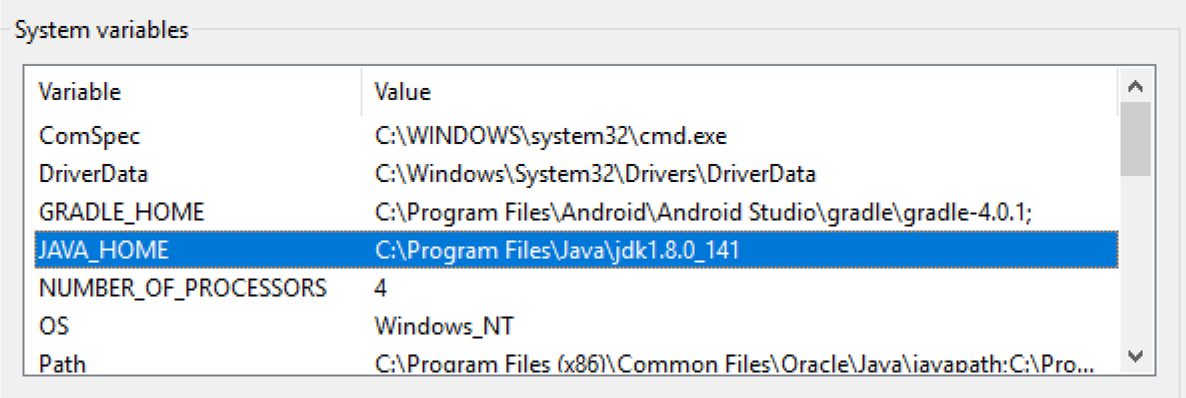
Program -1 Install the JDK (Download the JDK and install it.)

- Set path of the jdk/bin directory.
- Create the java program
- Compile and run the java program

Write a simple "Hello World" java program, compilation, debugging, executing using java compiler and interpreter.

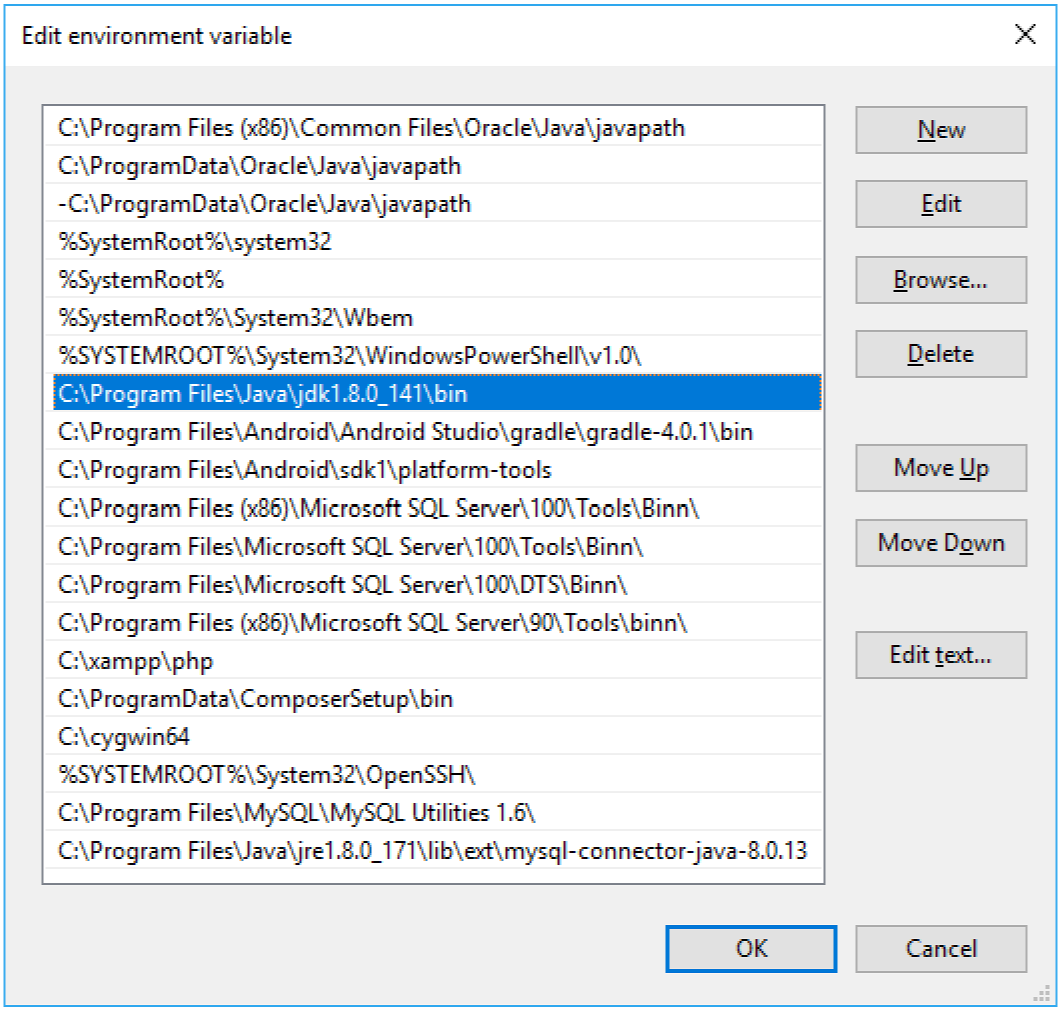
Code: -



System variables

Variable	Value
ComSpec	C:\WINDOWS\system32\cmd.exe
DriverData	C:\Windows\System32\Drivers\DriverData
GRADLE_HOME	C:\Program Files\Android\Android Studio\gradle\gradle-4.0.1;
JAVA_HOME	C:\Program Files\Java\jdk1.8.0_141
NUMBER_OF_PROCESSORS	4
OS	Windows_NT
Path	C:\Program Files (x86)\Common Files\Oracle\Java\javapath;C:\Pro...

