Criterion A: Planning

BMI Calculator

Defining the Problem

Client/Advisor Mrs. I. Sochirca is a certified nutritionist at Natur House. She wants to know some details about the client before having a consolation with him. She is interested to know the client's name, age, height, sex, waist size, activity level, etc. She realized that she cannot keep up with the demand for her service, therefore she would like to help others with simple diet plans for each stereotype of an individual.

In March 2020, I came to visit her and talked about her problem. She described what she wanted: to have a computer program with a friendly interface that will give the user information as calories burned, suggest activity level, diets for that calories range and also allow the user to track his progress by frequently inputting information like user's weight, breast size, arms size, legs size, etc. I attached screenshots of emails between me and her, plus notes from meeting in appendix.

As I was talking with her, I realized that this program will be good material for my Internal Assessment because Mrs. I. Sochirca wanted to have a computer program as a solution for her problem and the program itself will have enough algorithms and complexity overall to make a good, challenging IA project. My Computer Science teacher approved this idea.

In order to analyse this issue, I decided to meet Mrs. I. Sochirca (emails and transcript are attached in the Appendix), to make an interview and find out the requirements for my future application.

Rationale for Proposed Solution

I considered C++ because of its portability and scalability. However, Java program will meet all Mrs. I. Sochirca's requirements because it is cross-platform, therefore all users will be able to use it besides being on different operating systems. Python also meets all her requirements, but I decided that Java will be a better choice as I am learning it at school, and I have more experience it.

The program will calculate the Body Mass Index, calories burned and suggest activities and diets in order to lose or gain weight. The program will have a user-friendly interface with the option of the user to track his progress. Mrs. I Sochirca will have the option to add, edit or remove diets and suggested activities remotely, as the program will connect to a database. As this program might be exploited to get valuable information about the users that will enrol in it, I decided to encrypt the connection between the program and database. The encryption will be Secure Sockets Layer (SSL) as it is offered free by OpenSSL.

According to the requirements, I decided to choose Java because:

- It is cross-platform.
- I am learning it at school.

- You can easily create a friendly user interface with NetBeans IDE.
- You can read and write relatively easy MySQL databases.
- It is very stable.
- It is object oriented. Which allows me to be very modular, effective and flexible with all the formulas this program requires, because I can split them to objects and call them when needed, without repeating the same code every time.
- It is a popular programming language with a big community willing to help if I would have any difficulties. There are many tutorials already available.

Starting Success Criteria

- Inputs to add the necessary information such as name, age, sex, height, activity level, etc.
- Creation of MySQL database tables to store this information.
- A calculator that will use the formulas provided by Mrs. I. Sochirca, to get calories burned and body fat percentage.
- Algorithms that will suggest diets and activities based on information calculated above (calories burned, body fat percentage, etc.)
- An output that allows the user to see all of these results.
- A section where the user can track his weight, waist size, hips size, neck size, etc.
- MySQL database hosted on a web server, so Mrs. I. Sochirca can manage (edit) diets and activities programs.

Word Count: 425