

GLA University, 2019

Object-Oriented Programming

Coding Practice Set 02

1. Create a class named `Student` in a file named `Student.java`, the fields for the class are given below -

1. `String name;`
2. `int rollNo;`

Assign the value of the field `rollNo` as `101` to the name `Aman` by creating an object of the class in a file called `Main.java`.

2. Write a program to calculate the area of two rectangles having sides `4` and `5` and `5` and `8` respectively by creating a class named `Rectangle` in a file named `Rectangle.java`. Create a constructor for the class with the following parameters `length` and `breadth` (assume the data type for the fields). You could use the following method for reference

```
1 public class Rectangle {
2     // fields
3     // getters and setters
4     // constructor
5     public void calculateArea(double length, double breadth) {
6         // write your "logic" here
7     }
8 }
```

Now use this `calculateArea()` method in your execution class.

3. Create a class named `Employee` in a file named `Employee.java` having the following fields

1. `String name;`
2. `double salary;`
3. `double numberOfHoursWorked`

and the following methods

1. `public String getInfo(double salary, double numberOfHoursWorked) {}`

This method will print the details of the employee in a `String`.

2. `private void addBonus(double salary) {}`

This method will add bonus of ₹1000 to an employees' salary

4. Create a class named `Student` in a file named `Student.java` with the following fields

1. `String name;`
2. `double marks;`

Create objects for this class and

- o If no parameters are passed then, the state of the object should be `name: unknown,`
`marks:0.0`.

- otherwise, the name and marks should be equal to the values entered by the user.
5. Create a class named `Rectangle` in a file named `Rectangle.java` with the following members -

1. `double length;`
2. `double breadth;`
3. `double area() {}`

This class will have three constructors -

1. The first one will have **NO** parameters, the values of both `length` and `breadth` are set to zero.
2. The second one will have **TWO** parameters, the values of `length` and `breadth` are set to the input arguments.
3. The third one will have **THREE** parameters, the values of both `length` and `breadth` will be set to this input argument.

Now, create the objects of this `Rectangle` class using the above constructors, ex -

```
1 public class Main {
2     public static void main(String[] args) {
3         Rectangle r1 = new Rectangle();
4         Rectangle r2 = new Rectangle(2.0, 4.0);
5         Rectangle r3 = new Rectangle(4.0);
6     }
7 }
```

6. Create a class named `Programming` in a file called `Programming.java`. Create objects of the class, if nothing is passed to the constructor then, it should print the following

`I love programming!`

If the name of a programming language is entered print the following

```
1 Java
2 I love programming in Java!
```

7. Assume that you bought a piggy bank to save money. Create a class named `PiggyBank` in a file called `PiggyBank.java`. Create a field called `amount` of type `double` in the class. Now, create constructors as given below

1. without any parameters - no amount will be added to the piggy bank
2. with 1 `double` type parameter - the value of this parameter will be the opening balance of your piggy bank

Create a method to take out money from your piggy bank `takeMoney()` and a method to add money to your piggy bank `addMoney()`.

8. Create a class named `Animal` which includes method like `eat()` and `sleep()`.

Create a child class of `Animal` named `Bird` and override both the parent class' methods. Also, add a new method called `fly()`.

Create an instance of the `Animal` class and invoke the `eat()` and `sleep()` methods using this object.

Create an instance of the `Bird` class and invoke the `eat()`, `sleep()` and `fly()` methods using this object.