**Lab 7-2 Encapsulation 2**

1. Circle

In this problem, you are given with a task to create a program to model the circle. You can calculate the area and the circumference. The user can create the circle by providing the point of origin and the radius. If only the origin is given, the radius will be automatically set to 1. Moreover, you can check whether the circle is intersected with other circle, or not.

Not Intersected!!!

Intersected!!!

Develop the program using the concept of object-oriented paradigm and test the program with the following setting.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Case No. | Object parameters | | Expected outputs | |
| Origin | Radius | Area | Circumference |
| 1 | (0.0,0.0) | 2.0 | 12.566370614359172 | 12.566370614359172 |
| 2 | (1.0,2.0) | 3.0 | 28.274333882308138 | 18.84955592153876 |
| 3 | (3.0,5.0) | 1.0 | 3.141592653589793 | 6.283185307179586 |
| 4 | (-1.0,-10.0) | -1.0 | 0.0 | 0.0 |

If the program passes all of the test case, you have to show in the program that

* Are objects from the test case 1 and test case 2 intersected?
* Are objects from the test case 1 and test case 3 intersected?

Hint: https://www.bbc.co.uk/bitesize/guides/z9pssbk/revision/4

Example output

