Diabetes Control & Kidney Disease Application

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

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DHAKA, BANGLADESH
May 2019

APPROVAL

This project titled **"Diabetes Control & Kidney Disease Application"**, submitted by **Dip Dutt Id No. 152-15-5977 and Shihab Uddin Ahmed Id No. 152-15-5974** 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 2 May, 2019.

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We hereby declare that, this project has been done by us 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.

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ACKNOWLEDGEMENT

At the beginning, we disclose our gratefulness and our heartiest thanks to almighty Allah for His heavenly blessing causes us to be facile to complete the conclusive year project successfully**.**

Notwithstanding, this would not happen to make this possible without the help of abundant individuals, so we would like to propagate our sincere thanks to all of abundant individuals. In reality, we are thankful and need our profound our liability to supervisor madam **Nusrat Jahan, lecturer,** Department of CSE Daffodil International University, Dhaka. She has deep perception and lot of interest in the field of "*IOS Application*" that influenced us to take this project. Her endless assiduity, scholarly guidance, constant and energetic supervision, construct critique, valuable advice, continual encouragement, studying many inferior drafts and correcting them whatsoever stage have made it feasible to accomplish this project**.**

We would also like to wish our deepest heartiest gratitude to Prof. **Dr. Syed Akhter Hossain Head,** Department of CSE, for his lot of deepest help to fulfill our final year project and also thanks to other faculty members and the employees of CSE dept. 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

In this planet technology effects on people's life style. Last 10 years we continuously saw many changes in Tech Industry. As we know people get smarter than before. They use smart gadgets in every aspects of their daily life. They use different types of application in mobile and computer which make their lives easier and smarter. People are so busy for their work, they can't take care of their health proper way. They become impatient, many kind of diseases attack their body. The vision of our mobile application is to help them to maintain their food habit and do necessary workout to be fit and healthy. We choose IOS Platform for this app, because IOS is the most popular platform than any other. More than 200 million people are IOS user around the world. They can use it effectively and usefully to maintain a healthy and happy life.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

IOS,MacOS,WatchOS, these operating systems are quite new and standard filed of computer science and software engineering. These operating systems are represent the most standard and smartest developing system in the field of software development. These are apple's Inc. operating system developed by apple's engineers exclusively for its devices like IPhone, IPad, Mac and watch. These are the best most popular operating system in the technologies industry.

IOS, MacOS and WatchOS have many features that make it easy for developers to build his/her app smartly. This operating system is based on multi-touch features, swipe, tap, pinch and also 3D touch. The accessibility praised by users and the biggest part of these operating systems are enabling users with vision and hearing disabilities to properly using it's proud.

So, we are trying to make an IOS app which will help the people changing their lifestyle and food habits.

1.2 Motivation

On this smart tech world the invention of new technologies getting huge day by day. Smart phone or Tab is one of them. We use these kinds of products in life in many ways. We take steps to make an IOS app for diabetes and non-diabetes people. It becomes common problem in the world and it has also many big reasons like lifestyle of people, food habit and lacking of awareness. In this app people will get help to control their lifestyle, food habit and work out for both diabetes and non-diabetes. Besides, this they can also know about the symptoms of kidney disease and so on.

1.3 Objectives

By using this app users can control their lifestyle and changes their food habits. They can know about their workout process. They can also know about their needed food calories and get information about how to burn extra calories from their body. At last they can keep track their weekly food calories, burn calories and earn calories.

1.4 Expected Outcome

We expect the outcome from our project is absolutely right and specific.Main facilities available in this project for both of diabetes and non-diabetes people and also with kidney disease people. When using this app both of them can control over diabetes and they can control their health life properly. It also helps them to maintain a good habit of workout and diet of food. And to take control over the kidney disease and make sure it's primary protection. When users inputs their height and weight, BMI result will show how much calories they should burn or earn. According to the result it also shows their will are they exercising process.

1.5 Report Layout

In this project a full overview of our system and related work and terminologies are given gradually. We recently made a survey on this similar work and try to what is more scope to develop this existing project. In chapter 2 we describe the challenges and facing problem which is making difficult to us. Another chapter 3 we describe the three stage of background. We also describe the requirement specification and try to disclose users demand. In, chapter 4 and 5 we disclose how we solve the problem and what we use to implement the project.

Finally, in chapter 6 we remark some concluding and suggestions for future works.

CHAPTER 2

BACKGROUND

2.1 Introduction

Health app collaboration with people that will provide knowledge about their daily healthy life, good habit of eating, daily work out, basic and proper diet chart for both non-diabetes and diabetes people. They can easily make their daily routine using these features.

2.2 Related Work

Survey shows that normal people don't know properly how to keep their daily life healthy and fit. Also diabetes people have lack of knowledge about their proper diet and food able habit. This project will cover all of these. So, they can use it easily to change their daily habits. That's why we make separate table for normal and diabetes people, different type of food list for normal people and diabetes people [7], separate workout list for both normal [8] and diabetes people [9].

And we find that this kind of app is not available that much on any online App store [12]. If there any that doesn't cover all the details with proper information in a tab view collection type application on any platform in a user friendly manner.

2.3 Comparative Studies

We make this app using different types of data for different features. We take help from doctor and research differently for non-diabetes and diabetes people diet and also for kidney disease people [10]. In all features we put different types of information that will help them to understand what they need from specific features. The purpose of designing this application is to help people about their daily food habits, diets [5], [6] and along with proper diet chart.

2.4 Scope of the problem

The scope of this project is we use here different types of features with separate version**.** This application will useful for both diabetes and non-diabetes and also with kidney disease people**.** We give both of them food chart, nutrition chart, diet chart, calories chart, kidney's

symptom and reason with proper information. We also include BMI calorie [13] checker and workout [13] process features**.**

2.5 Challenges

The challenge of this app for two particular people**.** At first non-diabetes people**,** they can easily use this app and keep them always fit and stay away from various disease like diabetes and kidney. When using kidney features they can understand the basic kidney symptom, reason, along with different stage and primary treatment [10]**.**

Secondly, diabetes people can control their food habit and maintain their diet properly. So, they can control their diabetes with proper diet and different type of work outs**.**

CHAPTER 3

REQUIREMENT SPECIFICATION

Requirements specifications state what needs to be done by a system. The requirements specification states what needs to be done in order for the organization to fulfill their purpose**.**

3.1 Business Process Modeling

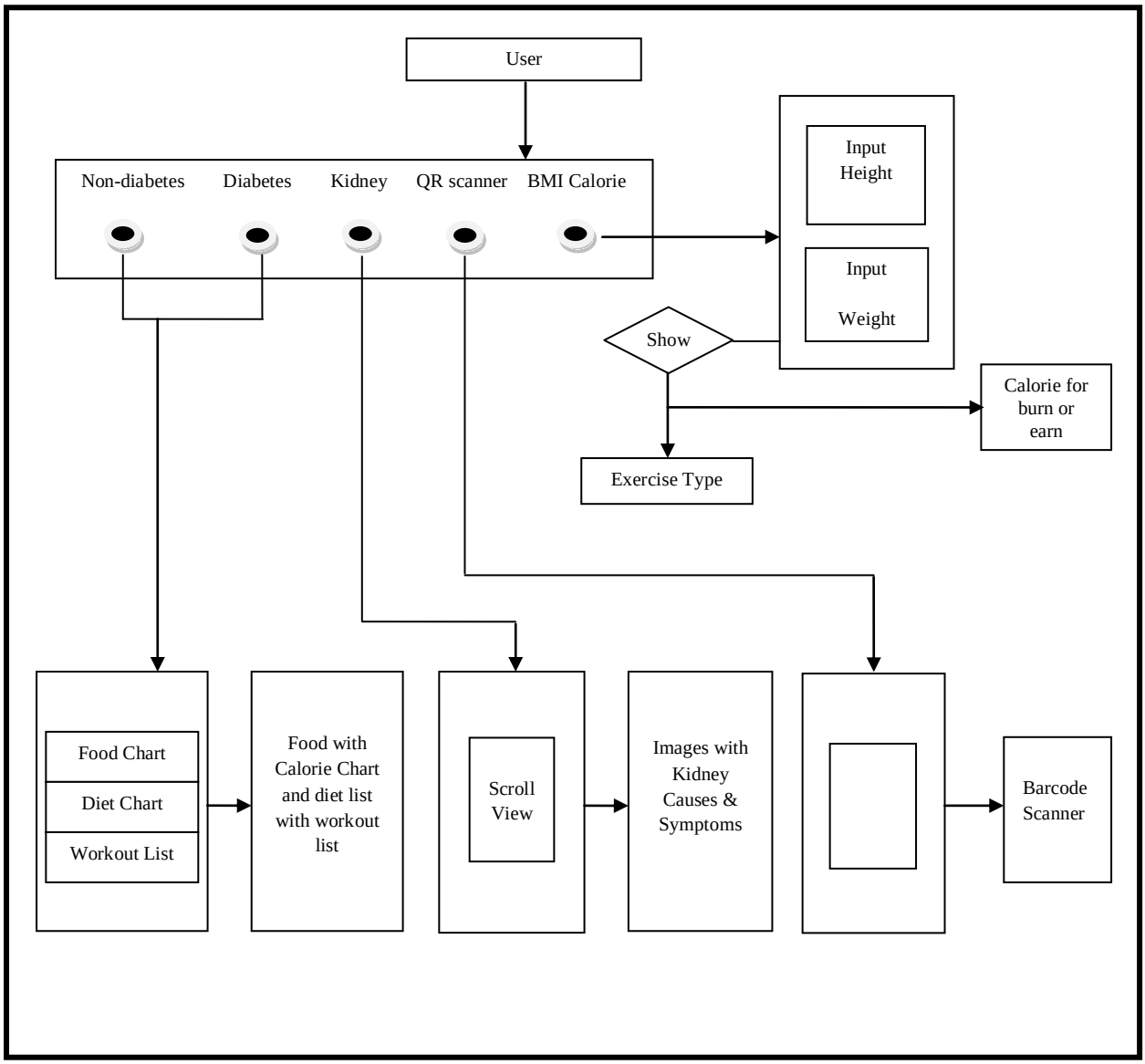

Figure 3.1.1: Business process modeling

3.2 Requirement Collection and Analysis

When it comes to any type of project, requirement collection plays a key role. Requirements collection is not only important for the project, but it is also important for the project management function. Requirement collection is the most important step of a project. If the project team fails to capture all the necessary requirements for a solution, the project will be running with a risk. This may lead to many disputes and disagreements in the future. Therefore, take requirement collection as a key responsibility of the project team.So that we collected our project requirement as soon as possible**.** Then we started our work**.**

SOFTWARE DEVELOPMENT LIFE CYCLE (AGILE)

The agile model is a most popular model among software development cycle system. It has linear sequential criteria that mean every part of features totally completed before the next phase start.

