IT Workshop -II (CS251)

Lab Assignment : 4

Q-1)   Create the following class hierarchy:

abstract class **Shape**
• String name (which type of object)   • int noSides
+   abstract double getArea()   +   abstract double getPerimiter()   +   public String toString()

abstract class **Circle**
• int radius
+ Circle(int r)   + Implement all the abstract methods

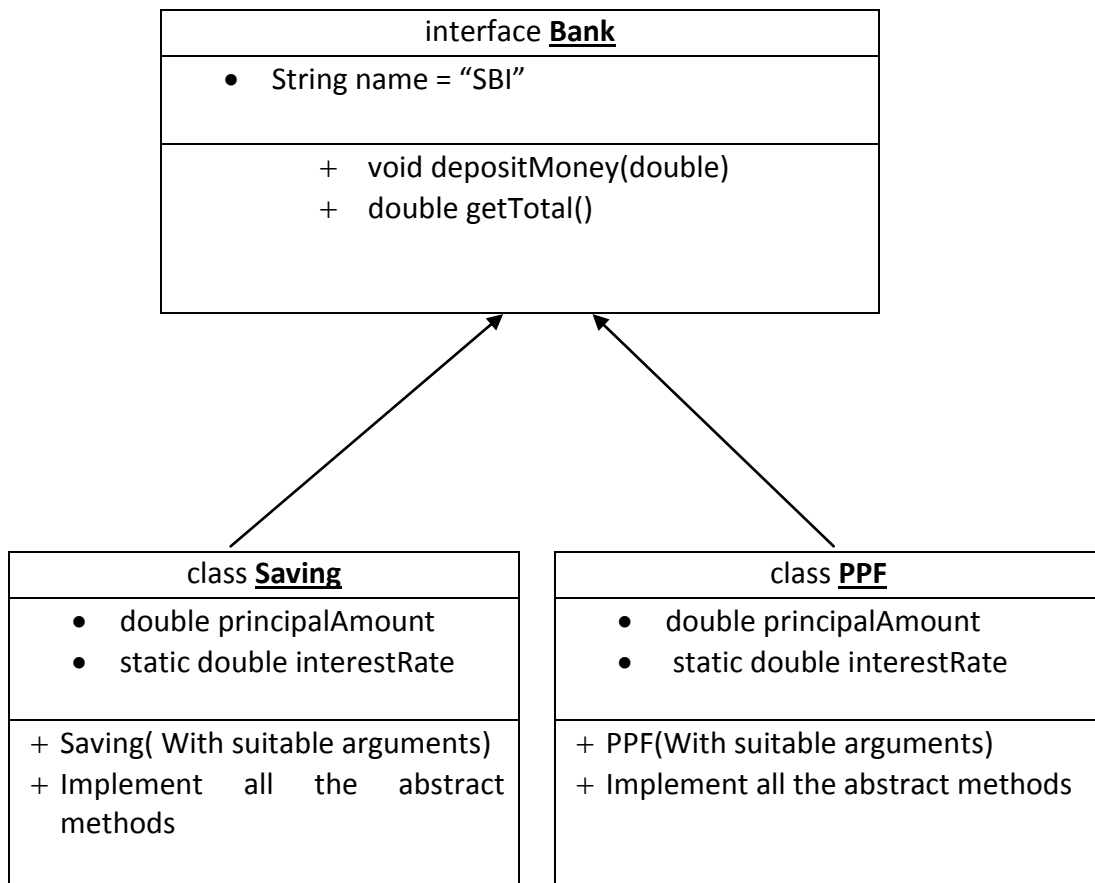| abstract class **Rectangle** |
|---|
| • int length
 • int breadth |
| + Rectangle(int l, int b)
 + Implement all the abstract methods |
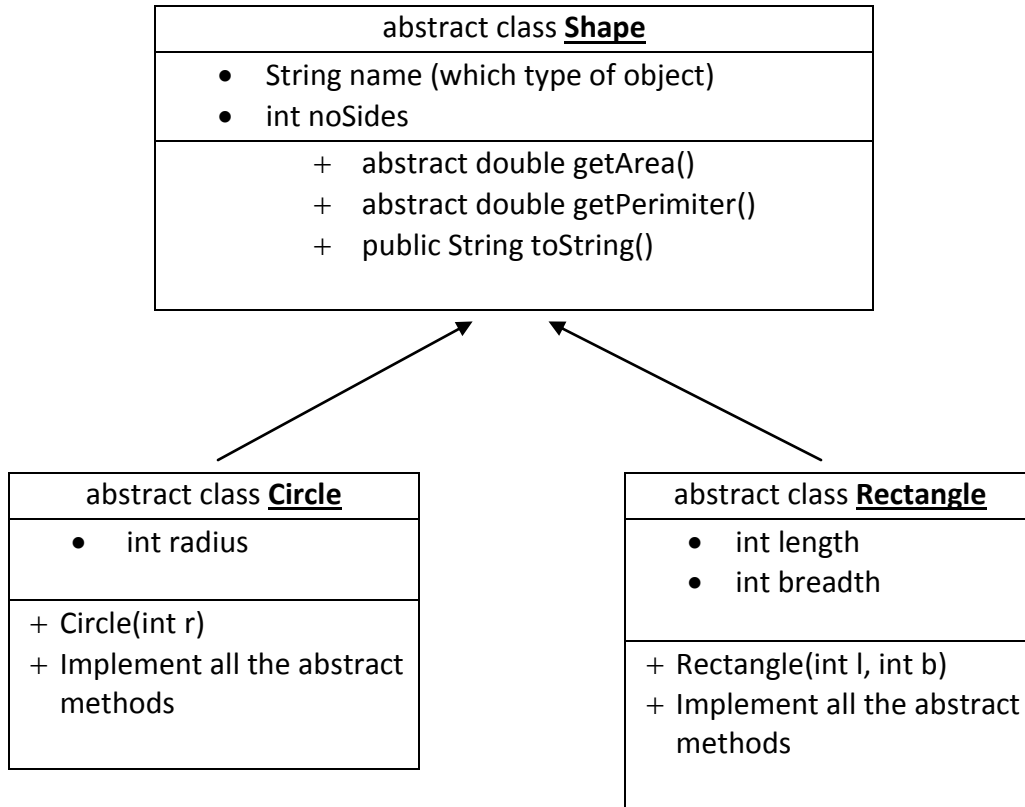
Note:

