Experiment No.-03

Aim: Write a Java Program to demonstrate Method overloading.

Problem Statement:

1. Write a Java Program to overload method area() to calculate area of different shapes.

2. Write a Java Program to demonstrate constructor overloading.

Theory:

Method

A method is basically a behavior. A class can contain many methods. It is in methods where the logics are written, data is manipulated and all the actions are executed.
A method is a block of code or collection of statements/ instructions or a set of code grouped together to perform a certain task or operation.

Method declaration:

type method_name (parameter-list)

{   // body of method

}

Method Overloading

- If a class has multiple methods having same name but different in parameters, it is known as Method Overloading.
- If we have to perform only one operation, having same name of the methods increases the readability of the program.
- **Advantage of method overloading**
  - Method overloading increases the readability of the program.
- **Different ways to overload the method**
  - There are two ways to overload the method in java
    - By changing number of arguments
    - By changing the data type

- **Example-**

```
int area(int r)
{
        return 3.14 * r * r;
}
int area(int h, int l)
{
        return h * l;
}
```

Constructor

A constructor initializes an object immediately upon creation. It has the same name as the classin which it resides and is syntactically similar to a method. Once defined, the constructor isautomatically called immediately after the object is created, before the new operator completes.

Constructor overloading

- Constructor overloading in Java is a technique of having more than one constructor with different parameter lists.

- They are arranged in a way that each constructor performs a different task.

- They are differentiated by the compiler by the number of parameters in the list and their types.

- **Example-**
```
class Student{
          int id;
          String name;
          int age
Student (int i, String n)
      {
          id = i;
          name = n;
      }
Student (int i, String n, int a)
      {
          id = i;
          name = n;
          age = a;
      }
  }
```

Conclusion:

Student understood and implemented Java Program to demonstrate Method overloading and constructor overloading.