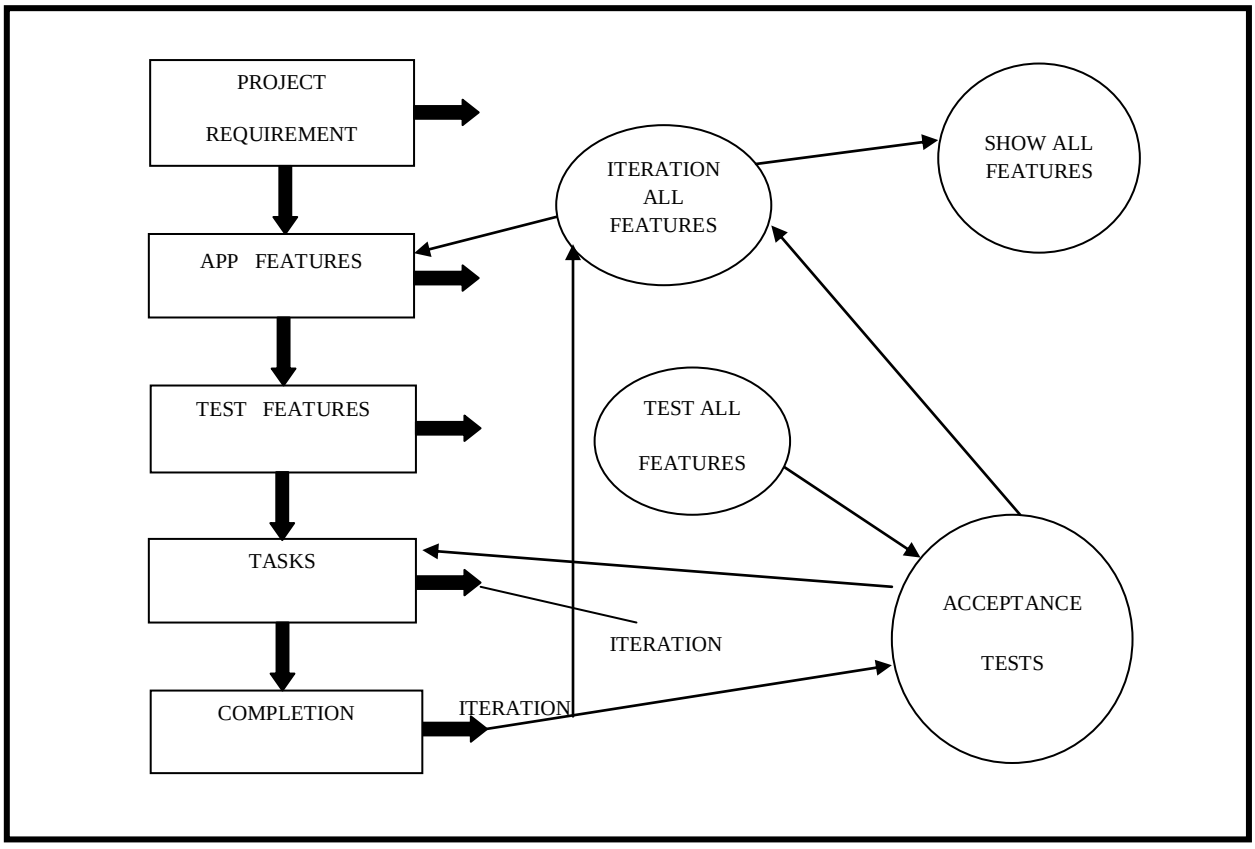

Figure 3.2.1: Software development life cycle (agile)

FLOW CHART

The processes of our Diabetes control and Kidney disease Application System given below-

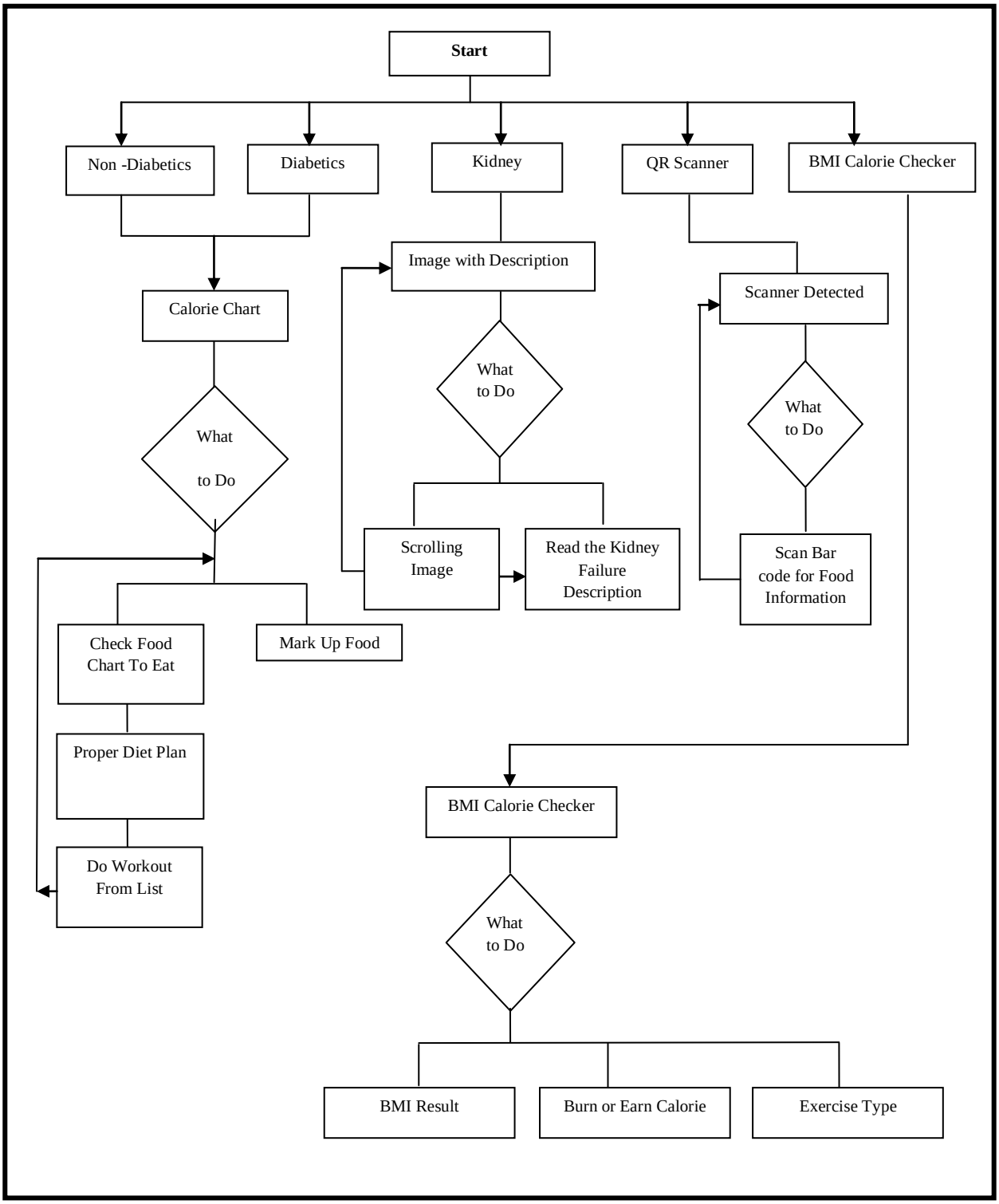

Figure 3.2.2: Flow Chart for Diabetes Control and kidney Disease Application

ENTITY RELATIONSHIP DIAGRAM

An entity relationship diagram **(**ERD**)** is a data modeling technique that graphically illustrates information systems entities and the relationship between those entities**.** An ERD is conceptual and representational model of data used to represent the entity framework infrastructure**.**

The elements of an ERD are**:**

- Entities
- Relationship
- Attribute

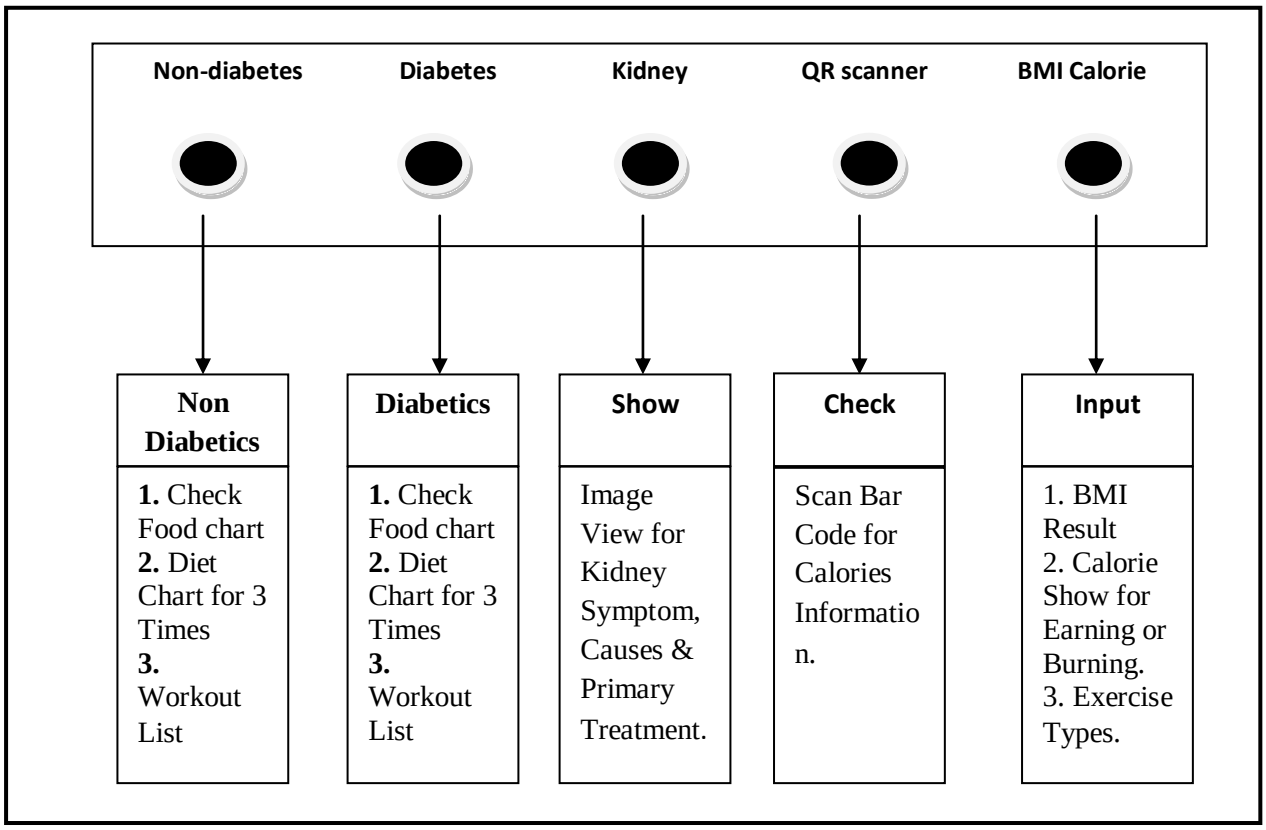

Figure 3.2.3: E-R Diagram of the system

3.3 Use case modeling and description

This app carefully analysis identify by following actors.

The actors involved are:

- Non-diabetes people
- Diabetes people
- Kidney diseases

USE CASE FOR NON-DIABETES PEOPLE

In this features people can find:

1) Food chart with include calorie
2) Diet chart
3) Workout list
4) QR scanner

In food chart non-diabetes people can see different type of foods with calories and diet chart. They can find normally 3 times diet plan include calories. They can also mark the foods, what they will take in overall 24 hours and maintain calories which are more than 2400 calories. If they earn more than 2400 calories they can find solution to burn extra calories from the workout list. There's also a scanner. So, that people can scan food from shop, for overall information. When users inputs their height and weight, BMI result will show how much calories they should burn or earn. According to the result it also shows their will are they exercising process.

