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DEPARTMENT OF COMPUTER ENGINEERING

A Mini Project on

FITBUDDY ANDROID APPLICATION

Submitted in partial fulfillment of the requirements of the degree

BACHELOR OF ENGINEERING IN COMPUTER ENGINEERING

By

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CERTIFICATE

This is to certify that the Mini Project entitled “Fitbuddy Android Application” is a bonafide work of Kalwar Virendra Subhashchandra (16/121CP3044A) , Patel om Kiritkumar (36/121CP3173A) , Rathod Sonali Hansraj (45/121CP3092B) & Sarang Akil Shakil (46 /121CP3222A) submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of “Bachelor of Engineering” in “Computer Engineering” .

(Dr. Ashok Kanthe)

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MINI PROJECT APPROVAL

This Mini Project entitled " FitBuddy Android Application" By Kalwar Virendra Subhashchandra (16/121CP3044A) , Patel om Kiritkumar (36/121CP3173A) , Rathod Sonali Hansraj (45/121CP3092B) & Sarang Akil Shakil (46 /121CP3222A) is approved for the degree of Bachelor of Engineering in Computer Engineering.

Examiner

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(External Examiner Name & Signature)

Date :-

Place :-

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ABSTRACT

In today's lifestyle, people are moving towards achieving a fit and healthy body. This shift has changed the way of living in almost every household. Now everyone craves for healthy and nutritious food to be placed on their plates. Hence, healthy eating and nutritious food have become an essential part of everyone's lifestyle to achieve a balanced and healthy life in such busy and hectic environment. Hence, to make their fitness path a bit smoother and to enhance their experience, We have created an Android FitBuddy Application to provide a broader approach in providing a betterliving through nutritious and fit diet plan to the users.

The application will start by signing up or logging the user with the Personal Dietitian application. The signup and login screen which will be useful to the user to manage their activities in the application. The application provides Four main user functionalities, namely, the BMI Calculator, Diet Plan Suggestion, Exercises Yoga,and Diet Plan Video's.

(1) The Activity:- Registration.Login, if user id password valid then goto the Menu.

(2) In Menu They Can Choose BMI Calculator, suggested meal plans with the helpof the user's general information (Height, Weight) and the food ontology database.

(3) If User Want To Do Exercises app also have Exercises Training & Yoga PosesToo.

(4) The last activity is the diet plan videos which can be used to see different videosavailable online related to the preparation of diet plan and life improvement.

ACKNOWLEDGEMENT

In successfully completing this project, many people have helped us. We would like to thank all those who are related to this project. Primarily, we would thank God for being able to complete this project with success.

Then we shall thank our Dr. Geeta S. Lathkar for providing us the opportunity to work on this project with our Project Guide Dr. Ashok Kanthe , under whose guidance we learned a lot about this project. His suggestions and directions have helped in the completion of this project.

Finally, we would like to thank our parents and friends who have helped us with their valuable suggestions and guidance and have been very helpful in various stagesof project completion.

CHAPTER ONE : INTRODUCTION

1.1 Overview

Fitbuddy is an android application is a provides a personalized diet to its users. It acts as a diet consultant similar to a real Dietitian. This system acts in a similar way as that of a dietitian. A person in order to know his/her diet plan needs to give some information to the dietitian such as its weight, height, gender etc. Similar way this system also provides the diet plan according to the information entered by the user. The system asks all data from the user and processes it to provide the diet plan to the user. The project has a login page where the user is required to register his/her account and then they can use the app. Thus, the user does not need to visit any dietitian which also saves time and the user can get the required diet plan in just a click. The system will give more accurate results as it accepts the data entered by the user and processes it depending on some metrics already known to the application on the basis of which a diet plan is generated and ask the user if the user accepts the diet plan. If not accepted the system may also give and alternative diet plan. If a user wants to stay fit and eat healthy, he can surely follow the program provided to him. The Application also has a card for Health Facts on the home screen, which will provide all the general knowledge and some amazing facts on our human body and body parts. This Application can be a vital part of a user if he wishes to maintain his health and body perfectly and follow the diet plan & the workout plan providedto the user.

1.2 Features and Functionalities:-

- User Friendly
- Accurate diet plan on the basis of information provided
- Facility for alternate diet plan
- Cost effective
- Exercises Training & Yoga Poses
- Diet Preparation Videos
- Full Day Diet Plan

CHAPTER TWO : LITERATURE SURVEY

In the Literature Survey part, we observed the main goal of our project which was to be made and started searching for published papers on it which will help us in building the application. We went across many IEEE & Bayes Papers and found many papers which was some or the other way connected to our project based on health. We found many interesting papers as well as simple ones, we gathered the data from them. In the existing health care system, the primary requirement and disadvantage is physical presence of patient and doctor for every consultation. In the existing diet consultant system, you have to hire a dietitian in order to get advice.