In Path Variable

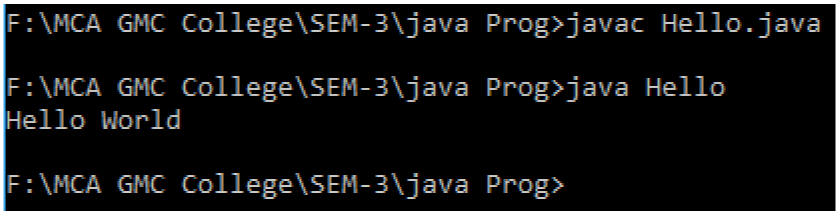


Edit environment variable

```
C:\Program Files (x86)\Common Files\Oracle\Java\javapath
C:\ProgramData\Oracle\Java\javapath
-C:\ProgramData\Oracle\Java\javapath
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
C:\Program Files\Java\jdk1.8.0_141\bin
C:\Program Files\Android\Android Studio\gradle\gradle-4.0.1\bin
C:\Program Files\Android\sdk1\platform-tools
C:\Program Files (x86)\Microsoft SQL Server\100\Tools\Binn\
C:\Program Files\Microsoft SQL Server\100\Tools\Binn\
C:\Program Files\Microsoft SQL Server\100\DTS\Binn\
C:\Program Files (x86)\Microsoft SQL Server\90\Tools\binn\
C:\xampp\php
C:\ProgramData\ComposerSetup\bin
C:\cygwin64
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files\MySQL\MySQL Utilities 1.6\
C:\Program Files\Java\jre1.8.0_171\lib\ext\mysql-connector-java-8.0.13
```

```
class Hello
{
	public static void main(String args[])
	{
		System.out.println("Hello World");
	}
}
```

Output: -



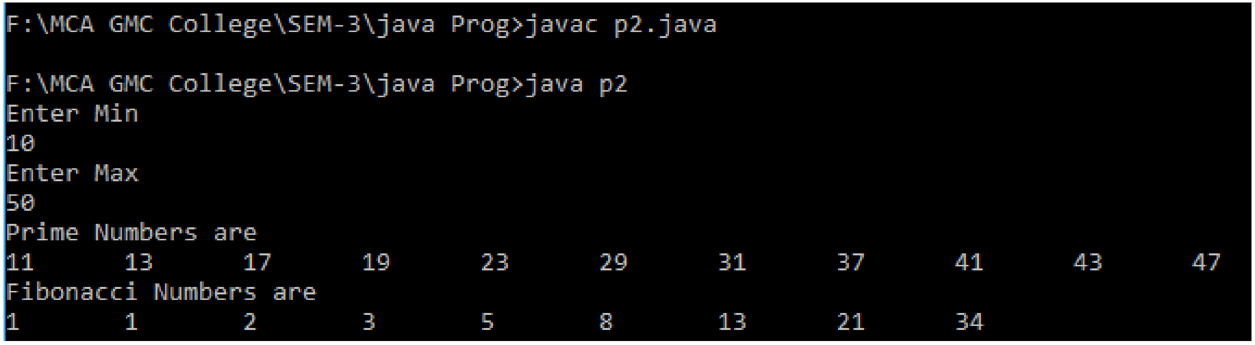
```
F:\MCA GMC College\SEM-3\java Prog>javac Hello.java

F:\MCA GMC College\SEM-3\java Prog>java Hello
Hello World

F:\MCA GMC College\SEM-3\java Prog>
```

Program -2 Write a program to pass Starting and Ending limit and print all prime numbers and Fibonacci numbers between this range.

Code: -

```
import java.util.*;

class p2
{
        public static void main(String args[])
        {
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter Min");
                int a=sc.nextInt();


                System.out.println("Enter Max");
                int b=sc.nextInt();

                int i,count,no;

                System.out.println("Prime Numbers are");
                for(i=a;i<=b;i++)
                {
                        count=0;
                        for(no=i;no>=1;no--)
                        {
                                if(i%no==0)
                                {
                                        count++;
                                }
                        }
                        if(count==2)
                        {
                                        System.out.print(i+"\t");
                        }
                }
System.out.println();


                System.out.println("Fibonacci Numbers are");
                int a1=1,a2=1,a3;
                while(a1<=b)
                {
                        System.out.print(a1+"\t");
                        a3=a1+a2;
                        a1=a2;
                        a2=a3;
                }
                sc.close();
        }

}
```

Output: -



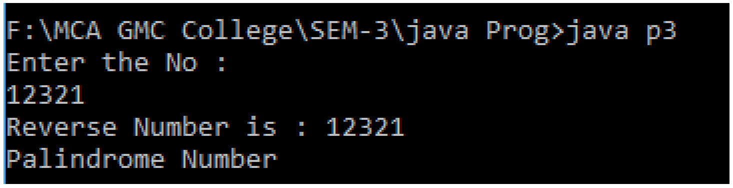
```
F:\MCA GMC College\SEM-3\java Prog>javac p2.java

F:\MCA GMC College\SEM-3\java Prog>java p2
Enter Min
10
Enter Max
50
Prime Numbers are
11      13      17      19      23      29      31      37      41      43      47
Fibonacci Numbers are
1       1       2       3       5       8       13      21      34
```

Program -3 Write a java program to check palindrome number. Input: 329 Output: not palindrome number Input: 12321 Output: palindrome number

Code: -

```
import java.util.*;
class p3
{
	public static void main(String[] args)
	{
		Scanner sc=new Scanner(System.in);

		System.out.println("Enter the No : ");

		int no=sc.nextInt();
		int no1=no;
		int reminder,temp=0;

		while(no!=0)
		{
			reminder=no%10;
			temp=temp*10+reminder;
			no=no/10;
		}

		System.out.println("Reverse Number is : " + temp);

		if(no1==temp)
		{
			System.out.println("Palindrome Number");
		}
		else
		{
			System.out.println("Not Palindrome Number");
		}
	}
}
```

Output: -



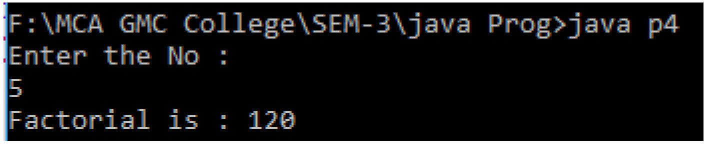
```
F:\MCA GMC College\SEM-3\java Prog>java p3
Enter the No :
12321
Reverse Number is : 12321
Palindrome Number
```

Program -4 Write a java program to print factorial of a number. Input: 5 Output: 120. Input: 6 Output: 720

Code: -

```
import java.util.*;
class p4
{
        public static void main(String[] args)
        {
                Scanner sc=new Scanner(System.in);

                System.out.println("Enter the No : ");

                int no=sc.nextInt();
                int fact=1;
                for(int i=1;i<=no;i++)
                {
                        fact=fact*i;
                }

                System.out.println("Factorial is : " + fact);
        }
}
```

