the latest SDK posed difficulties, as ensuring compatibility and stability while integrating new features required meticulous attention. Additionally, the scarcity of comprehensive documentation hindered progress, making it challenging to implement certain functionalities accurately. Furthermore, encountering unresolved issues and new challenges without readily available solutions proved time-consuming and frustrating, necessitating extensive research and experimentation. Moreover, the lack of user experience feedback impeded efforts to refine the application, making it challenging to identify areas for improvement or align features with user preferences. Lastly, integrating third-party APIs posed risks due to their costliness and uncertainty regarding usability, prompting careful consideration of budgeting decisions and alternative solutions.

6.4 Objectives Evaluation

The primary objective of developing a fitness application to monitor exercise routines, water intake, and daily nutrition has been successfully achieved. The application provides users with a comprehensive platform to track their fitness activities, ensuring that their exercise routines, water consumption, and nutritional intake are recorded accurately. With a secure database storing user information and user-friendly presentation of data, the application effectively assists users in managing their fitness goals. Additionally, the inclusion of nutritious meal and beverage recipes adds value by guiding users towards healthier eating habits, enhancing the overall user experience.

The objective of building a female-friendly fitness self-management application, considering women's menstrual cycles, has been met with success. The application incorporates specialized features tailored to female users, including the ability to track menstrual cycles and predict future menstruation dates. By prompting users to adjust their exercise intensity based on menstrual cycle phases, the application demonstrates thoughtful consideration for women's health needs. This holistic approach to fitness management addresses hormonal and physical changes, empowering female users to maintain their well-being effectively.

The implementation of activity reporting and BMI calculation capabilities has been achieved effectively. The application generates comprehensive activity reports containing essential details such as water intake, calories burned, and BMI calculation. These reports enable users to track their fitness progress over time, facilitating informed decision-making for future workout routines. Moreover, the successful integration of BMI calculation ensures accurate assessment of users' body mass index, further enhancing the application's functionality and utility.

In conclusion, the objectives outlined in the project have been evaluated and found to be successfully achieved. The fitness application demonstrates robust features for monitoring exercise, addressing women's health needs, and providing insightful activity reports with BMI calculation capabilities. These achievements reflect the effectiveness of the project in meeting the goals and delivering value to users in promoting overall health and wellness.

6.5 Concluding Remark

In conclusion, the Activ8 Me fitness application has undergone thorough black box testing across its modules, ensuring the robust validation of its functionality. Despite encountering challenges during development, such as adapting to new technologies and addressing documentation limitations, the project has successfully achieved its objectives. The application provides users with a comprehensive platform for monitoring exercise routines, addressing women's health needs, and generating insightful activity reports. With all tests passing, the project demonstrates its effectiveness in meeting user requirements and promoting overall health and wellness.

Chapter 7 Conclusion and Recommendation

7.1 Conclusion

In recent times, mobile fitness applications have gained widespread popularity, offering users the convenience of managing both indoor and outdoor physical activities. Despite the availability of numerous fitness apps on various platforms, users continually seek improved solutions to cater to their evolving requirements.

In response to identified shortcomings in existing systems, an upgraded version of the female-friendly mobile fitness self-management application, Activ8 Me, is slated for release. The enhanced version will introduce several new features, including the generation of daily and monthly reports, BMI calculation functionality, indoor and outdoor workout tracking, nutrition intake monitoring, and a menstruation cycle calendar. These additions aim to provide users with a more comprehensive, efficient, and tailored fitness application, aligning closely with their evolving needs and preferences.

Indeed, in contrast to FYP 1, where concerns were raised regarding the accuracy of user-input data, particularly in workout routines and dietary information, which could potentially lead to incorrect assessments and recommendations. The suggestion in FYP 1 to address this issue involved enhancing data validation mechanisms to ensure accuracy and reliability by implementing additional error handling and correction features. This concern has been effectively addressed in the current state, FYP 2 by incorporating robust error-handling conditions, thus mitigating the risk of inaccurate data input, and improving the overall reliability of the system.

7.2 Recommendation

To begin with, implementing a system for continuous user feedback will be invaluable in identifying areas for improvement and prioritizing feature enhancements based on user needs. Additionally, refining error handling mechanisms to offer clearer guidance during data validation issues will enhance the user experience. Exploring integration with wearable fitness devices can automate workout tracking, while expanding the nutritional database ensures comprehensive meal planning support. Furthermore, personalized recommendations based on user data, social sharing features, and accessibility enhancements can broaden the app's appeal and usability. Localizing content and committing to regular updates will further maintain its relevance and reliability. These recommendations will propel Activ8 Me as an outstanding fitness app which can serve diverse audiences and meet their demands.

