

Programming Assignment #2

Macronutrient Ratio Calculator

CS 1428.253, Spring 2019

Instructor: Jill Seaman

Due: before class **Thursday, 2/14/2019** (upload electronic copy by 9:00am)

Problem:

Your friends are trying to lose weight and build muscle and want to calculate some statistics about their daily food intake. Write a C++ 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 the amount of carbohydrates, fat, and protein in grams consumed that day. These values may have fractional amounts.

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.

Output: The program should print the statistics described above. All output should be clearly labeled and percentages should include a percent sign (%). All output values 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: 89.5
Please enter the amount of protein in grams: 100

Total Grams      : 389.5
Total Calories   : 2005.5

Percent of calories from each macronutrient:
Carbohydrate:   39.9%
Fat:            40.2%
Protein:       19.9%
```

Additional Requirements:

- Your program **must compile** and run, otherwise you will receive a score of 0.
- Don't worry if your output values are off by 0.1. This is due to a rounding error.
- Your program must output the correct values given **any** valid input values.

Style:

See the Style Guidelines document on the class website. In particular:

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

Logistics:

Name your file **assign2_XXXXX.cpp** where XXXXX is your TX State NetID (your txstate.edu email id). The file name should look something like this: assign2_js236.cpp

There are two steps to the turn-in process:

1. Submit an **electronic copy** using the Assignments tool on the TRACS website for this class (tracs.txstate.edu). Submit the .cpp file only.
2. Submit a **printout** of the .cpp file at the beginning of class on the day the assignment is due. Please print your name on the front page. Submit the .cpp file only. Do **not** submit a printout of the output.

See the assignment turn-in policy on the course website (cs.txstate.edu/~js236/cs1428) for more details, including penalties.