Table 3.3.1: Use case description of Non-diabetes People

Use case name:	Non-diabetes people
Actor:	Food chart, Workout list, Diet chart, QR scanner, BMI calorie check.
Pre-condition:	None
Primary Path:	1. Check food chart with calorie. 2. Diet chart on daily basis and check workout list.

	3. Input height and weight and check BMI calorie**.** 4. QR scanner detected for any food**.**
Exceptional Path**:**	1. Mark up the food with calorie and diet chart**.** 2. Check BMI and burn and earn calories**.**

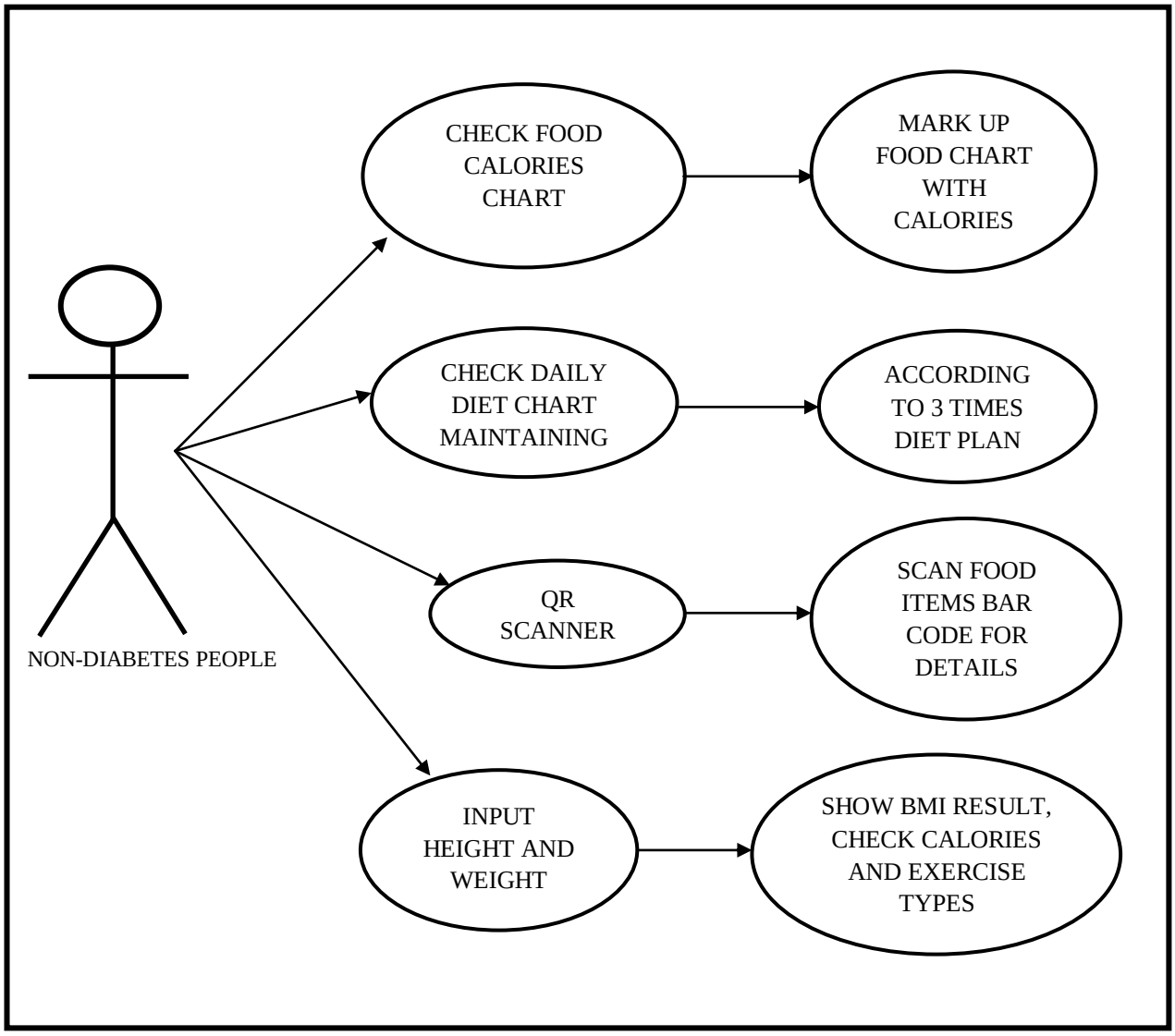

Figure 3.3.1: Use Case modeling For Non-diabetes people

USE CASE FOR DIABETES PEOPLE

Non-diabetes and diabetes people diet chart are completely different from each other. So, here we put a different type of workout list, diet plan that they can use for daily life. They can also mark up their food that they cannot cross up more than 1500 calories. It's for both non-diabetes and diabetes people. When users inputs their height and weight, BMI result will show how much calories they should burn or earn. According to the result it also shows their will are they exercising process.

Table 3.3.2: Use case description of Diabetes People

Use case name:	**Diabetes people**
Actor:	Food chart, Workout list, Diet chart, QR scanner, BMI calorie check.
Pre-condition:	None
Primary Path:	1. Check food chart with calorie. 2. Diet chart on daily basis and check workout list. 3. Input height and weight and check BMI calorie. 4. QR scanner detected for any food.
Exceptional Path:	1. Mark up the food with calorie and diet chart. 2. Check BMI and burn and earn calories.

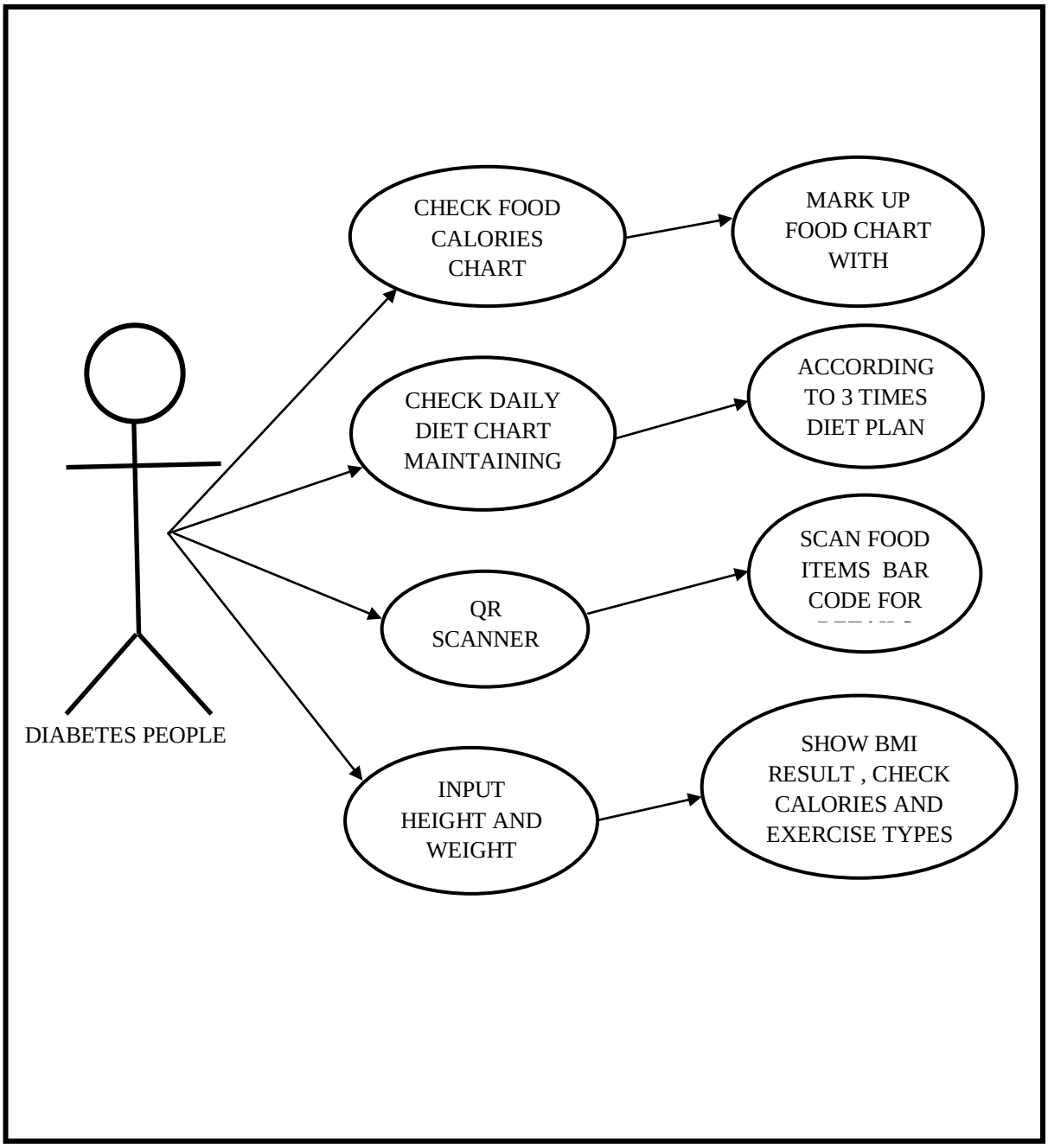

Figure 3.3.2: Use Case modeling For Diabetes people

USE CASE FOR KIDNEY DISEASES

Here user can see photos with proper description**,** the causes, primary treatment, symptoms of kidney diseases.

Table 3.3.3: Use case description of Kidney Diseases People

Use case name**:**	Kidney Diseases
Actor**:**	Image scrolling view
Pre-condition**:**	None
Primary Path**:**	Scrolling view image with symptoms, causes and primary treatment

