PPA Assignment 2

This coursework is designed to test the content from Topics 1, 2, 3 and 4.

Do you think there is a problem with any of the content below? Let us know immediately at programming@kcl.ac.uk.

For this week's assessment, consider the following scenario, and then complete the tasks that follow it:

A person wishes to track their total calorie intake. This total is affected by two things: eating and walking. In addition, they have decided to follow a meal plan, offering a finite selection of meals which they can consume.

1. Model this scenario based on the following requirements:

    1. Create a class to represent a `Person`. A person has a total number of `calories` which they have consumed, which starts with zero. (1 mark)

    2. Create a class to represent a `Meal`, which consists of three things: a starter `Dish`, a main `Dish` and a dessert `Dish`. Each `Dish` has a number of `calories` it provides when consumed. (2 marks)

    3. In the class `Meal`, create a method `calculateCalories` which returns the total calories in a meal. (1 mark)

    4. A person can `eat` a meal, which results in the total calories being added to the person's total calories consumed. (1 mark)

    5. A person can burn calories by going for a `walk`. Assume that this burns calories at the rate of 1 calorie per `minute`. (1 mark)

2. Create a class `CalorieTracker`, which can be compiled and run from the command line. Use this class to do the following (in order), using the classes and methods you have created for Question 1:

1. Create a person and print their total number of calories. (1 mark)

2. Use the list of meals from the bottom of the page to complete the following tasks (note that you must only create the meals necessary for the question):

    1. Make the person eat the meal with the *lowest* calories. Then, print the total calories in this meal and print the new total calories of the person. (1 mark)

    2. Make the person eat the meal with *1000* calories. Then, print the total calories in this meal and print the new total calories of the person. (1 mark)

    3. Make the person eat the meal with the *highest* calories. Then, print the total calories in this meal and print the new total calories of the person. (1 mark)

3. Finally, make your person go for a walk until their total calorie intake reaches 2000. This will require your person to walk for a certain number of minutes, which you must determine outside of the program. After the walk, print this number of minutes. (1 mark)

Meals List:

- **Omelette Breakfast**
    - **Starter:** Toast [200 calories]
    - **Main:** Omelette [600 calories]
    - **Dessert:** Banana [130 calories]
- **Pancake Breakfast**
    - **Starter:** Fruit Yoghurt [100 calories]
    - **Main:** Pancakes [500 calories]
    - **Dessert:** Strawberries [60 calories]
- **Halloumi Lunch**
    - **Starter:** Tomato Soup [40 calories]
    - **Main:** Halloumi Wrap [250 calories]
    - **Dessert:** Baklava [150 calories]

- **Pie Lunch**
  - **Starter:** Potato Gratin [220 calories]
  - **Main:** Pie [335 calories]
  - **Dessert:** Gelato [220 calories]
- **Chow Mein Dinner**
  - **Starter:** Samosa [450 calories]
  - **Main:** Chow Mein [680 calories]
  - **Dessert:** Doriyaki [220 calories]
- **Pizza Dinner**
  - **Starter:** Potato Wedges [240 calories]
  - **Main:** Pizza [500 calories]
  - **Dessert:** Cheesecake [260 calories]

Once completed, submit your assignment using the link marked `Assignment 2: Nexus Submission Link' on KEATS.

You must complete the plagiarism and collusion training before submitting this assignment.

You must also submit complete documentation of your solution. You will find a sample piece of documentation in the Support section on KEATS marked `Sample Assignment Documentation'. Submit your documentation using the link marked `Assignment 2: Documentation Submission' on KEATS.

Students who do not submit documentation along with their code, or vice-versa, will receive a mark of zero.

Any submitted code or documentation that is found to be unduly similar to the code or documentation submitted by any other student(s), will result in a penalty for those involved.

Provisional marks for your code will be released on KEATS within one week of submission. Final assignment grades will be submitted to the exam board at the end of the semester, and will take into consideration the quality of your documentation and the quality of the comments written into your code directly.

For all other queries, see the Support section on KEATS, specifically the document marked `Introduction'.