Output: -



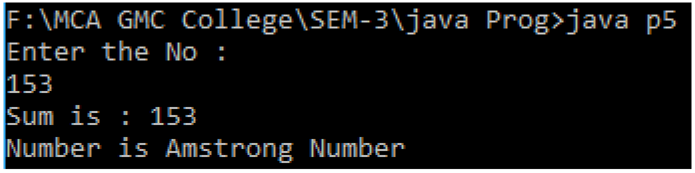
```
F:\MCA GMC College\SEM-3\java Prog>java p4
Enter the No :
5
Factorial is : 120
```

Program -5 Write a java program to check Armstrong number. Input: 153 Output: Armstrong number Input: 22 Output: not Armstrong number

Code: -

```
import java.util.*;
class p5
{
        public static void main(String[] args)
        {
                Scanner sc=new Scanner(System.in);

                System.out.println("Enter the No : ");

                int no=sc.nextInt();
                int no1=no;
                int rem,sum=0,temp=0;
                while(no!=0)
                {
                        rem=no%10;
                        sum=sum+(rem*rem*rem);
                        temp=temp*10+rem;
                        no=no/10;
                }
                System.out.println("Sum is : " + sum);

                if(sum==no1)
                {
                        System.out.println("Number is ArmstrongNumber");
                }
                else
                {
                        System.out.println("Number is Not ArmstrongNumber");
                }
        }
}
```

Output: -



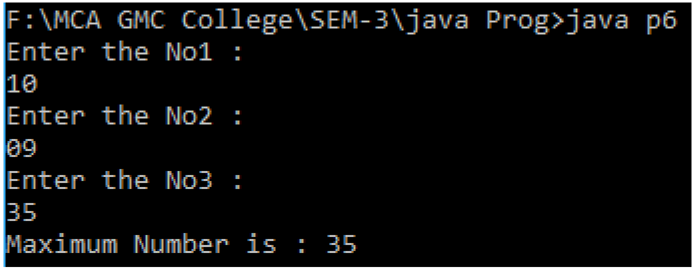
```
F:\MCA GMC College\SEM-3\java Prog>java p5
Enter the No :
153
Sum is : 153
Number is Amstrong Number
```

Program -6 Write a program in Java to find maximum of three numbers using conditional operator

Code: -

```
import java.util.*;
class p6
{
	public static void main(String[] args)
	{
		Scanner sc=new Scanner(System.in);

		System.out.println("Enter the No1 : ");

		int no1=sc.nextInt();

		System.out.println("Enter the No2 : ");

		int no2=sc.nextInt();

		System.out.println("Enter the No3 : ");

		int no3=sc.nextInt();

		int big;

		big=no1>no2?(no1>no3?no1:no3):(no2>no3?no2:no3);

		System.out.println("Maximum Number is : " + big);
	}
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p6
Enter the No1 :
10
Enter the No2 :
09
Enter the No3 :
35
Maximum Number is : 35
```

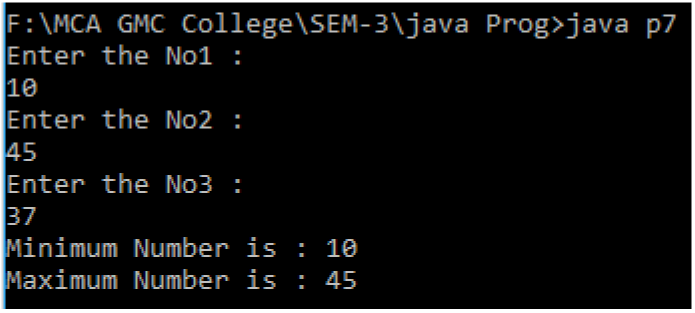
Program -7 Write a java program which should display maximum and minimum number of given 3 numbers.

Code: -

```
import java.util.*;

public class p7
{
	public static void main(String [] args)
	{
		int no1,no2,no3,max=0,min=0;
		Scanner sc=new Scanner(System.in);

		System.out.println("Enter the No1 : ");
		no1=sc.nextInt();

		System.out.println("Enter the No2 : ");
		no2=sc.nextInt();

		System.out.println("Enter the No3 : ");
		no3=sc.nextInt();


		if(no1<no2 && no1<no3)
		{
				System.out.println("Minimum Number is : " + no1);
		}
		else if(no2<no3 && no2<no1)
		{
				System.out.println("Minimum Number is : " + no2);
		}
		else
		{
				System.out.println("Minimum Number is : " + no3);
		}

		if(no1>no2 && no1>no3)
		{
				System.out.println("Maximum Number is : " + no1);
		}
		else if(no2>no1 && no2>no3)
		{
				System.out.println("Maximum Number is : " + no2);
		}
		else
		{
				System.out.println("Maximum Number is : " + no3);
		}
```

```
        }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p7
Enter the No1 :
10
Enter the No2 :
45
Enter the No3 :
37
Minimum Number is : 10
Maximum Number is : 45
```

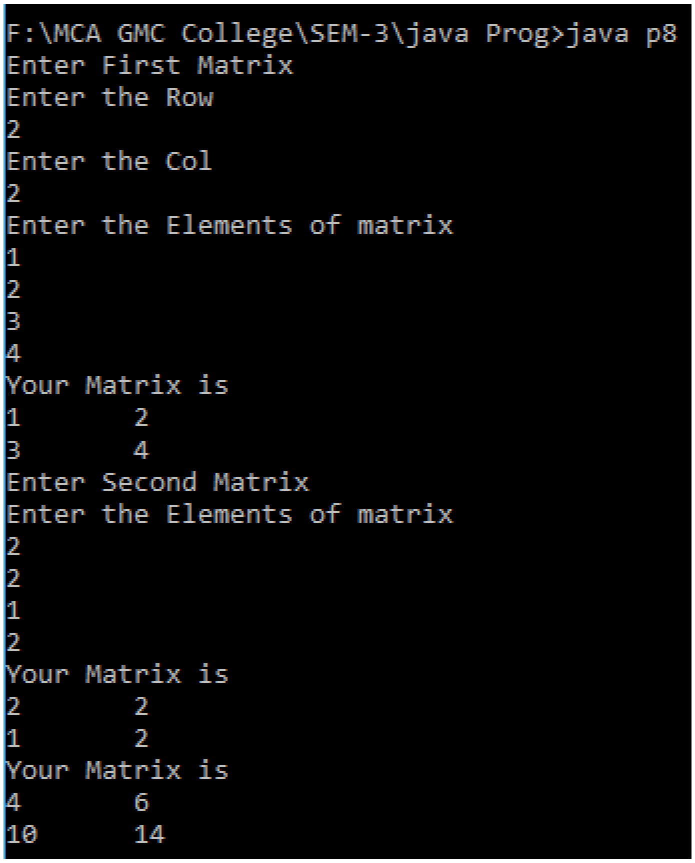
Program -8 Write a program in Java to multiply two matrix

