# HEALTH BUILDER: AN ANDROID-BASD SOLUTION FOR MAINTAINING HEALTH

**BY**

**MD. AKTAROOZZAMAN**
**ID: 141-15-3247**

**MD. MEHEDI HASAN**
**ID: 142-15-3437**
**And**
**MD. SHAFIQUL ISLAM**
**ID: 142-15-3558**

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering.

Supervised By

**Nusrat Jahan**
Lecturer
Department of CSE
Daffodil International University

Co-Supervised By

**Mohshi Masnad**
Lecturer
Department of CSE
Daffodil International University

**DAFFODIL INTERNATIONAL UNIVERSITY**
**DHAKA, BANGLADESH**
**May, 2018**

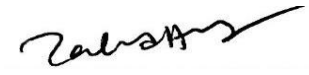
# APPROVAL

This Project titled **"Health Builder: An android application"** submitted by Md. Aktaroozzaman, Md. Mehedi Hasan and MD. Shafiqul Islam to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 6th May 2018.

## BOARD OF EXAMINERS

**Dr. Syed Akhter Hossain** **Chairman**
**Professor and Head**
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

**Dr. Sheak Rashed Haider Noori** **Internal Examiner**
**Associate Professor & Associate Head**
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University



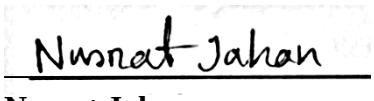
**Md. Zahid Hasan** **Internal Examiner**
**Assistant Professor**
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

**Dr. Mohammad Shorif Uddin** **External Examiner**
**Professor**
Department of Computer Science and Engineering
Jahangirnagar University

# DECLARATION

We hereby declare that this project has been done by under the supervision of **Nusrat Jahan, Lecturer, Department of CSE,** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

**Supervised by:**



**Nusrat Jahan**
Lecturer
Department of CSE
Daffodil International University

**Co-Supervised by:**

_____

**Mohshi Masnad**
Lecturer
Department of CSE
Daffodil International University

**Submitted by:**

_____

**Md. Aktaroozzaman**
ID: 141-15-3247
Department of CSE
Daffodil International University

_____

**Md. Mehedi Hasan**
ID: 142-15-3437
Department of CSE
Daffodil International University

_____

**MD. Shafiqul Islam**
ID: 142-15-3558
Department of CSE
Daffodil International University

# ACKNOWLEDGMENT

First we express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year project successfully.

We fell grateful to and wish our profound our indebtedness to **Nusrat Jahan, Lecturer,** Department of CSE, Daffodil International University, Dhaka. Deep knowledge & keen interest of our supervisor in the field of android development influenced us to carry out this project. Her endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior draft and correcting them at all stage have made it possible to complete this project.

We would like to express our heartiest gratitude to **Dr. Syed Akhter Hossain, Professor and Head,** Department of Computer Science and Engineering, for his kind help to finish our project and also to other faculty member and the staff of Computer Science and Engineering department of Daffodil International University.

We would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, we must acknowledge with due respect the constant support and patients of our parents.

# ABSTRACT

This project is goal to developing an online & offline health measurement system. This project is to build an android based, online health measurement system, named Health Builder: An Android-Based solution for maintaining health. This system provides an online platform for a quick access to the required user. It is helpful for any people. This system person who is interested in measure the health they can register and measure their health condition. To develop this android application we used Android Studio, which helps us to build this application faster. We also used for better GUI design and make this application user friendly. After implementation of all functions, the system is tested in different stages and it works successfully as a prototype.

# TABLE OF CONTENTS


| CONTENTS | PAGE |
|---|---|
| Acknowledgements | iv |
| Abstract | v |
| List of Figures | viii |
| List of Tables | ix |
| **Chapter 1: Introduction** | **1-2** |
| 1.1 Introduction | 1 |
| 1.2 Motivation | 1 |
| 1.3 Objectives | 1 |
| 1.4 Expected Outcome | 2 |
| 1.5 Why we chose Android | 2 |
| **Chapter 2: Background** | **3-6** |
| 2.1 Introduction | 3 |
| 2.2 Related Works | 3 |
| 2.2.1 Common Features of the Application | 3 |
| 2.2.1.1 Register as User | 4 |
| 2.2.1.2 Calorie Counter for Target, Gain & Lose Weight | 5 |
| 2.2.1.3 Calorie Counter for Consumed Calories by meal | 6 |
| 2.3 Comparative Studies | 6 |
| 2.4 Challenges | 6 |
| 2.5 Gantt Chart | 7 |
| **Chapter 3: Requirement Specification** | **8-13** |
| 3.1 Business Process Modeling | 8 |
| 3.2 Requirement Collection & Analysis | 8 |
| 3.3 Requirements | 8 |
| 3.4 Use Case | 9 |
| 3.5 Detailed Use Case | 10 |
| 3.6 Flowchart | 13 |




©Daffodil International University

**Chapter 4: Design Specification** **14-20**

4.1 Front-end Design 11

4.1.1 Home Page with Calorie Counter page 14

4.1.2 Registration 15

4.1.3 Required Calorie Page 16

4.1.4 Menu Option View 16

4.1.5 Fitness Calculator Page 17

4.2 Back-end Design 18

4.3 Implementation requirements 19

**Chapter 5: Implementation and Testing** **21-25**

5.1 Implementation of Database 21

5.1.1 Food List 21

5.1.2 User Info & Calorie Info 22

5.2 Implementation of Front-end Design 22

5.2.1 Overview of page & Description 23

5.3 Testing Implementation 24

5.4 Test Results and Reports 26

**Chapter 6: Conclusion and Future Scope** **27**

6.1 Discussion and Conclusion 27

6.2 Scope for Further Developments 27

**References** **28**



©Daffodil International University

# List of Figures

**FIGURES** **PAGE**


Figure 1.1: World-wide smartphone sales ratio 2
Figure 2.1: Some android application of Good health system 3
Figure 2.2: User registration demo 4
Figure 2.3: Calorie counter for target, gain and lose weight 5
Figure 2.4: Calorie counter for consumed by meal. 6
Figure 2.5: Gantt chart of our project 7
Figure 3.1: Use Case diagram of our application 9
Figure 3.2: Flow chart diagram of our application 13
Figure 4.1: Health Builder application home and calorie counter page 14
Figure 4.2: Health builder sign in page 15
Figure 4.3: Health Builder required calorie page 16
Figure 4.4: Health Builder required calorie page 16
Figure 4.5: Health Builder fitness calculator page 17
Figure 4.6: Health Builder user profile page 18
Figure 4.7**:** Health Builder database diagram 19
Figure 5.1: Data base design of food List 21
Figure 5.2: Data base design of user Info and calorie Info 22
Figure 5.3: Health builder sign in page 23
Figure 5.4: Health builder application required calorie calculate 23
Figure 5.5: Wrong code input on sign in form 24
Figure 5.6: Health builder sign in page 25
Figure 5.7: Invalid input for calculating required calorie 25




©Daffodil International University

# List of Tables

**TABLES** **PAGE**

Table 3.1: Use case description of Sign in 10
Table 3.2: Use case description of required calorie 11
Table 3.3: Use case description of calorie counter 12
Table 3.4: Use case description of fitness calculator 12
Table 5.2: Test Case Table for Health Builder 26



©Daffodil International University

# Chapter 1

# Introduction

## 1.1 Introduction

Our project is based on health related field. Our project will decrease the death rate of human in lack of health awareness. Our main goal is to help people to maintaining their health condition. This application any person who is interested to maintain their health can register and maintain their health by following our project instruction. By using our project people can gain a good health easily. By using it user can gain weight, maintain weight and lose weight which one they want. User also can calculate their daily taken food calories.

