Universiti Teknologi MARA

MYMealPal: Malaysian Healthy Meal Planner using Artificial Bee Colony Approach

Wan Muhamad Amirul Hakimi Bin Wan Mohd Zaki

Report submitted in fulfilment of the requirements for Bachelor of Computer Science (Hons.) Faculty of Computer and Mathematical Sciences

January 2017

ACKNOWLEDGEMENT

Alhamdulillah praises and thanks to Allah because of His Almighty and His utmost blessings, I was able to finish this research within the time duration given. Firstly, my special thanks go to my supervisor, Norulhidayah Binti Isa for guiding me until the completion of this project and the encouragement and all the creative ideas that have been given to me. Special appreciation also goes to my beloved parents for always giving a moral support when I am having a difficulty in completing this project. Last but not least, I would like to give my gratitude to all my dearest friends who are non-stop from giving answer for my entire questions in completing my report.

ABSTRACT

Malaysia is the most obese country in Asia with an obesity rate more than 45.3%. This means that Malaysian people do not aware about how dangerous this issue could affect their lifestyle and health. Food choices and good nutrition is a key of healthy lifestyle. It is crucial to maintain a healthy diet especially for people who are having a weight issues such as obese, overweight or underweight. Controlling daily calories intake is considered as a major solution to these issues. In this paper, a healthy meal planner called MYMealPal is proposed. This planner will help user especially Malaysian in planning their daily meal according to the daily calorie requirement. Artificial Bee Colony (ABC) approach is employed as an optimization algorithm in MYMealPal development. MYMealPal will generate daily meal plans for user based on user Basal Metabolic Rate (BMR). Harris-Benedict equation is used in finding the calorie needed for a user in a day. The total calorie will be divides into five meal session. There are two processes in ABC algorithm which are exploration and exploitation. In exploration, number of different meal plans will be generates randomly for each meal session. Then each of the meal plans will be refined in the exploitation process. ABC algorithm will evaluate every meal calories in the database to find the best meal plan with the optimal calories for user. For the result, MYMealPal will generate a number of possible combinations of meal for a day based on five meal sessions to user with optimal calorie required.

TABLE OF CONTENTS