Code: -

```
import java.util.*;
class p8
{
            public static void main(String args[])
            {
                        int row,col;
                        int i,j;

                        Scanner sc=new Scanner(System.in);

                        System.out.println("Enter First Matrix");

                        System.out.println("Enter the Row");
                        row=sc.nextInt();

                        System.out.println("Enter the Col");
                        col=sc.nextInt();

                        int a[][]=new int[row][col];

                        System.out.println("Enter the Elements of matrix");
                        for(i=0;i<row;i++)
                        {
                                    for(j=0;j<col;j++)
                                    {
                                                a[i][j]=sc.nextInt();
                                    }
                        }
                        display(a,row,col);

                        System.out.println("Enter Second Matrix");
                        int b[][]=new int[row][col];

                        System.out.println("Enter the Elements of matrix");
                        for(i=0;i<row;i++)
                        {
                                    for(j=0;j<col;j++)
                                    {
                                                b[i][j]=sc.nextInt();
                                    }
                        }
                        display(b,row,col);


                        Multiplay(a,b,row,col);
```

```
		sc.close();
	}

	public static void display(int a[][],int row,int col)
	{
		int i,j;
		System.out.println("Your Matrix is ");
		for(i=0;i<row;i++)
		{
			for(j=0;j<col;j++)
			{
				System.out.print(a[i][j] + "\t");
			}
			System.out.println();
		}
	}

	public static void Multiplay(int a[][],int b[][],int row,int col)
	{
		int i,j,k,sum;
		int ans[][]=new int[row][col];
		for(i=0;i<row;i++)
		{
			for(j=0;j<col;j++)
			{
				sum=0;
				for(k=0;k<col;k++)
				{
					sum+=a[i][k]*b[k][j];
				}
				ans[i][j]=sum;
			}
		}
		System.out.println("Multiplication")
		display(ans,row,col);
	}
}
```

Output: -



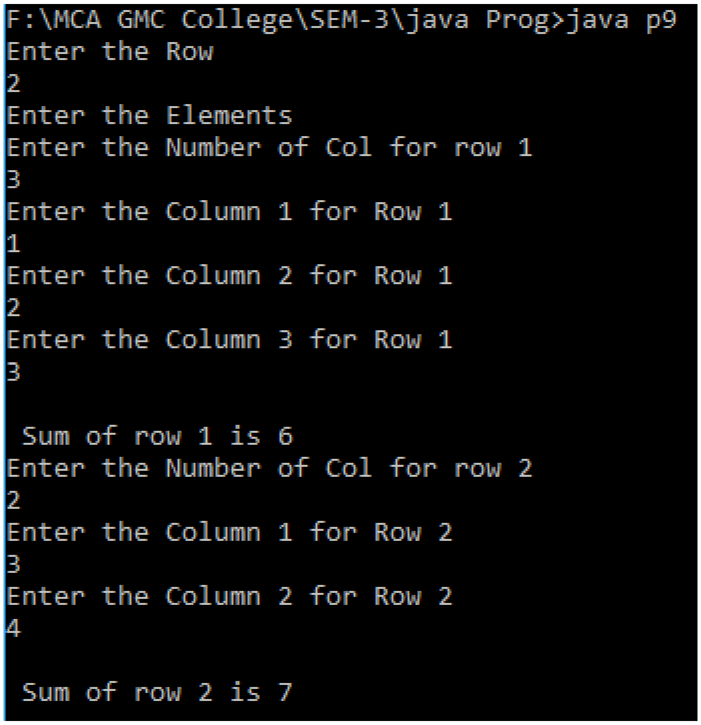
```
F:\MCA GMC College\SEM-3\java Prog>java p8
Enter First Matrix
Enter the Row
2
Enter the Col
2
Enter the Elements of matrix
1
2
3
4
Your Matrix is
1       2
3       4
Enter Second Matrix
Enter the Elements of matrix
2
2
1
2
Your Matrix is
2       2
1       2
Your Matrix is
4       6
10      14
```

Program -9 Write a java program to create a class "Matrix" that would contain integer values having varied numbers of columns for each row. Print row-wise sum of the integer values for each row.

Code: -

```
import java.util.*;
class p9
{
	public static void main(String args[])
	{
		int row,col;

		Scanner sc=new Scanner(System.in);

		System.out.println("Enter the Row");
		row=sc.nextInt();

		int i,j;

		System.out.println("Enter the Elements");
		for(i=0;i<row;i++)
		{
			System.out.println("Enter the Number of Col for row " + (i+1));
			col=sc.nextInt();

			int a[][]=new int[row][col];

			int sum=0;

			for(j=0;j<col;j++)
			{
				System.out.println("Enter the Column " + (j+1) + " for Row " + (i+1));
				a[i][j]=sc.nextInt();
				sum=sum+a[i][j];
			}
			System.out.println("\n Sum of row " + (i+1) + " is " + sum);
		}
		sc.close();
	}
}
```

Output: -



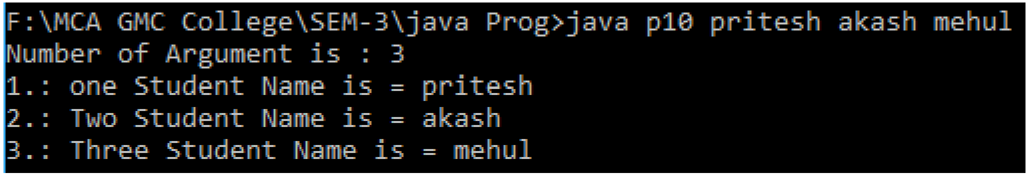
```
F:\MCA GMC College\SEM-3\java Prog>java p9
Enter the Row
2
Enter the Elements
Enter the Number of Col for row 1
3
Enter the Column 1 for Row 1
1
Enter the Column 2 for Row 1
2
Enter the Column 3 for Row 1
3

 Sum of row 1 is 6
Enter the Number of Col for row 2
2
Enter the Column 1 for Row 2
3
Enter the Column 2 for Row 2
4

 Sum of row 2 is 7
```

