Experiment No. 4
Implement a program on method and constructor overloading.
Date of Performance:
Date of Submission:

Aim: Implement a program on method and constructor overloading.

Objective: To use concept of method overloading in a java program to create a class with same function name with different number of parameters.

Theory:

Method Overloading is a feature that allows a class to have more than one method having the same name, if their argument lists are different. It is similar to constructor overloading in Java, that allows a class to have more than one constructor having different argument lists.

Example: This example to show how method overloading is done by having different number of parameters for the same method name.

```
Class DisplayOverloading
{
   public void disp(char c)
   {
      System.out.println(c);
   }
   public void disp(char c, int num)
   {
      System.out.println(c + " "+num);
   }
}
Class Sample
{
  Public static void main(String args[])
  {
     DisplayOverloading obj = new DisplayOverloading();
     Obj.disp('a');
     Obj.disp('a',10);
  }
}
```

Output:

A

A 10

Java supports Constructor Overloading in addition to overloading methods. In Java, overloaded constructor is called based on the parameters specified when a new is executed.

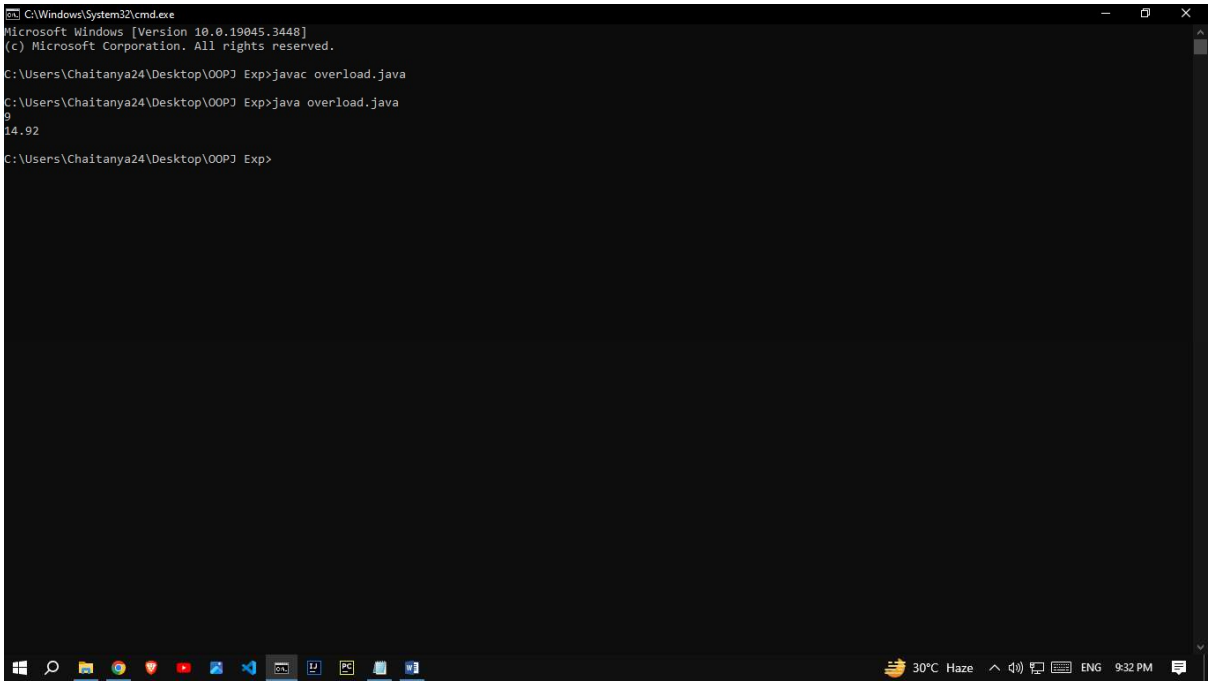
Sometimes there is a need of initializing an object in different ways. This can be done using constructor overloading.

For example, the Thread class has 8 types of constructors. If we do not want to specify anything about a thread then we can simply use the default constructor of the Thread class, however, if we need to specify the thread name, then we may call the parameterized constructor of the Thread class with a String args like this:

Thread t= new Thread (" MyThread ");

Code:

```
class Overload2
{
  public static void main(String args[])
   {
     System.out.println(Add.add(5,4));
     System.out.println(Add.add(2.80,3.12,9.00));
   }
}
class Add{
static int add(int a,int b) {return a+b;}
static double add(double a,double b,double c) {return a+b+c;}
}
```



Conclusion:

Comment on how function and constructor overloading used using java

Function Overloading:

1. **Definition**: Function overloading, also known as method overloading, is a feature in Java that allows you to define multiple methods within a class with the same name but different parameters.
2. **Parameter Lists**: The methods that are part of an overload set must differ in their parameter lists. This difference can involve the number of parameters, their types, or both.
3. **Compile-Time Polymorphism**: Function overloading is a form of compile-time polymorphism, where the compiler determines which method to call based on the arguments provided at the call site.

Constructor Overloading:

1. **Definition:** Constructor overloading is similar to function overloading, but it applies to constructors of a class. It allows you to define multiple constructors for a class with different parameter lists.
2. **Initialization:** Constructors are used to initialize the state of objects when they are created. Overloading constructors allows you to provide different ways to initialize objects of the same class.

   In summary, function and constructor overloading in Java allows you to define multiple methods or constructors with the same name but different parameter lists, providing flexibility and improving code organization and readability. This feature is part of Java's polymorphism capabilities, enabling you to create more versatile and user-friendly classes and methods.