REFERENCES

[1]Cleveland clinic, “Body Mass Index (BMI),” Cleveland Clinic, 2018. https://my.clevelandclinic.org/health/articles/9464-body-mass-index-bmi

[2] “Google fit: Activity Tracking - apps on Google Play,” Google. [Online]. Available: https://play.google.com/store/apps/details?id=com.google.android.apps.fitness&hl=en&gl=US. [Accessed: 25-Nov-2022].

[3] “Myfitnesspal: Calorie Counter - apps on Google Play,” Google. [Online]. Available: https://play.google.com/store/apps/details?id=com.myfitnesspal.android&hl=en&gl=US. [Accessed: 25-Nov-2022].

[4] “Lifesum: Healthy eating & diet - apps on Google Play,” Google. [Online]. Available: https://play.google.com/store/apps/details?id=com.sillens.shapeupclub&hl=en&gl=US. [Accessed: 25-Nov-2022].

[5] “Da Fit - apps on Google Play,” Google. [Online]. Available: https://play.google.com/store/apps/details?id=com.crrepa.band.dafit&hl=en&gl=US. [Accessed: 25-Nov-2022].

[6] “Fitbit - apps on Google Play,” Google. [Online]. Available: https://play.google.com/store/apps/details?id=com.fitbit.FitbitMobile&hl=en&gl=US. [Accessed: 25-Nov-2022].

[7]“Total NCD mortality,” World Health Organization. [Online]. Available: https://www.who.int/data/gho/data/themes/topics/indicator-groups/indicator-group-details/GHO/total-ncd-mortality. [Accessed: 25-Nov-2022].

[8] “Physical activity,” World Health Organization. [Online]. Available: https://www.who.int/news-room/fact-sheets/detail/physical-activity. [Accessed: 26-Nov-2022].

[9] Data.ai. [Online]. Available: https://www.data.ai/en/insights/market-data/health-fitness-downloads-rose-30-percent/. [Accessed: 26-Nov-2022].

[10] “Noom: Weight loss & health - apps on google play,” Google. [Online]. Available: https://play.google.com/store/apps/details?id=com.wsl.noom&hl=en&gl=US. [Accessed: 25-Nov-2022].

[11] “Pam App - Android apps on Google Play,” Google. [Online]. Available: https://play.google.com/store/search?q=pam+app&c=apps&hl=en&gl=US. [Accessed: 25-Nov-2022].

[12] "Delicious." [Online]. Available: https://www.delicious.com.au/ [Accessed: 1-March-2024]

[13] “7 things people hate in fitness apps.,” Ready4S. [Online]. Available: https://www.ready4s.com/blog/7-things-people-hate-in-fitness-apps. [Accessed: 26-Nov-2022].

[14] “Samsung Health: Apps,” The Official Samsung Galaxy Site. [Online]. Available: https://www.samsung.com/global/galaxy/apps/samsung-health/. [Accessed: 25-Nov-2022].

[15] “Watch,” Apple (Malaysia). [Online]. Available: https://www.apple.com/my/watch/. [Accessed: 25-Nov-2022].

[16] “Mo young team,” MO YOUNG LIMITED. [Online]. Available: https://www.moyoung.com/en/. [Accessed: 25-Nov-2022].

WEEKLY LOG
FINAL YEAR PROJECT WEEKLY REPORT
(Project II)

Trimester, Year: Y3S3	**Study week no.: 2**
Student Name & ID: Chua Chu Yan 21ACB01463	
Supervisor: Ms. Chai Meei Tyng	
Project Title: Activ8 Me – A Fitness Self-Management Application	

1. WORK DONE

- Documentation: Done Chapter 1(Introduction) and Chapter 2 (Literature Review).
- Coding: Integration old code to new code, participate in integration Splash Screen and Google Sign In page, remove old version of code and redundant features.

2. WORK TO BE DONE

- Documentation: Done Chapter 3
- Coding: Maintenance phase of Navigation Bar, Home Page by updating the code to fit the latest version.

3. PROBLEMS ENCOUNTERED

-

4. SELF EVALUATION OF THE PROGRESS

Time management, still need to put more effort.

tyng
Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	**Study week no.: 4**
Student Name & ID: Chua Chu Yan 21ACB01463	
Supervisor: Ms. Chai Meei Tyng	
Project Title: Activ8 Me – A Fitness Self-Management Application	

1. WORK DONE

- Documentation: Done Chapter 3
- Coding: Done upgrading Navigation Bar, Home Page code.