Program -10 Write a Java application which takes several command line arguments, which are supposed to be names of students and prints output as given below: (Suppose we enter 3 names then output should be as follows).. Number of arguments = 3
1.: First Student Name is = Tom
2.: Second Student Name is = Dick
3.: Third Student Name is = Harry Hint:
An array may be used for converting from numeric values from 1 to 20 into String

Code: -

```
import java.util.*;

public class p10
{
        public static void main(String [] args)
        {
                int len=args.length;
                System.out.println("Number of Argument is : " + len);

                String
a[]={"one","Two","Three","Four","Five","Six","Seven","Eight","Nine","Ten","Eleven"};

                for(int i=0;i<args.length;i++)
                {
                        System.out.println((i+1) + ".: " + a[i] + " Student Name is = " + args[i]);
                }
        }
}
```

Output: -



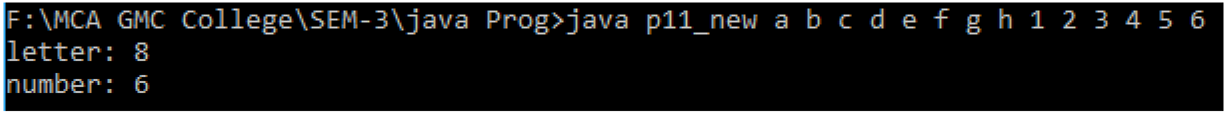
```
F:\MCA GMC College\SEM-3\java Prog>java p10 pritesh akash mehul
Number of Argument is : 3
1.: one Student Name is = pritesh
2.: Two Student Name is = akash
3.: Three Student Name is = mehul
```

Program -11 Write a Java application to count and display frequency of letters and digits from the String given by user as command-line argument.

Code: -

```
import java.util.Scanner;
public class p11_new
{
        public static void main(String[] args)
        {
                int letter = 0;
                int space = 0;
                int num = 0;
                int other = 0;
                for (int j=0;j<args.length;j++)
                {
                        char ch = args[j].charAt(0);
                        if(Character.isLetter(ch))
                        {
                                letter++;
                        }
                        else if(Character.isDigit(ch))
                        {
                                num++;
                        }
                        else{

                        }
                }
                System.out.println("letter: " + letter);
                System.out.println("number: " + num);
        }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p11_new a b c d e f g h 1 2 3 4 5 6
letter: 8
number: 6
```

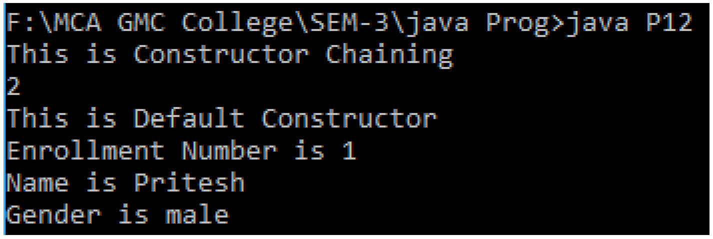
Program -12 Create a class "Student" that would contain enrollmentNo, name, and gender as data members. Create appropriate getter and setter methods for the "Student" class and constructors to initialize the data members. Also demonstrate constructor chaining.

Code: -

```
class P12
{
	int enrollmentNo;
	String name;
	String gender;

	P12()
	{
		//write first Statenment this in constructor Chaning
		this(2);

		System.out.println("This is Default Constructor");
		enrollmentNo=1;
		name="Pintu";
		gender="male";
	}

	P12(int no)
	{
		System.out.println("This is Constructor Chaining");
		System.out.println(no);
	}

	void setenrollmentNo(int enroll)
	{
		enrollmentNo=enroll;
	}
	void setname(String na)
	{
		name=na;
	}
	void setgender(String ge)
	{
		gender=ge;
	}

	void getenrollmentNo()
	{
		System.out.println("Enrollment Number is " + enrollmentNo);
	}
	void getname()
	{
		System.out.println("Name is " + name);
	}
```

```
    void getgender()
    {
        System.out.println("Gender is " + gender);
    }

    public static void main(String args[])
    {
        P12 obj=new P12();
        obj.setenrollmentNo(1);
        obj.setname("Pritesh");
        obj.setgender("male");

        obj.getenrollmentNo();
        obj.getname();
        obj.getgender();
    }
}
```

Output: -



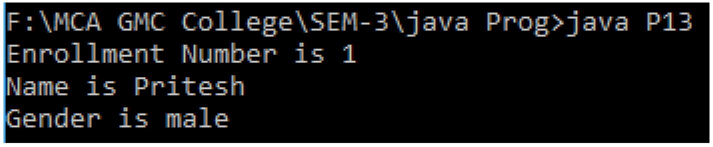
```
F:\MCA GMC College\SEM-3\java Prog>java P12
This is Constructor Chaining
2
This is Default Constructor
Enrollment Number is 1
Name is Pritesh
Gender is male
```

Program -13 Write a program in Java to demonstrate use of this keyword. Check whether this can access the private members of the class or not. [Refer class student in Q12 to perform the task]

Code: -

```
class P13
{
        private int enrollmentNo;
        private String name;
        private String gender;
        void setenrollmentNo(int enrollmentNo)
        {
                this.enrollmentNo=enrollmentNo;
        }
        void setname(String name)
        {
                this.name=name;
        }
        void setgender(String gender)
        {
                this.gender=gender;
        }
        void getenrollmentNo()
        {
                System.out.println("Enrollment Number is " + enrollmentNo);
        }
        void getname()
        {
                System.out.println("Name is " + name);
        }
        void getgender()
        {
                System.out.println("Gender is " + gender);
        }
        public static void main(String args[])
        {
                P13 obj=new P13();
                obj.setenrollmentNo(1);
                obj.setname("Pritesh");
                obj.setgender("male");
                obj.getenrollmentNo();
                obj.getname();
                obj.getgender();
        }
}
```