## 1.2 Motivation

There are some problems that motivate us to work with this project. Some people are very ignorant of their health awareness. That's why many of us suffer from health related problems. Health is wealth. It is very well said. Without health nothing can be achieved, nothing can be enjoyed. Health is the most important aspect of one's life. If we have a sound health then we can have a sound life. These causes have motivated us to work with this project. We will try to fix this problem with this application.

## 1.3 Objectives

Objectives of our android application are mentioned below:

- The main objective of this project is to maintaining current weight.
- For losing weight.
- For gaining weight.
- Checking food calorie.
- Checking Burned calorie.
- All registered members will get the opportunity to find a good health using this application.
- All registered member will get a unique id.



©Daffodil International University

### 1.4 Expected Outcome

If user fulfilled his/her required calorie then user can build a good health by this application without consulting any doctor. Fat people can lose their weight and thin man can gain weight by following this application. User can also calculate their daily taken food calories by this application.

### 1.5 Why we chose Android

Android has appreciated a brilliant ascent to the best in its short life expectancy, and its a dependable fact that it as of now overwhelms the versatile market in number of dynamic clients. Its piece of the pie now floats around 80% all inclusive with Apple left holding a staying 13% cut of the cell phone pie. BlackBerry, the once ruling lord, and Windows Phone are only the scraps. There are likewise no indications of backing off for Google's portable stage as it at present achieves 1.5 million every day initiations. Such fast development has likewise helped Android achieve the great breakthrough of 1 billion gadget enactments.

The rate of world-wide smartphone sales:

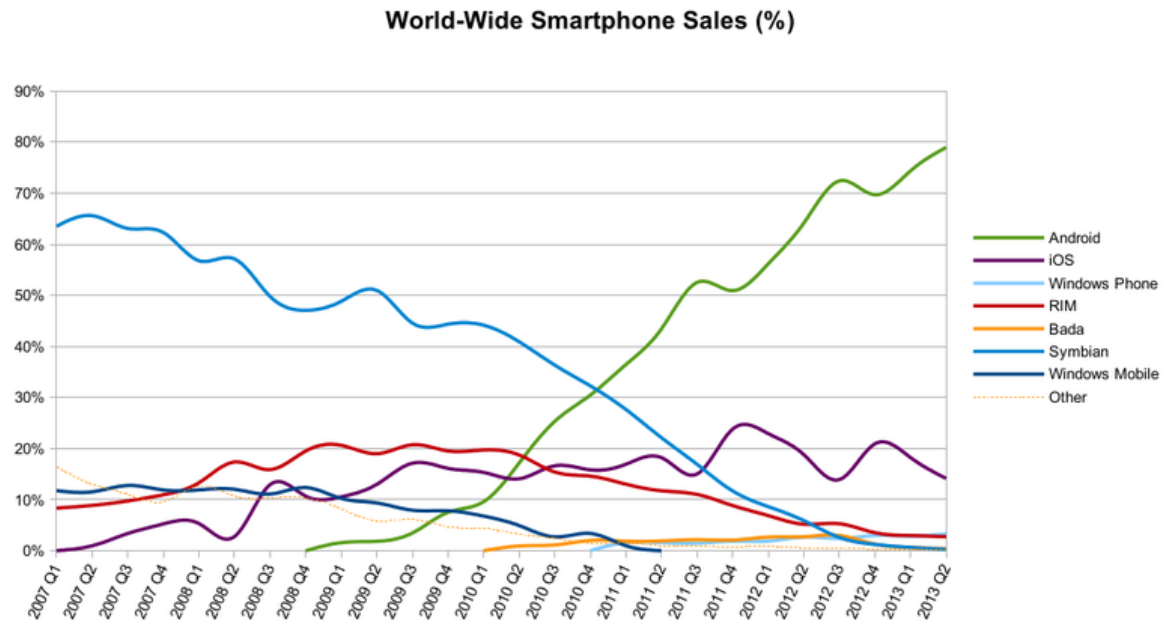



Figure 1.1: World-wide smartphone sales ratio.



©Daffodil International University

# Chapter 2

# Background

## 2.1 Introduction

Our system will be an interactive android application that can be operated by smartphones, tablet etc. In need of health awareness sometimes we can't go to doctor every now & then. Our project will help people in this trouble situation. Our project will help for getting daily life calorie target of people.

## 2.2 Related Works

We have Research plenty of documents related with foods. We have monitored the functionalities of some health application. This application is highly decorated with functionalities. They are equipped with many technical features. Some applications are following:

Figure 2.1: Some android application of Good health system.

### 2.2.1 Common features of these application are:

- Register as user.
- Calorie Counter for target, gain and lose weight.
- Calorie Counter for consumed calories by meal.



©Daffodil International University

#### 2.2.1.1 Register as User

The register is maintained with a data processing system. Any person can register in this system.

The following data is entered into the register, as applicable:

Email Address or

Phone Number or

Google Account.

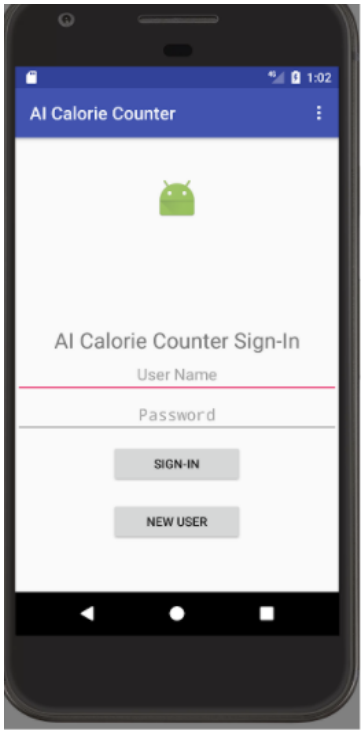



Figure 2.2: User registration demo.



©Daffodil International University

### 2.2.1.2 Calorie Counter for target, gain and lose weight

When a people want to count calorie for target, gain and lose weight then user need to fill up their height, gender, age, current weight and goal weight. Then user get the result.

