Experiment No. : 5 Date : Page No. : 08

Name of the Experiment : Method Overloading [Area Calculation]

5. Java Program to find area of square, rectangle & circle using method overloading. In this program we have three methods with same name area(), which means we are overloading area() method. By having three different implementation of area method, we are calculating the area of Square, rectangle & circle.

ques: Java program to find area of Geometric figures using method overloading.

Ex: Program to find area of Square, Rectangle and Circle using method overloading.

Prog:

```
package prg5;

public class Calculate
{

    void SquareArea(float x)
    {
        System.out.println("Area of the Square : "+x*x+"sq.units");
    }

    Void RectangleArea(float x, float y)
    {
        System.out.println("Area of the Rectangle : "+x*y+"sq.units");
    }
```

```
    void CircleArea(double r)
    {
        double area = 3.14*r*r;
        System.out.println("Area of the circle : " + area + "Sq.units");
    }

    public static void main(String[] args)
    {
        Calculate cal = new Calculate();

        Cal.SquareArea(6.1f);
        Cal.RectangleArea(10, 22);
        Cal.CircleArea(6.1);
    }
}
```

Output:

Area of the Square : 37.21 sq units
Area of the Rectangle : 220.0 Sq units
Area of the Circle : 116.3394 sq units

Experiment No. : 06 Date : Page No. : 10

Name of the Experiment : Static Variable

06. Write a Java program that counts the number of objects created by using static variable.

⇒ Java static variable

If you declare any variable as static, it is known as a static variable.

- The static variable can be used to refer to the common property of all objects
- The static variable gets memory only once in the class area at the time of class loading

→ Advantages of static variable

It makes your program memory efficient

Prog:

~~class Student~~

```
package prg6;

public class Student {

    int roll no;
    String name;
    static String college = "ITS";
```

```
    Student (int r, String n)
    {
        rollno = r;
        name = n;
    }

    void display()
    {
        System.out.println (rollno + "  " + name + "  " + college);
    }

    public class TestStaticVariable
    {
        public static void main (String[] args)
        {
            Student S1 = new Student (111, "Kiran");
            Student S2 = new Student (222, "Aryan");

            S1.display();
            S2.display();
        }
    }
}
```

Output:

```
111    Kiran    ITS
222    Aryan    ITS
```

Experiment No. : 07 Date : Page No. : 12

Name of the Experiment : Inheritance

07. Write a java program that implements educational hierarchy using inheritance.

In this type of inheritance, there are more than one derived classes which get created from one single base class.

Prog:

```
package prg7;

public class Teacher {

    void teach()
    {
        System.out.println("Teaching Subject");
    }
}

class Student extends Teacher
{
    void listen()
    {
        System.out.println("Listening");
    }
}
```

Name of the Experiment : .....

```
class Principal extends Teacher
{
    void evaluate()
    {
        System.out.println("Evaluating");
    }
}

class CheckForInheritance
{
    public static void main(String[] args)
    {
        Principal P = new Principal();

        P.evaluate();
        P.teach();
    }
}
```

Note: P.listen(); - Throws an error as inheritance of principal is only with Teacher

Output:

Evaluating
Teaching Subject

Experiment No. : 08. Date : Page No. : 14.

Name of the Experiment : Exception.

08. Array Index Out Of Bounds Exception:

It is thrown to indicate that an array has been accessed with an illegal index. The index is either negative @ greater than @ equal to the size of the array.

prog.

```
package prg8;

public class ArrayIndxOutOfBounds_Demo {

    public static void main (String[] args){

        try {

            int a[] = new int[5];
            a[6] = 9;
        }

        Catch (ArrayIndexOutOfBoundsException e){

            System.out.println("Array Index is out of Bounds");
        }
    }
}
```

Output:

Array Index is out of Bounds.