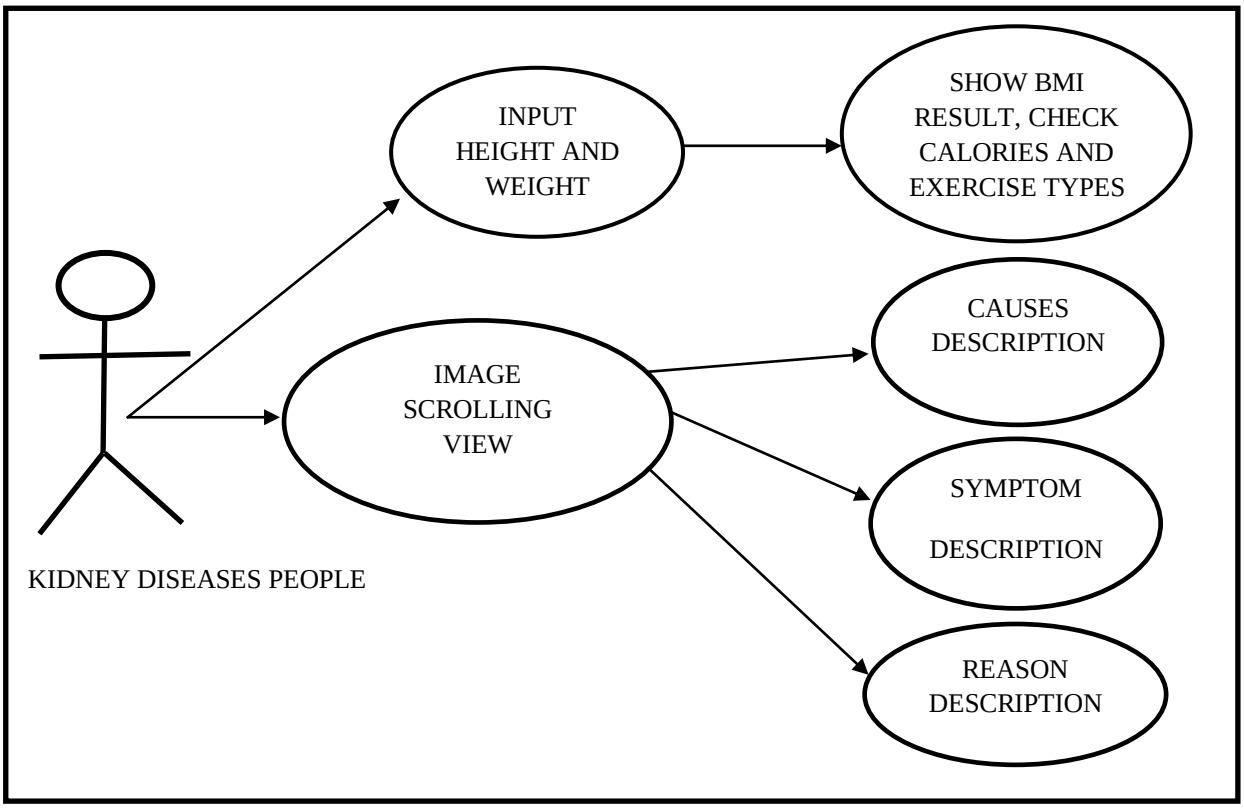

Figure 3.3.3: Use Case modeling For Kidney Diseases People

USE CASE DESCRIPTION

Here it contains all information about full part of use case model below picture**,** we already describe all parts through table and picture in the above section.

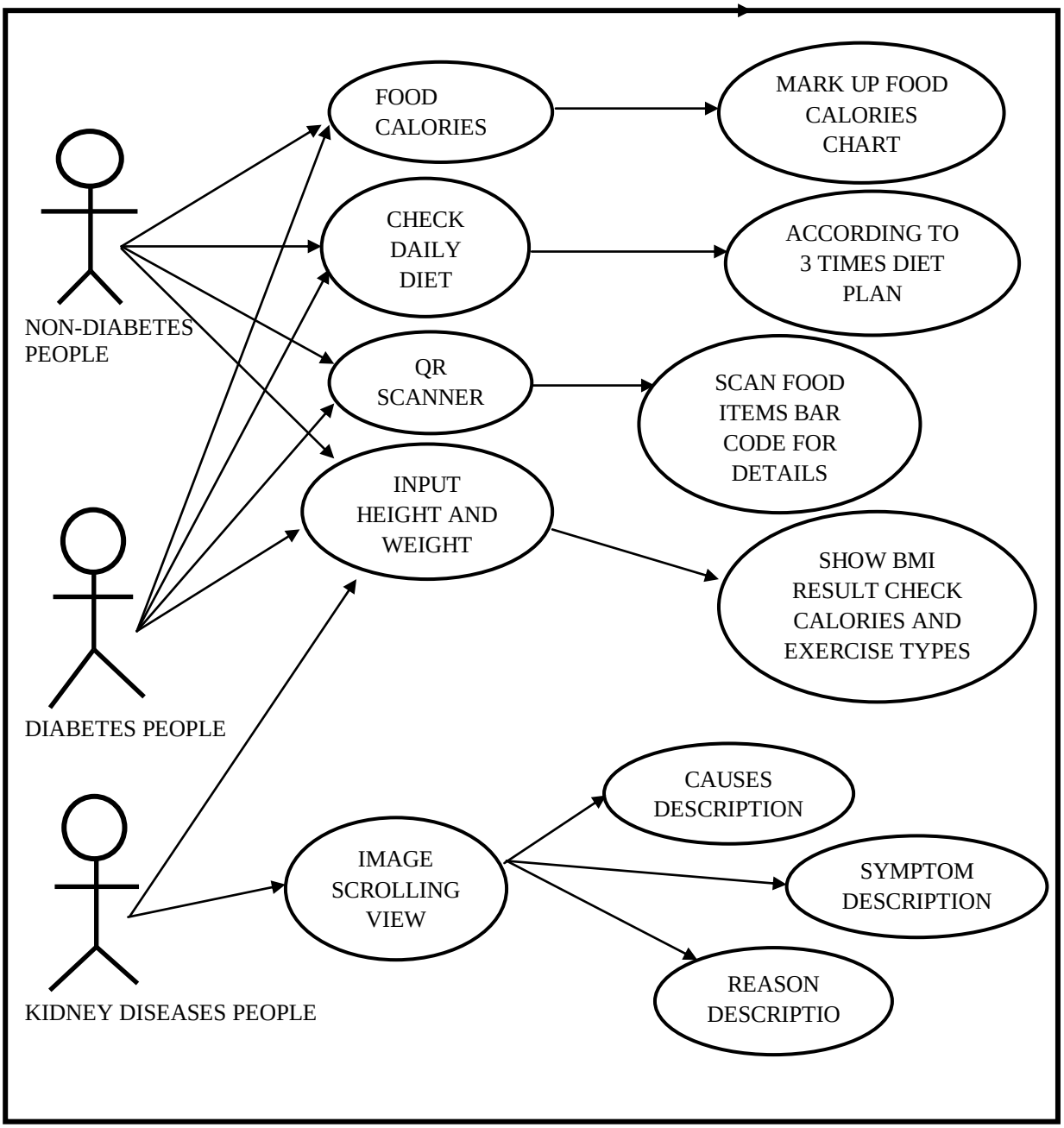

Figure 3.3.4: Use Case Model

3.4 Design Requirement

System design is the main process of defining the use of case models**,** components**,** modules**,** interface and include data**,** pictures for specified requirements**.** In this chapter**,** we show overall design of our all features**.**Where business model designs, flow chart, use case have been pointed separately**.** Whole project was user friendly and easy user interface (UI) to use**.** Modern and update design tools have been used for this project. In future we will try to make it more static, dynamic and more users friendly**.**

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

Front-end tools, which are used in developing for our App, are given in the following-

- Swift Language 3
- Swift Language 4

4.2 Back-end Design

Choosing frame work**,** eating level, button, OI image view, UB table view in future we use Mozilla fire box because**,** here we don't use any kind of database in this app features**.**

Swift Version

Version	Reliable Date	Support out
Swift 3	05 Jun 2016	Still support
Swift 4	10 Jun 2017	Still support

4.3 Interaction Design and UX

Design

Whole feature of this app is user friendly because we make this app as tab bar view controller**.** That if any kind of feature model to be add we can add easily**.**

Completion

This application about health and food related**.** If any feature or any data need to be update**,** it can be update any time**.**

Resource Allocation

In software planning resource allocation is most important. For this kind of health and food related application example like diet plan need proper data resource, food list with calories information, resources, and workout list data resources.

4.4 Implementation Requirements

Requirement analysis in software engineering and also for this kind of application encompasses those task that go into needs or conditions to meet new product or project various analyzing calculation, different type of data for managing this software.

Calculation:

Non Diabetes:

Calculation diet meal plan for normal people = 2204 Calories.

Diabetes:

Calculation diet meal plan for diabetes people =1500 calories.

BMI calorie [13]:

BMI = weight**/ (**height *height)

Height = height /100cm

Calculation for Calorie Burn or Earn [13]:

Thin $\Longrightarrow$ bmi <18 Calorie + 500

Normal$\Longrightarrow$18<bmi<25 calorie

Fat $\Longrightarrow$bmi >25 Calorie – 500

Over weight $\Longrightarrow$bmi >28 Calorie – 700

Calculation of Exercise [13]:

Thin ⟹No Exercise need earn designate calorie**.**

Normal ⟹Light Exercise 30 Minute**.**

Fat ⟹ 1 Hour Cycling or 2mph running daily**.**

Over weight ⟹3mph walking or 2 hours swimming**.**

Non- Functional Requirement:

Our system has some non functional recruitment that is describable below**.**

Efficiency Requirement:

When people will use our application they can be able to maintain food calorie, proper workout and diet chart following specific way**.**

Reliability Requirement:

This app can be reliable for two kinds of people or diabetes people that they can change their habit.

Usability Requirement:

It's a tab view application which is user friendly and easy to use.

Delivery Requirement:

The whole system is expected to be delivered in four months of time with a weekly evaluation by the project guide.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Front-end Design

To design this app is its tab view application. One single tab with multiple actors likes diabetes, non-diabetes, kidney, QR scanner and BMI calorie checker. Check BMI all of this in one single view for make as easy to use.

HOMEPAGE

This is the home view of our apps. We use different tab for different features for this app. The user can tap on the tab view and they can see all app features on single view.

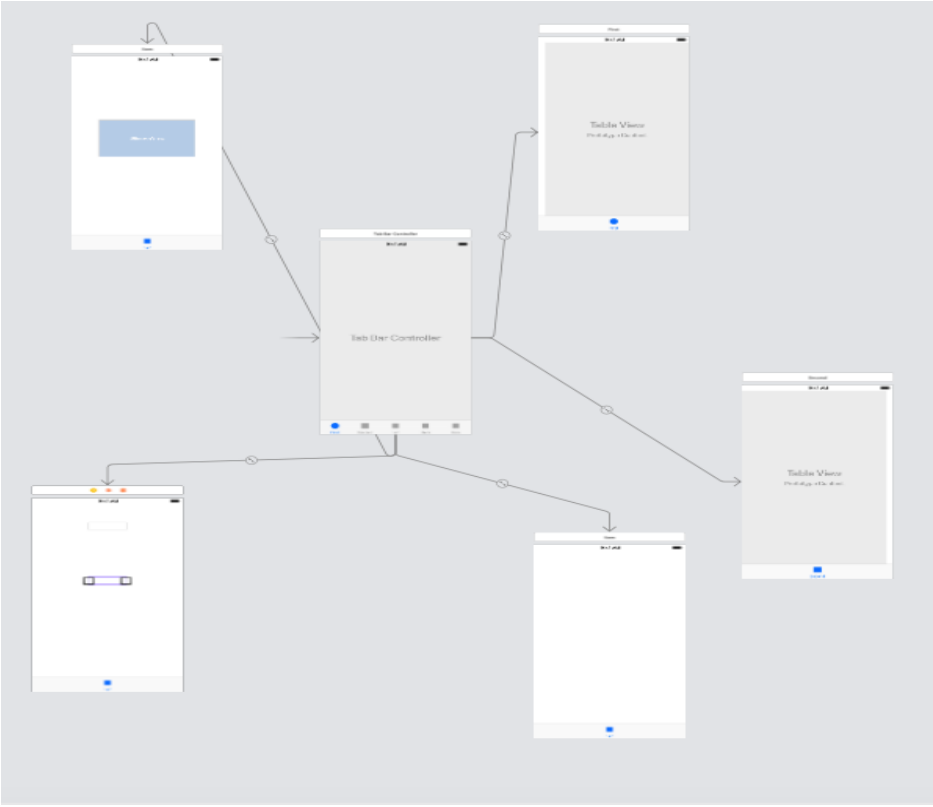

Figure 5.1.1: Screenshot of the homepage of our app

FEATURE LIST FOR NON-DIABETES PEOPLE

This feature is for non-diabetes people. They can check their all different types of food list with calorie information include diet chart and work out list.

