NUTRITION CALCULATOR APPLICATION FOR ANDROID SUPPORT MOBILE PHONES

S.DHIVYA

12PCS003

A Project Report submitted to
Avinashilingam Institute for Home Science and Higher Education for Women,
Coimbatore-641043

In Partial Fulfillment of the Requirements for the Master's Degree in
Computer Science

March, 2014

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Signature of the Supervisor **Signature of the Head of the Department**

Signature of the External Examiner

ACKNOWLEDGEMENT

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I would like to express my sincere thanks to God Almighty, for his constant love and grace that he has showered upon me.

I am very grateful to **Dr.T.S.K.Meenakshi Sundaram, M.A., M.Phil., Ph.D.,** Chancellor, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for his support and encouragement during the course of my study.

I heartily thank **Dr**. **(Mrs.) Sheela Ramachandran M.Sc., P. G. Dip., Ph.D.,** Vice Chancellor Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for extending all resources that facilitated the conduct of the present study.

I express my humble gratitude to **Dr. (Mrs.) Gowri Ramakrishnan M.Sc., M. Phil., Ph.D.,** Registrar Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, for providing all facilities necessary for the study.

I am also thankful **to Dr.(Mrs) A.Parvathi M.Sc., Dip.Ed., M.Phil., Ph.D.,** Dean Faculty of Science, for granting the facility required.

I wish to place on record my deep sense of gratitude to **Dr.(Mrs.)G.Padmavathi M.Sc., M.Phil., Ph.D.,** Professor and Head, Department of Computer Science, for providing all the facilities to complete the project.

I take this unique opportunity to express my sincere thanks to my project Coordinator **Mrs.N.Valliammal M.Sc., M.Phil., Assistant Professor, Department of Computer Science**, for her kind advice and knowledgeable suggestion, which helped me to complete my project successfully.

I owe great deal of gratitude to my esteemed guide **Dr.S.N.Geethalakshmi MCA, M.Phil., Ph.D., Professor,** Department of Computer Science, for her guidance, imparting the tremendous assistance and knowledgeable suggestion, which helped me to complete my project successfully.

I am greatly indebted to respected madam **Dr. P.Subashini M.C.A., M.Phil., Ph.D., Professor,** Department of Computer Science for her inspiring and constant encouragement and timely guidelines at every stage of this project and who helped me to complete this project a successful one.

I am also thankful to **Dr. M.Krishnaveni M.Sc. (ACS), M.Sc. (CS) M.Phil., Ph.D**, **Assistant Professor,** Department of Computer Science for providing me her kind support to carry out this project work.

I have great pleasure in expressing my deep sense of gratitude to all other staff members and non-teaching staff members for their support.

I would extend my hearty thanks to one and all that helped me directly or indirectly for successful completion of my project.

Last yet importantly, I would like to thank my parents, my sister, my uncle and all my well-wishers for their kind inspiration.

SYNOPSIS

SYNOPSIS

The project entitled "**Nutrition Calculator Application for Android Support Mobile phones**" deals with the personal health care program. It calculates vital nutrition information and helps to adjust eating habits. This Android application is mainly used to calculate the Body Mass Index (BMI) value and gives the output nutrition facts of different ingredients used in daily food items in the form of audio. It tells the nutrients that present in ingredients and helps to focus on Recommended Dietary Allowances (RDA). RDA's are quantities of nutrients in the diet. People can refer the amount of nutrient expected values to reach a healthy life and maintain it. Nutrition calculator finds the nutritional information for food taken and suggests list of recommended food items to use.

This application is more of an "all-inclusive" type that helps to keep track of many health aspects, providing in-depth nutritional information. It also has the ability to analyze food ingredients and track nutrients like fat, iron and protein. It is a must-have application for finding the Nutrition Facts for the foods. This application is extremely functional with many useful features that make it very easy to use and helps to keep track the growth of users and used to maintain good health.

CONTENTS

CONTENTS

INTRODUCTION

1. INTRODUCTION

1.1 ABOUT THE SYSTEM

The Nutrition Calculator Application helps to follow the personal health care program. The aim is to develop an Android Application to calculate the BMI value, display the nutrition facts, growth chart and RDA for different age groups to maintain good health.

The Nutrition Calculator Application is developed using java ADT (Android Development Tool) in Eclipse IDE (Integrated Development Environment).

MAIN OBJECTIVES

The objectives of Nutrition Calculator Application are

- To **display** the nutrition facts of different ingredients according to the user input.
- To **calculate** the Body Mass Index value for the individual person.
- To **specify** Recommended Dietary Allowances values & recommended food items according to the user's age.
- To **derive** the growth chart for user's height and weight based on their age and gender.

1.2 OVERVIEW OF THE PROJECT

The Nutrition Calculator Application is carried out by using Eclipse IDE in Android platform. This application includes several unique processes like,

- Displaying Nutritive Values
- Calculating BMI
- Specifying RDA and Recommended food items
- Deriving Growth Chart

The first process is to display the nutrition facts of different ingredients like pulses, grains, vegetables and fruits according to the user input. Nutrition facts provide detailed information about food's nutrient content such as the amount of fat, protein and fiber it has. The second process is calculating the Body Mass Index (BMI). It is a reliable indicator of body fatness that compares user's height, weight and gives an indication of whether the user is overweight, underweight or at a normal level. The Recommended Dietary Allowances (RDA) refer to the recommended daily level of nutrients to meet the need of all healthy individuals in a particular age, gender group and list out the recommended food items such as protein rich foods, iron rich foods. Finally Growth Chart calculates the growth percentile of the user's weight, height based on their age and gender.

SYSTEM SPECIFICATION

2. SYSTEM SPECIFICATION

This section describes the hardware and software specification needed for both development and implementation phases of this project.

2.1 HARDWARE SPECIFICATION

Processor : Intel(R) Core(TM) i3-2350M CPU @ 2.30GHz 2.30 GHz

RAM : 2.00GB

System type : 64 –bit Operating System

2.2 SOFTWARE SPECIFICATION

Front End : Eclipse IDE (java ADT), Android SDK and AVD Emulator

Back End : SQLite Studio and SQLite Database Browser

Operating System : Microsoft Windows 7

2.3 ABOUT THE SOFTWARE

ECLIPSE IDE

Eclipse as an integrated development environment (IDE) for Java. Today it is the leading development environment for Java with a market share of approximately 65%. Eclipse is created by an Open Source community and is used in several different areas, e.g. as a development environment for Java or Android applications. The Eclipse Open Source community has over 200 Open Source projects covering different aspects of software development.

The Eclipse projects are governed by the Eclipse Foundation. The Eclipse Foundation is a non-profit, member supported corporation that hosts the Eclipse Open Source projects and helps to cultivate both an Open Source community and an ecosystem of complementary products and services. The Eclipse IDE can be extended with additional software components. Eclipse calls this software components plug-ins. Several Open Source projects and companies have extended the Eclipse IDE.

ANDROID SDK

The Android software development kit (SDK) includes a comprehensive set of development tools. The officially supported integrated development environment (IDE) is Eclipse using the Android Development Tools (ADT) Plug-in, though IntelliJ IDEA IDE fully supports Android development out of the box, and Net Beans IDE also supports Android development via a plug-in. Additionally, developers may use any text editor to edit Java and XML files, then use command line tools (Java Development Kit and Apache Ant are required) to create, build and debug Android applications as well as control attached Android devices .

Enhancements to Android's SDK go hand in hand with the overall Android platform development. The SDK also supports older versions of the Android platform in case developers wish to target their applications at older devices. Development tools are

downloadable components, so after one has downloaded the latest version and platform, older platforms and tools can also be downloaded for compatibility testing.

AVD EMULATOR

The Android SDK includes a virtual mobile device emulator that runs on our computer. The emulator lets us prototype, develop and test Android applications without using a physical device.

The Android emulator mimics all of the hardware and software features of a typical mobile device, except that it cannot place actual phone calls. It provides a variety of navigation and control keys, which we can "press" using our mouse or keyboard to generate events for our application. It also provides a screen in which our application is displayed, together with any other active Android applications.

SQLITE STUDIO

SQLite is a software library that implements a self-contained, server less, zero-configuration, transactional SQL database engine. SQLite is the most widely deployed SQL database engine in the world. The source code for SQLite is in the public domain.

SQLite Studio can run on multiple platforms, windows, Linux and Solaris. The advantage of using SQLite Studio, we do not need to install in our PC or laptop because SQLite Studio is portable, so it can be used on a PC or laptop without having to install it first.

SQLite Studio is an advanced, cross-platform SQLite database manager.
Features:

- Intuitive MDI interface
- All SQLite3 and SQLite2 features wrapped with in simple GUI,
- Cross-platform - runs on Windows, Linux, Solaris, FreeBSD, and Mac OSX and should work on other Unixes.
- Exporting to various formats (SQL statements, CSV, HTML, XML),

- Numerous additions, like advanced formatting code, history of queries executed in editor windows, custom SQL functions, populating tables, postponed commits, real-time syntax checking and smart syntax completion,
- UTF-8 support,
- skin able (interface can look native for Windows 9x/XP, KDE, Mac OS X, or draw widgets to fit for other environments, like Gnome, Window Maker, etc), Configurable colors, fonts and shortcuts.
- Simple to start - just download binary distribution and run - no installation process is required, application is just a single file.

SQLITE DATABASE BROWSER

SQLite Database Browser Portable is a visual tool used to create, design and edit database files compatible with SQLite. It is a light GUI editor for SQLite databases, built on top of Qt. The main goal of the project is to allow non-technical users to create, modify and edit SQLite databases using a set of wizards and a spreadsheet-like interface.

The SQLite Database Browser included in RazorSQL allows users to browse database objects and structures. It displays information about the following types of objects:

- Tables
- Views
- Triggers
- Indexes

The SQLite Browser also includes tools for interacting with the above objects such as the following:

- Tools for viewing the contents of objects such as tables and views
- A describe table and view tool
- An edit table tool
- Tools for viewing system information about objects

- Tools for creating tables, views, indexes, and triggers
- Tools for altering tables and views
- Tools for dropping objects
- Tools for importing and exporting data
- An SQL query builder
- A compare tool for comparing tables and/or SQL query results

It is a freeware, public domain, open source visual tool. It is meant to be used for users and developers that want to create databases, edit and search data using a familiar spreadsheet-like interface, without the need to learn complicated SQL commands. Controls and wizards are available for users. SQLite Database Browser is an application for visual management of SQL databases. The possibilities of the program include:

- Create and compact database files
- Create, define, modify and delete tables
- Create, define and delete indexes
- Browse, edit, add and delete records
- Search records
- Import and export records as text
- Import and export tables from/to CSV files
- Import and export databases from/to SQL dump files
- Issue SQL queries and inspect the results
- Examine a log of all SQL commands issued by the application

SYSTEM ANALYSIS

3. SYSTEM ANALYSIS

3.1 Existing System

There are number of Nutrition Calculator application existing in Google play for finding BMI and Nutritive values. Those applications will work only through the Internet.

