Ekaba Bisong
Programming in C++
University of Calabar

Assignment #2
May 26, 2015

Question adapted from C++ How to Program, P.J. Deitel, H.M. Deitel. -- 8th ed

Assignment #2

Computerization of Health Records

A health care issue that has been in the news lately is the computerization of health records. This possibility is being approached cautiously because of sensitive privacy and security concerns, among others.

Computerizing health records could make it easier for patients to share their health profiles and histories among their various health care professionals. This could improve the quality of health care, help avoid drug conflicts and erroneous drug prescriptions, reduce costs and in emergencies, could save lives.

In this exercise, you'll design a "starter" **HealthProfile** class for a person. The class attributes should include the person's,

- **first name,**
- **last name,**
- **gender,**
- **date of birth** (consisting of separate attributes for the month, day and year of birth),
- **height** (in inches),
- and **weight** (in pounds).

Your class should have a constructor that receives this data. For each attribute, provide **set and get functions**.

The class also should include functions that **calculate and return**

- the user's age in years,
- maximum heart rate and target-heart-rate range,
- and body mass index.

Write an application that prompts for the person's information, instantiates an object of class **HealthProfile** for that person and prints the information from that object—including the person's first name, last name, gender, date of birth, height and weight—then calculates and prints the person's age in years, BMI, maximum heart rate and target-heart-rate range. It should also display the "BMI values" chart.

```
BMI VALUES
Underweight: less than 18.5
Normal:      between 18.5 and 24.9
Overweight:  between 25 and 29.9
Obese:       30 or greater
```

The formula for calculating your maximum heart rate in beats per minute is 220 minus your age in years.

$$maximum\ heart\ rate = 220 - age\ in\ years$$

Your target heart rate is a range that is 50–85% of your maximum heart rate. [Note: These formulas are estimates provided by the AHA. Maximum and target heart rates may vary based on the health, fitness and gender of the individual.]

$$target\ heart\ rate = 50\% - 85\%\ of\ maximum\ heary\ rate$$

The class also should include a function ***getAge*** that calculates and returns the person's age (in years), a function ***getMaxiumumHeartRate*** that calculates and returns the person's maximum heart rate and a function ***getTargetHeartRate*** that calculates and returns the person's target heart rate.

Since you do not yet know how to obtain the current date from the computer, function ***getAge*** should prompt the user to enter the current month, day and year before calculating the person's age.

The formula for calculating BMI is:

$$BMI = \frac{weightInKilograms}{heightInMeters * heightInMeters}$$

Use the Unified Modeling Language (UML) to model the class diagram

Note: Adhere strictly to instruction else your program would be rejected. Read note #20 carefully before coding

Notes of Submission

- Create a folder Assignment#2 in your GitHub repository
- Place the following files into that folder,
  - A ReadMe.md file containing the assignment specification,
  - Your source code listings, and
  - A pdf file contain your software engineering class diagram using UML

Samples and started codes are placed in the course repository at https://github.com/dvdbisong/CplusTutorial/tree/master/2. programming assignments/Assignment %232