***Abstract***

*The aim of this project is to develop a nutrition mobile app using Android. Nutrition apps are an important aspect to promote healthy life style by maintaining a perfect weight and to avoid diseases resulting from overweight. The general idea is to develop an app that uses a calorie counter and diet tracker for lose weight, gain or maintain.*

*The features in our app will developed to be as the user want, in other words we mapped to make a simple app that can be understandable by human with different ages. Develop a friendly user interface that can be used any time and in any condition even if you don’t have time, the app interface and features will help you to reach what you want fast. Finally the app will work even in offline condition.*

*A calorie counter mapped to work on equations depends on the data entry, so data entry on this app must be specific and real which makes the app works efficiently. After data had been entered, the equations will find your budget calories counter for a day; then the users will enter them daily meals and snacks until they reach the specific calories required. This means that you take your calorie range in that day and calorie counter will track your food and your exercise to create a balance between your burned calories and your gained calories .Finally by using this app which tracks your food you can manage your daily meals until you reach your weight goal.*

***Chapter 1: Introduction***

***1.1 Brief Introduction***

*Recently, smart phones are the most spread technological devices all over the world which is used by 44% of the world population (Linda Sui, 2016). A huge number of apps which are software applications designed to run in these smart phones or other devices, and there is a variety categories of these apps one of them is healthcare and nutrition apps.*

*Due to the variety of apps relating to diet, nutrition and weight control, common techniques like weigh tracking, goal-setting for health eating are required because it helps people regulate their health behavior, which is really hard to do. So 1 of 5 persons uses nutrition and health apps, so that's the reason why it’s necessary to develop an application which is effective in promoting healthy diet and nutrition (healthcare apps).*

*Based on the features provided in some health apps as (Fat Secret, Lose IT and MyNetDiary) there are several services provided by those apps. Such as “activity tracking service” which is track uses physical activity- everything the user does during the day. “Diet and nutrition service” help users to monitor their food habits, count the number of calories taken/burned, control water balance, and body weight).*

*Finally, “Workout or exercise tracking service” provide a user with a set of exercises, however these apps don’t provide these three types of services together, but our app will be developed to provide them together to maintain a good diet , and help the users to keep their diet healthy by the calculation of calories in point .*

*Collecting data with apps for health can help individuals work with health professionals to set safe and reasonable goals, and can increase individuals’ confidence when making lifestyle changes to achieve health-related goals. As well, individuals can share their personal results with loved ones and friends, thereby obtaining encouragement and support while working toward wellness.*

***1.2 The Aim of the project***

*The main idea behind this project is to make a calorie counter tracker uses food and exercise to manage user weight. The aim is to make a nutrition app help user maintain a good diet and exercise routines through tracking your weight, by selecting the main goals from the user why he/she uses the app depends on the current weight (lose, maintain or gain weight).*

*In the first phase of the app is to track what you eat for a while by manual data entry from the user for all meals and snacks that he/she eats all the day, and in specific quantity with specific number of calories for each meal.*

*Later on, the app will start providing guidance based on specific designed algorithms for users on what to eat; in order to decrease consumed calories and maintain the main goal of using the application. Also it has an exercise feature which help to put all the activity done by the user with its specific calories burned by this exercise, then make a calculations of the target calorie of the day from the calories gained and burned.*

***1.3 Objectives***

*1.3.1) We start studying about the health techniques which we will be used in our app, reading about android app nutrition in general and the usability of it. Reading about the algorithms and equations and how it works in the health application, then we start using some of the most spread nutrition apps and it’s features.*

*1.3.2) Build an algorithm that can calculate the total energy requirements “total calories” (TER) by using the physical activity level (PAL) factor, which is an assessment tool that it used to express a person’s daily physical activity as a number from (1.2-1.9 or higher ).*

*By entering the physical activity status (extremely inactive, sedentary , moderately active , very active, extremely active ) which is entered by the user in the registration form ,also by using the resting metabolic rate (RMR) which will calculated by Mifflin equation .*

*So, (TER) is ready, then by using body mass index (BMI) which decide if the user weight status (underweight, normal, overweight, obese class 1, obese class 2, obese class 3), if the user categorized underweight range, the daily TER will be increased by 600 calories, if the user categorized normal, it will give the user diet according to the TER, if the user categorized overweight or obese ranges the app will decrease 600 calories from TER.*

*1.3.3) Build an algorithm that can calculate the percentage of each nutrient the body need such as (carbohydrates, fat, protein) which can plan your daily diet.*

*1.3.4) Develop a prototype for UI in specific standards we will use it to develop a friendly UI and to be easy to use.*

*1.3.5) Test this prototype by the audience and check if we need to make any changes later on.*

*1.3.6) Develop server side web application.*

*1.3.7) Develop the nutrition health app.*

***1.4 Features:***

* *Our application works online and offline.*
* *It can make weekly calorie analysis based on the specific algorithms which developed based on the user current weight.*
* *The application contains timer used while exercising, and it must be turned on 5 times a week for 30 minutes for each time.*
* *The application contain a calorie counting, calculating IBW, find BMI.*
* *The application help the user lose, gain or maintain weight.*
* *The application has reminders to drink water, and reminders to enter every meal on time.*
* *The application provide social site to connect with Facebook, contacts and email.*
* *The application contains a photo album and it will ask you to update it every six month.*

***1.5 Technologies:***

*1.5.1) Android 7.0 Nougat*

*It introduces a notable change to the operating system and its development platform; including the ability to display multiple app on-screen at once in a split screen view and it has many features (user experience, platform, security).*

*1.5.2) SQL light*

*This program works like a data base program, it is the most widely deployed database engine, as it is used today by several widespread browsers, operating systems, and embedded systems (such as mobile phones), among others, and it is a part of local/client storage in application software such as web browsers, and it is embedded into the end program.*

*1.5.3) PHP*

*It is one of the most popular programming language used in web sites, the web server interprets and executes its code, and sends the result to be displayed in the user browser, and it is used to create dynamic web pages (variable content pages) this content changes as a result of interaction with the user.*

*PHP is an open source language and is constantly being developed by a group of volunteers under the PHP license and this is one of the main reasons for its popularity.*

*1.5.4) Android Studio 2.3*

*It’s the official integrated development environment (IDE) for Google’s android operating system, based on IntelliJ IDEA software. Android Studio offers even more features that enhance the productivity when building Android apps such as:* *Extensive testing tools and frameworks,* a *fast and feature-rich emulator, a flexible Gradle-based build system.*

*1.5.5) RESTful Web Services*

*It’s “Representational state transfer” It is called this name because it mainly depends on what happens from the source (program) to the user (client) through the HTTP protocol ,and introduces all the operations , transactions and understanding between (client) and (server),As well as guidance on pages (Request and respond).*

*1.5.6) Microsoft Visio*

*Microsoft office Visio is a programming and vector graphics application, by creating flowcharts, network diagrams, org charts, floor plans, engineering designs, and more using out-of-the-box shapes and templates. Increase productivity with the familiar Office experience and make advanced diagramming easier than ever.*