3.2 Proposed System

In proposed system, “Nutrition Calculator Application for Android Support Mobile phones” is used to calculate the BMI value and gives the output nutrition facts of daily food usage in the form of audio and suggests list of recommended food items to use. User can use this application without an Internet.

Merits of proposed system

- User friendly.
- Display the results in Emulator.
- Easy access of application in mobile device.
- No need for Internet.

SYSTEM DESIGN

4. SYSTEM DESIGN

4.1 TABLE DESIGN

Table design concentrates on a collection of interactive data stored which serves many users to access the data quickly and efficiently. A database is a collection of interrelated data stored for many applications. For this project, mainly four tables are used, namely Nutrition table, RDA for Male, RDA for Female and Growth table.

The Nutrition table contains nutritive values of different ingredients per 100 grams. Totally twelve fields are used in this table like Food ID, Food Name, Protein, Iron, Fibre, Minerals, Fat, Energy, CHO, Calcium, Folic Acid Free and Folic Acid Total. In this project, this table is referred in Nutrition Facts module. The purpose of this table is storing the amount of Protein, Iron, Fibre, Minerals, Fat, Energy, CHO, Calcium, and Folic Acid Free & Total for different ingredients and it is used for display the Nutrition Facts according to the user input. This Nutrition table is shown in APPENDIX [B.1]

The table RDA for Male contains Recommended Dietary Allowances for different age groups and it refer to the recommended daily level of nutrients such as Protein, Iron, Fat, Calcium and Folic Acid in particular age. This table is referred in RDA module particularly male gender. It has seven fields like ID, Age, Protein, Iron, Fat, Calcium and Folic Acid. The purpose of this table is storing RDA values and it is used for specify Recommended Dietary Allowances according to the user's age. This RDA for Male table is shown in APPENDIX [B.2]

The table RDA for Female also contains Recommended Dietary Allowances for different age groups and it refer to the recommended daily level of nutrients such as Protein, Iron, Fat, Calcium and Folic Acid in particular age. This table is referred in RDA module particularly female gender. It has seven fields like ID, Age, Protein, Iron, Fat, Calcium and Folic Acid. The purpose of this table is storing RDA values and it is used for specify Recommended Dietary Allowances according to the user's age. This RDA for Female table is shown in APPENDIX [B.3]

The Growth table contains height and weight for different age groups. This table referred in Growth Chart module. It has four fields like ID, Age and Height, weight for each gender. The purpose of this table is storing values like age, height and weight and it is used for calculate the growth percentile of user's weight and height based on their age and gender. This Growth Chart table is shown in APPENDIX [B.4]

4.2 INPUT DESIGN

The required inputs are stored in the form of tables. They may be numeric and alphanumeric. The relationships are created within the tables to access the data efficiently and effectively. Input screen should have the title and the required variable used to produce the result. The input screen should be user friendly, so everyone can access the options without having the complete system knowledge. During each entry of input data, guidelines are provided to the user to avoid incorrect and inaccurate data entry. Input design is the process of converting the user originated inputs to a computer based format.

As the project is concentrated fully on the android application "Nutrition Calculator", it has several processes such as BMI calculation, Nutrition Facts and Growth Chart. All the input forms are designed by using XML coding in android platform and the home screen of this project is shown in APPENDIX [C.1].

For BMI calculation, User's weight and height are given as input. These inputs are dynamically given by the user then BMI is calculated, and the input screen for the BMI calculation is shown in APPENDIX [C.2].

For Nutrition Facts, the ingredient names are given as input. Here users enter the ingredient name then the nutritive values are displayed. For this process, the entire ingredient name and its nutritive values are statically stored in the database in the form of table. Here the Nutrition table is used to display the nutritive values and the input screen for the Nutrition Facts is shown in APPENDIX [C.3].

For RDA, the user's age is given as input for both male and female. Here users enter their age then it will display the RDA values. For this process, the user's age and RDA values for that age are statically stored in the database in the form of table. Here the

RDA for Male and RDA for Female tables are used. The input screens are shown in APPENDIX [C.4]

In Ready Reckoner, user can choose protein rich foods, iron rich foods, calcium rich foods, folic-acid foods and fat rich foods in the list of recommended food items. The input screen for the Ready Reckoner is shown in APPENDIX [C.5].

For Growth Chart, the user's age and gender are given as input. Here users enter their age and gender then it will show the chart for user's height and weight. For this process, user's age, height and weight for that particular age are statically stored in the database in the form of table. Here the Growth table is used. The input screen for the Growth Chart is shown in APPENDIX [C.6].

In Frequently Asked Questions, the input screen contains list of questions. Users can click on the questions in the list to read the answer. The input screen for the Frequently Asked Questions is shown in APPENDIX [C.7].

4.3 OUTPUT DESIGN

The output information must be provided in such a format that the people can understand. Output design generally refers to the results and information that are generated by the system for many users.

In this project, first, Body Mass Index value for individual person is calculated and the result is provided in Audio Format. Here users enter their height and weight as an input. These inputs are dynamically given by the user, not stored in the database. According to the users input the BMI is calculated and it gives the output whether the user is overweight, underweight or at a normal level in the form of audio. For example, if the user enters weight as 50kg and height as 150cm, the output BMI value 19.53-Normal is displayed in Audio Format. The output screen of BMI is shown in APPENDIX [D.1]

Then the Nutrition facts are provided in the form of audio. Here users enter the ingredient name as input and using of Nutrition table, the nutritive values of different ingredients like amount of fat, protein, iron, minerals, calcium, CHO, energy, folic-acid and fiber are displayed. For example, user enters the ingredient name as RICE then it

display the amount of fat, protein, iron, minerals, calcium, CHO, energy, folic-acid and fibre and it is shown in APPENDIX [D.2]

Then the Recommended Dietary Allowances are also provided in the form of audio. Here users enter their age and using of RDA for male, RDA for female tables, the recommended daily level of nutrients such as Protein, Iron, Fat, Calcium and Folic Acid are displayed. For example, user enters their age as 34 then it displays the RDA values and it is shown in APPENDIX [D.3]

The output of the Ready Reckoner is listed in the list view. User can select particular food item in the list and it display the small description about that food item. User may choose protein rich foods, iron rich foods, calcium rich foods, folic-acid foods and fat rich foods. The output screen of Ready Reckoner is shown in APPENDIX [D.4]

The output of the Growth Chart is growth percentile chart for user's height and weight. Here users enter their age, gender and using of Growth chart table, the chart will be displayed. For example, user enters their age as 20 and gender as male then it displays the chart and it is shown in APPENDIX [D.5]

Finally, the output of the Frequently Asked Questions is displayed in the text view. User can click on particular question in the list of questions and it display the answer in text view. The output screen of Frequently Asked Questions is shown in APPENDIX [D.6]

SYSTEM DEVELOPMENT

5. SYSTEM DEVELOPMENT

5.1 LIST OF MODULES

The project consist of five main modules namely

1. Nutrition Facts and BMI Calculation
2. Recommended Dietary Allowances (RDA)
3. Ready Reckoner
4. Growth Chart
5. Frequently Asked Questions

5.2 NUTRITION FACTS AND BMI CALCULATION

The first part of this module is Nutrition Facts, it provides detailed information about a food's nutrient content such as amount of fat, protein, iron, minerals, calcium, CHO, energy, folic-acid and fiber it contains. It list out the nutritive values of different ingredients like pulses, grains, vegetables and fruits according to the user input.

In this module, the ingredient names are given as input. Here users enter the ingredient name, then the nutritive values are displayed and input screen for Nutrition Facts is shown in APPENDIX [C.2]. For this process, the entire ingredient name and its nutritive values are statically stored in the database in the form of table. Here the Nutrition table is used that is shown in APPENDIX [B.1] and this table contains nutritive values of different ingredients per 100 grams. By using this Nutrition table, the nutritive values of RICE like amount of fat, protein, iron, minerals, calcium, CHO, energy, folic-acid and fibre are displayed that are shown in APPENDIX [D.2]

The second part, Body Mass Index (BMI) is a number calculated from user's weight and height. It is a reliable indicator of body fatness. This is calculated using the formula (weight) / (height/100) ^2 in the unit of kg and cm.

Here users enter their height and weight as an input. These inputs are dynamically given by the user, not stored in the database. According to the users input the BMI is calculated, and the input screen for the BMI calculation is shown in APPENDIX [C.1]. Then it gives the output whether the user is overweight, underweight or at a normal level in the form of audio. The BMI value of one person who has the weight as 50kg and height as 150cm is 19.53-Normal that is shown in APPENDIX [D.1]

5.3 RECOMMENDED DIETARY ALLOWANCES

The Recommended Dietary Allowances (RDAs) are quantities of nutrients in the diet that are required to maintain good health. A separate RDA value exists for each nutrient. RDA refers to the recommended daily level of nutrients to meet the need of all healthy individuals in a particular age and gender group. This module consists of two parts like RDA for male and female.

In each part, the user's age is given as input. Here users enter their age then it will display the RDA values and the input screens of this module are shown in APPENDIX [C.3]. For this process, the user's age and RDA values for particular age are statically stored in the database in the form of table. Here the RDA for Male and RDA for Female tables are used. These tables contains Recommended Dietary Allowances for different age groups and it refer to the recommended daily level of nutrients such as Protein, Iron, Fat, Calcium and Folic Acid in particular age that are shown in APPENDIX [B.2] and APPENDIX [B.3].

Users enter their age and using of RDA for male, RDA for female tables, the recommended daily level of nutrients such as Protein, Iron, Fat, Calcium and Folic Acid are provided in the form of audio. The output RDA value of age 34 is shown in APPENDIX [D.3].

5.4 READY RECKONER

Ready Reckoner provide list of recommended food items to use. It list out the protein rich foods, iron rich foods, calcium rich foods, folic-acid foods and fat rich foods. It also includes small description about each food item in the list view. It helps to maintain good health in specific individuals.

In this module, user can choose protein rich foods, iron rich foods, calcium rich foods, folic-acid foods and fat rich foods in the list of recommended food items. The input screen for the Ready Reckoner is shown in APPENDIX [C.4].

The output of the Ready Reckoner is listed in the list view. User can select particular food item in the list and it display the small description about that food item. User may choose protein rich foods, iron rich foods, calcium rich foods, folic-acid foods and fat rich foods. The output screen of Ready Reckoner is shown in APPENDIX [D.4].