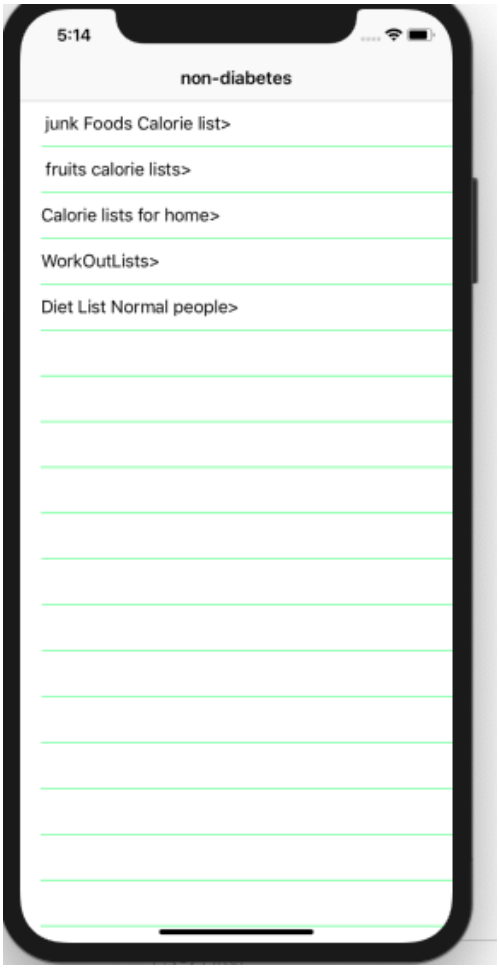

Figure 5.1.2: Screenshot of the features list for non-diabetes

JUNK FOOD CALORIE LIST

In this part non diabetic people can mark up foods which they want to take on a day. Later, App will show them total calories of the selected foods so that they can maintain a total of 2204 calorie for each day.

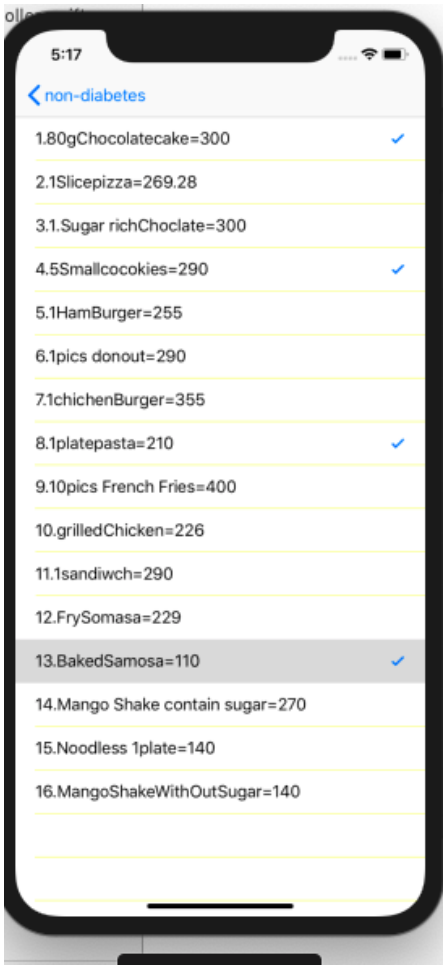

Figure 5.1.3: Screenshot of the junk food calorie list

DIET LIST

This feature shows the Non Diabetes People's Diet Chart [6] from breakfast to dinner so that they can maintain - 2204 calorie goal.

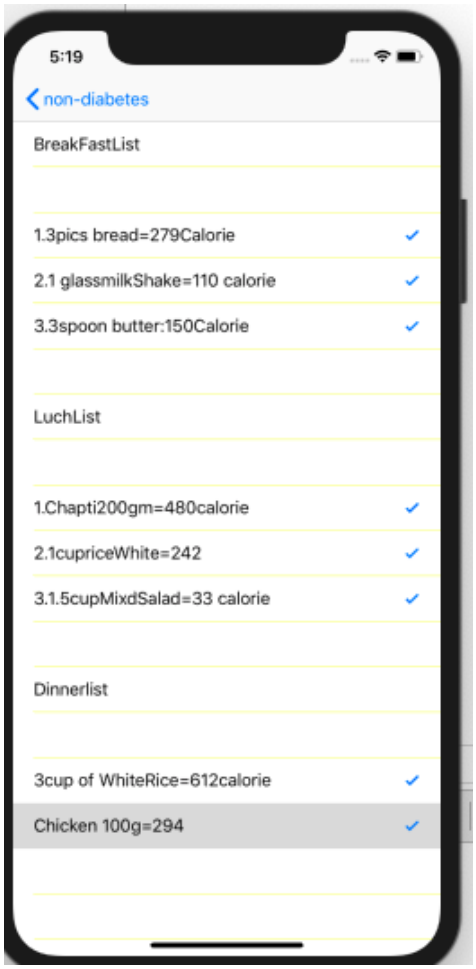

Figure 5.1.4: Screenshot of the Non-Diabetes Diet List

WORKOUT LIST

Here is the list of daily workout for non-diabetes people [8] which will help individual to burn extra calories.

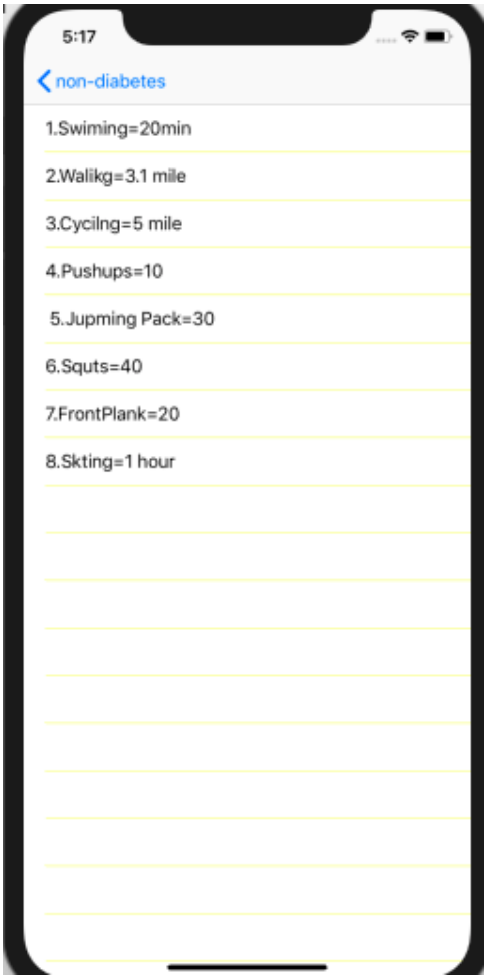

Figure 5.1.5: Screenshot of the Non-Diabetes Workout List

FEATURE LIST FOR DIABETES PEOPLE

DIET LIST FOR DIABETES PEOPLE

Diet chart for non diabetes and diabetes people differ a lot. So here is the diet list for diabetes [5] from breakfast to dinner which will help them to earn their 1500 calories per day and not to exceed it.

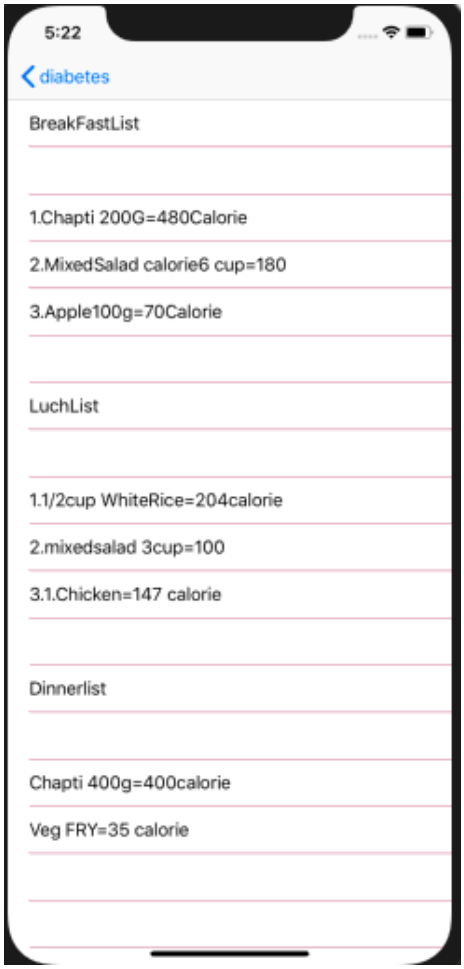

Figure 5.1.6: Screenshot of the Diabetes Diet List

FRUIT LIST

Here the fruit list for diabetes people along with the calorie amount and advantages.

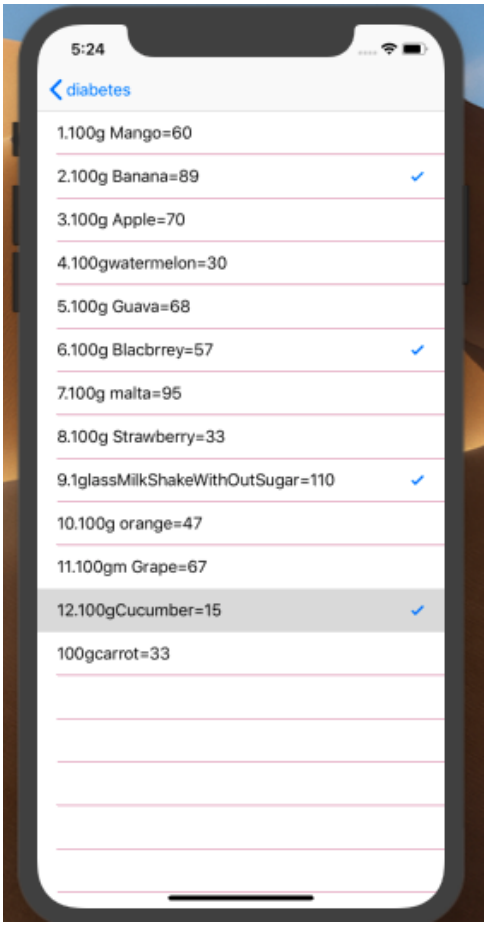

Figure 5.1.7: Screenshot of the Fruit List

WORKOUT LIST

The workout list shows the necessary workout for diabetes people. There are some differences between the workout of diabetes and non-diabetes people's. Essential workouts for diabetes people are included.