Figure2.3: Calorie counter for target, gain and lose weight.



©Daffodil International University

### 2.2.1.3 Calorie Counter for consumed calories by meal.

When a people want to count calorie for consumed calories by meal then user need to fill up their taken food name, taken food quantity. Then user get the result.

Figure 2.4: Calorie counter for consumed by meal.

## 2.3 Comparative Studies

Our implemented application is different from the existing application. Without registration user can calculate the required calorie for gain, maintain and lose weight. All authenticated registered members will get the opportunity to calculate daily taken food calories with their quantity. This Application will help to notify our health condition.

## 2.4 Challenges

- User must update profile after registration
- According to the user information showing the accurate calorie needed.
- Calculate calories based on taken food.



©Daffodil International University

### 2.5 Project Schedule/ Gantt Chart

Here is our project schedule:

| | 120 Days | | | | | | |
|---|---|---|---|---|---|---|---|
| Development Phase | 0 to 20 Day | 21 to 40 Day | 41 to 60 Day | 61 to 80 Day | 81 to 100 Day | 101 to 120 Day | Duration (Day) |
| Requirement Gathering | | | | | | | 0 – 10 (10 days) |
| Analysis | | | | | | | 11 – 20 (10 days) |
| Design | | | | | | | 21 – 60 (40 days) |
| Coding | | | | | | | 31 – 100 (70 days) |
| Testing | | | | | | | 81 – 110 (30 days) |
| Implementation | | | | | | | 101 – 120 (20 days) |
| Documentation | | | | | | | 11 – 120 (110 days) |
| Total Time (Day) | | | | | | | 120 Days |

Figure 2.5: Gantt chart of our project.



©Daffodil International University

# Chapter 3

# Requirement Specification

## 3.1 Business Process Modeling

Business process modeling (BPM) is an engineering system and the mobility of the representing method of an enterprise, and the running process explore and raised. It emblematically accomplished by the business analysts, who provide the expertise modeling system. Other was it process model may be grow directly from event's log by using process mining tools.

## 3.2 Requirement Collection & Analysis

Here some requirements are given that collected when implementation of software or the data collections. The requirement collections are given below:

- To collect the users problem.
- Must need the user information given on application.
- Needed to be registered for using the app.
- Must be needed a valid mobile number, google account or email address for login the user profile.
- Needed to collect the personal opinion of user.

## 3.3 Requirements:

We using this tools to complete our project:

1. Used programing languages such as

Java, xml etc.

2. Firebase server and android studio.

We used Firebase database connection, and android studio for

Raw coding.



©Daffodil International University

### 3.4 Use Case Diagram

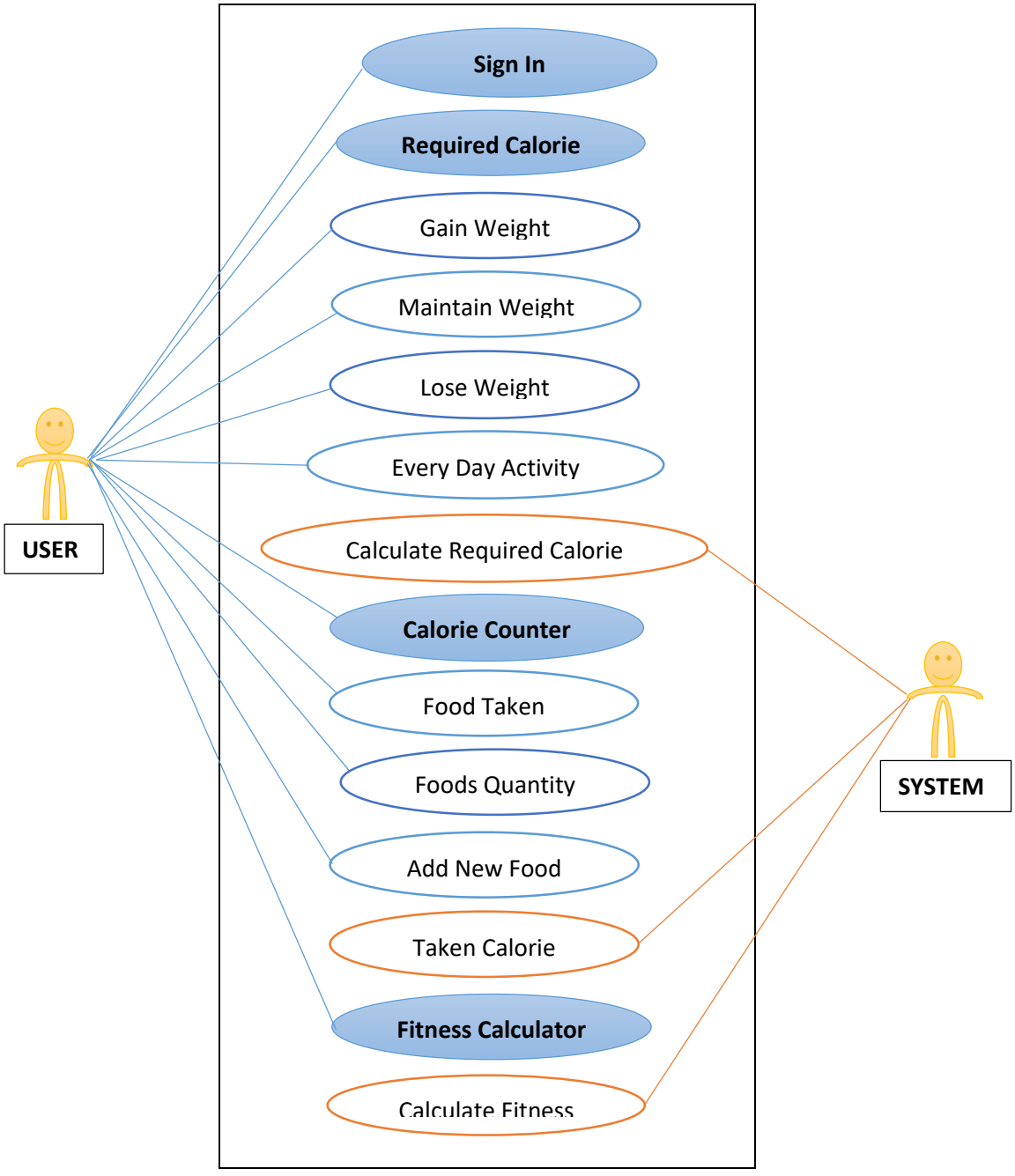



Figure 3.1: Use Case diagram of our application.



