



Engineering and Information Technology Faculty
Computer Science Department
Comp231-Advanced Programming
Programming Assignment #1

Due: Monday, 18/04/2022 (upload electronic copy by 11:59pm)

Objectives: (Chapter1- Chapter 6).

Note: YOU CAN'T USE ANY OTHER CONCEPT OUTSIDE THIS CHAPTERS (WILL NEVER BE GRADED).

Write a Java program that does the following:

Your friends are trying to lose weight and build muscle and want to calculate some statistics about their daily food intake. Write a Java program that will calculate these statistics.

There are three main macronutrients: carbohydrates, fat, and protein.

Each gram of carbohydrate is 4 calories.

Each gram of fat is 9 calories.

Each gram of protein is 4 calories.

Input: The user should be prompted to input person ID, age , the amount of carbohydrates, fat, and protein in grams consumed that day. These will be whole numbers.

Processing: Your friends want to know: the total number of grams consumed and the total number of calories consumed. They also want to know the percent of total calories contributed by each of the macronutrients. For example, if 800 calories are from carbohydrate, 800 calories are from fat, and 400 calories are from protein, then 40% were from carbohydrate, 40% were from fat, and 20% were from protein. And finally, they want to know the Protein:Energy Ratio. This is the number of grams of protein divided by the sum of the number of grams of fat and carbohydrate.

The program should read a set of data from console for N persons and stop when user enter -1 for either of inputs.

Output: The program should print the statistics described above. All output should be clearly labeled and percentages should include a percent sign (%). Percentages and the Protein:Energy Ratio should be formatted to exactly 1 decimal place.

Sample output:

Please enter the amount of carbohydrate in grams: 200

Please enter the amount of fat in grams: 90

Please enter the amount of protein in grams: 100

Methods: (for each of the following requirements, use an individual method to calculate each one of the following result)

1. Total Grams: 390

2. Total Calories : 2010

3. Percent of calories from each macronutrient:

Carbohydrate: 39.8%

Fat: 40.3%

Protein: 19.9%

Protein:Energy Ratio : 0.3

READ AND CALCULATE FOR NEXT PERSON UNTIL -1 IS ENTERED. ONCE THE LOOP IS EXIT, PRINT THE FOLLOWING:

A. Average Grams:

B. Average Calories :

C. Print the person ID and age who has the maximum Protein:Energy Ratio.

Additional Requirements:

- 1) Your program must compile and run, otherwise you will receive a score of 0.
- 2) Use appropriate data types. Use int unless you know the value could have non-zero digits after the decimal point.
- 3) Your program must output the correct values given any valid input values.

Style:

In particular:

1. Include the Header comments, like last time, including a good description
2. Variables: Use meaningful variable names and use camel case. Each variable declaration must be on a separate line with a descriptive comment.
3. Named constants: use these for numeric literals, and use uppercase and underscores in their names.
4. Source code lines should be less than 80 characters in length, and the program statements should be indented appropriately.

Specification Submission:

- Online through ITC.
- What to submit: Your own well-structured and well-commented JAVA files (.java)
- into a student Id_sec#.java file, e.g. 120dddd_sec1.java).

Good Luck!!