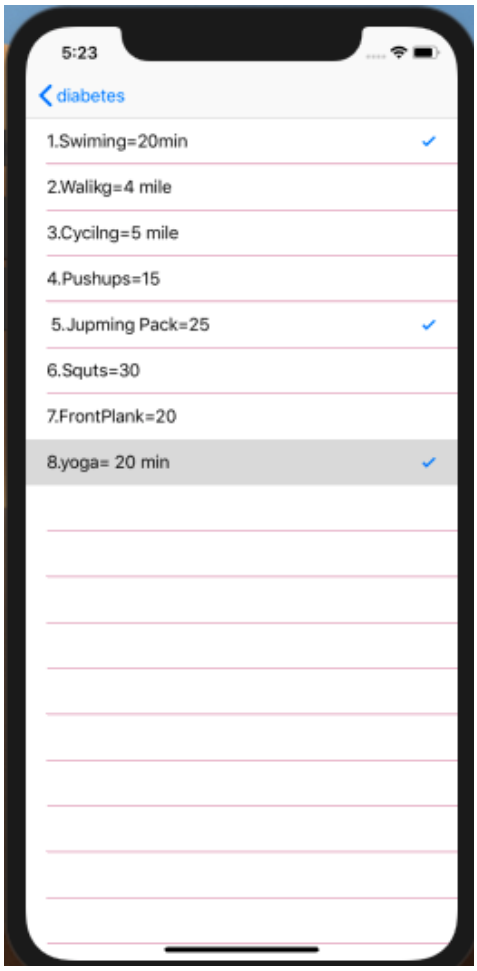

Figure 5.1.8: Screenshot of the Workout List

QR SCANNER DETECTION

Using the QR Scanner Detection one can find information such the amount of calories, protein etc of the specific food.

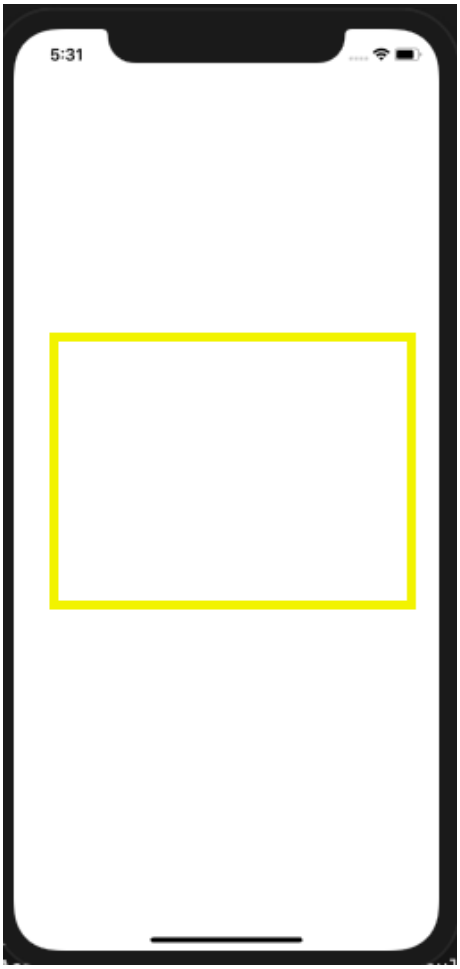

Figure 5.1.9: Screenshot of the QR Scanner Detection

CALORIE CHECK WITH BMI

User can input their height and weight and BMI result [13] will show the necessary calorie and exercise user need to maintain according to his input.

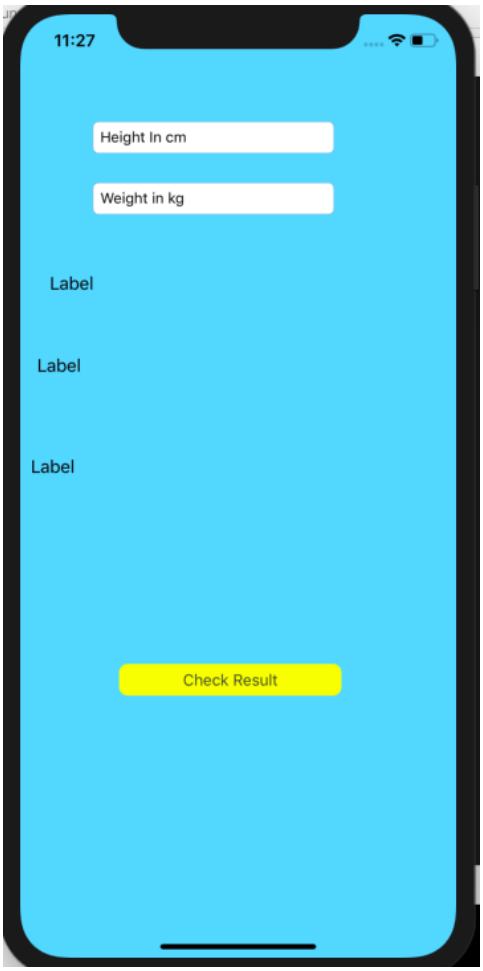

Figure 5.1.10: Screenshot of the Calorie Check with BMI

BMI result [13] will show result in three levels. First according to the input it will provide a result. Second, following the result it will identify one's calorie information if he needs to burn or earn calories. At last in third stage, it provides necessary exercises for individuals.

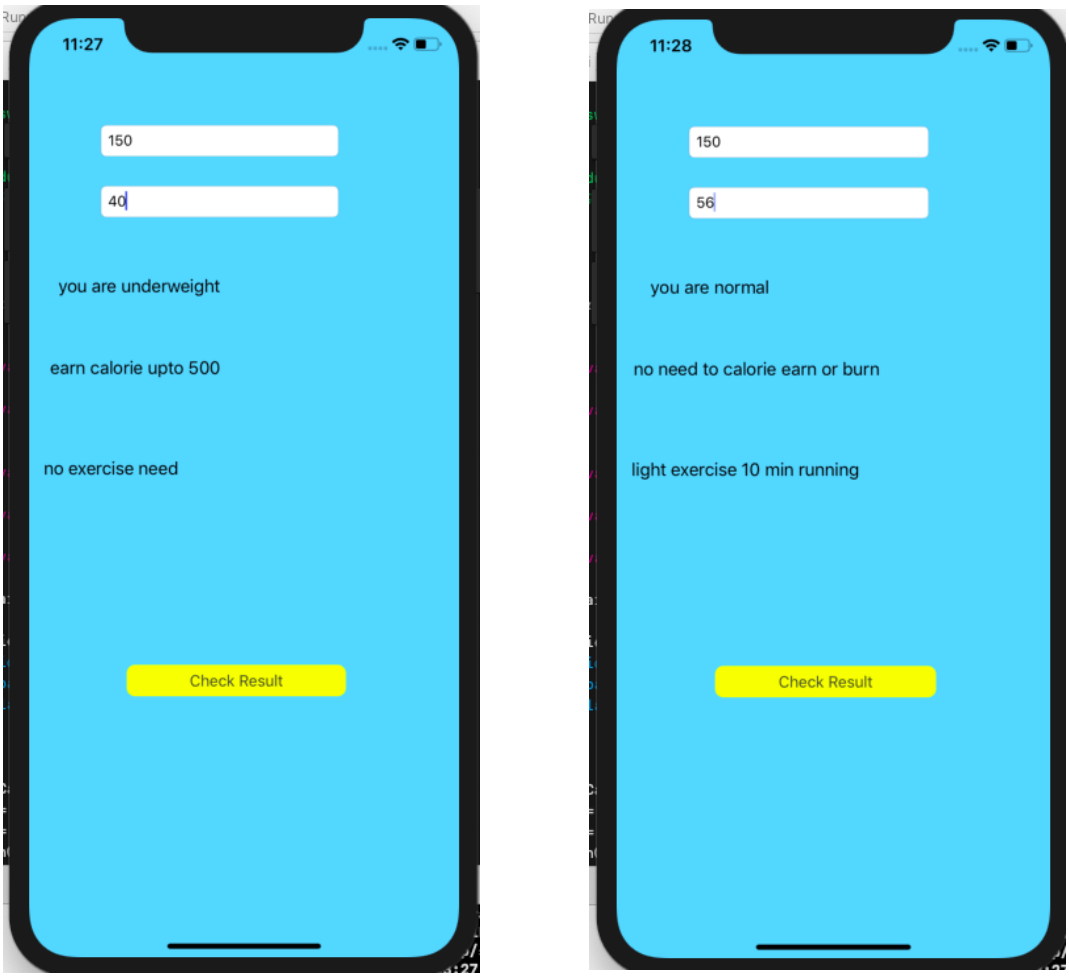

Figure 5.1.11: Screenshot of the Levels of BMI Result

5.2 Testing Implementation

Testing is procedure for testing approaching implementation system where tester or system architect might find cases and spaces, could it be implementable and has limitation. Here we make some basic test to our system. We are given the value below:

Table 5.2.1: Test Case Evaluation

Test Case	Text Input	Expected Outcome	Obtained Outcome	Pass/Fail
1.Junk Food list	Show list of junk food with calorie amount	Successfully Show	Successfully show with mark up	Pass
2. Fruit List	Show list of junk food with calorie amount	Successfully Show	Successfully show with mark up	Pass
3. Workout List	Workout list of proper timing	Successfully Show	Successfully show with mark up	Pass
4. Diet List	Diet list from breakfast to dinner	Successfully Show	Successfully show with mark up	Pass
5. Scanner	Scan the Code	Successfully scan the code for Information	Successfully show all food information	Pass
6. Kidney	Scroll image view for all images	Successfully scroll all images	Scroll all images one by one	Pass

7. Checking BMI with Calories	User input height and weight for checking BMI	Show BMI result	Show your body position with information for what amount earn or burn includes proper exercise with exact time.	Pass

5.3 Test Results and Reports

Test report is required to mirror testing creates a formal way, which supplies a scope to estimate testing result rapidly. It is a paper that records data acquired out of your evaluation experiment inside an organized manner, describe the environment or operating conditions and show the compare of test result with test objectives.

Test report is more important that is needed to understand the machine is prepared or not ready for implementation. We must let you know several types of testing. There are numerous types of testing. If the system passed through all these types of testing it is finally ready to lunch so at the end, we can carry out the result as the benefits of usability testing.

Table 5.3.1: Benefits of usability testing

Benefits of Usability Testing	Yes	No
Good Quality of system	√	
System is easier to use	√	
Application is rapidly accepted by users	√	
Easy to use for the new user	√	
Better UI for interaction	√	

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

We can consider that, this app will be greatly helpful staff for all kind of people. It will help people to change their habits within short time, without any cost and also not so much effort. People can change their daily life style use this app. Normal people can spend their daily life with better way. The disease can't attack their body and they can control their diabetes properly.

6.2 Scope for Further Development

Gradually we will develop our project in further steps. We add more data or information on the features. Also, add some features according to people needs. We hope that at least people can change their habit and take care of their health.