©Daffodil International University

### 3.5 Detailed Use Case

The details of use case diagram from our use case diagram figure:

Table 3.1: Use case description of Sign in

| | |
|---|---|
| Use Case #01 | Sign In |
| Primary Actor | User |
| Secondary Actor | System |
| Pre-Condition | Open the application |
| Scenario | 1. Sign in with email.<br>2. Sign in with phone.<br>3. Sign in with google. |
| Post-Condition | 1. Sign in successfully completed or failed.<br>2. Display main page. |



©Daffodil International University

Table 3.2: Use case description of required calorie.

| Use Case #01 | Required Calorie |
|---|---|
| Primary Actor | User |
| Secondary Actor | System |
| Pre-Condition | Complete sign in system before. |
| Scenario | 1. Select your goal-<br>• Gain Weight<br>• Maintain Weight<br>• Lose Weight<br>2. Select every day activity.<br>3. Click “Next” button.<br>4. Enter Height.<br>5. Select gender.<br>6. Enter current weight.<br>7. Enter goal weight.<br>8. Enter age.<br>9. Click “Show required calorie” button. |
| Post-Condition | 1. Showing required calorie or error.<br>2. Click on “Next” or “Back” button |



©Daffodil International University

Table 3.3: Use case description of calorie counter.

| | |
|---|---|
| Use Case #01 | Calorie Counter |
| Primary Actor | User |
| Secondary Actor | System |
| Pre-Condition | Complete required calorie menu. |
| Scenario | 1. Enter your taken food name.<br>2. Enter your taken food quantity.<br>3. Select “Exercise” option with duration.<br>4. Click “Calculate” button.<br>5. Click “Add new food” button. |
| Post-Condition | 1. Showing taken calorie or error.<br>2. Click on menu button or exit. |

Table 3.4: Use case description of fitness calculator.

| | |
|---|---|
| Use Case #01 | Fitness Calculator |
| Primary Actor | User |
| Secondary Actor | System |
| Pre-Condition | Click on menu item and select fitness calculator option. |
| Scenario | 1. Click “Calorie & BMR” button.<br>2. Click “Body fat” button.<br>3. Click “Nutrition needs” button.<br>4. Click “Heart rate” button.<br>5. Click “Body mass index” button.<br>6. Click “Ideal weight” button. |
| Post-Condition | 1. Showing fitness result or error.<br>2. Click on menu button or exit. |



©Daffodil International University

### 3.6 Flowchart

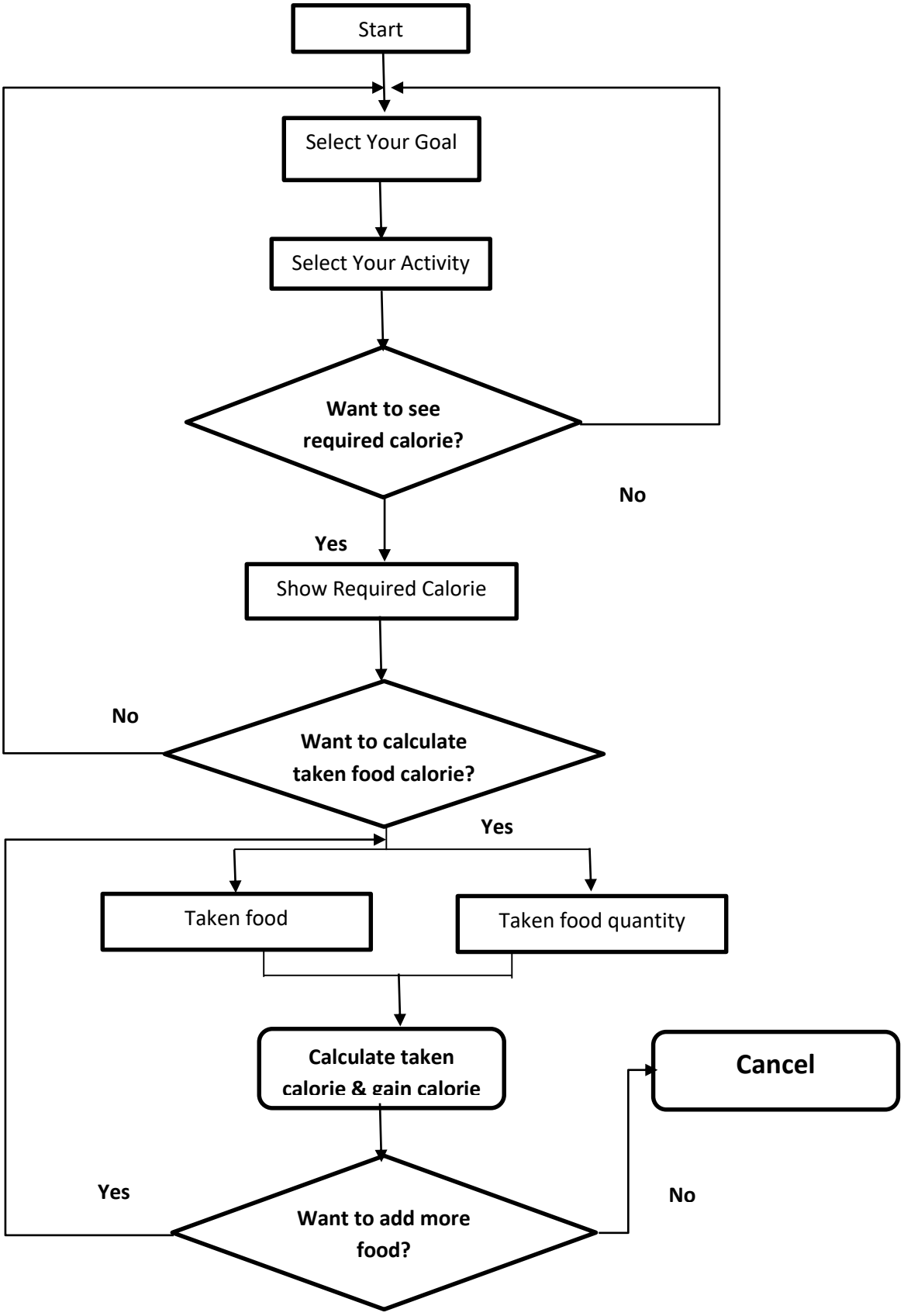



Figure 3.2: Flow chart diagram of our application.



©Daffodil International University

# Chapter 4

# Design Specification

## 4.1 Front-end Design

Front end design is very necessary for all android application. Because front- end design is the sector that interacts with user. We are going to create an android application. So for a better user service the front end design is very important for an application.

Here is some of front-end design of our application given below-

### 4.1.1 Home Page with Calorie Counter page

- Showing the system of the application for users.
- Users can view the menu option of the application.
- Users can also view the calorie counter option of the application.
- Users can also view the required calorie option of the application.
- User can also view the calorie chart on this page.
- Users can also reset the taken calorie from here.