Also, there is a high chance of misinterpretation of data as well as occurrence of errors. Moreover, it is time consuming. With the increase in volume of patients in the health care institutes, traditional method of management has gone out of phase. As a result of this, an advanced Health Care Management System has been the demand of time. Some Systems were built directly for sole purpose of a single disease like Obesity, down syndrome etc. and some were general purpose applications, some projects website based and some were mobile application based. Our project was to be built on android so that people can get a good UI and also the app should be user-friendly. Some of the applications were paid-to-use and some were free, we wanted to build our project to be free to all. We started gathering information on the existing system and how it works and also a real dietitian works and calculates a diet based on a person's details like height & weight. Even the internet helped us a lot for finding some basic formulas for calculating the diet and total calories. A person's diet totally depends upon what kind of activity he does in a day. If he/she has a hardworking job then they may lose more kcal as compared to other person who doesn't do much of hard work, so we have to calculate the Kcal based on the activity level of the person. The total calories to be consumed should be balanced proportion of macro nutrients like Proteins, Carbohydrates and Fats, with the ratio of 2:2:1. In the existing health care system, the primary requirement and disadvantage is physical presence of patient and doctor for every consultation. Also, there is a high chance of misinterpretation of data as 4 well as occurrence of errors. Moreover, it is cumbersome and time consuming. With the increase in volume of patients in the health care institutes, traditional method of management has gone out of phase. As a result of this, an advanced Health Care Management System has been the demand of time.

CHAPTER THREE : ANDROID OVERVIEW

3.1 Android Application Fundamental

Android is an open source operating system which can be used to build mobile or other small devices applications and Android applications coded in the JAVA programming language. Android Studio is used for developing Android applications. It supports all the Android SDK tools needed to build, design, maintains, test, debug and publish any Android applications. The Android application compiles into a set of files known as .apk files which hold the information used to run the application on any device or even on the android emulator the .apk file is used to run the application.

3.2 Android Application Components

Android application components are the basic building blocks of any Android applications. In the Manifest file of Android application, all the critical components are present to facilitate the application. The points below describe additional components of the development of the Android application.

- Activities

They dictate the UI and handle the user interaction to the smart phone screen.

- Services

They handle background processing associated with an application.

- Broadcast Receivers

They handle communication between Android OS and applications.

- Content Providers

They handle data and database management issues.

CHAPTER FOUR : DESIGN & IMPLEMENTATION METHODS

4.1 Design :

In this, we design the overview and implementation of the project was discussed. The modules discussed to be implemented are listed with some details.

- User Dashboard
- BMI Calculator
- Exercises & Diet Plan Videos

In the Design Process, we first designed the flow of events in which the application would work,We have to design a user registration system to be able to gain user information to calculate their details, we designed the registration and login system using Google's Firebase – A cloud-based system to store our data and authentication. It has a very easy to use interface and the Doc helps in implementing it. In the Registration process the app will take the details of users like age, height, weight, gender etc. and store it in the firebase database.The Diet Plan card will give the user his data based on the details provided by the user while registering. All the calculations to get results was through research & getting the right formulas.

4.2 Implementation :

Implementation is done with the help of the reference papers used and the internet, the application is built using Google's very own Android Studio. The Android Studio Docs helped us to implement certain design features to out app and also add API's for the firebase database & authentication. A few tutorials helped us to create a stable application that can work properly. The Formulas used for calculating the BMI (Body mass Index) and to calculate the total calories to intake was found on internet on some research.

Formula for BMI:

BMI = Weight / Height 2 Where, Weight is in Kilograms, Height is in Meters. Formula for calculating Maintenance Calories: Calories = (Weight * 22) * Activity Multiplier Where, Weight is in Kilograms, Activity Multiplies refers to the amount of activity done in a day; it ranges from 1.2 for moderate work to 2.0 for extreme work done. Calculating Diet & Providing Diet: The Maintenance calories of the users have to be calculated on the basis of his height, weight, age etc. The Maintenance Calories are calculated with the help of the formula given above, once the calories are calculated then the system decides if the user is in a under-weight, healthy or overweight category based on his BMI. The User is then suggested which type of diet program he / she should start, the user is still given the option to opt for the diet category like, Gain weight, Maintain Weight or Lose Weight. Based On
the category selected the diet is provided by the application to the user. The Diet is based on the charts of diets calculated & created by expert Dietitians and Nutritionists all over the globe.