5.5 GROWTH CHART

Growth Charts allow tracking and charting of growth for users from age 1 through age 20 years. It can track weight, length or height. It accurately calculates the growth percentile for user's weight and height based on their age and gender. Growth chart is an essential way to monitor user's growth.

In this module, the user's age and gender are given as input. Here users enter their age and gender, then it will show the chart and the input screen of this module are shown in APPENDIX [C.5]. For this process, the growth chart table is used, the user's age, height and weight for that particular age are statically stored that are shown in APPENDIX [B.4]

Here users enter their age, gender and by the use of Growth chart table, the chart will be displayed. The output is growth percentile chart for user's height and weight. The growth chart for the user of age 20, gender as male is shown in APPENDIX [D.5]

5.6 FREQUENTLY ASKED QUESTIONS

FAQ are list of questions and answers, which are supposed to be commonly asked about nutrients, and pertaining to an RDA. Here user can view all the questions and answers about nutrition that already exist. These FAQs provide basic information and related resources for nutrition questions.

In this module, the input screen contains list of questions. The input screen for the Frequently Asked Questions is shown in APPENDIX [C.6]. The output of the Frequently Asked Questions is displayed in the text view. User can click on particular question in the list of questions and it displays the answer. The output screen of Frequently Asked Questions is shown in APPENDIX [D.6]

6. RESULTS AND DISCUSSION

In the project, “Nutrition Calculator Application for Android Support Mobile phones “the results are displayed in mobile phones that are shown in APPENDIX E.

The Nutrition Facts of RICE is displayed in APPENDIX [E.2]. The amount of fat, protein, iron, minerals, calcium, CHO, energy, folic-acid and fibre for RICE is provided in Audio Format. The BMI value of the person who has weight 50kg and height as 160cm is displayed in APPENDIX [E.1]. The output 19.53-Normal is displayed in Audio Format.

The RDA values of the person who has age 24 are displayed in APPENDIX [E.3]. The recommended daily level of nutrients such as Protein, Iron, Fat, Calcium and Folic Acid are displayed in Audio Format. The output of the Ready Reckoner is listed in the list view and it also displayed the small description about that food item. These are shown in APPENDIX [E.4].

The Growth Chart of the person who has age 20 and gender as male is displayed in APPENDIX [E.5] and the output of the Frequently Asked Questions is displayed in the text view. User can click on particular question in the list of questions and it display the answer in text view that is shown in APPENDIX [E.6].

These results showed that the Nutrition Calculator application worked properly and easily. It is used to calculate the BMI value and gives the output nutrition facts of daily food usage in the form of audio and suggests list of recommended food items to use. The project is simple for clear understanding. User can use this application without Internet and it helps to keep track the growth of users and maintain good health.

CONCLUSION

7. CONCLUSION

The project "**Nutrition Calculator Application for Android Support Mobile phones**" is implemented successfully and it is more useful for us to follow our personal health care program.

This application is basically mobile application so it is portable and can be used anywhere.

Nutrition Calculator Application worked properly without Internet and it helps to keep track the growth of users and used to maintain good health and it is also a user-friendly application.

The project included all the important features of ECLIPSE IDE. This project has developed with the aim of maintain personal health care program in android platform.

SCOPE FOR FUTURE ENHANCEMENT

8. SCOPE FOR FUTURE ENHANCEMENT

Nowadays Android Applications has become very popular. Android Programming language is very easy to learn and application development is cost effective. Developers also can develop applications in different ways as per their need and wish. So the future enhancement can be done easily. In this project the future work can be,

- Implement voice recognition.
- Specify the lack of nutrients for the individual person according to their eating habits.
- Specify standard recipes.

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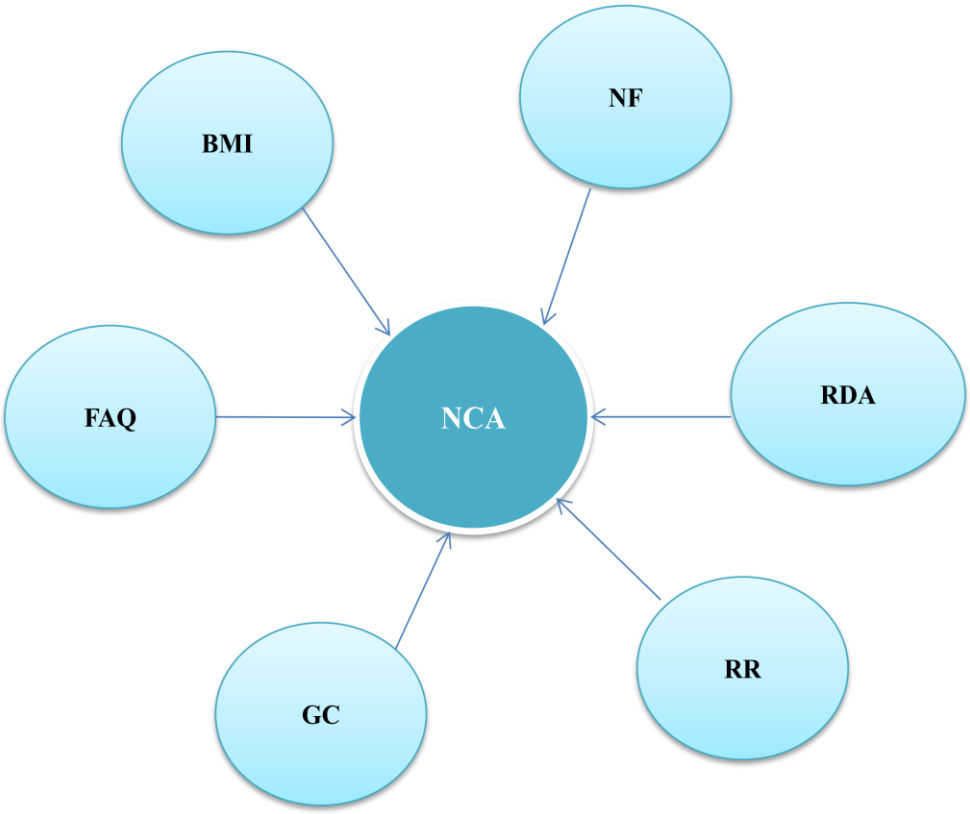
APPENDIX

APPENDIX

A. CONTEXT FLOW DIAGRAM



B. TABLE DESIGN

B.1. TABLE NAME: Nutrition

FIELD NAME	TYPE
ID	Numeric
FOOD_NAME	Text
PROTEIN	Numeric
IRON	Numeric
FIBRE	Numeric
MINERALS	Numeric
FAT	Numeric
ENERGY	Numeric
CHO	Numeric
CALCIUM	Numeric
FOLIC-ACID FREE	Numeric
FOLIC-ACID TOTAL	Numeric

ID	FOOD_NAME	PROTEIN	IRON	FIBRE	MINERALS	FAT
1	BARLEY	11.50	1.67	3.90	1.20	1.30
2	ITALIAN MILLET	12.30	2.80	8.00	3.30	4.30
3	MAIZE	11.10	2.30	2.70	1.50	3.60
4	RAGI	7.30	3.90	3.60	2.70	1.30
5	RICE	6.40	1.00	0.20	0.70	0.40
6	WHEAT	11.80	5.30	1.20	1.50	1.50
7	BENGAL GRAM	17.10	4.60	3.90	3.00	5.30
8	BLACK GRAM	24.00	3.80	0.90	3.20	1.40
9	GREEN GRAM	24.00	4.40	4.10	3.50	1.30
10	HORSE GRAM	22.00	6.77	5.30	3.20	0.50
11	REDGRAM	9.80	1.10	6.20	1.00	1.00
12	SOYABEAN	43.20	10.40	3.70	4.60	19.50
13	AGATHI	8.40	3.90	2.20	3.10	1.40
14	AMARANTH	3.00	0.00	1.00	3.30	0.70
15	CABBAGE	1.80	0.80	1.00	0.60	0.10
16	CORIANDER LEAVES	3.30	1.42	1.20	2.30	0.60

B.2. TABLE NAME: RDA for Male

FIELD NAME	TYPE
ID	Numeric
AGE	Numeric
PROTEIN	Numeric
IRON	Numeric
FAT	Numeric
CALCIUM	Numeric
FOLIC-ACID	Numeric

	ID	AGE	PROTEIN	IRON	CALCIUM	FOLIC ACID	FAT
1	1	1	15.7	7	600	80	25
2	2	2	15.7	7	600	80	25
3	3	3	15.7	7	600	80	25
4	4	4	20.3	13	600	100	23
5	5	5	20.3	13	600	100	23
6	6	6	20.3	13	600	100	23
7	7	7	29.6	15	600	120	20
8	8	8	29.6	15	600	120	20
9	9	9	29.6	15	600	120	20
10	10	10	39.9	21	600	140	20
11	11	11	39.9	21	600	140	20
12	12	12	39.9	21	600	140	20
13	13	13	54.2	32	800	160	20
14	14	14	54.2	32	800	160	20
15	15	15	54.2	32	800	160	20
16	16	16	61.5	27	600	200	15
17	17	17	61.5	27	600	200	15

B.3. TABLE NAME: RDA for Female

FIELD NAME	TYPE
ID	Numeric
AGE	Numeric
PROTEIN	Numeric
IRON	Numeric
FAT	Numeric
CALCIUM	Numeric
FOLIC-ACID	Numeric

	ID	AGE	PROTEIN	IRON	CALCIUM	FOLIC ACID	FAT
1	1	1	15.7	7	600	80	25
2	2	2	15.7	7	600	80	25
3	3	3	15.7	7	600	80	25
4	4	4	20.3	13	600	100	23
5	5	5	20.3	13	600	100	23
6	6	6	20.3	13	600	100	23
7	7	7	29.6	15	600	120	20
8	8	8	29.6	15	600	120	20
9	9	9	29.6	15	600	120	20
10	10	10	40.4	27	700	140	20
11	11	11	40.4	27	700	140	20
12	12	12	40.4	27	700	140	20
13	13	13	51.9	27	700	160	20
14	14	14	51.9	27	700	160	20
15	15	15	51.9	27	700	160	20
16	16	16	52.1	26	600	200	15
17	17	17	52.1	26	600	200	15