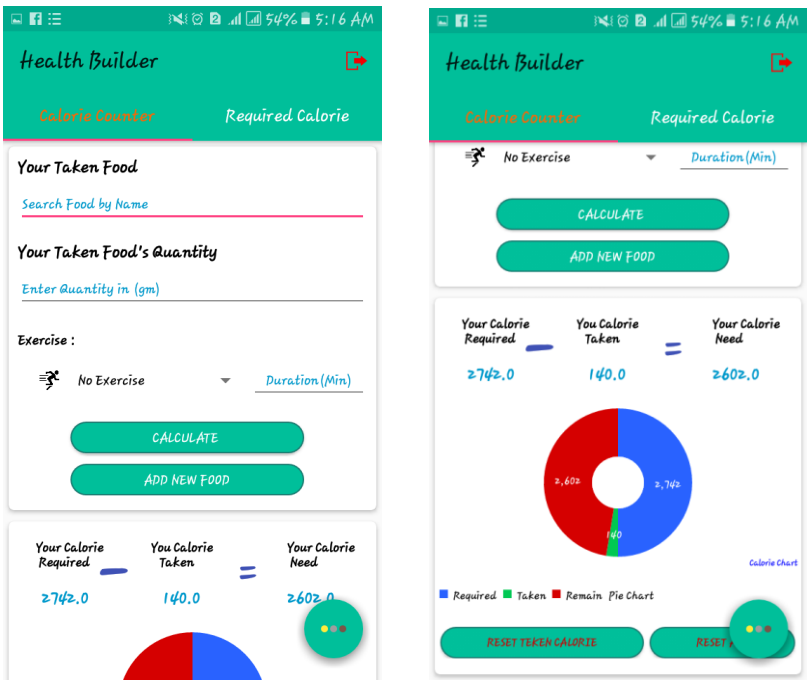



Figure4.1: Health Builder application home and calorie counter page.



©Daffodil International University

### 4.1.2 Registration

- Must  need to sign in with a valid email or
- Must need to sign in with a phone number or
- Must need to sign in with a valid google account.

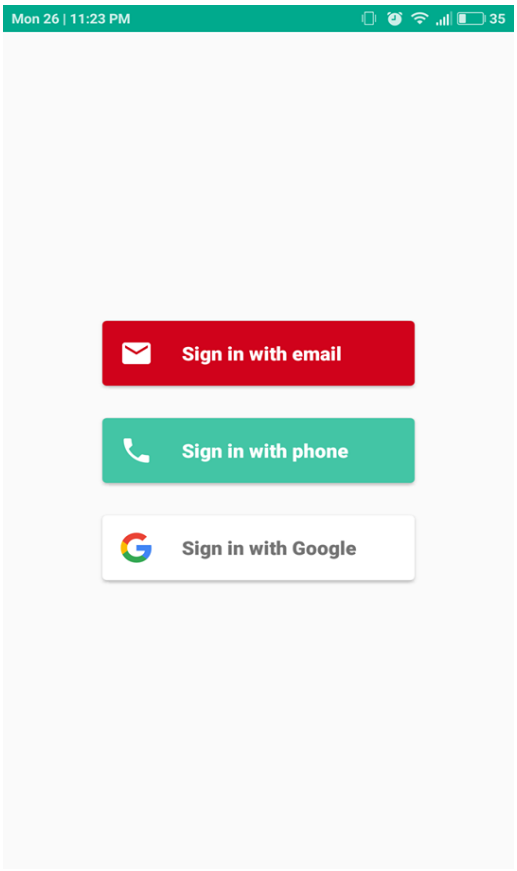



Figure 4.2: Health builder sign in page.



©Daffodil International University

### 4.1.3 Required Calorie page

- Gain, Maintain, Lose weight- user must select one of them.
- User can select their daily activity.
- User can calculate their required calorie from this page.

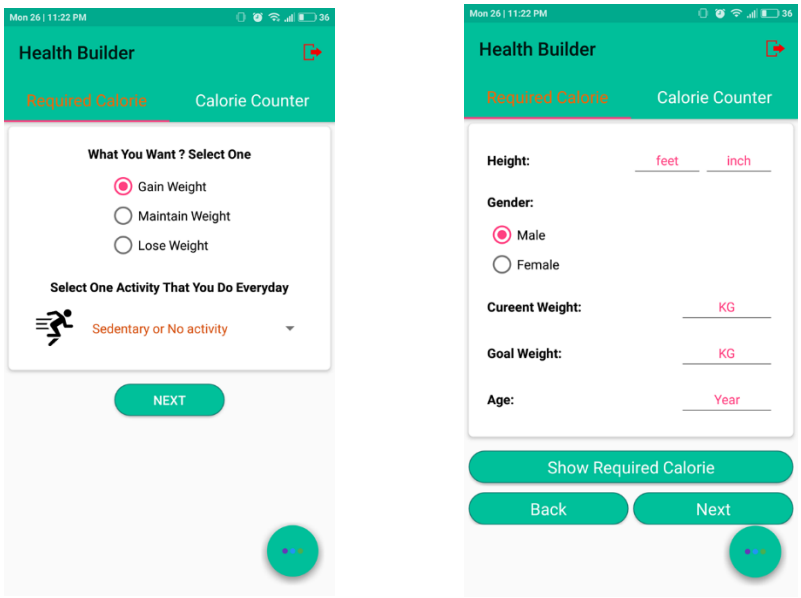



Figure 4.3: Health Builder required calorie page.

### 4.1.4 Menu option view

- User can view about us from this option.
- User also can view their profile from here.
- User also can calculate their fitness from here.

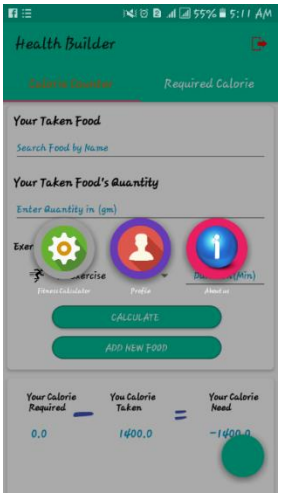



Figure 4.4: Health Builder required calorie page.



©Daffodil International University

### 4.1.5 Fitness calculator page

- User can calculate calorie & BMR from this page.
- User also can calculate body fat from this page.
- User also can calculate nutrition's need from this page.
- User also can calculate heart rate from this page.
- User also can calculate body mass index from this page.
- User also can calculate ideal weight from this page.

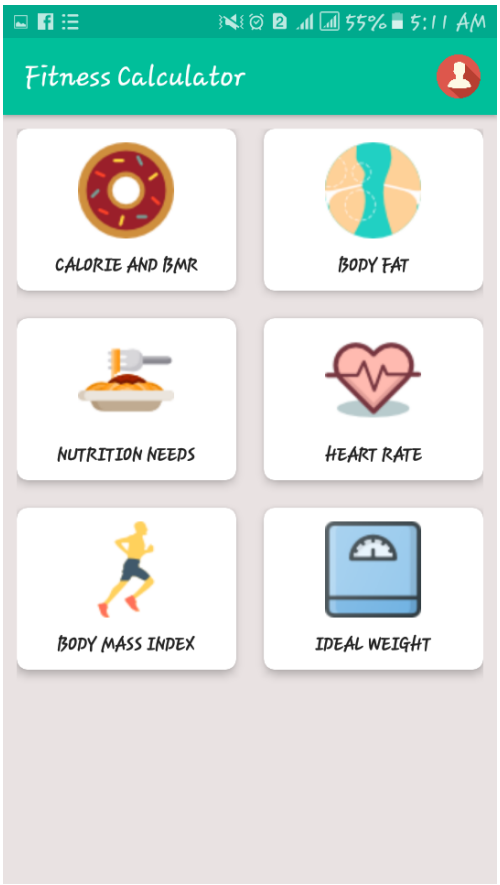



Figure 4.5: Health Builder fitness calculator page.



