OOP Assignment - 1

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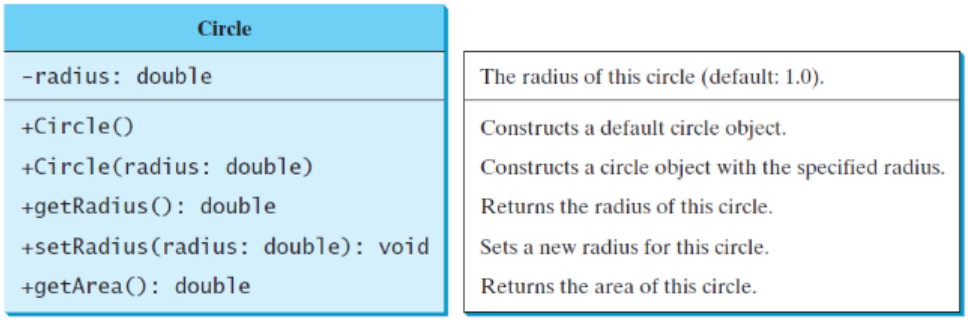
Due on 13 Sept 2020

1 [Lazy Programmer]

A lazy programmer coded poorly a class **Circle**, hence it is producing incorrect results to it's users. Using lazy programmer's class **Circle**, Ivan has created a **CircleObjects.dat** file of 100 circle objects as part of his experimental work and then using this file he evaluated sum of areas of all 100 circles. Later, he realised that the sum of areas is not matching with his original data. Curiously, he started analysing the **CircleObjects.dat** then, he came to know that class **Circle** taking a particular radius of the circle wrongly. He can't even tell the mistake in class **Circle** as it's class code is hidden to him and provided only a UML diagram as user manual.

We are providing **CircleObjects.dat** having 100 circle objects each having a radius in between 1 to 20 (integers) and the correct radius of the circle which was recorded wrongly.

UML class diagram of circle (consider as user manual)



Now your task is to

- Write a correct code of class **Circle** using UML diagram provided.
- Read the objects from the file **CircleObjects.dat** and analyse the circle objects to find the wrong.
- Find the number of incorrect circle objects.
- Find the sum of areas(wrong) of 100 circle objects form the **CircleObjects.dat**.
- Find the sum of areas(correct) of 100 objects.
- Find the difference between correct and wrong sum of areas.

Instructions:

1. We are providing partial code with hints.
2. You have to code where ever requirement is there.
3. The supporting data file **CircleObjects.dat** and correct radius of the circle which was recorded wrongly are sent to your email individually.
4. Do **NOT** edit the files **CircleObjects.dat** and **Circle.h**

5. Write code in **Circle.cpp** where ever asked and edit main program such that you can answer the questions asked above.
6. **Submission:** We provide a form where you have to fill final answer(s) and onlineGDB link for your code.
7. Any other mode of submission is not allowed for this assignment.
8. Once you submit, you can't modify or resubmit as its auto evaluates immediately and record the grade. You can see the grade after due time of the assignment.
9. Answers are different for every one as the file. **CircleObjects.dat** is not same for everyone.
10. Strictly plagiarism is NOT allowed.