AIM:	Programs on Method / ConstructorOverloading.
Program 1	
PROBLEM STATEMENT:	**Create a Date class with data int year, int month, int date, int hrs, int min, int sec. Create a default, no-argument constructor which sets the default date to January 1, 2000, 00:00:00 Create 3 overloaded setter methods** **void setDate(int year, int month, int date)** **void setDate(int year, int month, int date, int hrs, int min)** **void setDate(int year, int month, int date, int hrs, int min, int sec)** **Also write a displayDate() method which will display the date depending on the type of date object created**

PROGRAM:	import java.util.*;
	import java.lang.*;
	class Date{
	int year1,month1,date1,hour1,minute1,second1,flag;
	String[]
	m={"in","January","February","March","April","May","June","July","August","September","October","November","December"};
	Date() {
	year1 = 2000;
	month1 = 01;
	date1 = 01;
	hour1 = 00;
	minute1 = 00;
	second1 = 00;
	}
	void setDate(int year, int month, int date)
	{
	year1=year;
	month1=month;
	date1=date;
	flag=0;
	display();
	}
	void setDate(int year, int month, int date, int hour, int minute){
	year1=year;
	month1=month;
	date1=date;
	minute1=minute;
	hour1=hour;

```
      flag=1;
      display();
   }
   void setDate(int year, int month, int date, int hour, int minute, int second){
      year1=year;
      month1=month;
      date1=date;
      minute1=minute;
      hour1=hour;
      second1=second;
     flag=2;
      display();
   }
   void display(){
      if(flag==0){
         System.out.println(m[month1]+" "+date1+","+year1);
      } else if (flag==1) {
         System.out.println(m[month1]+" "+date1+","+year1+","+hour1+":"+minute1);
      } else if(flag==2) {
         System.out.println(m[month1]+"
"+date1+","+year1+","+hour1+":"+minute1+":"+second1);
      }
   }
}
public class DATE_TIME {
   public static void main(String[]args){
      int yrs,mon,d,h,min,s;
      System.out.println("Enter 1 for Year,Month and Date");
      System.out.println("Enter 2 for Year,Month,Date,Hours and Minutes");
      System.out.println("Enter 3 for Year,Month,Date,Hours,Minutes and seconds");
      Date obj=new Date();
      Scanner sc=new Scanner(System.in);
      int choice=sc.nextInt();
      switch (choice){
         case 1:
            System.out.println("Enter year");
             yrs= sc.nextInt();
            System.out.println("Enter month number");
             mon= sc.nextInt();
             while(mon>12|| mon<=0){
                  System.out.println("Aandhe hai kya, phir se dal");
                  mon= sc.nextInt();
            }
            System.out.println("Enter date");
```

```
            d= sc.nextInt();
            obj.setDate(yrs,mon,d);

            break;
        case 2:
            System.out.println("Enter year ");
            yrs= sc.nextInt();
            System.out.println("Enter month number ");
            mon= sc.nextInt();
            while(mon>12|| mon<=0){
                System.out.println("Aandhe hai kya, phir se dal");
                mon= sc.nextInt();
            }
            System.out.println("Enter date ");
            d= sc.nextInt();
            System.out.println("Enter hour");
            h=sc.nextInt();
            System.out.println("Enter minutes");
            min= sc.nextInt();
            obj.setDate(yrs,mon,d,h,min);

            break;
        case 3:
            System.out.println("Enter year ");
            yrs= sc.nextInt();
            System.out.println("Enter month number ");
            mon= sc.nextInt();
            while(mon>12|| mon<=0){
                System.out.println("Aandhe hai kya, phir se dal");
                mon= sc.nextInt();
            }
            System.out.println("Enter date ");
            d= sc.nextInt();
            System.out.println("Enter hour");
            h=sc.nextInt();
            System.out.println("Enter minutes");
            min= sc.nextInt();
            System.out.println("Enter seconds");
            s= sc.nextInt();
            obj.setDate(yrs,mon,d,h,min,s);

            break;
        default:
            System.out.println("Invalid choice");
```

```
    }
  }
}
```

RESULT:

```
Enter 1 for Year,Month and Date
Enter 2 for Year,Month,Date,Hours and Minutes
Enter 3 for Year,Month,Date,Hours,Minutes and seconds
1
Enter year
2012
Enter month number
6
Enter date
21
June 21,2012
```

Program 2

PROBLEM STATEMENT:

Given a class Line with slope, y-intercept, x1, y1, x2, y2 as attributes, write 3 constructors for equations for the line given Slope-y-intercept, Slope Point and two Point forms

Slope-y-intercept:

$y = mx + c$

Slope point form:

$y - y1 = m(x - x1)$

Two Point form:

$(y - y1) / (y1 - y2) = m(x - x1) / (x1 - x2)$

Also, $m = (y2 - y1) / (x2 - x1)$

Each constructor should Calculate and display the appropriate Line equation.

