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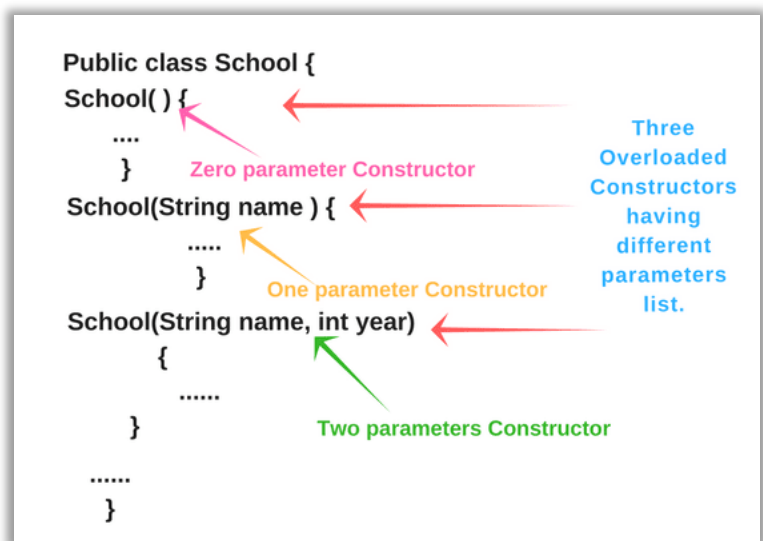
Experiment No – 07

AIM: To implement Constructors and overloading (CO2)

THEORY:

Constructor:

- In Java, a constructor is a block of codes similar to the method. It is called when an instance of the class is created. At the time of calling constructor, memory for the object is allocated in the memory.
- It is a special type of method which is used to initialize the object.
- Every time an object is created using the new() keyword, at least one constructor is called.
- It calls a default constructor if there is no constructor available in the class. In such case, Java compiler provides a default constructor by default.



Constructor Overloading:

- In Java, we can overload constructors like methods.
- The constructor overloading can be defined as the concept of having more than one constructor with different parameters so that every constructor can perform a different task.

CODE (i): WAP find area of square and rectangle using overloaded constructor

```
Code1_ConstructorOverloading.java X
Exp7 > Code1_ConstructorOverloading.java > ...
1 package Exp7;
2
3 public class Code1_ConstructorOverloading {
    Run | Debug
4     public static void main(String[] args) {
5         System.out.println(x: "Prerna Sunil Jadhav - 60004220127\n");
6
7         Shape rect = new Shape(length: 12, breadth: 9);
8         System.out.println("Area of Rectangle: "+rect.area+" sq.units.");
```



```
10      Shape square = new Shape(side: 122);
11      System.out.println("Area of Square: "+square.area+" sq.units.");
12  }
13  }
14
15  class Shape{
16      int area;
17
18      Shape(int length, int breadth){
19          this.area = length*breadth;
20      }
21
22      Shape(int side){
23          this.area = side*side;
24      }
25  }
```

OUTPUT:

```
Prerna Sunil Jadhav - 60004220127
Area of Rectangle: 108 sq.units.
Area of Square: 14884 sq.units.
```

CODE (ii): Create Rectangle and Cube class that encapsulates the properties of a rectangle and cube i.e. Rectangle has default and parameterized constructor and area() method. Cube has default and parameterized constructor and volume() method. They share no ancestor other than Object.

Implement a class Size with size() method. This method accepts a single reference argument z. If z refers to a Rectangle then size(z) returns its area and if z is a reference of Cube, then z returns its volume. If z refers to an object of any other class, then size(z) returns -1. Use main method in Size class to call size(z) method.



J Code2_Shape.java X

Exp7 > J Code2_Shape.java > ...

```
1  package Exp7;
2  import java.util.*;
3  class Rect {
4      private int l, b;
5      Rect(int l, int b) {
6          this.l = l;
7          this.b = b;
8      }
9      int area() {
10         return l * b;
11     }
12 }
13 class Cube {
14     private int side;
15     Cube(int side) {
16         this.side = side;
17     }
18     int volume() {
19         return side * side * side;
20     }
21 }
22 class Size {
23     public static int size(Object o) {
24         if (o instanceof Rect) {
25             return ((Rect) o).area();
26         } else if (o instanceof Cube) {
27             return ((Cube) o).volume();
28         } else {
29             return -1;
30         }
31     }
32 }
33 public class Code2_Shape {
34     Run | Debug
35     public static void main(String[] args) {
36         System.out.println(x: "Prerna Jadhav - 60004220127");
37         Scanner sc = new Scanner(System.in);
38         Rect r = new Rect(l: 5, b: 6);
39         Cube c = new Cube(side: 4);
40         System.out.println("Area of Rectangle : " + Size.size(r));
41         System.out.println("Volume of Cube : " + Size.size(c));
42         System.out.println("Other objects : " + Size.size(sc));
43     }
44 }
```



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NAAC Accredited with "A" Grade (CGPA : 3.18)



Academic Year: 2022-2023

OUTPUT:

```
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Area of Rectangle : 30
Volume of Cube : 64
Other objects : -1
```

CONCLUSION: Thus, we implemented programs on Constructor and Destructor.