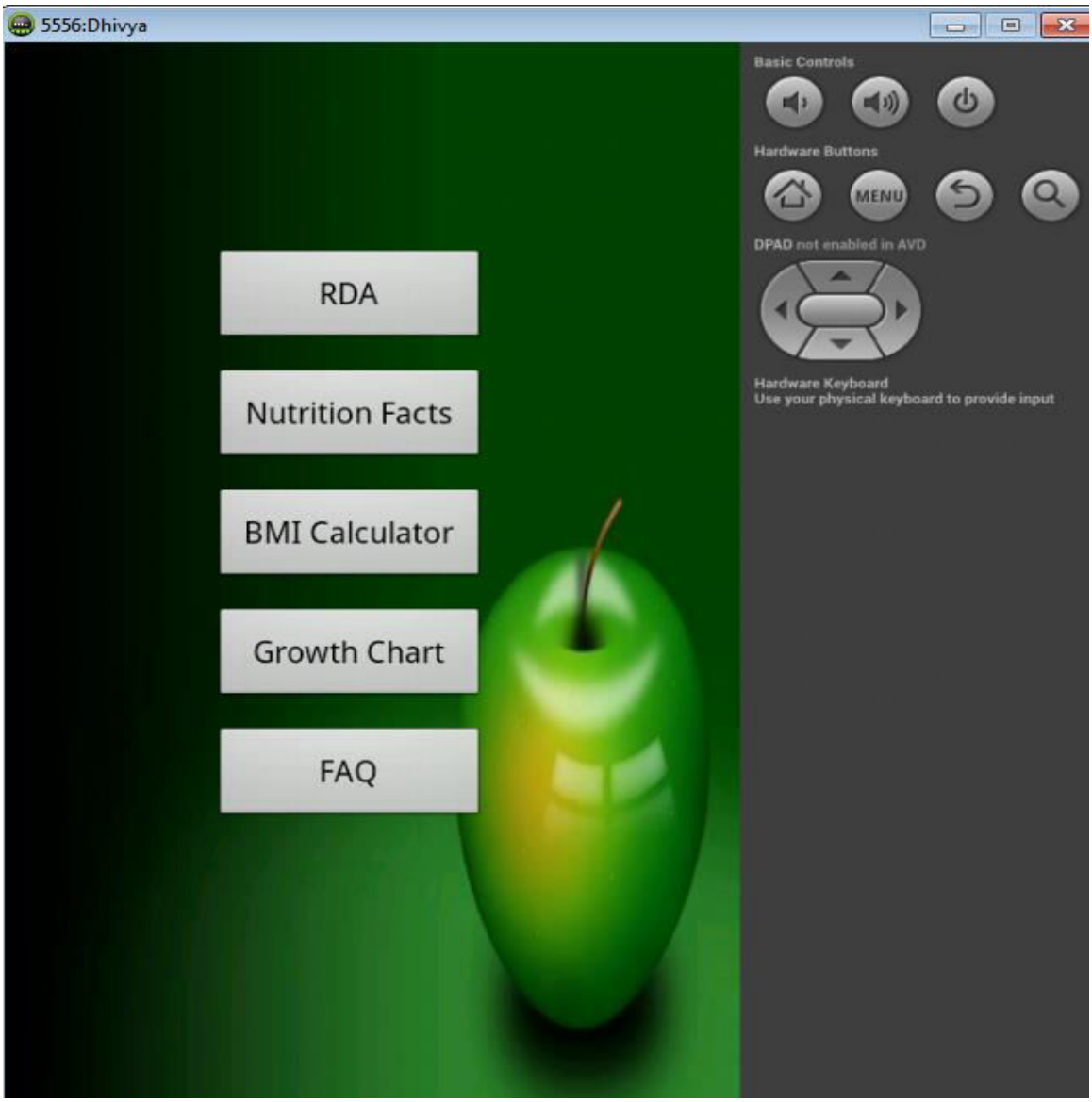
B.4. TABLE NAME: Growth

FIELD NAME	TYPE
ID	Numeric
AGE	Numeric
M_WEIGHT	Numeric
M_HEIGHT	Numeric
F_WEIGHT	Numeric
M_HEIGHT	Numeric

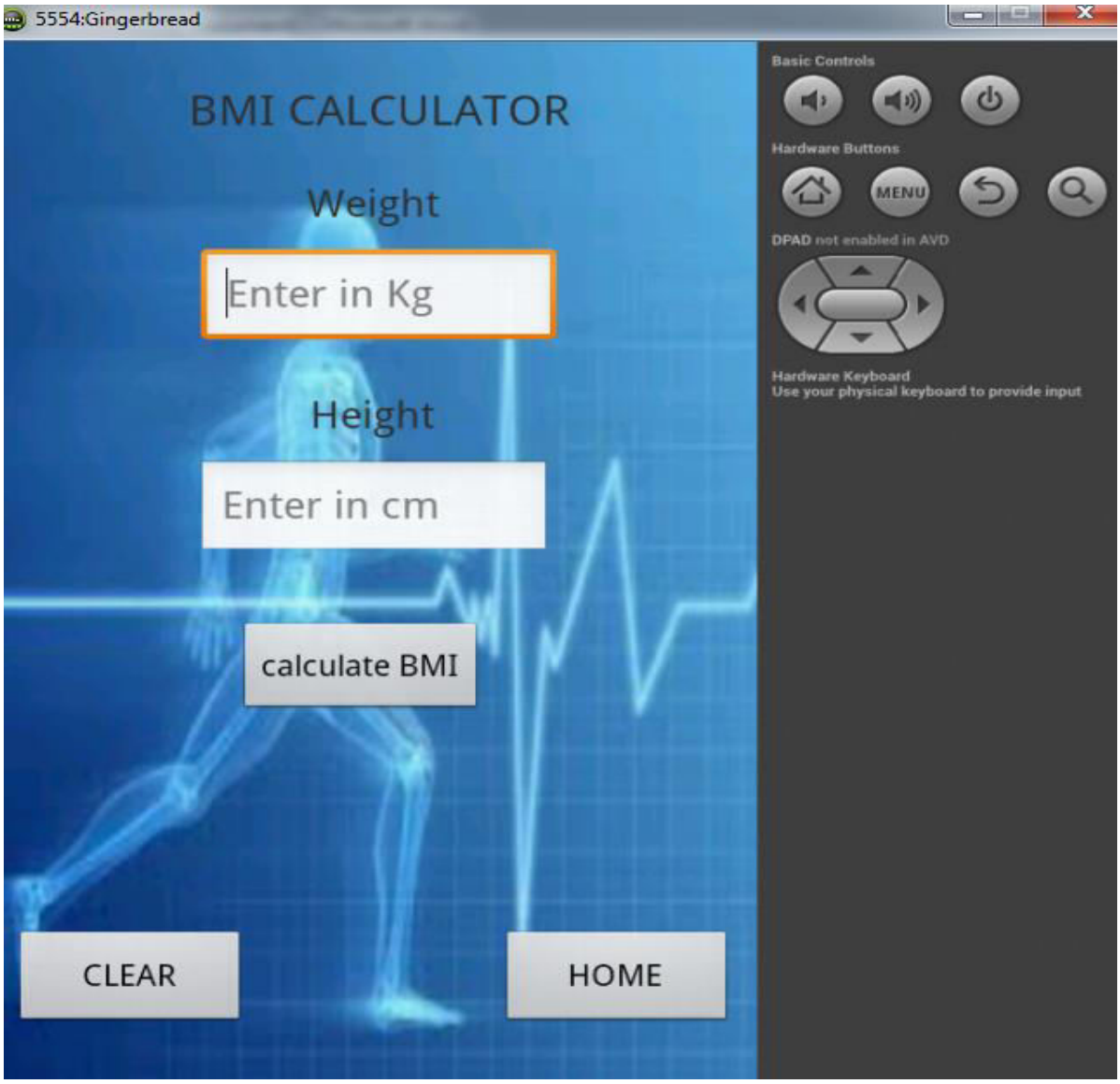
	ID	AGE	M WEIGHT	M HEIGHT	F WEIGHT	F HEIGHT
1	1	1	10.2	76.1	9.5	75
2	2	2	12.3	85.6	11.8	84.5
3	3	3	14.6	94.9	14.1	93.9
4	4	4	16.7	102.9	16	101.6
5	5	5	18.7	109.9	17.7	108.4
6	6	6	20.7	116.1	19.5	114.6
7	7	7	22.9	121.7	21.8	120.6
8	8	8	25.3	127	24.8	126.4
9	9	9	28.1	132.2	28.5	132.2
10	10	10	31.4	137.5	32.5	138.3
11	11	11	35.6	143.51	36	144
12	12	12	40	147.32	41	149.86
13	13	13	45	157.48	45	157.48
14	14	14	50	162.56	47	157.48
15	15	15	55	170.18	52	160
16	16	16	60	172.72	53	162
17	17	17	64	175.26	54	162
18	18	18	65	175.26	56	162
19	19	19	68	177.8	57	162
20	20	20	70	177.8	58	162