PROGRAM:

```
import java.util.*;
import java.lang.*;
class line{
   double m,c,y1,x1,y2,x2,x3,y3;
   int flag;
   line(double m,double c){
      this.m=m;
      this.c=c;
      flag=0;
   }
   line(double x1,double y1,double m){
      flag=1;
      this.x1=x1;
      this.y1=y1;
      this.m=m;
   }
   line(double x1,double y1,double x2,double y2){
      x3= x1-x2;
      y3=y1-y2;
      m=(y2-y1)/(x2-x1);
      flag=2;
   }
   void Display(){
      if (flag==0){
         System.out.printf("y = %.2fx + %.2f\n",m,c);
      }
      else if(flag==1){
         System.out.printf("(y-%.2f)=%.2f(x-%.2f)\n",y1,m,x1);
      }
      else if(flag==2){
         System.out.printf("(y-%.2f)/%.2f=%.2f(x-%.2f)/%.2f\n",y1,y3,m,x1,x3);
      }
   }
   void calculate(int x){
      if (flag==0){
         System.out.printf("y = %.2f",(m*x+c));
      }
      else if(flag==1){
         System.out.printf("y =%.2f",(m*(x-x1)+y1));
      }
      else if(flag==2){
         System.out.printf("y = %.2f", (m*(x - x1) / (x1 - x2)*(y1-y2)+y1));
      }
   }
```

```
}
public class Main {
   public static void main(String[]args){
      System.out.println("Enter 1 Given m and c");
      System.out.println("Enter 2 Given x1,y1 and m");
      System.out.println("Enter 3 Given x1 ,y1, x2 and y2");

      Scanner sc=new Scanner(System.in);
      int option= sc.nextInt();
      switch(option){
         case 1:
            System.out.print("Enter the slopes of line: ");
            int m= sc.nextInt();
            System.out.print("Enter the constant of line: ");
            int c= sc.nextInt();
            line l1=new line(m,c);
            l1.Display();
            System.out.println("Aapako x substitue karna hai kya?");
            boolean subs= sc.nextBoolean();
            if (subs){
               System.out.println("Give the value of x: ");
               int x=sc.nextInt();
               l1.calculate(x);
            }
            break;
         case 2:
            System.out.print("Enter x1: ");
            int x1= sc.nextInt();
            System.out.print("Enter y1: ");
            int y1= sc.nextInt();
            System.out.print("Enter the slopes of line: ");
            int m1= sc.nextInt();
            line l2=new line(x1,y1,m1);
            l2.Display();
            System.out.println("Aapako x substitue karna hai kya?");
            boolean subs2= sc.nextBoolean();
            if (subs2){
               System.out.println("Give the value of x: ");
               int x=sc.nextInt();
               l2.calculate(x);
            }
            break;
         case 3:
            System.out.print("Enter x1: ");
```

```
            int x11= sc.nextInt();
            System.out.print("Enter y1: ");
            int y11= sc.nextInt();
            System.out.print("Enter x2: ");
            int x2= sc.nextInt();
            System.out.print("Enter y2: ");
            int y2= sc.nextInt();
            line l3=new line(x11,y11,x2,y2);
            l3.Display();
            System.out.println("Aapako x substitue karna hai kya?");
            boolean subs3= sc.nextBoolean();
            if (subs3){
               System.out.println("Give the value of x: ");
               int x=sc.nextInt();
               l3.calculate(x);
            }
            break;
         default:
            System.out.print("Invalid option");
            break;
      }
   }
}
```

RESULT:

```
Enter 1 Given m and c
Enter 2 Given x1,y1 and m
Enter 3 Given x1 ,y1, x2 and y2
1
Enter the slopes of line: 12
Enter the constant of line: 23
y = 12.00x + 23.00
Aapako x substitue karna hai kya?
true
Give the value of x:
13
y = 179.00
```

Program 3	
PROBLEM STATEMENT:	**Create a Test class with data double base, int power, int logBase, int argument.** **Create a default, no-argument constructor which sets the default value of all variables to 2.** **There are 2 overloaded functions:** **1. double calculate (double base, int power)** **This function returns the value when *base* is raised to *power*** **For example: calculate (3.0, 2) returns the value of 3.0 raised to 2 i.e., 9.0** **2. double calculate (int logBase, int argument)** **This function returns the value of the log of *argument* to the base *logBase*.** **For example: calculate (3, 9) returns log of 9 to the base 3 i.e., 2.0** **Create a main method in a separate class to call the above functions with the following inputs:** **1. calculate (2, 4)** **2. calculate (2.0, 4.0)** **Create a display() method which displays the output based on the type of Test object created**

PROGRAM:	import java.util.*;
	class Test{
	
	double base;
	int power,logBase,argument;
	Test(){
	base=2;
	power=2;
	logBase=2;
	argument=2;
	}
	
	double calculate (double base, int power){
	return Math.pow(base,power);
	}
	double calculate (int logBase, int argument){
	return Math.log(argument)/Math.log(logBase);
	}
	void display(double num){
	System.out.println("Result = "+num);
	
	}
	}
	class Main{
	public static void main(String[] args){

```
        Test ob1 =new Test();
        double num1=ob1.calculate(2.0,4);
        ob1.display(num1);
        double num2=ob1.calculate(2,4);
        ob1.display(num2);

    }
}
```

RESULT:

Program 4

PROBLEM STATEMENT:

Write a menu-driven program to recruit an employee (depending on his performance in various rounds) in some software company using constructor overloading.