Output: -



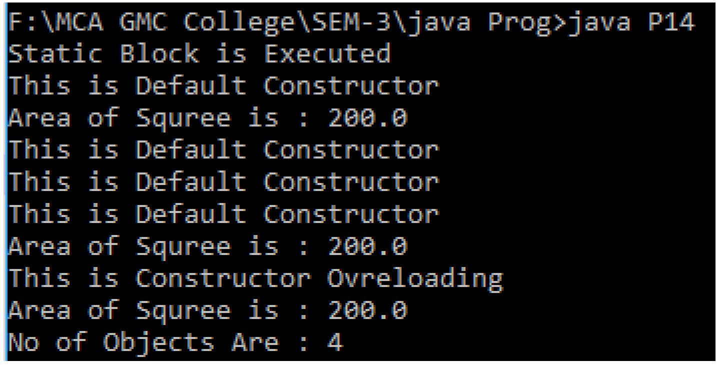
```
F:\MCA GMC College\SEM-3\java Prog>java P13
Enrollment Number is 1
Name is Pritesh
Gender is male
```

Program -14 Create a class "Rectangle" that would contain length and width as data members. Define constructors [constructor overloading (default, parameterized and copy)] to initialize the data members. Define the member functions to find area and to display the number of objects created. [Note: define initializer block, static initializer block and the static data member and member function. Also demonstrate the sequence of execution of initializer block and static initializer block]

Code: -

```
class P14
{
        double length;
        double width;

        static int count;

        static
        {
                count=0;
                System.out.println("Static Block is Executed");
        }

        void init()
        {
                System.out.println("Init method is called");
        }

        P14()
        {
                count++;
                System.out.println("This is Default Constructor");
        }
        P14(double l,double w)
        {
                length=l;
                width=w;
                System.out.println("This is Constructor Ovreloading");

                double ans=l*w;
                System.out.println("Area of Squree is : " + ans);
        }

        void area(double le,double wi)
        {
                double ans=le*wi;
                System.out.println("Area of Squree is : " + ans);
        }

        public static void main(String args[])
        {
                P14 obj=new P14();
                obj.area(10.00,20.00);
                P14 obj1=new P14();
                P14 obj2=new P14();
                P14 obj3=new P14();
                obj3.area(10.00,20.00);
                P14 obj4=new P14(10.00,20.00);
                System.out.println("No of Objects Are : " + count);
        }

}
```

Output: -



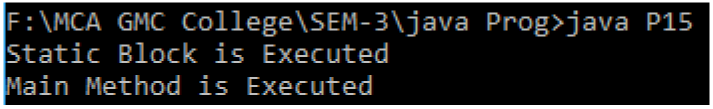
```
F:\MCA GMC College\SEM-3\java Prog>java P14
Static Block is Executed
This is Default Constructor
Area of Squree is : 200.0
This is Default Constructor
This is Default Constructor
This is Default Constructor
Area of Squree is : 200.0
This is Constructor Ovreloading
Area of Squree is : 200.0
No of Objects Are : 4
```

Program -15 Write a java program static block which will be executed before main ( ) method in a class.

Code: -

```
class P15
{
	static
	{
		System.out.println("Static Block is Executed");
	}
	public static void main(String args[])
	{
		System.out.println("Main Method is Executed");
	}
}
```

Output: -



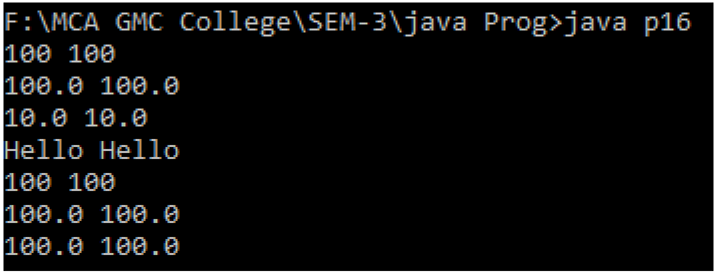
```
F:\MCA GMC College\SEM-3\java Prog>java P15
Static Block is Executed
Main Method is Executed
```

Program -16 Write programs in Java to use Wrapper class of each primitive data types.

Code: -

```
class p16
{
        public static void main(String args[])
        {
                //Converting int primitive into Integer object
                int num=100;
                Integer obj=Integer.valueOf(num);
                System.out.println(num+ " "+ obj);

                double num1=100.00;
                Double obj2=Double.valueOf(num1);
                System.out.println(num1+ " "+ obj2);

                float num3=10;
                Float obj3=Float.valueOf(num3);
                System.out.println(num3+ " "+ obj3);

                String str="Hello";
                String obj7=String.valueOf(str);
                System.out.println(str+ " "+ obj7);

                //2. Converting the wrapper object to primitive
                //1. Creating Wrapper class object
                Integer obj4 = new Integer(100);  //1
                int num7 = obj4.intValue();    //2
                System.out.println(num7+ " "+ obj4);


                Double obj1 = new Double(100.00);
                double num4 = obj1.doubleValue();
                System.out.println(num4+ " "+ obj1);

                Float obj5 = new Float(100.00);
                float num5 = obj4.floatValue();
                System.out.println(num5+ " "+ obj5);
        }
}
```

Output: -



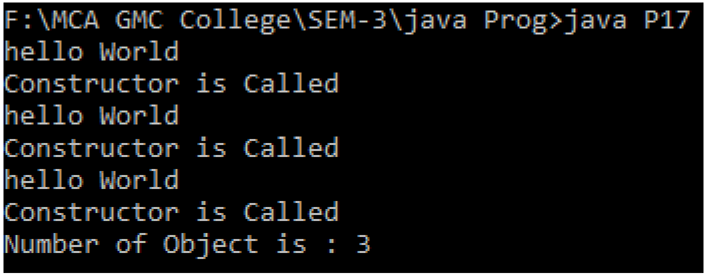
```
F:\MCA GMC College\SEM-3\java Prog>java p16
100 100
100.0 100.0
10.0 10.0
Hello Hello
100 100
100.0 100.0
100.0 100.0
```

Program -17 Write a class "circle" with radius as data member and count the number of instances created using default constructor only. [Constructor Chaining]

Code: -

```
class P17
{
        static int count=0;
        double radius;

        P17()
        {
                this("hello");
                count++;
                System.out.println("Constructor is Called");
        }
        P17(String str)
        {
                System.out.println(str + " World");
        }
        public static void main(String args[])
        {
                P17 obj=new P17();
                P17 obj1=new P17();
                P17 obj2=new P17();
                System.out.println("Number of Object is : " + count);
        }
}
```