2. WORK TO BE DONE

- Coding: Focusing on Workout Module include (Workout Plan, Personal Customized Workout Plan, Outdoor Workout Record input, Indoor Record Manually insert, as well as new feature – Workout Journal).

3. PROBLEMS ENCOUNTERED

Nope.

4. SELF EVALUATION OF THE PROGRESS

Busy on New Year Celebration, still can move on.

tyng
Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	**Study week no.: 6**
Student Name & ID: Chua Chu Yan 21ACB01463	
Supervisor: Ms. Chai Meei Tyng	
Project Title: Activ8 Me – A Fitness Self-Management Application	

1. WORK DONE

- Documentation: Done Chapter 4.
- Coding: Done for Workout Module.

2. WORK TO BE DONE

- Coding: Moving forward on Meal and Water Intake by upgrading the UI and database structure as well as solve Menstruation's bugs.

3. PROBLEMS ENCOUNTERED

The animation will like lag a bit, but not affect the function.

4. SELF EVALUATION OF THE PROGRESS

Don't waste too long time through selecting the icon, element and so on, need to be more focused on function.

tyng

Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	**Study week no.: 8**
Student Name & ID: Chua Chu Yan 21ACB01463	
Supervisor: Ms. Chai Meei Tyng	
Project Title: Activ8 Me – A Fitness Self-Management Application	

1. WORK DONE

- Documentation: Done Chapter 4.

- Coding: Done for Meal and Water Intake Module, become more user friendly and comprehensive and solved Menstruation part's bug.

2. WORK TO BE DONE

- Coding: Complete on Daily Report and Monthly Report Module.

3. PROBLEMS ENCOUNTERED

N/A

4. SELF EVALUATION OF THE PROGRESS

Good progress, busy on midterm but still done on time.

tyng

Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	**Study week no.: 10**
Student Name & ID: Chua Chu Yan 21ACB01463	
Supervisor: Ms. Chai Meei Tyng	
Project Title: Activ8 Me – A Fitness Self-Management Application	

1. WORK DONE

- Coding: Done with Daily Report and Monthly Report which able to generate animated Pie chart and sizeable line chart.

2. WORK TO BE DONE

- Documentation: Chapter 5,6,7.

3. PROBLEMS ENCOUNTERED

No problem.

4. SELF EVALUATION OF THE PROGRESS

On track.

tyng

Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	**Study week no.: 12**
Student Name & ID: Chua Chu Yan 21ACB01463	
Supervisor: Ms. Chai Meei Tyng	
Project Title: Activ8 Me – A Fitness Self-Management Application	