B. INPUT SCREENS

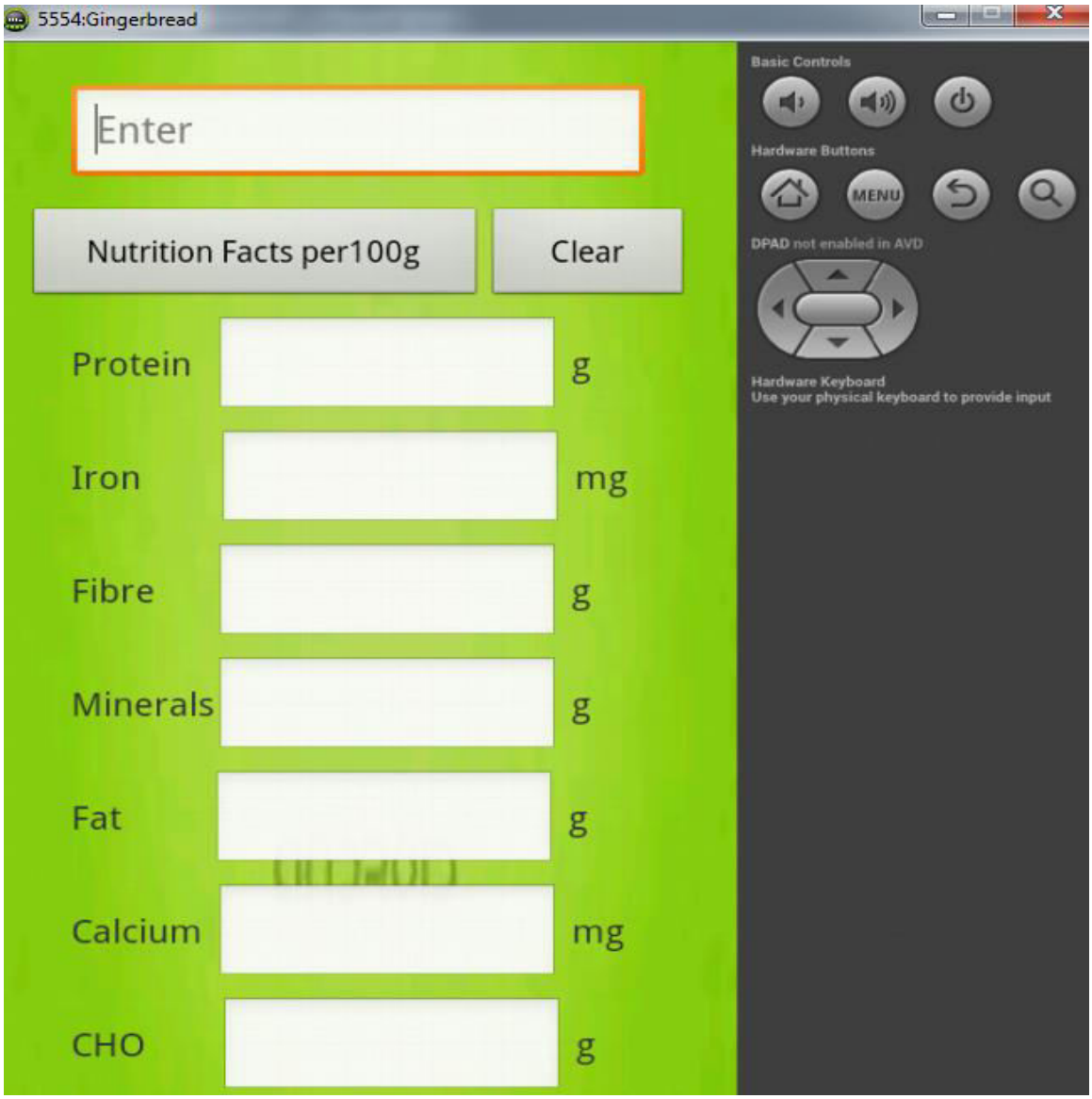
C.1. Home Screen



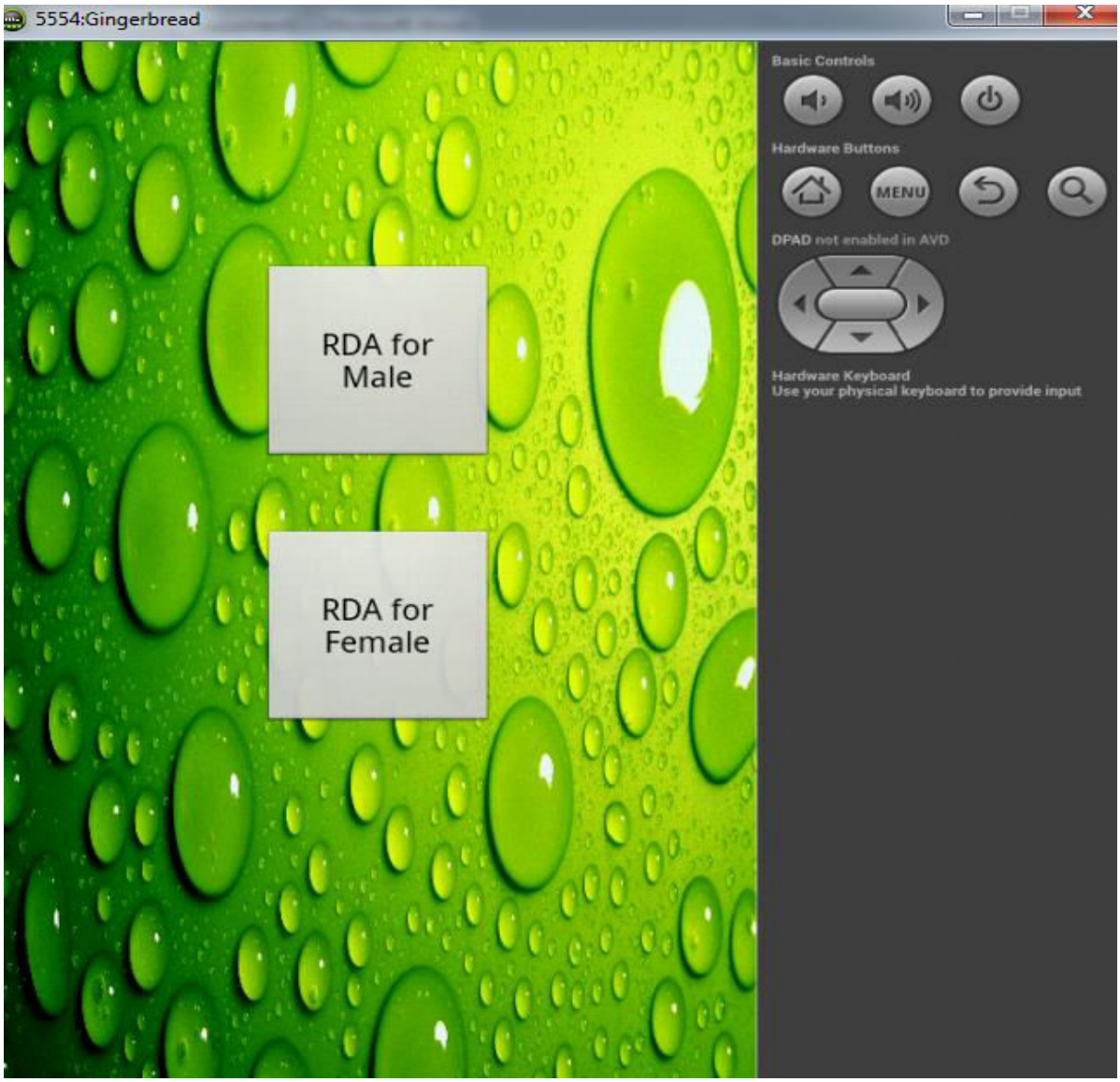
C.2. BMI Calculation



C.3. Nutrition Facts

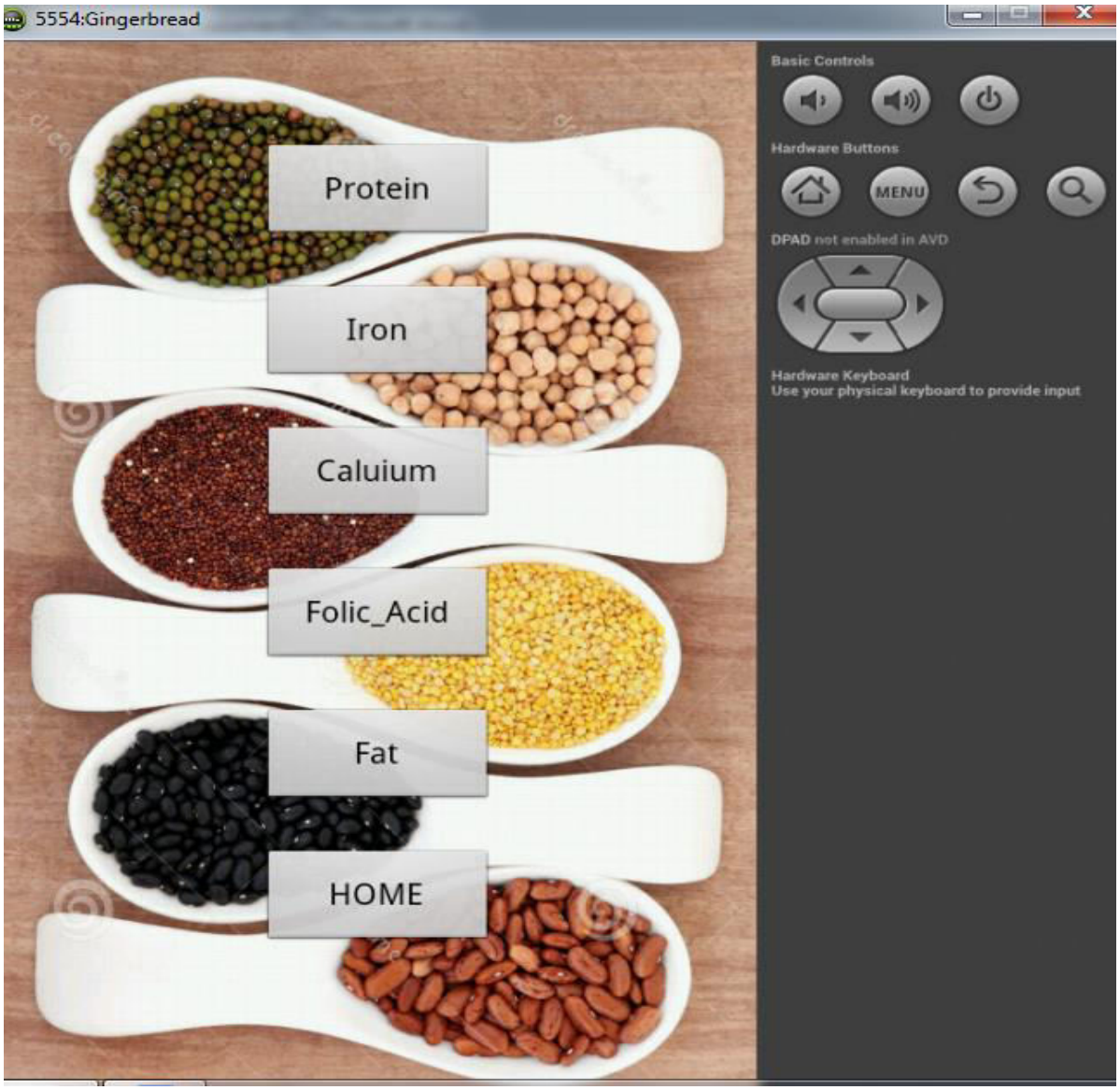


C.4 Recommended Dietary Allowances



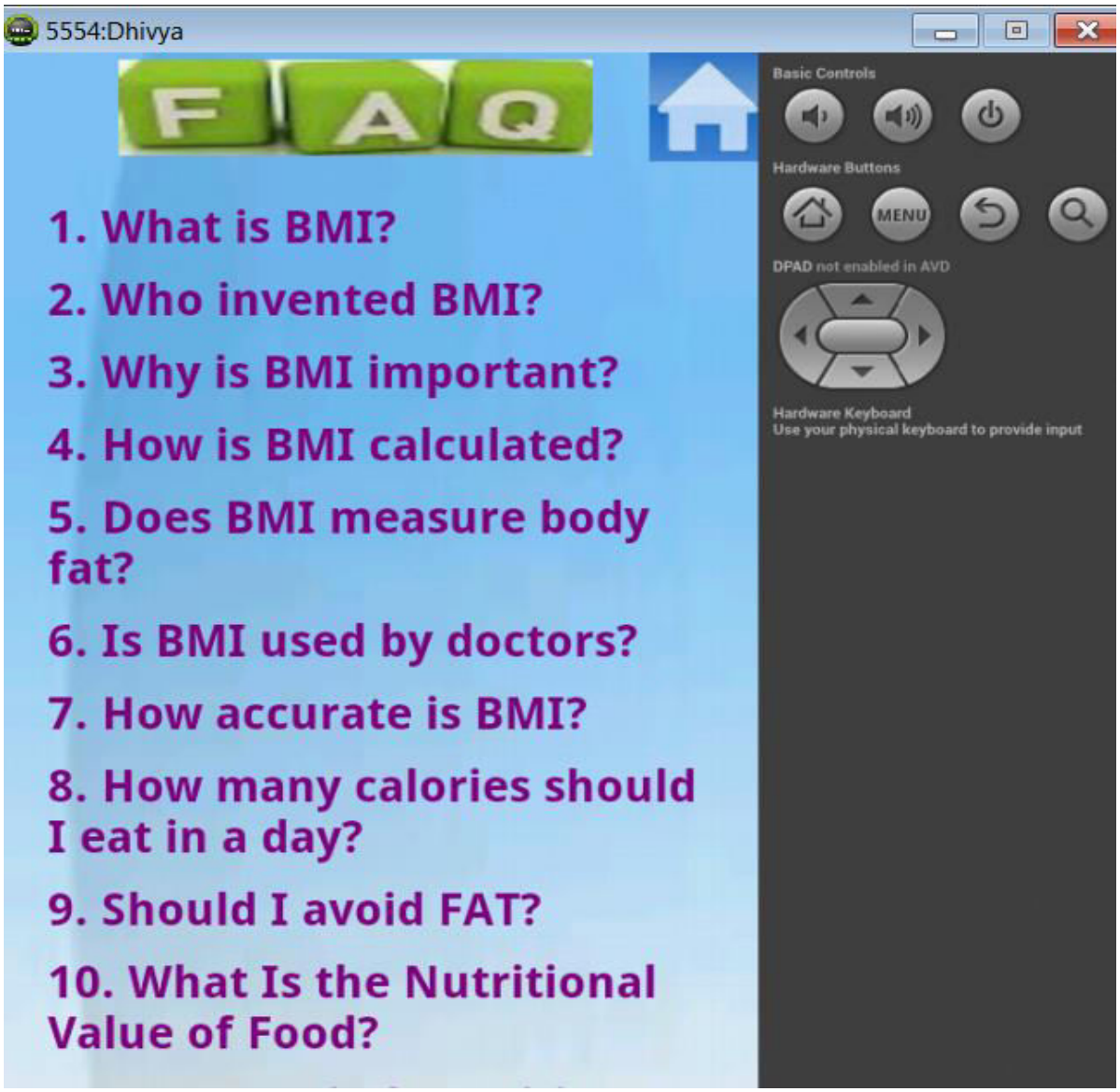
C.4 Recommended Dietary Allowances (cont...)