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APPENDICES

Appendix A: Glossary

iOS:	iPhone Operating System
UI:	User Interface
SRS:	Software Requirements Specification
USV:	User Interface Scrolling view
SA:	Scale Aspect Fit
MbC:	Main button Background Color
AVCOD:	AV Capture Output Object Delegate
OFPS:	Override Function Prepare Segue

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parents. ABSTRACT In this planet technology effects on people's life style. Last 10 years we continuously saw many changes in Tech Industry. As we know people get smarter than before. They use smart gadgets in every aspects of their daily life. They use different types of application in mobile and computer which make their lives easier and smarter. People are so busy for their work, they can't take care of their health proper way. They become impatient, many kind of diseases attack their body. The vision of our mobile application is to help them to maintain their food habit and do necessary workout to be fit and healthy. We choose IOS Platform for this app, because IOS is the most popular platform than any other. More than 200 million people are IOS user around the world. They can use it effectively and usefully to maintain a healthy and happy life. TABLE OF CONTENTS Contents Page No. Acknowledgement Abstract List of Figures List of tables Chapter 1: Introduction 1.1 Introduction 1.2 Motivation 1.3 Objectives 1.4 Expected Outcome 1.5 Report Layout Chapter 2: Background 2.1 Introduction 2.2 Related Works 2.3 Comparative Studies 2.4 Scope of the Problem 2.5 Challenges Chapter 3: Requirement Specification 3.1 Business Process Modeling 3.2 Requirement Collection and Analysis 3.3 Use Case Modeling and Description 3.4 Design Requirement Chapter 4: Design Specification 4.1 Front-end Design 4.2 Back-end Design 4.3 Interaction Design and UX 4. 4 Implementation Requirements Chapter 5: Implementation and Testing 5.1 Implementation of Front-end Design 5.2 Testing Implementation 5.3 Test Results and Reports Chapter 6: Conclusion and Future Scope 6.1 Discussion and Conclusion 6.2 Scope for Further Developments References Appendices Appendix A: Glossary LIST OF FIGURES Figures Page No. Figure 3 .1. 1: Business process modeling Figure 3.2.1: Software development life cycle (agile) Figure 3.2.2: Flow Chart for Diabetes Control and kidney Disease Application Figure 3.2.3: E-R Diagram of the system Figure 3.3.1: Use Case modeling For Non-diabetes people Figure 3 .3.2: Use Case modeling For Diabetes people Figure 3.3. 3: Use Case modeling For Kidney Diseases People Figure 3. 3.4: Use Case Model Figure 5.1.1: Screenshot of the homepage of our app Figure 5.1.2: Screenshot of the features list for non-diabetes Figure 5.1.3: Screenshot of the junk food calorie list Figure 5.1.4: Screenshot of the Non-Diabetes Diet List Figure 5.1.5: Screenshot of the Non-Diabetes Workout List Figure 5.1.6: Screenshot of the Diabetes Diet List Figure 5.1. 7: Screenshot of the Fruit List Figure 5.1. 8: Screenshot of the Workout List Figure 5.1.9: Screenshot of the QR Scanner Detection Figure 5.1.10: Screenshot of the Calorie Check with BMI Figure 5.1.11: Screenshot of the Levels of BMI Result ©Daffodil International University LIST OF TABLES Tables Page No. Table 3. 3.1: Use case description of Non-diabetes People Table 3. 3.2: Use case description of Diabetes People Table 3.3. 3: Use case description of Kidney Diseases People Table 5.2. 1: Test Case Evaluation Table 5.3. 1: Benefits of Usability Testing CHAPTER 1 INTRODUCTION 1.1 Introduction IOS,MacOS, WatchOS, these operating systems are quite new and standard filed of computer science and software engineering. These operating systems are represent the most standard and smartest developing system in the field of software development. These are apple's Inc. operating system developed by apple's engineers exclusively for its devices like IPhone, IPad, Mac and watch. These are the best most popular operating system in the technologies industry. IOS, MacOS and WatchOS have many features that make it easy for developers to build his/her app smartly. These operating system are based on multi-touch features, swipe, tap, pinch and also 3D touch. The accessibility praised by users and the biggest part of these operating systems are enabling users with vision and hearing disabilities to properly using it's proud. So, we are trying to make an IOS app which will help the people changing their lifestyle and food habits. 1.2 Motivation On this smart tech world the invention of new technologies getting huge day by

day. Smart phone or Tab is one of them. We use these kinds of products in life in many ways. We take steps to make an IOS app for diabetes and non-diabetes people. It becomes common problem in the world and it has also many big reasons like lifestyle of people, food habit and lacking of awareness. In this app people will get help to control their lifestyle, food habit and work out for both diabetes and non-diabetes. Besides, this they can also know about the symptoms of kidney disease and so on. 1.3 Objectives By using this app users can control their lifestyle and changes their food habits. They can know about their workout process. They can also know about their needed food calories and get information about how to burn extra calories from their body. At last they can keep track their weekly food calories, burn calories and earn calories. 1.4 Expected Outcome We expect the outcome from our project is absolutely right and specific. Main facilities available in this project for both of diabetes and non-diabetes people and also with kidney disease people. When using this app both of them can control over diabetes and they can control their health life properly. It also helps them to maintain a good habit of workout and diet of food. And to take control over the kidney disease and make sure it's primary protection. When users inputs their height and weight, BMI result will show how much calories they should burn or earn. According to the result it also shows their what will be they exercise process. 1.5 Report Layout In this project a full overview of our system and related work and terminologies are given gradually. We recently made a survey on this similar work and try to what is more scope to develop this existing project. In chapter 2 we describe the challenges and facing problem which is make difficult to us. Another chapter 3 we describe the three stage of background. We also describe the requirement specification and try to disclose users demand. In, chapter 4 and 5 we disclose how we solve the problem and what we use to implement the project. Finally, in chapter 6 we remark some concluding and suggestions for future works. Chapter 2 BACKGROUND 2.1 Introduction Health app collaboration with people that will provide knowledge about their daily healthy life, good habit of eating, daily work out, basic and proper diet chart for both non-diabetes and diabetes people. They can easily make their daily routine using these features. 2.2 Related Work Survey shows that normal people don't know properly how to keep their daily life healthy and fit. Also diabetes people have lack of knowledge about their proper diet and food able habit. This project will cover all of these. So, they can use it easily to change their daily habits. That's why we make separate table for normal and diabetes people, different type of food list for normal people and diabetes people [7], separate workout list for both normal [8] and diabetes people [9]. And we find that this kind of app is not available that much on any online App store [12]. If there any that doesn't cover all the details with proper information in a tab view collection type application on any platform in a user friendly manner. 2.3 Comparative Studies We make this app using different types of data for different features. We take help from doctor and research differently for non-diabetes and diabetes people diet and also for kidney disease people [10]. In all features we put different types of information that will help them to understand what they need from specific features. The purpose of designing this application is to help people about their daily food habits, diets [5], [6] and along with proper diet chart. 2.4 Scope of the problem The scope of this project is we use here different types of features with separate version. This application will useful for both diabetes and non-diabetes and also with kidney disease people. We give both of them food chart, nutrition chart, diet chart, calories chart, kidney's symptom and reason with proper information. We also include BMI calorie [13] checker and workout [13] process features. 2.5 Challenges The challenge of this app for two particular people. At first non-diabetes people, they can easily use this app and keep them always fit and stay away

from various disease like diabetes and kidney. When using kidney features they can understand the basic kidney symptom, reason, along with different stage and primary treatment [10]. Secondly, diabetes people can control their food habit and maintain their diet properly. So, they can control their diabetes with proper diet and different type of work outs. Chapter 3 REQUIREMENT SPECIFICATION Requirements specifications state what needs to be done by a system. The requirements specification states what needs to be done in order for the organization to fulfill their purpose. 3.1 Business Process Modeling User Input Non-diabetes Diabetes Kidney QR scanner BMI Calorie Height Input Weight Show Calorie for burn or earn Exercise Type \ Food Chart Food with Images with Calorie Chart Kidnew Diet Chart and diet list Scroll Barcode View Causes & with workout Symptoms Scanner Workout List list Figure 3.1.1: Business process modeling 3 .2 Requirement Collection and Analysis When it comes to any type of project, requirement collection plays a key role. Requirements collection is not only important for the project, but it is also important for the project management function. Requirement collection is the most important step of a project. If the project team fails to capture all the necessary requirements for a solution, the project will be running with a risk. This may lead to many disputes and disagreements in the future. Therefore, take requirement collection as a key responsibility of the project team. So that we collected our project requirement as soon as possible. Then we started our work. SOFTWARE DEVELOPMENT LIFE CYCLE (AGILE) The agile model is a most popular model among software development cycle system. It has linear sequential criteria that mean every part of features totally completed before the next phase start. PROJECT REQUIREMENT SHOW ALL ITERATION FEATURES ALL FEATURES APP FEATURES TEST FEATURES TEST ALL FEATURES TASKS ITERATION ACCEPTANCE TESTS COMPLETION ITERATION Figure 3.2.1: Software development life cycle (agile) FLOW CHART The processes of our Diabetes control and Kidney disease Application System given below- Start Non -Diabetics Diabetics Kidney QR Scanner BMI Calorie Checker Image with Description Scanner Detected Calorie Chart What What to Do What to Do to Do Scrolling Image Read the Kidney Failure Description Scan Bar code for Food Information Check Food Chart To Eat Mark Up Food Proper Diet Plan BMI Calorie Checker Do Workout From List What to Do BMI Result Burn or Earn Calorie Exercise Type Figure 3.2.2: Flow Chart for Diabetes Control and kidney Disease Application ENTITY RELATIONSHIP DIAGRAM An entity relationship diagram (ERD) is a data modeling technique that graphically illustrates information systems entities and the relationship between those entities. An ERD is conceptual and representational model of data used to represent the entity framework infrastructure. The elements of an ERD are: ? Entities ? Relationship ? Attribute Non-diabetes Diabetes Kidney QR scanner BMI Calorie Non Diabetics Diabetics Show Check Input 1. Check Food chart 2. Diet Chart for 3 Times 3. Workout List 1. Check Food chart 2. Diet Chart for 3 Times 3. Workout List Image View for Kidney Symptom, Causes & Primary Treatment. . Scan Bar Code for Calories Informatio n. 1. BMI Result 2. Calorie Show for Earning or Burning. 3. Exercise Types. Figure 3.2.3: E-R Diagram of the system 3.3 Use case modeling and description This app carefully analysis identify by following actors. The actors involved are: ? Non-diabetes people ? Diabetes people ? Kidney diseases USE CASE FOR NON-DIABETES PEOPLE In this features people can find: 1) Food chart with include calorie 2) Diet chart 3) Workout list 4) QR scanner In food chart non-diabetes people can see different type of foods with calories and diet chart. They can find normally 3 times diet plan include calories. They can also mark the foods , what they will take in overall 24 hours and maintain calories which is more than 2400 calories. If they earn more than 2400 calories they can find solution to burn extra calories from the workout list. There’s also a scanner. So, that people can scan food from shop,