©Daffodil International University

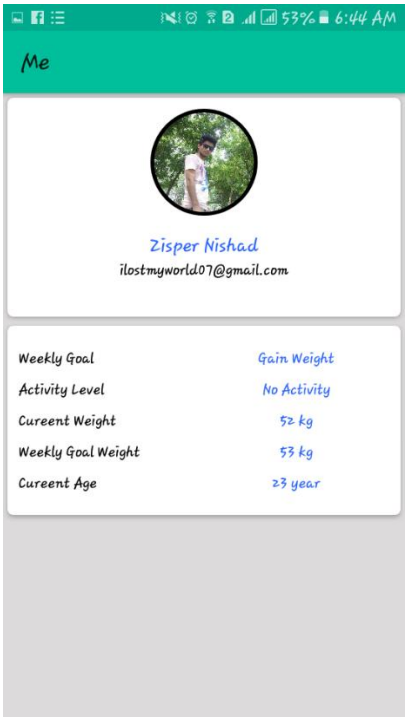



Figure 4.6: Health Builder user profile page.

### 4.2 Back-end Design

All applications has back end design for storing the data or information. We also used back-end design in our application. We create the database diagram for our application and showing it below:



©Daffodil International University

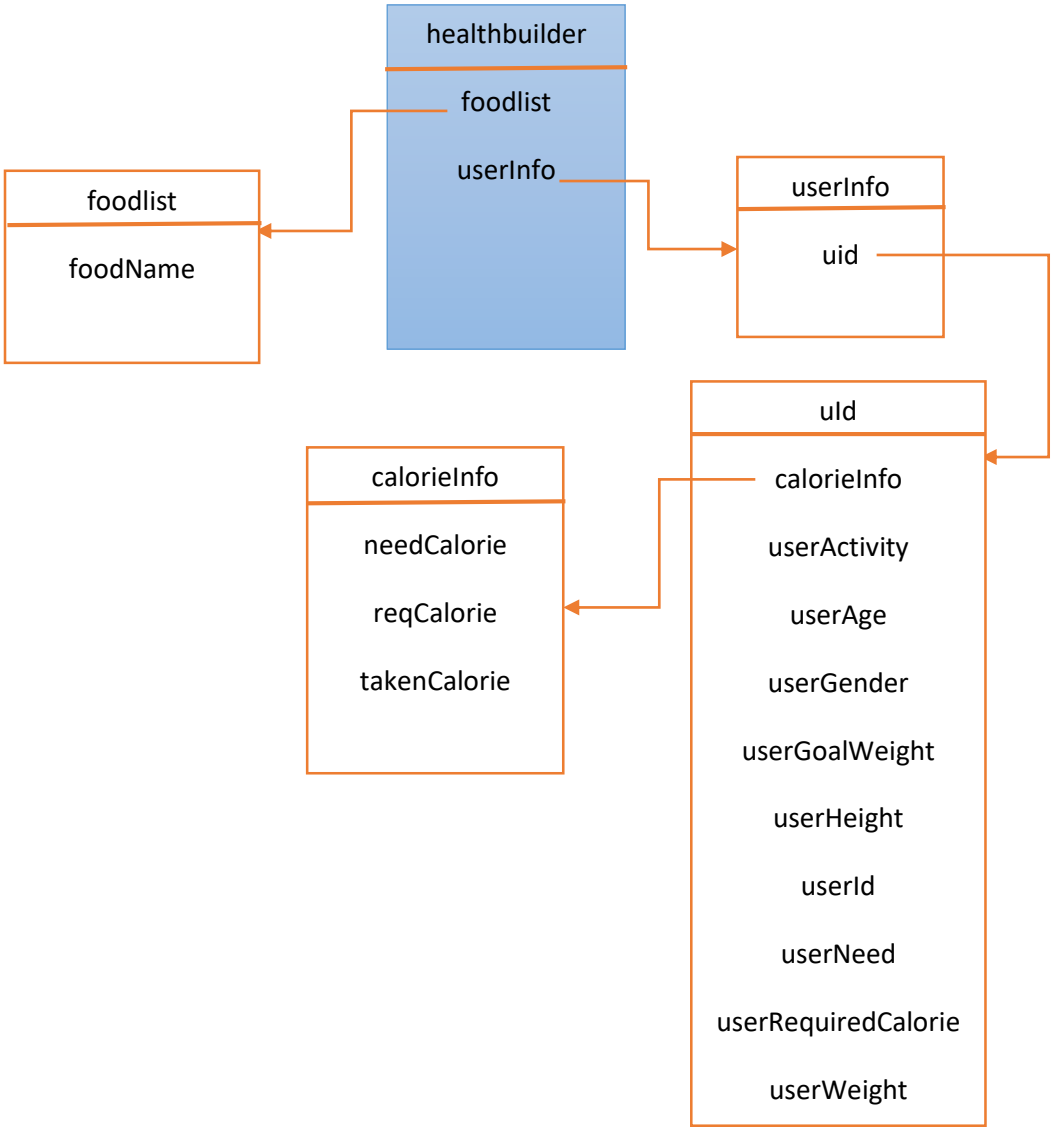



Figure 4.7: Health Builder database diagram.

### 4.3 Implementation Requirements

Every web applications has the implementations requirements to implement the applications. We also have used some implementation requirements in our application.

## Requirements:

3. Used programing languages such as

Java, xml etc.

4. Firebase server and android studio.

We used Firebase database connection, and android studio for



©Daffodil International University

Raw coding.

5. A valid email or phone number or google account.
6. By the email or phone or google account we will confirm the sign in system.
7. Need an android mobile or tablet for using the application.



©Daffodil International University

# Chapter 5

# Implementation and Testing

## 5.1: Implementation of database

The implementation of database is the stored of user information system. Implementation of database is the process of installation of database application. It is the design of database and requirements of identification. We use Firebase database for our application. It is a real time database. The Firebase Realtime Database is a cloud-facilitated database. Information is put away as JSON and synchronized in realtime to each associated client.