C.5 Ready Reckoner



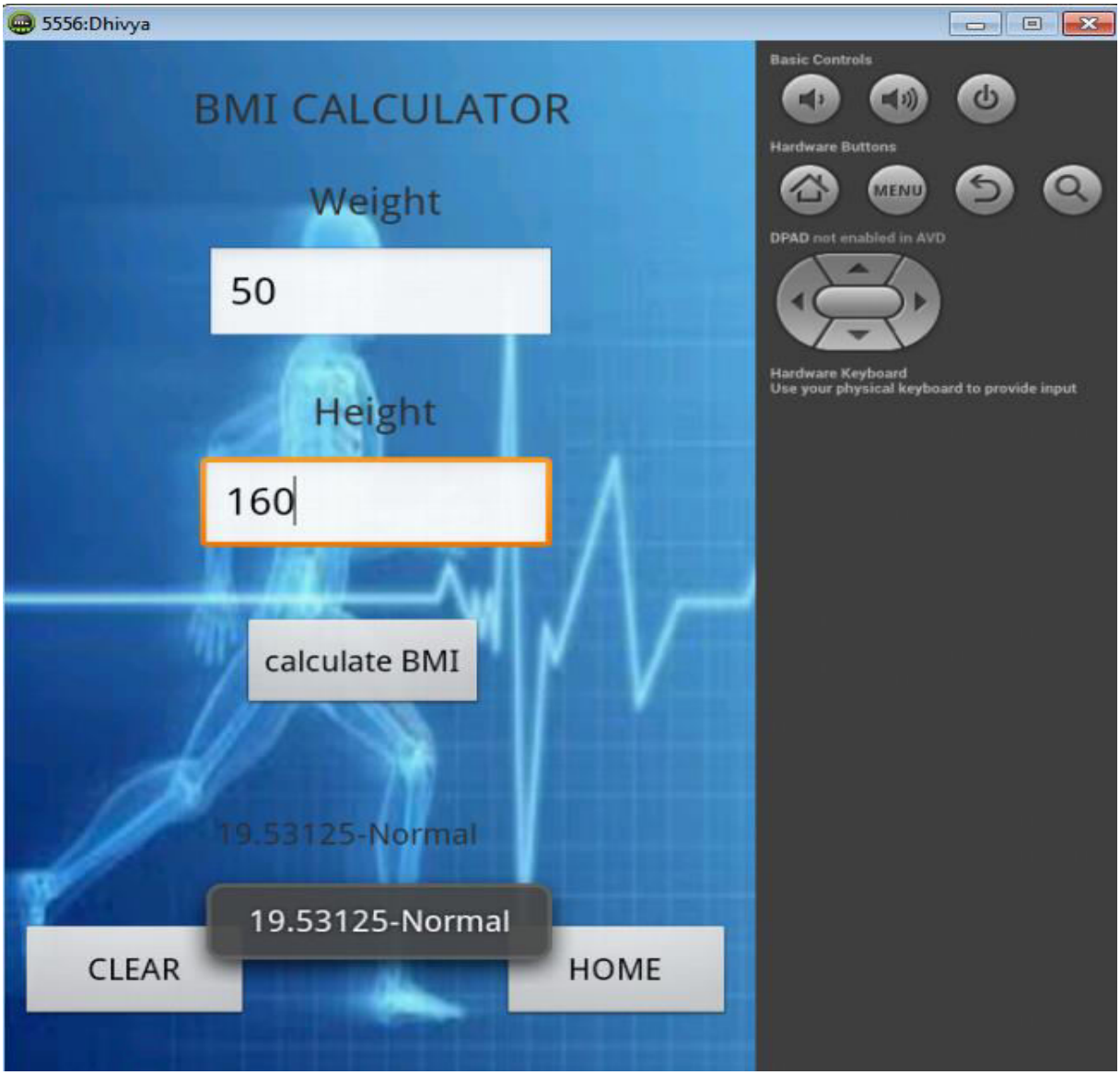
C.6 Growth Chart

C.7 Frequently Asked Questions



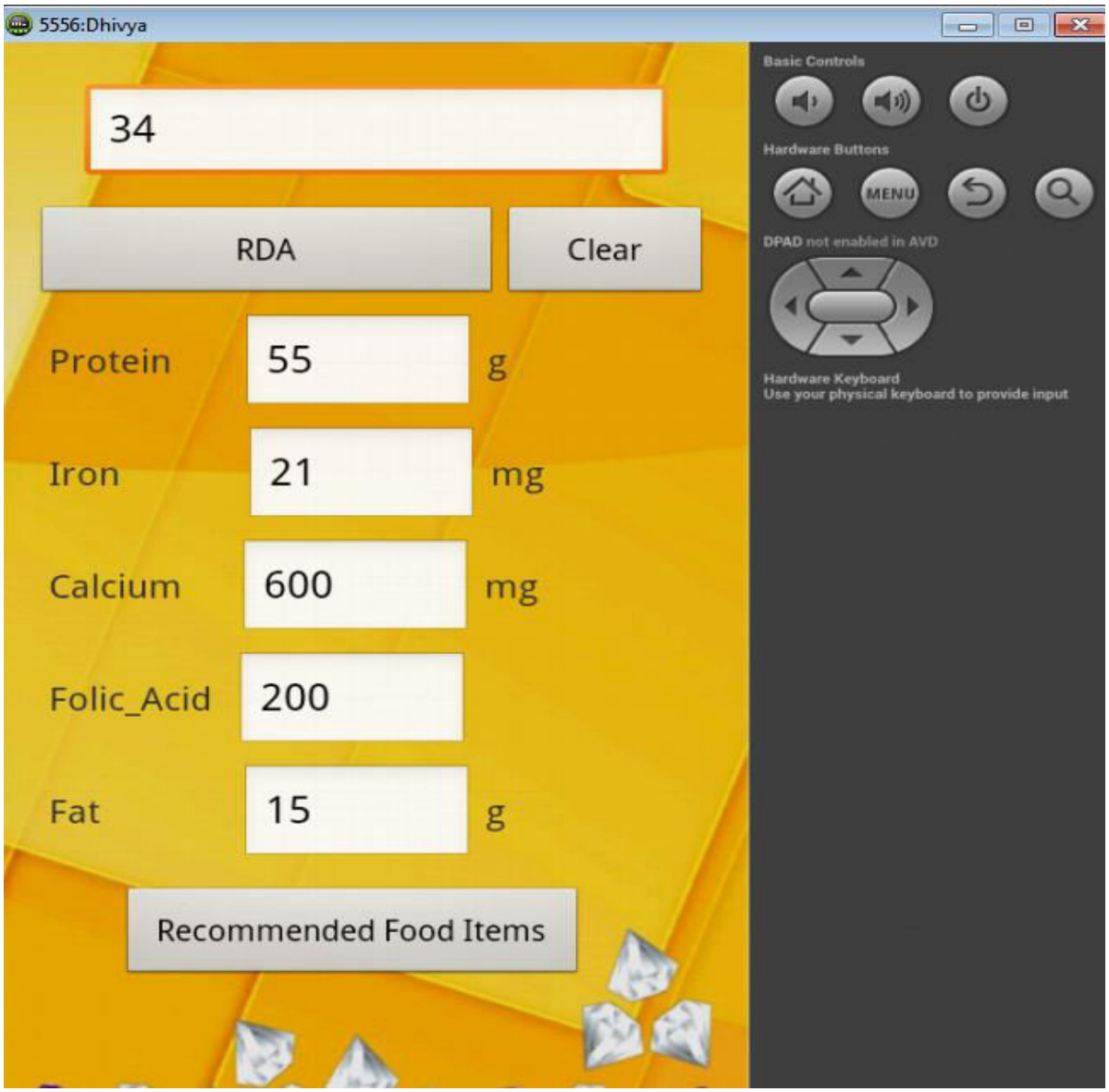
D. OUTPUT SCREENS

D.1 BMI Calculation