1. WORK DONE

- Documentation: Done

2. WORK TO BE DONE

N/A

3. PROBLEMS ENCOUNTERED

N/A

4. SELF EVALUATION OF THE PROGRESS

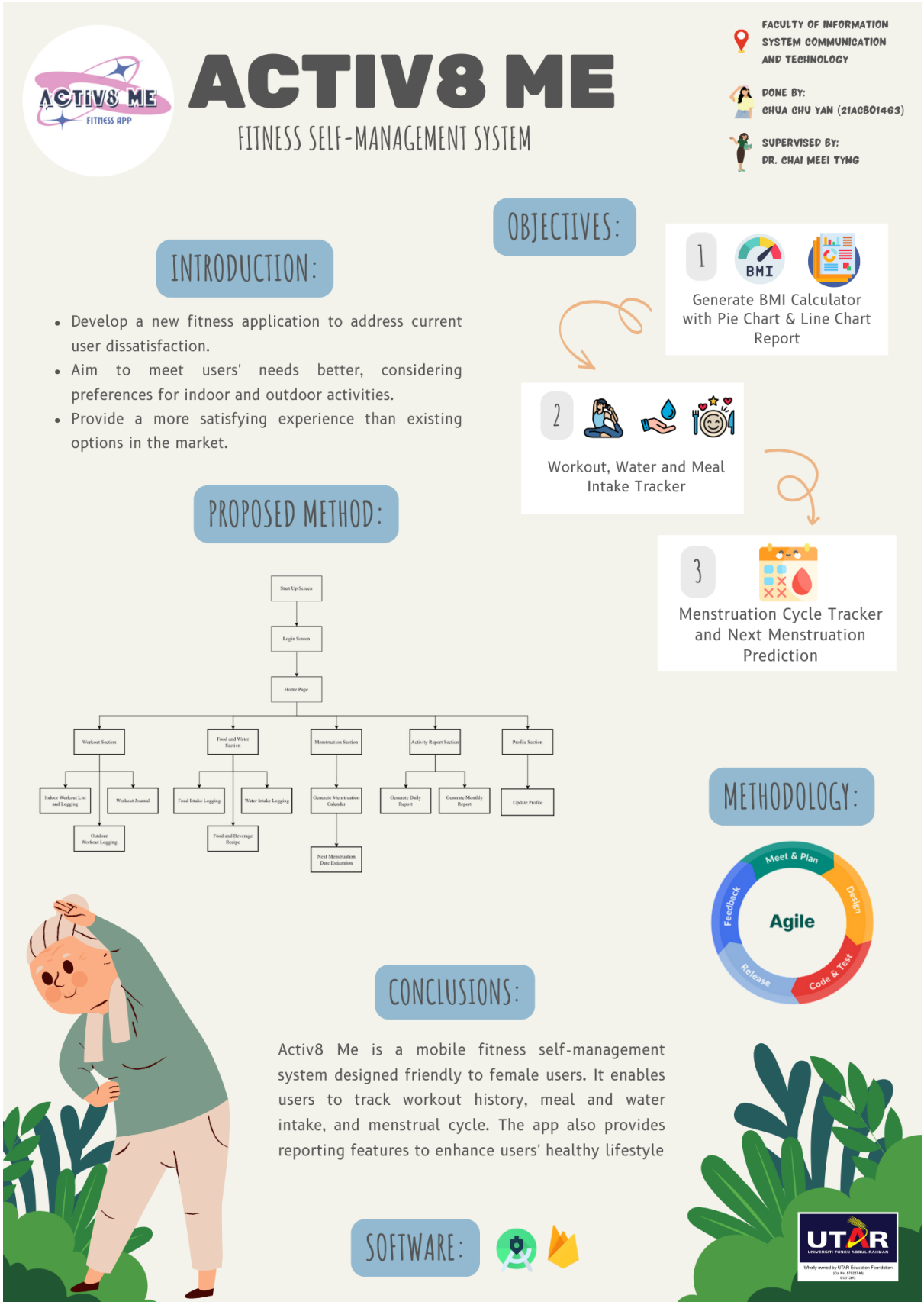
Focusing on the FYP Presentation.

tyng

Supervisor's signature

Student's signature

POSTER


ACTIV8 ME
FITNESS SELF-MANAGEMENT SYSTEM
FACULTY OF INFORMATION SYSTEM COMMUNICATION AND TECHNOLOGY
DONE BY:
CHUA CHU YAN (21ACB01463)
SUPERVISED BY:
DR. CHAI MEEI TYNG
INTRODUCTION:
Develop a new fitness application to address current user dissatisfaction.
Aim to meet users' needs better, considering preferences for indoor and outdoor activities.
Provide a more satisfying experience than existing options in the market.
OBJECTIVES:
1
BMI
Generate BMI Calculator with Pie Chart & Line Chart Report
2
Workout, Water and Meal Intake Tracker
3
Menstruation Cycle Tracker and Next Menstruation Prediction
PROPOSED METHOD:
Start Up Screen
Login Screen
Home Page
Workout Section
Food and Water Section
Menstruation Section
Activity Report Section
Profile Section
Indoor Workout List and Logging
Workout Journal
Outdoor Workout Logging
Food Intake Logging
Water Intake Logging
Food and Beverage Recipe
Generate Menstruation Calendar
Next Menstruation Date Estiamtion
Generate Daily Report
Generate Monthly Report
Update Profile
METHODOLOGY:
Agile
Meet & Plan
Design
Code & Test
Release
Feedback
CONCLUSIONS:
Activ8 Me is a mobile fitness self-management system designed friendly to female users. It enables users to track workout history, meal and water intake, and menstrual cycle. The app also provides reporting features to enhance users' healthy lifestyle
SOFTWARE:
UTAR

