Lab 2

Objective: Practice Functions

To maintain one's body weight, an adult needs to consume enough calories daily to (1) meet the basal metabolic rate (energy required to breathe, maintain body temperature, etc.), (2) account for physical activity such as exercise, and (3) account for the energy required to digest the food that is being eaten. For an adult that weighs P pounds, we can estimate these caloric requirements using the following formulas:

A. Basal metabolic rate: Calories required = $70 * (P / 2.2)^{0.756}$
B. Physical activity: Calories required = 0.0385 * Intensity * P * Minutes
   Here, Minutes is the number of minutes spent during physical activity, and Intensity is a number that estimates the intensity of the activity. Here are some sample numbers for the range of values:

Activity	Intensity
Running 10 mph	17
Running 6 mph	10
Basketball	8
Walking 1 mph	1

C. Energy to digest food: calories required = TotalCaloriesConsumed *0.1

   In other words, 10 percent of the calories we consume goes towards digestion.

Write a function that computes the calories required for the basal metabolic rate, taking as input a parameter for the person's weight.

Hint: The function should be defined as:

```
int basalMetabolic(int weight){

// You need to figure out the formula here based on item A listed above

}
```

Write another function that computes the calories required for physical activity, taking as input parameters for the intensity, weight, and minutes spent exercising.

Hint: The function should be defined as:

```
int physicalActivity(int intensity, int weight, int minutes){

//this formula is based on item B listed above

  return 0.0385 * intensity * weight* minutes;

}
```

Use these functions in a program that inputs a person's weight, an estimate for the intensity of physical activity, the number of minutes spent performing the physical activity, and the number of calories in in one serving of your food.

The program should calculate and output how many servings of that food should be eaten per day to maintain the person's current weight at the specified activity level. The computation should include the energy that is required to digest food.

Hint: Here is the sample code and output:

```
int weight, intensity, minutes, caloriesPerServing, numberOfServing;
cout<< "How much is the weight?"<<endl;

cin>>weight;
cout<<"Enter Intensity(17, 10, 8, or 1)"<<endl;
cin>>intensity;
cout<<"Enter the number of minutes spent performing the physical activity"<<endl;
cin>>minutes;
cout<<"Please enter the calories per serving of the food"<<endl;
cin>>caloriesPerServing;
numberOfServing= (basalMetabolic(weight)+ physicalActivity(intensity,weight,minutes))/(caloriesPerServing*0.9);
cout<< "You need "<<numberOfServing<<" serving of food to maintain the current weight under these activities"<<endl;
```

```
How much is the weight?
70
Enter Intensity(17, 10, 8, or 1)
17
Enter the number of minutes spent performing the physical activity
40
Please enter the calories per serving of the food
400
You need 7 serving of food to maintain the current weight under these activities
```

You need to upload 2 files on Moodle before 4pm Wednesday Sep 25, 2024: the source code (.cpp file) and screen shot of your program output.