Experiment – 4
Constructors and Constructor Overloading

LEARNING OUTCOMES:

Student will be able to

1. Define constructor
2. intialize an object of the class
3. create overloaded constructors .

OBJECTIVE:

To be able to write a Java program to Create Constructor and perform Constructor overloading operations

REQUIRED APPARATUS:

1. Notepad/Editors (VS Code, Atom, Brackets, Notepad++...), JDK 1.7 and above version.
2. Personal Computer with 2GB RAM, 320GB HDD and Pentium2 processor or above

PRECAUTIONS AND SAFETY MEASURES FOR A COMPUTER LAB

1. Don't touch the switch boards with wet hands.
2. Don't operate a system if the walls are wet.
3. Keep the food and beverages outside workspace
4. Shutdown and switch off properly the systems to avoid the system crash.
5. Keep footwear outside the lab so as to protect equipment from dust.
6. Know the place of fire extinguisher in lab

BRIEF THEORY ABOUT CONSTRUCTOR AND CONSTRUCTOR OVERLOADING:

A Constructor is used to create instance of the class similar to methods except for two things - its name is the same as the class name and it has no return type. Constructors are also referred to as special methods to initialize an object. There are two types of constructors in Java:

- Default constructor (no-arg constructor)
- Parameterized constructor

Constructor Overloading: The constructor overloading can be defined as the concept of having more than one constructor with different parameters same name and. This is used to implement compile time polymorphism in java.

PROCEDURE:

Step1: Open the editor

Step2: Type the program

Step 3: Create class by using class name ConsOverloading

Step 4: Declare the instance variables for class operations

Step 5: Create three constructors with different parameters by using class name ConsOverloading

Step 6: write the code in three constructors to perform constructor overloading

Step 7: Create main method which is used to provide static memory for performing object related operations

Step 8: Create required no of objects by using class name.

Step 9: We have assign different number of parameters for each constructor

Step 10: Save and Compile the program using **Javac filename** command in command prompt

Step 11: Check and correct the errors then recompile

Step 12: Run the program by the command **java class name** in the command prompt

Step 13: Give the input to the program.

Step 14: If the output corresponds to input then the program is successfully executed.

Syntax:

```
Class demoConstructor
{
demoConstructor()
{
}
demoConstructor(data type v1,data type v2)
{
}
demoConstructor(data type v1,data type v2,data type v3)
{
}
Public static void main(String args[])
{
```

```
demoConstructor cons = new demoConstructor(); // default constructor
demoConstructor cons = new demoConstructor(v1,v2); //parameterized constructor

demoConstructor cons = new demoConstructor(v1,v2,v3); //parameterized constructor
}
}
```

// Example program to create a Constructor and demonstrate Constructor overloading.

```
Public class ConsOverloading
{
int a,b,c,d,e;
ConsOverloading (int a)
{
 this.a=a;
System.out.println(" Constructer Overloading");
System.out.println(" Value of A"+a);
}
ConsOverloading(int a, int b)
{
 this.a=a;
this.b=b;
d=this.a+this.b;
System.out.println("Adding of two numbers:",d);
}
ConsOverloading (int a, int b, int c)
{
this.a=a;
this.b=b;
this.c=c;
e=this.a+this.b+this.c;
System.out.println("Adding of three numbers:",e);
}
Public static void main(String args[])
```

```
demo. ConsOverloading(
demo. ConsOverloading(3,6);
demo. ConsOverloading(2,3,5);
}
}
```

Output:

```
Constructer Overloading
Value of A:10    //                    constructor 1 output
Adding of two numbers:9//              constructor 2 output
Adding of three numbers:10//           constructor 3 output
```

Here, a constructor is created by using class name and another three Constructors are created with different parameters to perform constructor overloading. In the first constructor we have passed single value as 10, Second constructor we have passed two values 3,6 then result of adding is two numbers is 9 and Third constructor we have passed three values 2,3,5 then result of adding of three numbers is 10.

SAMPLE VIVA QUESTIONS

1. Is there a default constructor in java?
2. What is garbage collection?
3. Why is there no return type for constructor ?
4. When do we need to define a default constructor in java?
5. What happens when a matching constructor not defined in program?

ACTIVITY

1 Create a class called room and create constructors to find the area of various rooms by constructor overloading.