

Assignment 1

Due Date: Tuesday, Oct 20, 2015

What to submit: YourName_Assignment1.zip

- This .zip file should include **three** .java files: **HealthProfile.java**, **HealthProfileTest.java** and **Sales.java**

First Challenge

(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, 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 methods. The class also should include methods that calculate and return the user's age in years, maximum heart rate and target-heart-rate range, and body mass index (BMI).

According to the American Heart Association (AHA)

(www.americanheart.org/presenter.jhtml?identifier=4736), the formula for calculating your maximum heart rate in beats per minute is 220 minus your age in years. Your target heart rate is a range that's 50–85% of your maximum heart rate; 50% is minimum and 85% is maximum.

The formulas for calculating BMI are

$$BMI = \frac{weightInPounds \times 703}{heightInInches \times heightInInches}$$

or

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

Write a Java app that prompts for the person's information (as per sample output below), 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 as in the sample output below.

To get the current year from your computer date/time, you can simply use the following:

```
int currentYear = Calendar.getInstance().get(Calendar.YEAR);
```

Sample Output:

```
Enter first name: Michel
Enter last name: Choueiry
Enter gender: Male
Enter height in inches: 72
Enter weight in pounds: 150
Enter year of birth: 1985
```

```
HEALTH PROFILE FOR: Michel Choueiry
Gender: Male
Age: 29
Height (in inches): 72.0
Weight (in pounds): 150.0
Maximum heart rate: 191
Target heart rate range:
    Minimum: 96
    Maximum: 162
BMI: 20.341435
```

BMI VALUES

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

BMI VALUES are hard coded values that serve as a reference to the calculated one. You can use the following:

```
System.out.println("BMI VALUES");
System.out.println("Underweight: less than 18.5");
System.out.println("Normal:      between 18.5 and 24.9");
System.out.println("Overweight:  between 25 and 29.9");
System.out.println("Obese:       30 or greater");
```

Second Challenge

A large company pays its salespeople on a commission basis. The salespeople receive \$200 per week plus 9% of their gross sales for that week. For example, a salesperson who sells \$5,000 worth of merchandise in a week receives \$200 plus 9% of \$5000, or a total of \$650. You've been supplied with a list of the items sold by each salesperson. The values of these items are as follows:

Item	Value
1	239.99
2	129.75
3	99.95
4	350.89

Develop a Java application that inputs one salesperson's items sold for last week and calculates and displays that salesperson's earnings. There's no limit to the number of items that can be sold.

Sample Output:

```
C:\Courses\CST8110\Fall2014\Assignments\1>java Sales
```

```
Enter number sold of product #1: 10
```

```
Enter number sold of product #2: 11
```

```
Enter number sold of product #3: 12
```

```
Enter number sold of product #4: 13
```

```
Earnings this week: $1062.93
```