PLAGIARISM CHECK RESULT

FYP2_report.pdf

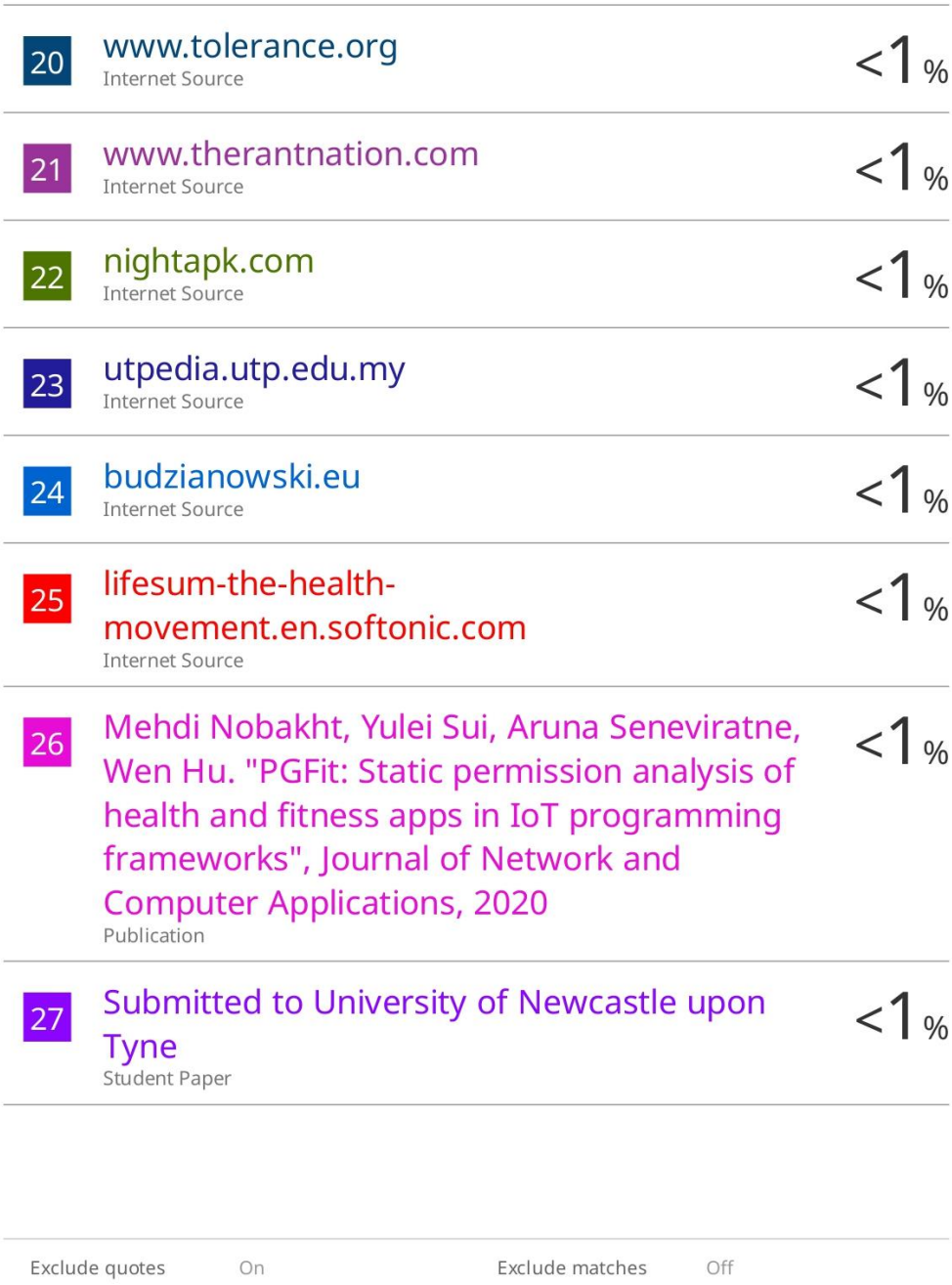
ORIGINALITY REPORT

7%	5%	1%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	eprints.utar.edu.my Internet Source	2%
2	Submitted to Universiti Tunku Abdul Rahman Student Paper	1%
3	lifesum.com Internet Source	<1%
4	Submitted to Napier University Student Paper	<1%
5	Submitted to Fundația Pentru Educație Și Perfecționare Medicală Student Paper	<1%
6	repository.unic.ac.cy Internet Source	<1%
7	www.healthstatus.com Internet Source	<1%
8	Submitted to University of Strathclyde Student Paper	<1%
9	Submitted to Danford College Student Paper	<1%