for overall information. When users inputs their height and weight, BMI result will show how much calories they should burn or earn. According to the result it also shows their will are they exercising process. Table 3.3.1: Use case description of Non-diabetes People Use case name: Non-diabetes people Actor: Food chart, Workout list, Diet chart, QR scanner, BMI calorie check. Pre-condition: None Primary Path: 1. Check food chart with calorie. 2. Diet chart on daily basis and check workout list. 3. Input height and weight and check BMI calorie. 4. QR scanner detected for any food. Exceptional Path: 1. Mark up the food with calorie and diet chart. 2. Check BMI and burn and earn calories. CHECK FOOD CALORIES CHART CHECK DAILY DIET CHART MAINTAINING MARK UP FOOD CHART WITH CALORIES ACCORDING TO 3 TIMES DIET PLAN NON-DIABETES PEOPLE QR SCANNER SCAN FOOD ITEMS BAR CODE FOR DETAILS INPUT HEIGHT AND WEIGHT SHOW BMI RESULT, CHECK CALORIES AND EXERCISE TYPES Figure 3.3.1: Use Case modeling For Non-diabetes people. USE CASE FOR DIABETES PEOPLE Non-diabetes and diabetes people diet chart are completely different from each other. So, here we put a different type of workout list, diet plan that they can use for daily life. They can also mark up their food that they cannot cross up more than 1500 calories. It's for both non-diabetes and diabetes people. When users inputs their height and weight, BMI result will show how much calories they should burn or earn. According to the result it also shows their what will be they exercise process. Table 3.3.2: Use case description of Diabetes People Use case name: Diabetes people Actor: Food chart, Workout list [9], Diet chart [5], QR scanner, BMI calorie check. Pre-condition: None Primary Path: 1. Check food chart with calorie. 2. Diet chart on daily basis and check workout list. 3. Input height and weight and check BMI calorie. 4. QR scanner detected for any food. Exceptional Path: 1. Mark up the food with calorie and diet chart. 2. Check BMI and burn and earn calories. CHECK FOOD CALORIES CHART CHECK DAILY DIET CHART MAINTAINING MARK UP FOOD CHART WITH CALORIES ACCORDING TO 3 TIMES DIET PLAN SCAN FOOD ITEMS BAR QR CODE FOR SCANNER DETAILS DIABETES PEOPLE SHOW BMI INPUT RESULT , CHECK HEIGHT AND CALORIES AND WEIGHT EXERCISE TYPES Figure 3.3.2: Use Case modeling For Diabetes people. USE CASE FOR KIDNEY DISEASES Here user can see photos with proper description, the causes, primary treatment, symptoms of kidney diseases. Table 3.3.3: Use case description of Kidney Diseases People Use case name: Kidney Diseases Actor: Image scrolling view Pre-condition: None Primary Path: Scrolling view image with symptoms,causes and primary treatment INPUT HEIGHT AND WEIGHT SHOW BMI RESULT, CHECK CALORIES AND EXERCISE TYPES CAUSES DESCRIPTION IMAGE SCROLLING VIEW SYMPTOM DESCRIPTION KIDNEY DISEASES PEOPLE REASON DESCRIPTION Figure 3.3.3: Use Case modeling For Kidney Diseases People USE CASE DESCRIPTION Here it contains all information about full part of use case model below picture, we already describe all parts through table and picture in the above section. FOOD CALORIES MARK UP FOOD CALORIES CHART NON-DIABETES PEOPLE CHECK DAILY DIET QR SCANNER INPUT HEIGHT AND WEIGHT ACCORDING TO 3 TIMES DIET PLAN SCAN FOOD ITEMS BAR CODE FOR DETAILS SHOW BMI RESULT CHECK CALORIES AND EXERCISE TYPES DIABETES PEOPLE KIDNEY DISEASES PEOPLE IMAGE SCROLLING VIEW CAUSES DESCRIPTION REASON DESCRIPTIO N SYMPTOM DESCRIPTION Figure 3.3.4: Use Case Model 3.4 Design Requirement System design is the main process of defining the use of case models, components, modules, interface and include data, pictures for specified requirements. In this chapter, we show overall design of our all features. Where business model designs, flow chart, use case have been pointed separately. Whole project was user friendly and easy user interface (UI) to use. Modern and update design tools have been used for this project. In future we will try to make it more static, dynamic and more users friendly.

Chapter 4 DESIGN SPECIFICATION 4.1 Front-end Design Front-end tools, which are used in developing for our App, are given in the following- ? Swift Language 3 ? Swift Language 4 4.2 Back-end Design Choosing frame work, eating level, button, OI image view, UB table view in future we use Mozilla fire box because, here we don't use any kind of database in this app features. Swift Version Version Reliable Date Support out Swift 3 05 Jun 2016 Still support Swift 4 10 Jun 2017 Still support 4.3 Interaction Design and UX DESIGN Whole feature of this app is user friendly because we make this app as tab bar view controller. That if any kind of feature model to be a add we can add easily. COMPLETION This application about health and food related. If any feature or any data need to be update, it can be update any time. RESOURCE ALLOCATION In software planning resource allocation is most important. For this kind of health and food related application example like diet plan need proper data resource, food list with calories information, resources, and workout list data resources. 4.4 Implementation Requirements Requirement analysis in software engineering and also for this kind of application encompasses those task that go into needs or conditions to meet new product or project various analyzing calculation, different type of data for managing this software. Calculation: Non Diabetes: Calculation diet meal plan for normal people = 2204 Calories. Diabetes: Calculation diet meal plan for diabetes people =1500 calories. BMI calorie: BMI = weight/ (height *height) Height = height /100cm Calculation for Calorie Burn or Earn: Thin bmi <18 Calorie + 500 Normal 1825 Calorie – 500 Over weight bmi >28 Calorie – 700 Calculation of Exercise: Thin No Exercise Need earn designate calorie. Normal Light Exercise 30 Minute. Fat 1 Hour Cycling or 2mph running daily. Over weight 3mph walking or 2 hours swimming. Non- Functional Requirement: Our system has some non functional recruitment that is describable below. Efficiency requirement: When people will use our application they can be able to maintain food calorie, proper workout and diet chart following specific way. RELIABILITY Requirement: This app can be reliable for two kinds of people or diabetes people that they can change their habit. USABLAITY Requirement: It's a tab view application which is user friendly and easy to use. DELEVERY Requirement: The whole system is expected to be delivered in four months of time with a weekly evaluation by the project guide. Chapter 5 IMPLEMENTATION AND TESTING 5.1 Implementation of Front-end Design To design this app is its tab view application. One single tab with multiple actors likes diabetes, non-diabetes, kidney, QR scanner and BMI calorie checker. Check BMI all of this in one single view for make as easy to use. HOMEPAGE This is the home view of our apps. We use different tab for different features for this app. The user can tap on the tab view and they can see all app features on single view. Figure 5.1.1: Screenshot of the homepage of our app. FEATURE LIST FOR NON-DIABETES PEOPLE This feature is for non-diabetes people. They can check their all different types of food list with calorie information include diet chart and work out list. Figure 5.1.2: Screenshot of the features list for non-diabetes. JUNK FOOD CALORIE LIST In this part non diabetic people can mark up foods which they want to take on a day. Later, App will show them total calories of the selected foods so that they can maintain a total of 2204 calorie for each day. Figure 5.1.3: Screenshot of the junk food calorie list. DIET LIST This feature shows the Non Diabetes People's Diet Chart [6] from breakfast to dinner so that they can maintain - 2204 calorie goal. Figure 5.1.4: Screenshot of the Non-Diabetes Diet List WORKOUT LIST Here is the list of daily workout for non-diabetes people [8] which will help individual to burn extra calories. Figure 5.1.5: Screenshot of the Non-Diabetes Workout List Feature List FOR Diabetes People DIET LIST FOR DIABETES PEOPLE Diet chart for non diabetes and diabetes people differ a lot. So here is the diet list for diabetes [5] from breakfast to dinner which will help them to earn their 1500

calories per day and not to exceed it. Figure 5.1.6: Screenshot of the Diabetes Diet List FRUIT LIST Here the fruit list for diabetes people along with the calorie amount and advantages. Figure 5.1.7: Screenshot of the Fruit List WORKOUT LIST The workout list shows the necessary workout for diabetes people. There are some differences between the workout of diabetes and non-diabetes people's. Essential workouts for diabetes people are included. Figure 5.1.8: Screenshot of the Workout List QR SCANNER DETECTION Using the QR Scanner Detection one can find information such the amount of calories, protein etc of the specific food. Figure 5.1.9: Screenshot of the QR Scanner Detection CALORIE CHECK WITH BMI User can input their height and weight and BMI result [13] will show the necessary calorie and exercise user need to maintain according to his input. Figure 5.1.10: Screenshot of the Calorie Check with BMI BMI result [13] will show result in three levels. First according to the input it will provide a result. Second, following the result it will identify one's calorie information if he needs to burn or earn calories. At last in third stage, it provides necessary exercises for individuals. Figure 5.1.11: Screenshot of the Levels of BMI Result 5.2 Testing Implementation Testing is procedure for testing approaching implementation system where tester or system architect might find cases and spaces, could it be implementable and has limitation. Here we make some basic test to our system. We are given the value below: Table 5.2.1: Test Case Evaluation Test Case Text Input Expected Outcome Obtained Outcome Pass/Fail 1.Junk Foodlist Show list of junk food with calorie amount Successfully Show Successfully show with mark up Pass 2. Fruit List Show list of junk food with calorie amount Successfully Show Successfully show with mark up Pass 3. Workout List Workout list of proper timing Successfully Show Successfully show with mark up Pass 4. Diet List Diet list from breakfast to dinner Successfully Show Successfully show with mark up Pass 5. Scanner Scane the Code Successfully scan the code for Information Successfully show all food information Pass 6. Kidney Scroll image view for all images Successfully scroll all images Scroll all images one by one Pass 7. Checking BMI with Calories User input height and weight for checking BMI Show BMI result Show your body position with information for what amount earn or burn includes proper exercise with exact time. Pass 5.3 Test Results and Reports Test report is required to mirror testing creates a formal way, which supplies a scope to estimate testing result rapidly. It is a paper that records data acquired out of your evaluation experiment inside an organized manner, describe the environment or operating conditions and show the compare of test result with test objectives. Test report is more important that is needed to understand the machine is prepared or not ready for implementation. We must let you know several types of testing. There are numerous types of testing. If the system passed through all these types of testing it is finally ready to lunch so at the end, we can carry out the result as the benefits of usability testing. Table 5.3.1: Benefits of usability testing Benefits of Usability Testing Yes No Good Quality of system √ System is easier to use √ Application is rapidly accepted by users √ Easy to use for the new user √ Better UI for interaction √ CHAPTER 6 CONCLUSION AND FUTURE SCOPE 6.1 Discussion and Conclusion We can consider that, this app will be greatly helpful staff for all kind of people. It will help people to change their habits within short time, without any cost and also not so much effort. People can change their daily life style use this app. Normal people can spend their daily life with better way. The disease can't attack their body and they can control their diabetes properly. 6.2 Scope for Further Development Gradually we will develop our project in further steps. We add more data or information on the features. Also, add some features according to people needs. We hope that at least people can change their habit and take care of their health. Reference [1] SDLC agile model, available at <>, last accessed on 25-01-2019 at 2:00pm.

[2] Swift 3: Available At<< https://developer.Apple.com>>, last accessed on 02-02-2019 at 5:00pm. [3] Swift 4: Available At https<<://developer.Apple.com>>, last accessed on 05-02-2019 at 7:00pm. [4] Xcode: Available At https<<://developer.Apple.com>>, last accessed on 15-02-2019 at 10:00pm. [5] Diet list for diabetes people <>, last accessed on 25-02-2019 at 8:00pm. [6] Diet list for normal people <>, last accessed on 10- 03-2019 at 10:00pm. [7] Food list with different calories:- <>, last accessed on 12-03-2019 at 11:00pm. [8] Workout list for normal people <>, last accessed on 13-03- 2019 at 10:00pm. [9] Workout list for normal people <>, last accessed on 15-03-2019 at 07:00pm. [10] Kidney picture list <>, last accessed on 17-03-2019 at 11:00am. [11] Android Play Store <>, last accessed on 18-03-2019 at 9:00pm. [12] Apple App Store <>, last accessed on 20-03- 2019 at 10:00pm. ©Daffodil International University [13] BMI Checker <>, last accessed on 22-03- 2019 at 8:00pm. APPENDICES Appendix A: Glossary iOS: iPhone Operating System UI: User Interface SRS: Software Requirements Specification USV: User Interface Scrolling view SA: Scale Aspect Fit MbC: Main button Background Color AVCOD: AV Capture Output Object Delegate OFPS: Override Function Prepare Segue ©Daffodil International University ©Daffodil International University ©Daffodil International University