Selection Criteria for each post is given below:

i) Programmer (Minimum total of 80 marks):-

Rounds:-

(1) Course Work

(2) Aptitude Test

(3) Technical Test

(4) Interview

ii) Team Leader (Minimum total of 85 marks):-

Rounds:-

(1) Technical Test

(2) Interview

iii) Project Manager (Minimum score 90 marks)

Rounds:-

(1) Interview

Create a class Posting and write 3 constructors to initialize the object and set the parameters and display the employee post according to selection criteria.

Data members:

- **int courseWork;**
- **int AptTest;**
- **int TechTest;**
- **int interview;**

	Constructors: **• Posting (int courseWork, int AptTest, int TechTest,int interview)** **• Posting (int TechTest,int interview)** **• Posting (int interview)** **Make use of 'this' keyword.**

PROGRAM:	import java.util.*;
	class Posting{
	private int courseWork;
	private int AptTest;
	private int TechTest;
	private int interview;
	private int flag;
	Posting (int courseWork, int AptTest, int TechTest,int interview){
	this.courseWork=courseWork;
	this.AptTest=AptTest;
	this.TechTest=TechTest;
	this.interview=interview;
	flag=0;
	}
	Posting (int TechTest,int interview){
	this.TechTest=TechTest;
	this.interview=interview;
	flag=1;
	}
	Posting (int interview){
	this.interview=interview;
	flag=2;
	}
	void Display() {
	if (flag == 0) {
	System.out.println("Aap ne Programmer ke liye apply kiya hai:");
	int marks = courseWork + AptTest + TechTest + interview;
	if (marks > 80) {
	System.out.println("Badhai ho!! aap mai yogyata hai aap mumbai aa sakte ho");
	} else {
	System.out.println("Sorry! you failed the test");
	}
	;
	} else if (flag == 1) {
	System.out.println("Aap ne Team Leader ke liye apply kiya hai:");
	int marks = TechTest + interview;
	if (marks > 85) {

```
            System.out.println("Badhai ho!! aap mai yogyata hai aap mumbai aa sakte ho");
        } else {
            System.out.println("Sorry! you failed the test");
        }
    } else {
        System.out.println("Aap ne Project Manager ke liye apply kiya hai:");
        int marks = interview;
        if (marks > 90) {
            System.out.println("Badhai ho!! aap mai yogyata hai aap mumbai aa sakte ho");
        } else {
            System.out.println("Sorry! you failed the test");
        }
    }
  }
}

class Main{
  public static void main(String[] args){
    Scanner sc=new Scanner(System.in);
    System.out.println("Aap ke pass 3 options hai kya karna chahege aap");
    System.out.println("Option1: Programmer\nOption2: Team Leader\nOption3: Project
Manager");
    int option=sc.nextInt();
    switch(option){
      case 1:
        System.out.println("Enter marks of Course Work");
        int courseWork=sc.nextInt();
        System.out.println("Enter marks of Aptitude Test");
        int AptTest=sc.nextInt();
        System.out.println("Enter marks of Tech Test");
        int TechTest=sc.nextInt();
        System.out.println("Enter marks of interview");
        int interview=sc.nextInt();
        Posting ob1=new Posting(courseWork,AptTest,TechTest,interview);
        ob1.Display();
        break;
      case 2:
        System.out.println("Enter marks of Tech Test");
        int TechTest1=sc.nextInt();
        System.out.println("Enter marks of interview");
        int interview1=sc.nextInt();
        Posting ob2=new Posting(TechTest1,interview1);
        ob2.Display();
        break;
```

```
            case 3:
                System.out.println("Enter marks of interview");
                int interview2=sc.nextInt();
                Posting ob3=new Posting(interview2);
                ob3.Display();
                break;
            default :
                System.out.println("Invalid choice");
        }
    }
}
```

RESULT:

```
Aap ke pass 3 options hai kya karna chahege aap
Option1: Programmer
Option2: Team Leader
Option3: Project Manager
1
Enter marks of Course Work
230
Enter marks of Aptitude Test
2
Enter marks of Tech Test
1
Enter marks of interview
1
Aap ne Programmer ke liye apply kiya hai:
Badhai ho!! aap mai yogyata hai aap mumbai aa sakte ho
```

CONCLUSION:	In this experiment, we learned about how to overload methods and constructor using various problems.