German University in Cairo
Media Engineering and Technology
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Constraint Programming, Winter term 2015-2016
Project Description
"Help them Get Fit"
Deadline: 07/12/2015

Nowadays, there is an increasing interest in watching the kinds of food everybody eats. Many people try to monitor their health and weight by going to gyms in addition to monitoring their every-day meals.

The aim of the project is to help people with their fitness goals by having an automated system. Th system should help its users in two different ways:

- Produce a schedule for the meals they should have for the upcoming month.
- Produce a schedule for the exercises they should do for the upcoming month.
- They should also provide some basic information such as weight, age, height and fat percentage.

The application should be provided as a web application. The user should be able to get the outputs in a graphical display through mouse clicks.

The project is done in cooperation with Degwy's Fitness & Nutrition. You can contact him in case you have questions degwysfitnessandnutrition@gmail.com.

Meal Scheduler

The meals every person eats affect whether they gain/lose weight. Thus the user should first specify through the GUI:

a) Whether they would like to build or lose weight.

b) How many meals they would have every day (3-5).

The meals the users get should ensure the following: (please note that we assume a 5-meals plan)

a) The total amount of calorie and food type intake abide by the medical calculations provided through the excel sheet. Note that 1 gram of carbs = 4 calories, 1 gram of protein = 4 calories, 1 gram of fat = 9 calories.

b) The third meal can be repeated with a maximum of two times every week.

c) The weekly meal plan should never be repeated as it is within the same month.

d) There are items that are preferable/not preferable to be eaten in some specific meals. For example, it is not preferable to have chicken for breakfast. Your meal plan should have as little of such meals as possible.

e) There are some popular meal combinations. Your plan should try to include such preferable meals as much as possible (as long as they fit the requirement calories/constituents).

Please note that after a plan is produced, the user should able to alter it based on their preferences. For example, the user can choose to have a specific item in a meal. A new plan will thus be needed, because the altered meal might mess up with the required calories-constituents calculations. This might require loosening some of the aforementioned constraints.

Please note that this system is to be actually used, thus the results should be realistic. This might need multiple iterations over your code and constraints. Please try to be innovative :)

Exercise Scheduler

The exercises done by individuals help them reach their intended fitness goal. The module should be able to schedule exercises for its users. The workout starts off by 5 sets then 4 sets then 3 sets then 3 sets and then 3 sets. The number of times every exercise is repeated has a fixed scheme of either 20/20/20/20/20 or 15/12/10/8/6 or 12/10/8/6/4 or 12/12/10/8/8 or 5/5/5/5/5. For example if the 15/12/10/8/6 strategy was used, then the first exercise in the first set is repeated 15 times and the second exercise is repeated for 12 times, ... etc. After finishing the 5 exercise set, the exercises of the next 4-set are repeated 12/10/8/6 times correspondingly. The same is applied for the rest of the sets and strategies. The user should enter the number of times he/she visits a gym. This is a number between 3 and 5. The system should produce a schedule for the exercises to be done to train all muscles. The schedule should span over a month. It should make sure that different repetition strategies are used within the month. Through the GUI, users should be able to access the exercise schedule. For each exercise the user can click on a youtube video showing how it should be done. (The links are also available through the excel sheet.)

Teams

Each team should contain 2-3 members. You should submit the source files. In addition, you should submit a readme.txt explaining the technology used and how to run your system.