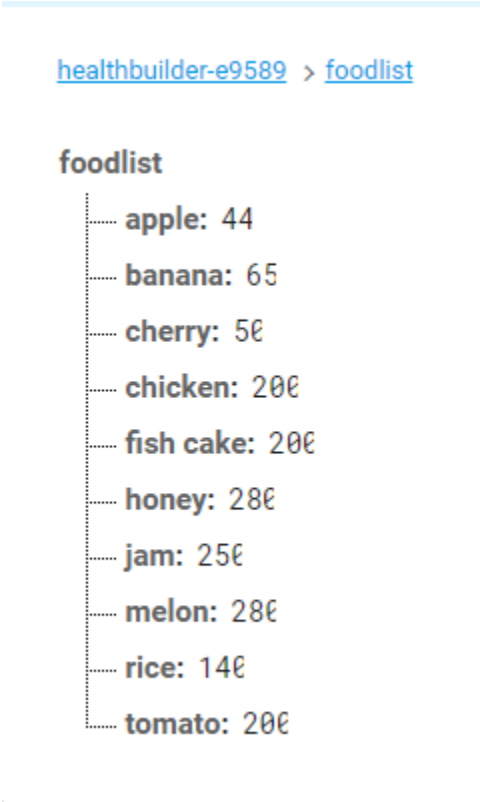



Figure 5.1: Data base design of food List.

### 5.1.1 Food List

Food list database stored the all good food name and calorie. When a user want to calculate the food calorie this time the application take the foods calorie from the database.



©Daffodil International University

Figure 5.2: Data base design of userInfo and calorieInfo.

### 5.1.2 User Info and Calorie Info

User info database store all required information of user and calorie info store needed calorie, required calorie and taken calorie for user.

## 5.2 Implementation of Front-end Design

We have tried to better front-end design in this project and implementation. We used xml, Photoshop that's makes the better user interface. We want to make the user friendly design in our project. So that all user can easily use it.



©Daffodil International University

### 5.2.1: Overview of pages and Description

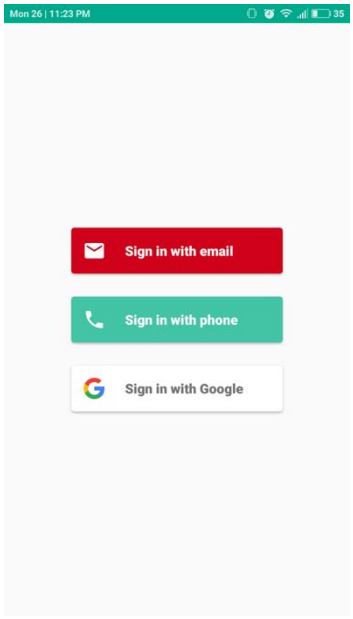



Figure 5.3: Health builder sign in page.

This figure is Health builder user sign in page. Any person can be sign in in our application. Must be valid information need for successful sign in. Without email or google or phone verification code user can't successful registration completed.

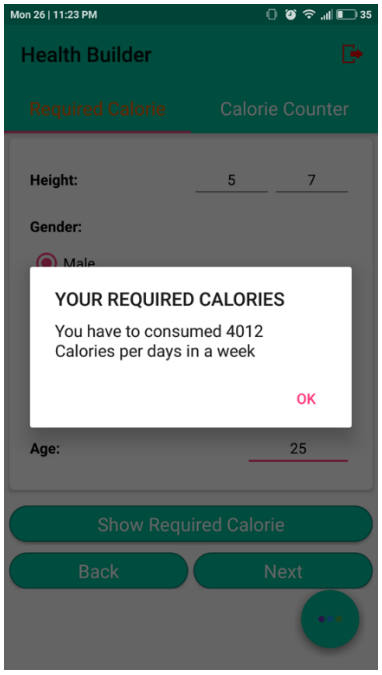



Figure 5.4: Health builder application required calorie calculate.

This figure is Health builder application required calorie page. Using it user can calculate their required calorie.



©Daffodil International University

### 5.3 Testing Implementation

Testing implementation is the process of an action for the formulated plan. We are testing multiple parts in this system. That's requirement is installation, configuration, customization, running and user training necessary are implementation of testing.

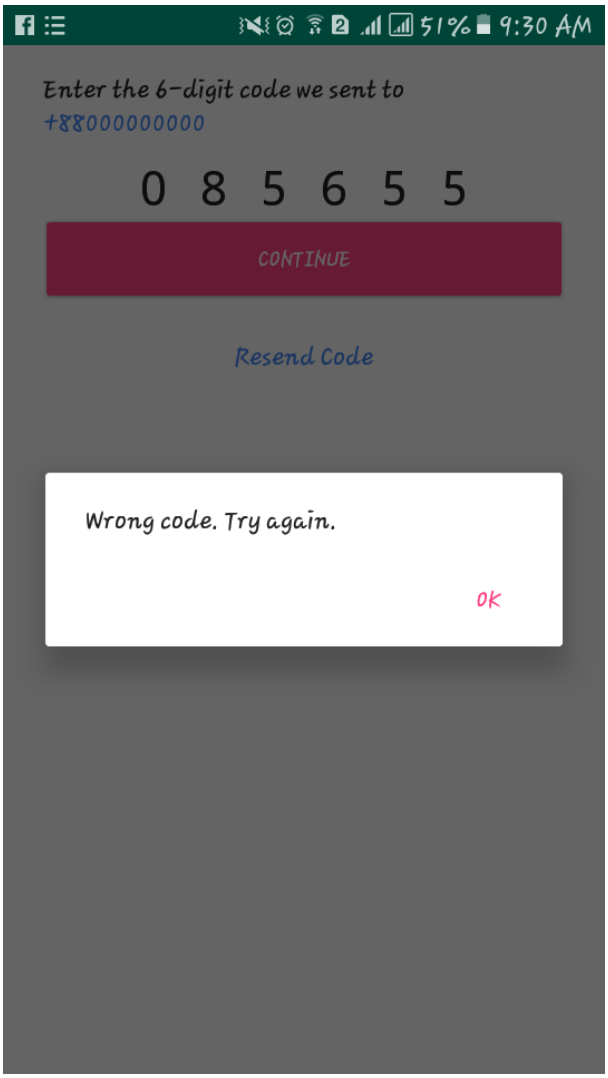



Figure 5.5: Wrong code input on sign in form.

The page is phone number verification of good health applications. When a user returns a wrong code then show the verification is failure.



©Daffodil International University

In this page an old user enter wrong password, that's why the system shows "Incorrect password".

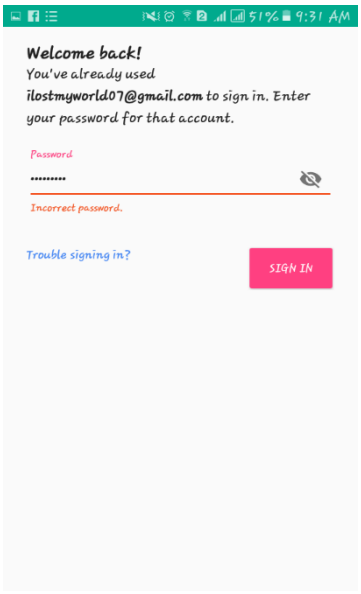



Figure 5.6: Health builder sign in page.