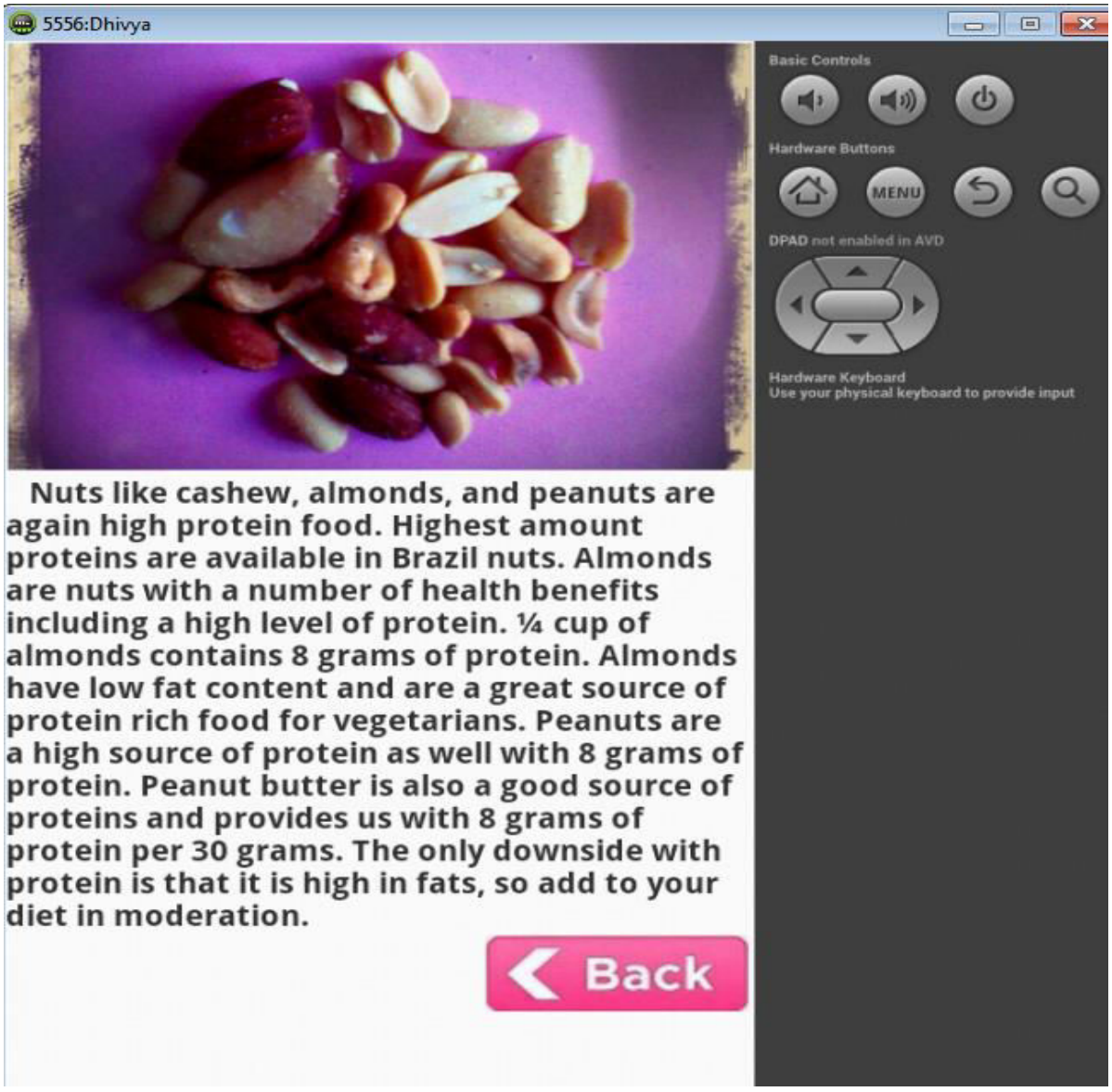
D.2 Nutrition Facts

D.3 Recommended Dietary Allowances

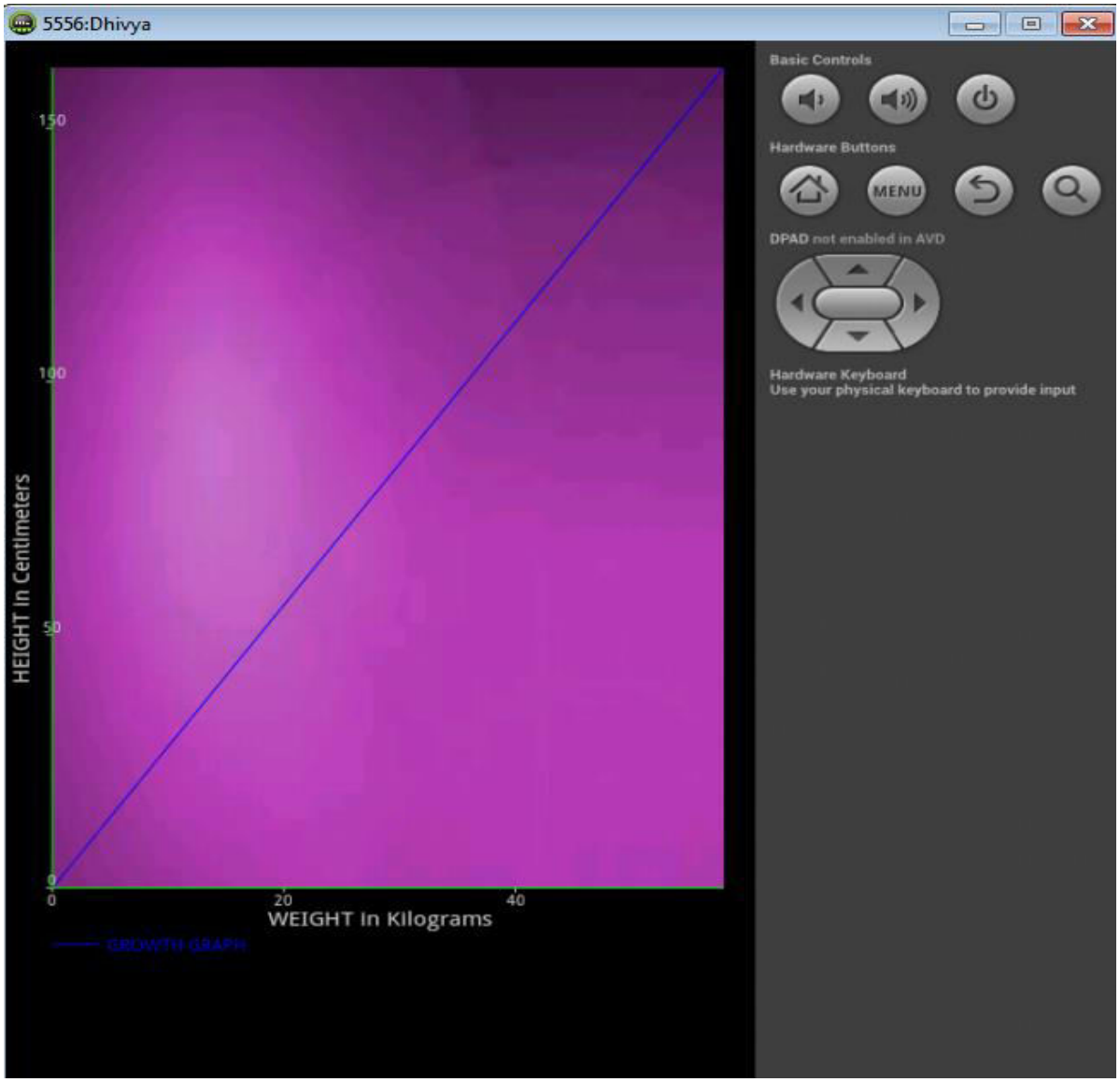


D.4 Ready Reckoner

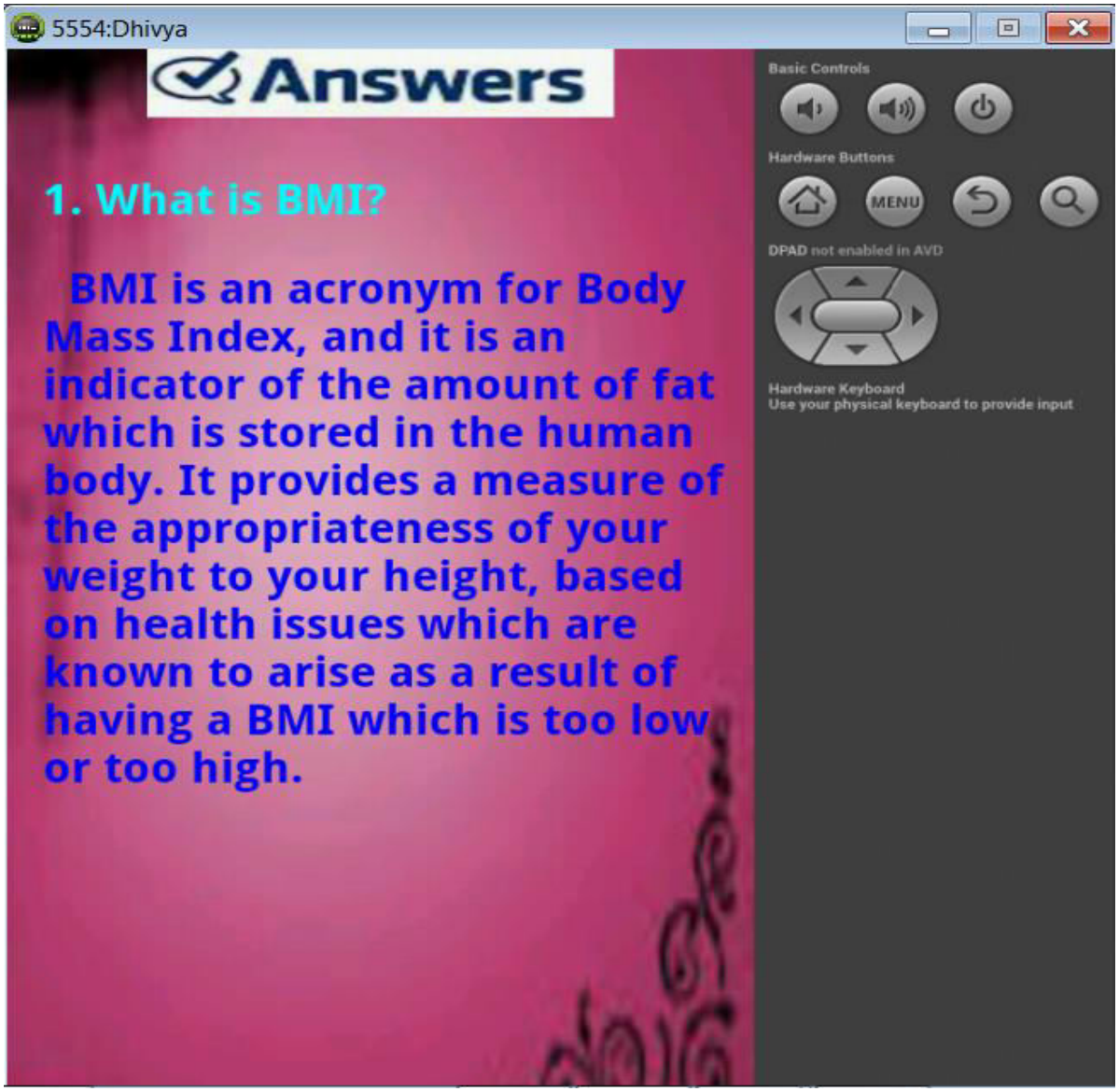
D.4 Ready Reckoner (Cont…)