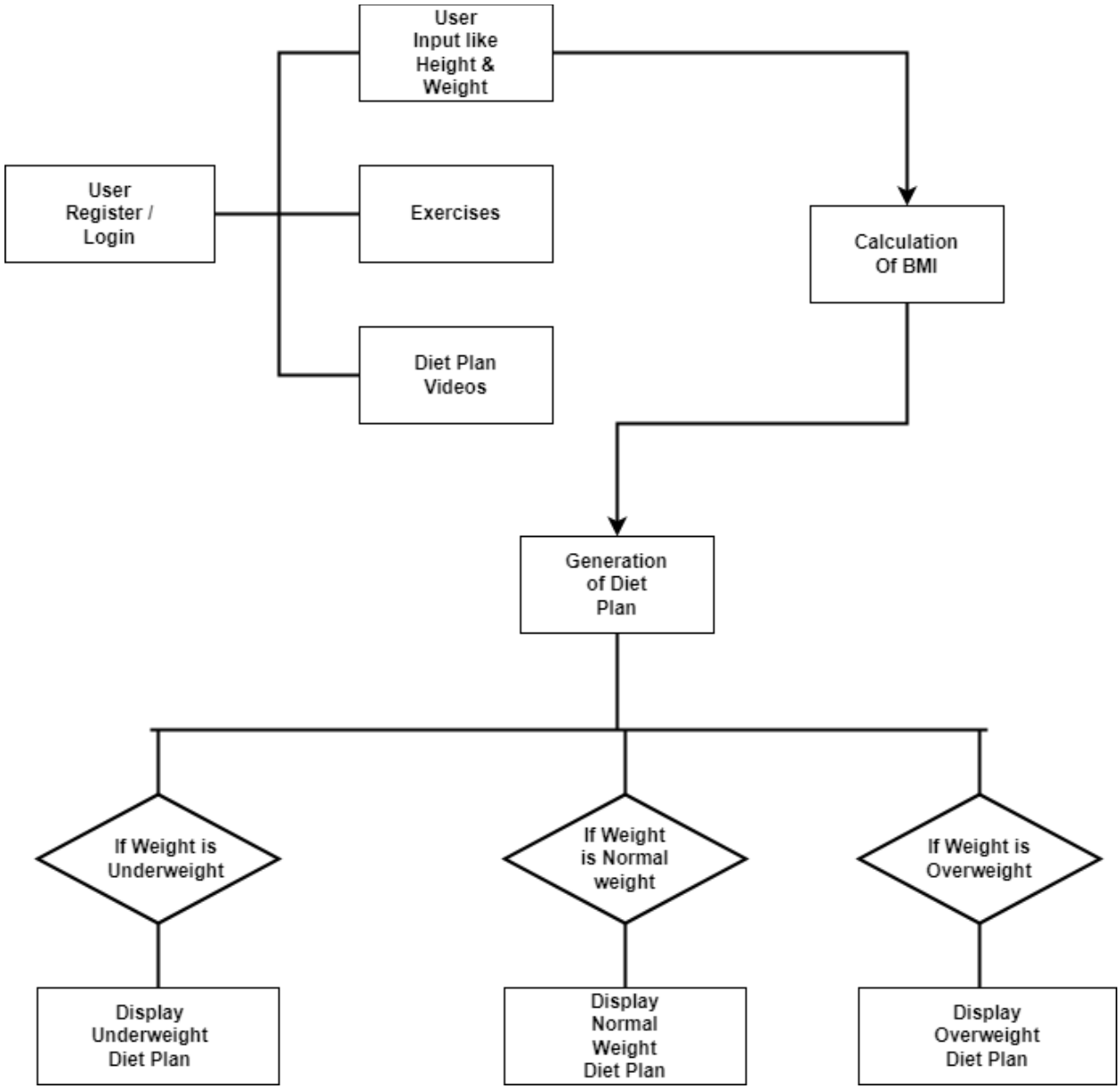

Fig . Flow Diagram of FitBuddy Android Application

CHAPTER FIVE : OUTPUT

Fig No:-1 Registration

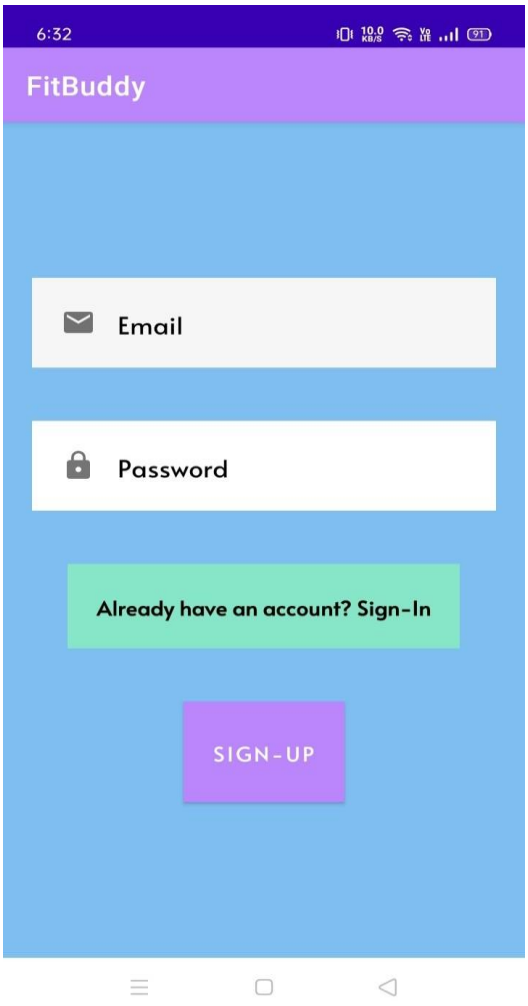

Fig No:-2 Application Menu

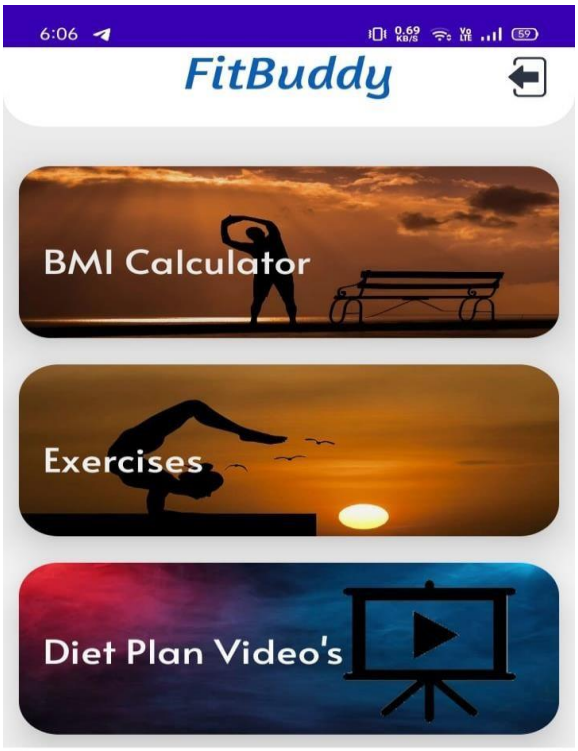

Fig No:-3.0 BMI Calculator

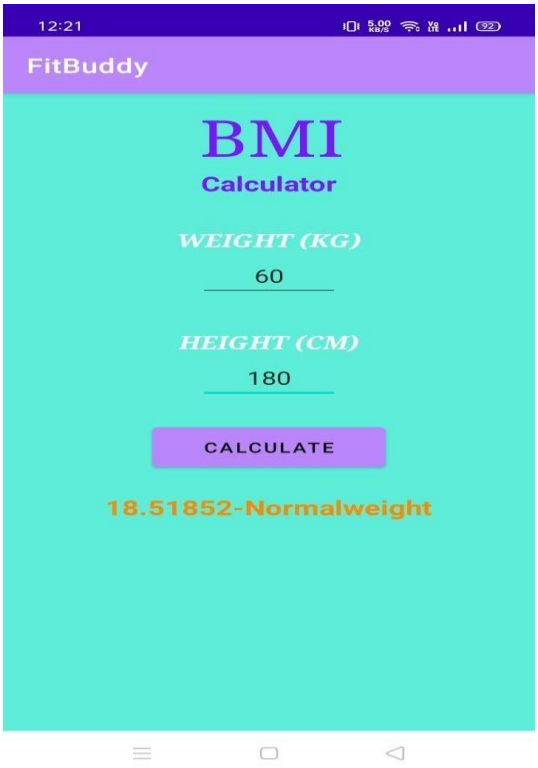

Fig No:-3.1 Normal Weight Diet Suggestion

Fig No:-3.2 Under Weight Diet Suggestion

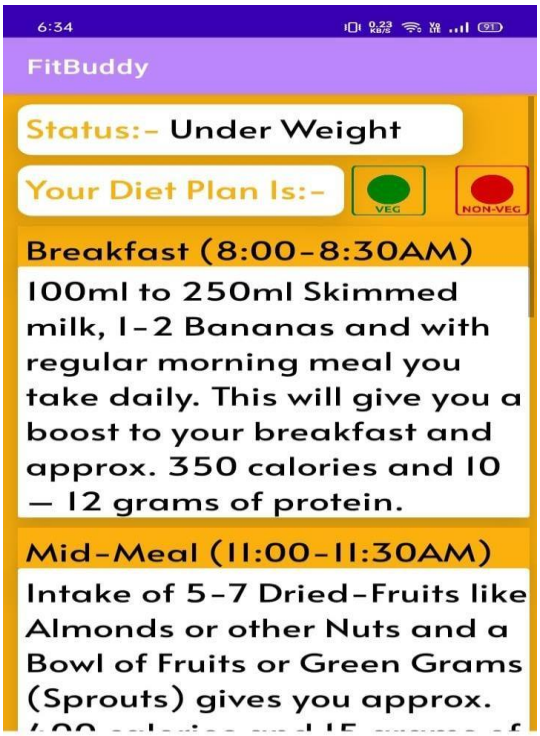

Fig No:-3.3 Over Weight Diet Suggestion

Fig No: -4.0 Exercises Card

Fig No: -4.1 Strength Training

Fig No: -4.2 Yoga & Cardio Training

Fig No: -4.3 Diet Plan Videos

CHAPTER SIX : SYSTEM REQUIREMENT

HARDWARE REQUIREMENT	i3 or higher , Min 4GB-8GB RAM, Minimum 10GB Space in Hard Disk
SOFTWARE REQUIREMENT	Windows 7 SP1 , WINDOWS 8/8.1, WINDOWS 10,WINDOWS 11. java version "11.0.13" 2021-10-19 LTS Android Studio 4.1 2021.1.1 Patch 2 (Bumblebee) / February 2022. Other Related Dependencies.

CHAPTER SEVEN : TECHNOLOGY USED

1) FRONT END :-

Basics of User Interface(UI)

Basically in Android XML is used to implement the UI-related data. So understanding the core part of the UI interface with respect to XML is important. The User Interface for an Android App is built as the hierarchy of main layouts, widgets. So We Have Used XML To Develop The Frontend Screen As We Describe Below.