In this figure user enter invalid input, and blank some specific place where need to enter valid info, that's why on this application are showing notification.

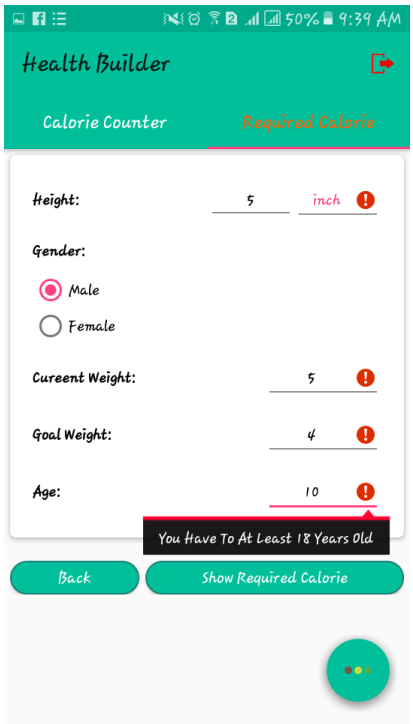



Figure 5.7: Invalid input for calculating required calorie.



©Daffodil International University

### 5.4 Test Results and Reports

Table 5.1: Test Case Table for Health Builder.

| Test Case | Test Input | Expected Output | Actual Output | Result | Tested On |
|---|---|---|---|---|---|
| 1.Display The application pages | Tested some android OS mobile phone- ❖ Samsung ❖ MI ❖ OPPO | To display the Pages successfully | Displayed the pages successfully | Passed | 19-03-18 |
| 2. Sign in without Gmail, mobile, Google. | Blank or Incorrect Address. | Google or Gmail account must entered | Showed the Warning | Passed | 19-03-18 |
| 3.Password | Blank or Incorrect password | Password or correct password must entered | Showed the Warning | Passed | 19-03-18 |
| 4.Required calorie count | Blank or wrong input on some required space. | Fill-up or input specific data. | Showed the Warning | Passed | 20-03-18 |
| 5. Sign in without verify mobile number. | Blank or wrong input. | Fill-up or input given code. | Showed the Warning | Passed | 20-03-18 |



©Daffodil International University

# Chapter 6

# Conclusion and Future Scope

## 6.1 Discussion and Conclusion

The application has been successfully implemented. After connecting with the application through the firebase server overall features and functionalities work fine. This application's workflow and responsive design is user friendly. We have encouraged and took initiatives to develop this application because many peoples need this application in their day to day life. This project is meant for describing all the features and procedures that were followed while developing the application. This document specially mentions the details of the project how it was developed, the primary requirement, as well as various features and functionalities of the project and the procedures followed in achieving these objectives.

## 6.2 Scope for Further Developments

- Our mission is to make this application for all platform like Windows, IOS.
- Our application's data needs more storage in future, so we will add this with larger database system such as Oracle Database.
- We will add more advance features to make it more dynamic to satisfy user.



©Daffodil International University

# References


[1] Get idea about Calorie counting tools, Available at: << https://www.verywellfit.com/calorie-counts-and-nutrition-facts-4157035 >> Access Date 09-12-17 at 8:30pm.

[2] Get Formula of calorie count, Available at: <<https://www.livestrong.com/article/178764-caloric-intake-formula/ >> Access Date 10-12-17 at 7:00pm.

[3] Get Concept about BMI calculating formula, Available at: <<https://www.thecalculatorsite.com/articles/health/bmi-formula-for-bmi-calculations.php >> Access Date 10-12-17 at 7:00pm.

[4] Get Concept about Daily foods calorie, Available at: <<https://www.webmd.com/diet/healthtool-food-calorie-counter >> Access Date 12-12-17 at 08:00pm.

[5] Get Concept about BMR calculating formula, Available at: <<https://manytools.org/handy/bmr-calculator/ >> Access Date 13-12-17 at 10:00pm.

[6] Get Concept about Calorie chart, Available at: <<https://whatscookingamerica.net/NutritionalChart.htm >> Access Date 14-12-17 at 11:30pm.

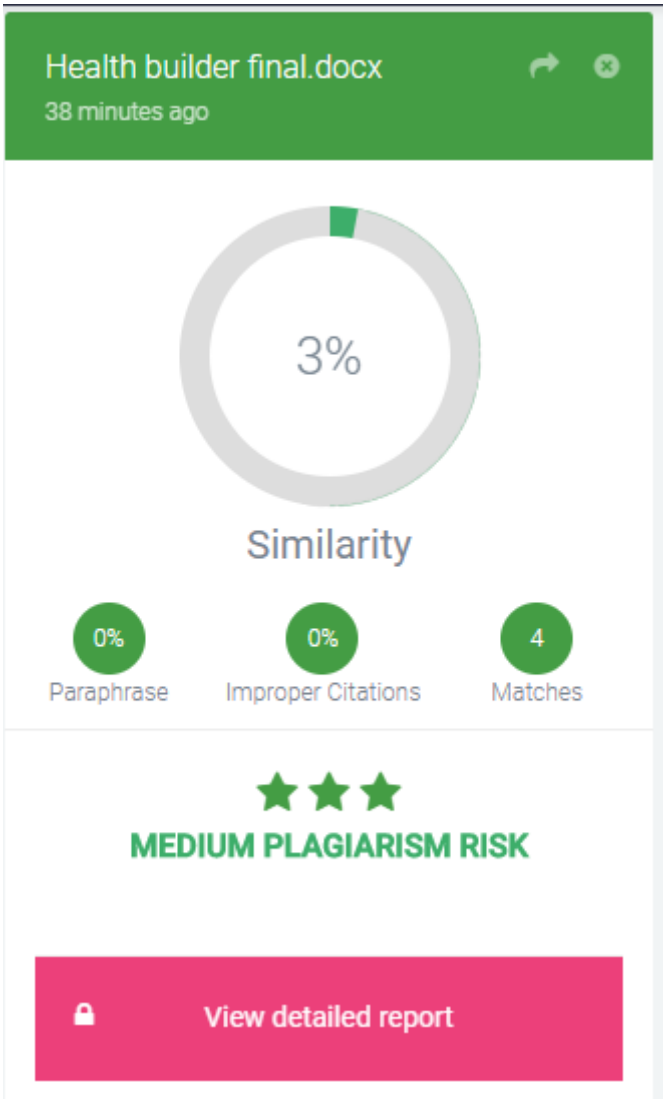
[7] Get Concept about using firebase database, Available at: <<https://firebase.google.com/docs/database/>> Access Date 19-02-18 at 09:00pm.




©Daffodil International University

**Plagiarism Report**

http://www.plagramme.com/






©Daffodil International University