10	Submitted to Universiti Kebangsaan Malaysia Student Paper	<1%
11	docplayer.net Internet Source	<1%
12	www.coursehero.com Internet Source	<1%
13	Submitted to Polk State College Student Paper	<1%
14	Submitted to Institute of Research & Postgraduate Studies, Universiti Kuala Lumpur Student Paper	<1%
15	Submitted to London School of Commerce Student Paper	<1%
16	Rahime Belen Saglam, Jason R.C. Nurse, Duncan Hodges. "Personal information: Perceptions, types and evolution", Journal of Information Security and Applications, 2022 Publication	<1%
17	dbpedia.org Internet Source	<1%
18	Submitted to Asia Pacific University College of Technology and Innovation (UCTI) Student Paper	<1%
19	Submitted to Loughborough College Student Paper	<1%


20 www.tolerance.org
Internet Source
<1%
21 www.therantnation.com
Internet Source
<1%
22 nightapk.com
Internet Source
<1%
23 utpedia.utp.edu.my
Internet Source
<1%
24 budzianowski.eu
Internet Source
<1%
25 lifesum-the-health-movement.en.softonic.com
Internet Source
<1%
26 Mehdi Nobakht, Yulei Sui, Aruna Seneviratne, Wen Hu. "PGFit: Static permission analysis of health and fitness apps in IoT programming frameworks", Journal of Network and Computer Applications, 2020
Publication
<1%
27 Submitted to University of Newcastle upon Tyne
Student Paper
<1%
Exclude quotes On
Exclude matches Off

Universiti Tunku Abdul Rahman			
Form Title : Supervisor's Comments on Originality Report Generated by Turnitin for Submission of Final Year Project Report (for Undergraduate Programmes)			
Form Number: FM-IAD-005	Rev No.: 0	Effective Date: 01/10/2013	Page No.: 1of 1

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

Full Name(s) of Candidate(s)	Chua Chu Yan
ID Number(s)	21ACB01463
Programme / Course	IA
Title of Final Year Project	Activ8 Me – Fitness Self-Management Application

Similarity	**Supervisor's Comments (Compulsory if parameters of originality exceed the limits approved by UTAR)**
Overall similarity index: 7 **%** **Similarity by source** Internet Sources: 5 % Publications: 1 % Student Papers: 3 %	
Number of individual sources listed of more than 3% similarity: 0	
Parameters of originality required and limits approved by UTAR are as Follows: **(i) Overall similarity index is 20% and below, and** **(ii) Matching of individual sources listed must be less than 3% each, and** **(iii) Matching texts in continuous block must not exceed 8 words** ***Note: Parameters (i) – (ii) shall exclude quotes, bibliography and text matches which are less than 8 words.***	

Note Supervisor/Candidate(s) is/are required to provide softcopy of full set of the originality report to Faculty/Institute

Based on the above results, I hereby declare that I am satisfied with the originality of the Final Year Project Report submitted by my student(s) as named above.

tyng
Signature of Supervisor

Name: Chai Meei Tyng

Date: 23/04/2024

Signature of Co-Supervisor

Name: _____

Date: _____

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF INFORMATION & COMMUNICATION TECHNOLOGY (KAMPAR CAMPUS)

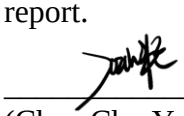
CHECKLIST FOR FYP2 THESIS SUBMISSION

Student Id	21ACB01463
Student Name	Chua Chu Yan
Supervisor Name	Ts Dr Chai Meei Tyng

TICK (√)	DOCUMENT ITEMS Your report must include all the items below. Put a tick on the left column after you have checked your report with respect to the corresponding item.
N/A	Front Plastic Cover (for hardcopy)
√	Title Page
√	Signed Report Status Declaration Form
√	Signed FYP Thesis Submission Form
√	Signed form of the Declaration of Originality
√	Acknowledgement
√	Abstract
√	Table of Contents
√	List of Figures (if applicable)
√	List of Tables (if applicable)
N/A	List of Symbols (if applicable)
√	List of Abbreviations (if applicable)
√	Chapters / Content
√	Bibliography (or References)
√	All references in bibliography are cited in the thesis, especially in the chapter of literature review
N/A	Appendices (if applicable)
√	Weekly Log
√	Poster
√	Signed Turnitin Report (Plagiarism Check Result - Form Number: FM-IAD-005)
√	I agree 5 marks will be deducted due to incorrect format, declare wrongly the ticked of these items, and/or any dispute happening for these items in this report.

*Include this form (checklist) in the thesis (Bind together as the last page)

I, the author, have checked and confirmed all the items listed in the table are included in my report.



(Chua Chu Yan)
Date: 20/4/2024