XML stands for Extensible Markup Language. XML is a markup language much like HTML used to describe data. It is derived from Standard Generalized Markup Language(SMGL). Basically, the XML tags are not predefined in XML. We need to implement and define the tags in XML. XML tags define the data and used to store and organize data. It's easily scalable and simple to develop. In Android, the XML is used to implement UI-related data, and it's a lightweight markup language that doesn't make layout heavy. XML only contains tags, while implementing they need to be just invoked.

2) BACKEND :-

All in all, Java is a great language to experience the full joys of Android App Development. However, it may be a little complex for beginners who would prefer to start with something easier and then return to it.Android App are mostly developed in JAVA language using Android SDK (Software Development Kit). Other languages like C, C++, Scala etc. can also be used for developing Android App, but JAVA is most preferred and mostly used programming language for Android App Development. JAVA language is based on the knowledge of OOPS concepts is the first thing you need to learn before beginning Android Development.

FUTURE SCOPE

- This application can be further implement Has A Diet Planner Application.
- This application can be improved with the help of an expert nutritionist who can help us creating different types of programs for different classification of users.
- The project is easily extensible and can be improved by further incremental releases of the same.
- We plan to focus on improving the overall performance of the system. Also, interaction between User and dietitian through video calling and secure prescription will be focused upon.
- Some more ways to achieve dietitian will be focused.

CONCLUSION

With the proposed application on mobile phones, we will be able to bring the Dietitian App on the palm of every individual. The application can be deployed on the cloud by integrating different servers through the cloud in its future iterations. With respect to the feedback of the App users' further improvements can be incorporated within the system to make it more users friendly. In our approach for implementing this project is we have implemented a virtual dietitian using android. Our system comprises of main components such as of a user login and an admin login. The software system allows the user to create their profiles and upload all their details and their BMI is calculated by the system. The admin can check each user details and can remove faulty accounts. People who are in need of a serious health care but are busy with their schedules, can start using our application and start following the diet and workout programs. With the help of this application, user doesn't have to go to an actual dietitian he can have a dietitian in the palm of his hands.

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