CSCI 1015 – Programming Assignment 2
Data Types and Variables

Learning Outcomes

- Learn how to use different data types.
- Declare and use variables and named constants.
- Use the / and % operators with integers.

Required Reading

Savitch - Sections 2.1 (pp. 64-82), 2.2-2.4

Instructions

Note: Some data input to this program and some program output depends on your name. If you do not use your name as required, points will be deducted for this assignment.

One of the most popular New Year's resolutions is to commit to an exercise program, but the exercise part is not always so popular. Perhaps the most common excuse for this is that it is hard to find the time to work out. For this assignment you are going to write a program that will help people plan their workouts.

The number of calories burned during a workout routine depends on three things:

1. The types of activities participated in.
2. The amount of time spent engaged in each activity.
3. The weight of the person doing the exercise.

The intensity of a particular activity can be measured using the amount of calories that are burned in a single minute per pound of a person's weight. For example, here is the burn rate per pound for the following activities:

- Badminton: .044 cal/lb
- Running: .087 cal/lb
- Walking: .036 cal/lb
- Weight Training: .042 cal/lb

The burn rate is calculated by multiplying the burn rate per pound by the person's weight. This is then multiplied by the number of minutes to get the total calories burned.

Using the information above your program must do the following:

- Display a welcome message.
- Prompt the user for his or her weight in pounds.
- Prompt the user for the number of minutes spent engaging in each of the four activities shown above.
- Calculate the calories burned for each activity using the values listed above.
- Calculate the total number of calories burned.
- Calculate the total amount of time spent working out in hours and minutes. This can be done by adding up the minutes spent in each activity and using the `/` and `%` operators to calculate the quotient and remainder produced by dividing this number by 60. (For example: 256 minutes divided by 60 gives a quotient of 4 and a remainder of 16, so it translates to 4 hours and 16 minutes.)
- Display the amount of minutes spent and calories consumed for each activity.
- Display the total time spent working out in hours and minutes and the total number of calories burned.
- Use `int` data types for the weight, the number of minutes spent on each activity, the total hours, and the total minutes.
- Use `double` data types for the number of calories burned for each activity and for the total calories burned.
- Use **named constants** for the burn rate per pound for each of the four activities.

Example Input and Output

When you test your program the output should look like the following examples, except that your name should be used in place of mine.

Example Run 1:

```
Welcome to Nicholas Coleman's Workout Calculator.
Please enter your weight:
165
Please enter the minutes spent playing badminton:
30
Please enter the minutes spent running:
20
Please enter the minutes spent walking:
50
Please enter the minutes spent lifting weights:
30

You spent 30 minutes playing badminton and burned 217.8 calories.
You spent 20 minutes running and burned 287.1 calories.
You spent 50 minutes walking and burned 297 calories.
You spent 30 minutes lifting weights and burned 207.9 calories.

You spent 2 hours and 10 minutes working out and burned 1009.8 calories.
```

Note that in the above example that 165, 30, 20, 50, and 30 are user input and the rest of the information is output by the program.

Example Run 2:

```
Welcome to Nicholas Colemans Workout Calculator!
Please enter your weight:
180
Please enter the minutes spent playing badminton:
0
Please enter the minutes spent running:
40
Please enter the minutes spent walking:
20
Please enter the minutes spent lifting weights:
0

You spent 0 minutes playing badminton and burned 0 calories.
You spent 40 minutes running and burned 626.4 calories.
You spent 20 minutes walking and burned 129.6 calories.
You spent 0 minutes lifting weights and burned 0 calories.

You spent 1 hours and 0 minutes working out and burned 756 calories.
```

In this example the user input was 180, 0, 40, 20, and 0. Notice that this changes the resulting output.

Notes and Comments

Upload your Java source file to the dropbox named **Program 2**. The name of the source file must be your last name followed by `Program2` with the extension `.java`. For example, mine would be `ColemanProgram2.java`.

The prompts for the weight and activities must be in the order shown above. **Do not switch the order of these questions**.

Make sure to include comments with your name, a description of what the program does, the course (CSCI 1015), and the assignment name (Program 2) at the beginning of your source file.

Make sure you only hand in the source file for your assignment, not the class file, or any other files that NetBeans creates.

Your programs must compile without errors in order to be graded. Once your program compiles make sure to test it using at least **two different test cases** to see if it meets the requirements of the assignment.