Quiz 2

Subject: Classes, Constructors, Inheritance
Due Date: 02.04.2021, 23.59

Problem

Write an object oriented program that allows users to manage the members of Fitness Center. The sport center has more than one person and each person may register either as a personal trainer or as a member.

The program should store all of the information (i.e. id **(must start at 1)**, name, surname, height, weight, etc.) as shown in Figure 1.

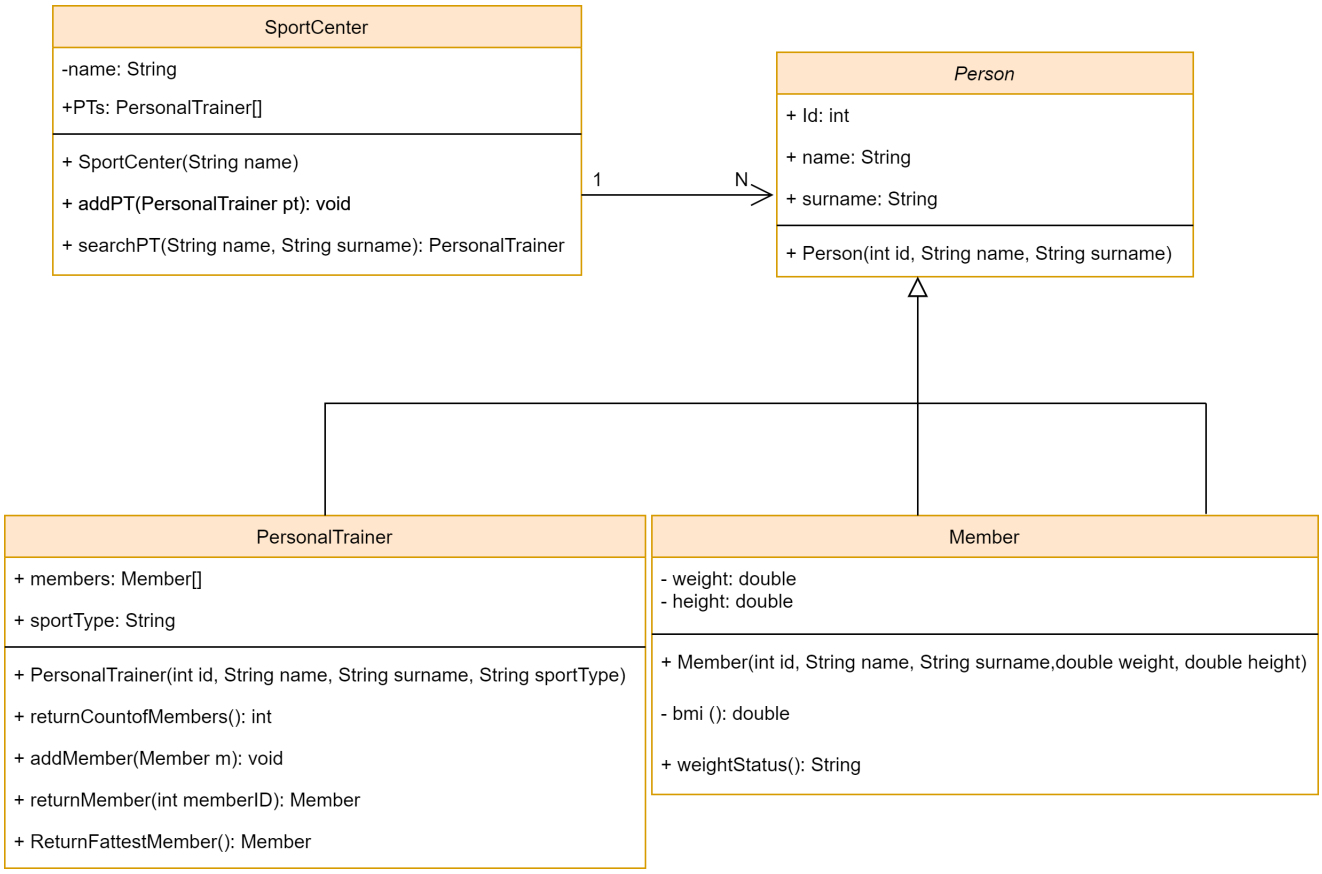

Figure 1: UML class diagram of Sport Center

Create a **Person** class with:

- Several attributes: id, name, surname.
- One constructor method which receives all attributes as parameters.

Create a **PersonalTrainer** class with:

- Several attributes: Member[] members, sportType.
- One constructor method which receives all attributes as parameters (id, name, surname, sportType).
- addMember(Member m): adds members to the specified PT.
- returnCountofMembers(): returns the count of specified PT's members.
- returnMember(int memberID): returns Member instance.
- ReturnFattestMember(): Returns the fattest member PT has.

Create a **Member** class with:

- Several attributes: heigth, weight. These attributes must be private.
- One constructor method which receives all parameters (id, name, surname, weight, height).
- Get / Set methods
- bmi() method: calculates Body Mass Index of the member. The formula for BMI index is shown in Figure 2. W represents weight, and H represents height of members.

$$BMI = \frac{W}{H^2}$$

Figure 2: The formula of BMI index

- weightStatus() method: returns the weight status of the member as String by calling BMI method.

Body Mass Index	Weight Status
Smaller 18.5	Thin
18.5 – 24.9	Normal
25 – 29.9	Fat
30 and up	Obese

Create a **SportCenter** class with:

- Several attributes: name of the sport center, PersonalTrainer[] PTs.
- One constructor which receives name as parameter
- addPT(PersonalTrainer pt) method: adds personal trainer to the sport center
- searchPT(String name, String surname) method: returns an instance of type "PersonalTrainer".

1 Grading Policy

Task	Point
ReturnFattestMember() method	20
weightStatus() method	10
searchPT() method	20
addPT() method	20
returnMember() method	10
returnCountofMembers() method	20
Total	100

2 Important Notes

- We will give you Test.java file. In this file each test is given. You should create your class and functions according to method calls. Your function's parameters should be appropriate for function calls.
- You shouldn't change the name or return type of functions. You have to use them as specified in the pdf. However, you can add auxiliary functions and attributes if you want.
- Please test your code before submitting it. The submissions which can not compile will not be evaluated.
- Save all work until the quiz is graded.
- Do not miss the deadline. Submission will be end at 02/04/2021 23:59, the system will be open until 23:59:59. The problem about submission after 23:59 will not be considered.
- **You will submit your work to the Codepost platform. If you can't submit to the Codepost, then you will submit your work to the Department's submission system (submit.cs.hacettepe.edu.tr) as shown below. If you submit to the Codepost, please don't submit to the Department's submission system again.**
- **Submission Format:** File hierarchy must be zipped before submitted (Not .rar, only .zip files are supported by the system)

```
- <studentid>.zip
    - <studentid@cs.hacettepe.edu.tr>
        - Member.java
        - SportCenter.java
        - Person.java
        - PersonalTrainer.java
```

- **Please submit only Member.java, SportCenter.java, Person.java and PersonalTrainer.java files to codePost.**