D.5 Growth Chart

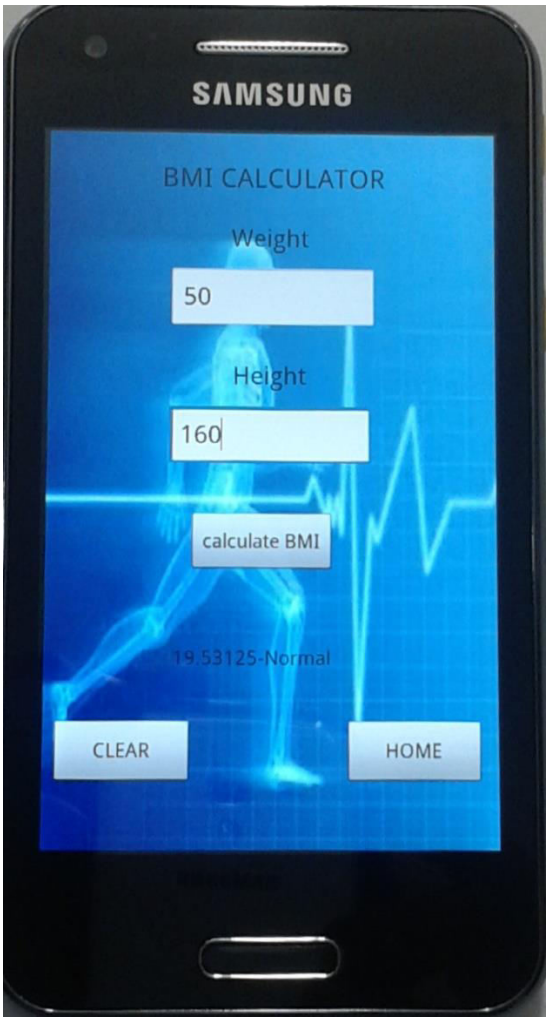


D.6 Frequently Asked Questions



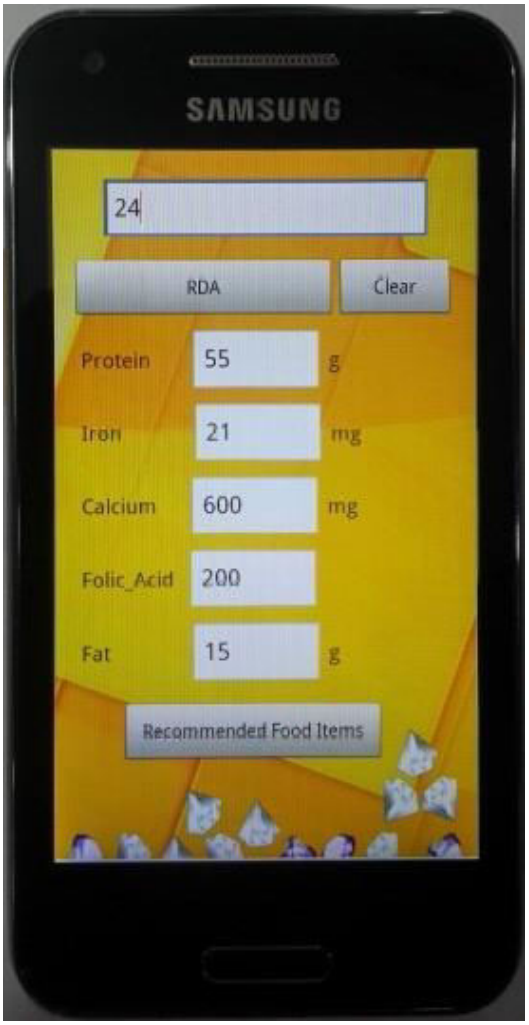
E. RESULTS

E.1 BMI Calculation

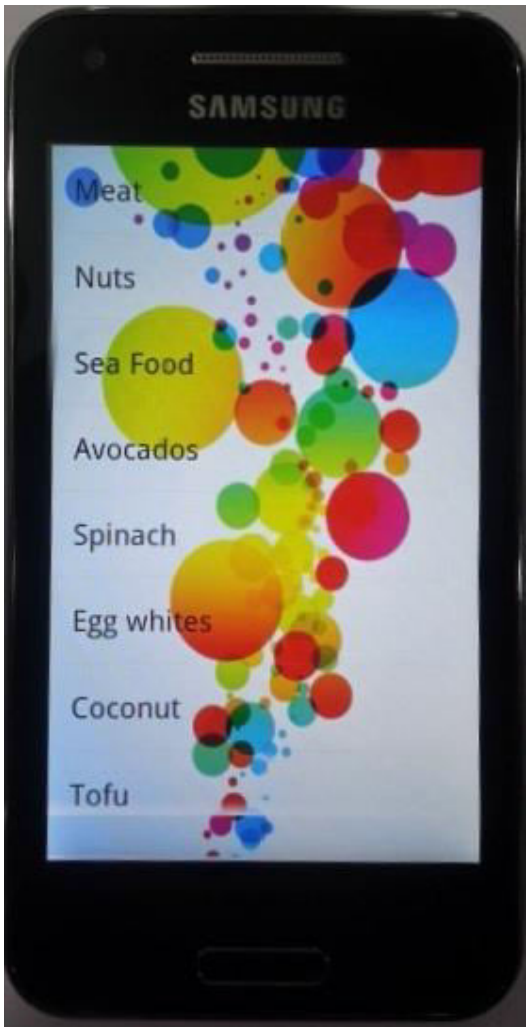


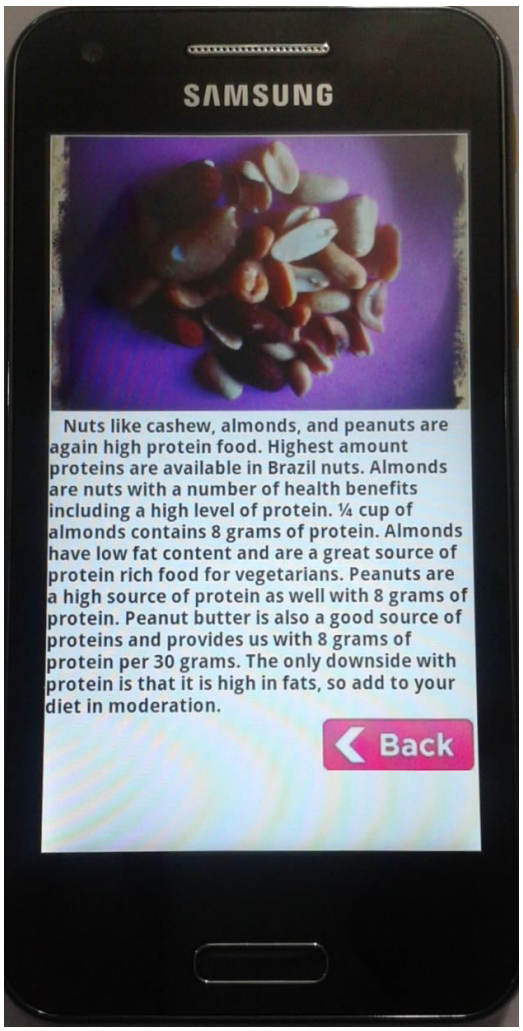
E.2 Nutrition Facts

E.3 Recommended Dietary Allowances

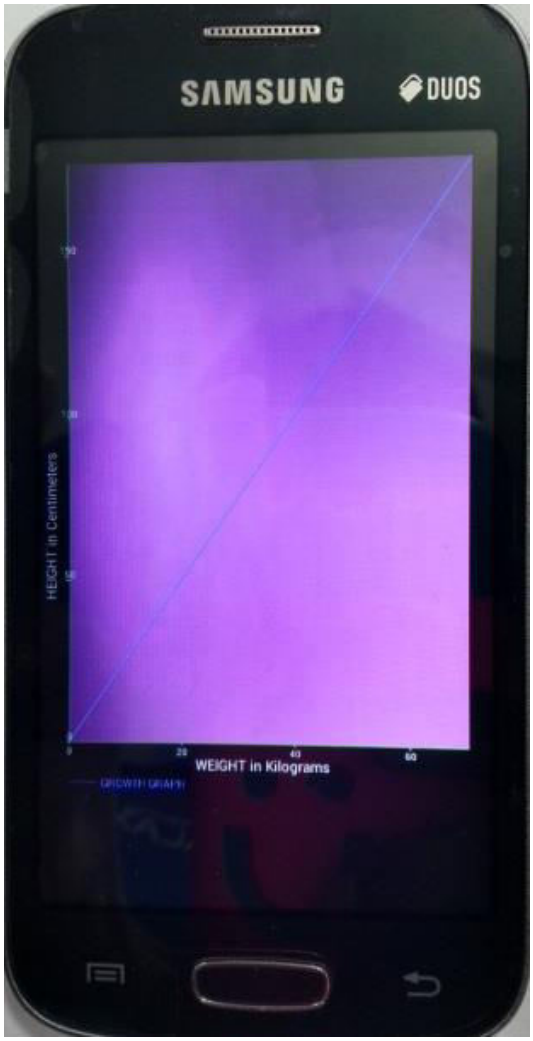


E.4 Ready Reckoner





E.5 Growth Chart



E.6 Frequently Asked Questions