Output: -



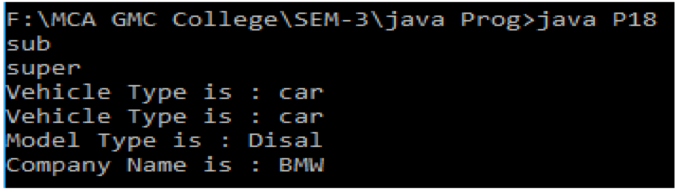
```
F:\MCA GMC College\SEM-3\java Prog>java P17
hello World
Constructor is Called
hello World
Constructor is Called
hello World
Constructor is Called
Number of Object is : 3
```

<u>Program -18</u> Create a class Vehicle with data member vehicle_type. Inherit the class in a class called car with data member model_type, company name etc. display the information of the vehicle by defining the display fimction in both super and sub class [Method Overriding]

Code: -

```
class P18
{
        public static void main(String args[])
        {
                car obj=new car();
                obj.setdata("car","Disal","BMW");
                obj.display();
        }
}
class Vehical
{
        String vehicle_type;
        void display()
        {
                System.out.println("super");
                System.out.println("Vehicle Type is : " + vehicle_type);
        }
}
class car extends Vehical
{
        String model_type;
        String company_name;
        void setdata(String vt,String model,String company)
        {
                super.vehicle_type=vt;
                model_type=model;
                company_name=company;
        }
        void display()
        {
                super.display();
                System.out.println("sub");
                System.out.println("Vehicle Type is : " + super.vehicle_type);
                System.out.println("Model Type is : " + model_type);
                System.out.println("Company Name is : " + company_name);
        }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java P18
sub
super
Vehicle Type is : car
Vehicle Type is : car
Model Type is : Disal
Company Name is : BMW
```

Program -19 Create a class "Account" containing accountNo, and balance as data members. Derive the Account class into two classes named "Savings" and "Current". The "Savings" class should contain a data member named interestRate, and the "Current" class should contain a data member called overdraftLimit. Create appropriate member functions for all the classes to enable functionalities to check balance, deposit, and withdraw amount in Savings and Current account. [Ensure that the Account class cannot be instantiated.]

Code: -

```
class p19
{
        public static void main(String args[])
        {
                System.out.println("Saving Account is");
                Saving obj=new Saving(101,20000.00,10.00);
                obj.checkbalance();
                obj.deposit(1000.00);
                obj.withdraw(500.00);
                obj.checkbalance();

                System.out.println("Current Account is");
                Current obj1=new Current(102,60000.00,50000);
                obj1.checkbalance();
                obj1.deposit(1000.00);
                obj1.withdraw(5000.00);
                obj1.checkbalance();
        }
}
```

Account Class : -

```
class Account  //Account
{
        protected int accountNo;
        protected double balance;

        Account(int accountNo,double balance)
        {
                this.accountNo=accountNo;
                this.balance=balance;
        }
}
```

Saving Class : -

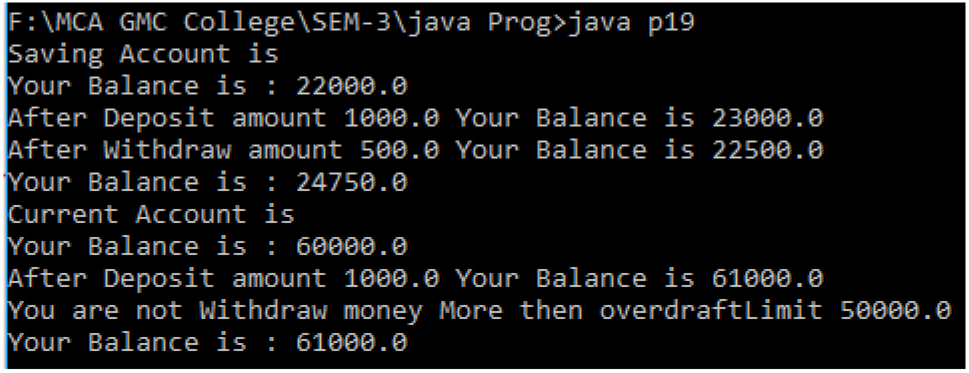
```
class Saving extends Account
{
        protected double interestrate;

        Saving(int accountNo,double balance,double interestrate)
        {
                super(accountNo,balance);
                this.interestrate=interestrate;
        }
```

```
    protected void checkbalance()
    {
        //interest rate is Add in Balance in Saving Account
        double bal=super.balance*interestrate/100;
        bal=bal+super.balance;
        super.balance=bal;
        System.out.println("Your Balance is : " + bal);
    }
    protected void deposit(double amt)
    {
        if(super.balance>=amt)
        {
            super.balance=super.balance+amt;
            System.out.println("After Deposit amount " + amt + " Your Balance is " +
super.balance);
        }
        else
        {
                System.out.println("You Balance is Low");
        }
    }
    protected void withdraw(double amt)
    {
        super.balance=super.balance-amt;
        System.out.println("After Withdraw amount " + amt + " Your Balance is " +
super.balance);
    }
}
```

Current Class: -

```
class Current extends Account
{
    public double overdraftLimit;  //withdraw Amount Limit

    Current(int accountNo,double balance,double overdraftLimit)
    {
        super(accountNo,balance);
        this.overdraftLimit=overdraftLimit;
    }
    protected void checkbalance()
    {
        //interest rate is not in Current Account
        System.out.println("Your Balance is : " + super.balance);
    }
    protected void deposit(double amt)
    {
        if(super.balance>=amt)
        {
            super.balance=super.balance+amt;
            System.out.println("After Deposit amount " + amt + " Your Balance is " +
super.balance);
        }
        else
        {
                System.out.println("You Balance is Low");
        }
    }
    protected void withdraw(double amt)
    {
        if(amt>=overdraftLimit)
        {
            System.out.println("You are not Withdraw money More then overdraftLimit " +
overdraftLimit);
        }
        else
        {
            super.balance=super.balance-amt;
            System.out.println("After Withdraw amount " + amt + " Your Balance is " +
super.balance);
        }
    }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p19
Saving Account is
Your Balance is : 22000.0
After Deposit amount 1000.0 Your Balance is 23000.0
After Withdraw amount 500.0 Your Balance is 22500.0
Your Balance is : 24750.0
Current Account is
Your Balance is : 60000.0
After Deposit amount 1000.0 Your Balance is 61000.0
You are not Withdraw money More then overdraftLimit 50000.0
Your Balance is : 61000.0
```

