

Fitness and Health Application

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Abstract - Smart phone has been widely used as an ideal assistant for health and fitness. In this paper, we proposed a mobile application for fitness monitoring can help users to become more aware of their health. This application aims to track user's workout activities and monitor and analyze user's health condition. It also gives some instructions and suggestions to the user for maintaining and improving his or her health. Moreover, it provides an assessment of the risk that the user may have deficiency or any disorder about health. Input data are collected from user diet entry, exercise, water intake and diet database. On the basis of any deficiency or disorder we provide diet / tablets to user for improving health as well as we will provide some reference websites to learn more about fitness health and suggest specialist phone number or official website for special advise

Key Words: — Health, Fitness, Deficiency, Disorders, Android Application, Centralized DB App, Diet, Exercise, Water, Calories, Intake.

1. INTRODUCTION

In the past decade or so, mobile phones were merely seen and classified as portable communication tools, with the sole capability of making calls, without any physical connection to a landline. Today, certain advancements have been achieved in mobile computing industry through the inclusion of GPS systems, accelerometers, and even touch screens. Different kinds of mobile operating systems have been introduced in response to the goal of designing increasingly powerful software to take advantage of the number of processors packaged in computing hardware [1]. Some of these operating systems are the Symbian OS, the Apple IOS Windows Mobile [2] and Android [3]. Due to the advanced nature of computer architectures for embedded systems computing, mobile computing has become well integrated into the very fabric of our modern way of living. It is a very useful tool for personal health monitoring and many devices such as iPhone, iPad, Google Nexus and other mobile computing devices have applications developed for health monitoring and targets specific needs of individuals [4]

2. LITERATURE SURVEY

Gracey and colleagues (1996) identified that 15-year old adolescent boys report the effects of a healthy diet to be 'an

improvement in health', 'feeling energetic', 'feeling good about me', 'lowering cholesterol' and 'improving appearance'. These adolescent boys also identified some barriers to healthy eating, including healthy food not being available at home or in the school canteen, a lack of control over foods available at home, and a lack of nutritional knowledge (e.g., calorie content, sugar/fat content, fiber content) (Gracey et al. 1996). Nutritional knowledge has been indicated as a factor which influences food choice. However, some researchers question whether an increase in nutritional knowledge necessarily eventuates in improved food choices (Tepper et al. 1997), whilst other researchers have found that nutritional knowledge alone is insufficient to motivate healthy eating (Gracey et al. 1996).

Lytle and colleagues (2002) argue that the transition to adolescence, where young people experience an increased need for autonomy and a desire to express themselves, influences young people's food choices. Furthermore, youth experience peer pressure which significantly influences their food choices (Lytle et al. 2002) [5].

Research has found that mental disorders now account for 49% of the 'burden of disease' amongst Australians aged 15 - 24 years (AIHW 2007), and it has risen 5 to 8-fold among youth of developing nations in recent decades (Eckersley 2008). A recent large-scale Australian study of more than 10,000 students found that students' wellbeing particularly decreased during high school (Bernard, Stephanou & Urbach 2007). Eckersley (2008) comments that youth "appear to be suffering mental health problems at an earlier age than before, experiencing them at higher rates than older age groups, and retaining their increased risk beyond youth into older age" (p.10). A quarter of 16-24 year olds report experiencing a mental disorder (e.g., depression, anxiety, substance use disorders etc.) (ABS 2008). Young men, in particular, are at risk of suicide with 24% of deaths in young Australian men aged 15 - 24 years accounted for by suicide [1].

3. METHODOLOGY USED

A. BMI index

While registration the user has to enter all his personal details from his name to his height and body weight and how much he exercises daily. The system will hence calculate his body mass index and let him know if he is fit or underweight or overweight and suggest a fitness plan for him.

B. Calorie and fitness meter

Our application maintains a complete statistics and diagnosis of the user's every day calorie consumption and exercise carried out by the user. A fitness plan is generated for the user depending on what plan a user opts for ranging from weight gain to weight loss and depending on his age the calorie meter will vary as the calorie gain and the calorie loss will vary according to age. The calorie meter takes all the input from the user also with water content and generates a report based on the analysis which instructs the user to take necessary action if he is lacking in something.

C. Deficiency or disorder predictor:

The user can enter the all the symptoms he is experiencing and can will get a probabilistic answer of what deficiency he is experiencing depending on the symptoms. Also the user can manually enter a particular deficiency and get complete information on all the symptoms caused by that deficiency and get a list of items to eat if he is suffering from a particular deficiency

4. System Design and Salient Features

System Architecture

Registration:

User will register to the application by providing necessary information like name, age, height, weight and tell how active he generally is and also set a password for logging into his profile. When the user is registering he will set his personal fitness plan.

Login:

User will login to his account by entering his username and password that he has set hence whenever he does this his personal fitness profile will be activated in the application

Fitness and calorie meter:

After users login his fitness meter will open where he has to enter his exercise entry for the day and in his calorie meter he has to enter all the food items he ate in the day and the

amount of water he drank. Based on his entries a report will be generated which will tell the user if he is lacking in his exercise or weather he has exceeded his calorie limit and needs to exercise more or he needs to add on more calorie so he need to eat something more. According to the users' needs and his age a fitness plan will be generated for the user.

Disorder predictor:

The user will enter all the symptoms he is experiencing and according to these symptoms and the age of the user the deficiency predictor will predict the deficiency or any disorder he has

Manual disorder information:

The user can also manually enter a particular deficiency and get all the information on it and hence will be given a list of food to eat in such cases and also doctors references.

System unique features:

The main features of our application are working out and generating a complete report of the user's day to day food and water consumptions and his exercise and hence giving him inputs and also predicting a deficiency the user may be suffering from.

5. ALGORITHMS USED:

5.1 Naïve Bayes Theorem:

It is a classification technique based on Bayes' Theorem with an assumption of independence among predictors. In simple terms, a Naïve Bayes classifier assumes that the presence of a particular feature in a class is unrelated to the presence of any other feature.

5.2 Clustering Algorithm:

Cluster analysis or clustering is the task of grouping a set of objects in such a way that objects in the same group (called a cluster) are more similar (in some sense or another) to each other than to those in other groups (clusters).

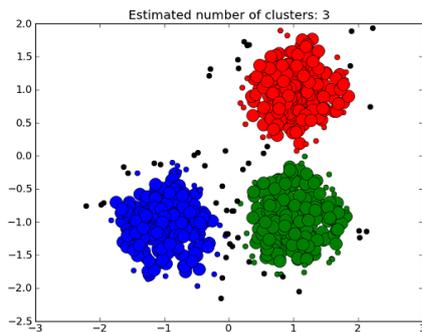


Fig 1-Clusters

6. CONCLUSIONS

In today's world when no one has time to look after themselves because of their busy schedule out application aims at being a handy reminder to users to take care of their health and look after their fitness by aiming to be a personal health expert.

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