1. Constructor of Circle class should set radius, name as "Circle" and noSides = 0. Similarly, constructor of Rectangle class should set length, breadth, name as "Rectangle" and noSides = 4.

2. public String toString(): toString is a method written in Object class with the given signature. If we just display an object of a class, then it's toString method is called implicitly and whatever it's toString method returns, is displayed. In this question, override the toString method in Shape class to return a single string having name and noSides of it's object.

Question: In the main method of another class, create object of class **Circle** by giving appropriate parameter to it's constructor and then display it's *name* and *noSides* by implicitly calling *toString()* method. Also display it's *area* and *perimeter* by calling appropriate methods. Repeat the above written steps for class **Rectangle** as well.

Q-2)   Create the following class hierarchy:

interface **Bank**
• String name = "SBI"
+ void depositMoney(double) + double getTotal()

class **Saving**	class **PPF**
• double principalAmount • static double interestRate	• double principalAmount • static double interestRate
+ Saving(With suitable arguments) + Implement all the abstract methods	+ PPF(With suitable arguments) + Implement all the abstract methods

Description:

I. **getTotal()**: returns total after adding interest amount to the principalAmount i.e.

total = principalAmount + (interestRate* principalAmount)

II. **depositMoney()**: Adds the passed argument value to the principalAmount.

Note: interestRate for Saving's account should be 3.5 and that of PPF should be 7.5 respectively.

Create objects of Saving and PPF (by passing an initial amount as principal amount and given interest rate to their constructor) and then display their total.