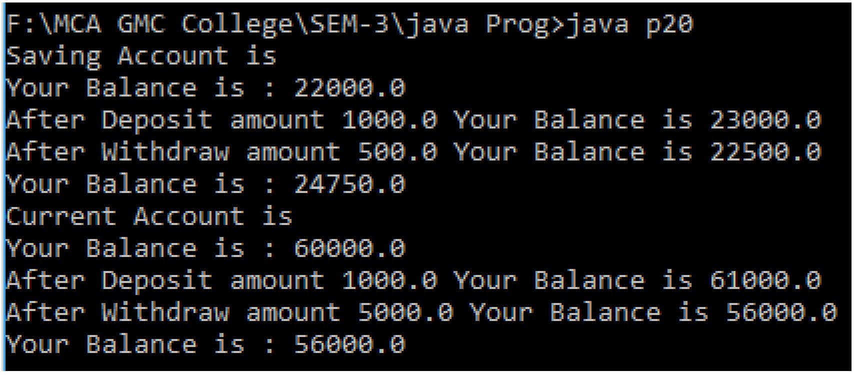
Program -20 Write a program in Java in which a subclass constructor invokes the constructor of the super class and instantiate the values. [refer class Account and sub classes savingAccount and CurrentAccount in Q 19 for this task]

Code: -

```
class p20 //Account
{
        public static void main(String args[])
        {
                System.out.println("Saving Account is");
                Saving obj=new Saving(101,20000.00,10.00);
                obj.checkbalance();
                obj.deposit(1000.00);
                obj.withdraw(500.00);
                obj.checkbalance();

                System.out.println("Current Account is");
                Current obj1=new Current(102,60000.00,50000);
                obj1.checkbalance();
                obj1.deposit(1000.00);
                obj1.withdraw(5000.00);
                obj1.checkbalance();
        }
}
```

*** Saving and Current Class Same as Above Program**

Output: -



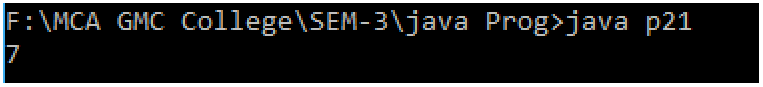
```
F:\MCA GMC College\SEM-3\java Prog>java p20
Saving Account is
Your Balance is : 22000.0
After Deposit amount 1000.0 Your Balance is 23000.0
After Withdraw amount 500.0 Your Balance is 22500.0
Your Balance is : 24750.0
Current Account is
Your Balance is : 60000.0
After Deposit amount 1000.0 Your Balance is 61000.0
After Withdraw amount 5000.0 Your Balance is 56000.0
Your Balance is : 56000.0
```

Program -21 Write a program in Java to demonstrate the use of 'final' keyword in the field declaration. How it is accessed using the objects.

Code: -

```
//final variable can be initialized only once in a life

//we can not change its value that why its called constant.

public class p21
{
	final int DAYS_IN_WEEK=7;
	int getdata()
	{
		//remove below comment and check
		//DAYS_IN_WEEK=8;
		return DAYS_IN_WEEK;
	}
	public static void main(String args[])
	{
		Gtu21 g=new Gtu21();

		System.out.println(g.getdata());
	}
}
```

Output: -



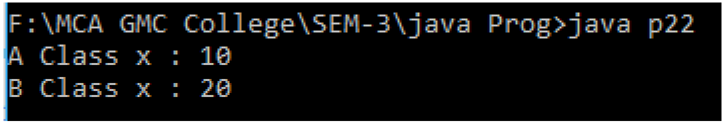
```
F:\MCA GMC College\SEM-3\java Prog>java p21
7
```

Program -22 Write a java program to illustrates how to access a hidden variable. Class A declares a static variable x. The class B extends A and declares an instance variable x. display ( ) method in B displays both of these variables.

Code: -

```
class p22
{
	public static void main(String args[])
	{
		B obj=new B();
		obj.display();
	}
}
class A
{
		static int x=10;
}
class B extends A
{
	int x=20;
	void display()
	{
		System.out.println("A Class x : " + super.x);
		System.out.println("B Class x : " + x);
	}
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p22
A Class x : 10
B Class x : 20
```

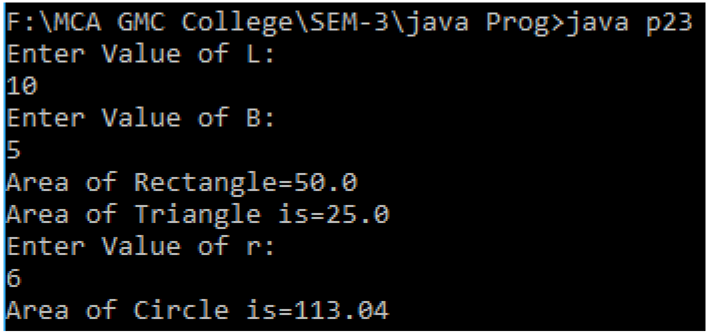
<u>Program -23</u> Describe abstract class called Shape which has three subclasses say Triangle,Rectangle, and Circle. Define one method area 0 in the abstract class and override this area 0 in these three subclasses to calculate for specific object i.e. area 0 of Triangle subclass should calculate area of triangle etc. Same for Rectangle and Circle

Code: -

```
import java.util.*;
abstract class Shape{
        float x,y,z;
                Shape(float a,float b){
                        x=a;
                        y=b;
                }
                Shape(float r){
                        z=r;
                }
                abstract void area();
}
class Rectangle extends Shape
{
                float ans;
                Rectangle(float l,float b){
                        super(l,b);
                }
                void area(){
                        ans=x*y;
                        System.out.println("Area of Rectangle="+ans);
                        }
}
class Triangle extends Shape{
        float ans;
        Triangle(float a,float b){
                super(a,b);
        }
        void area(){
                ans=0.5f*(x*y);
                System.out.println("Area of Triangle is="+ans);
                }
}
class Circle extends Shape{
        float ans;
        Circle(float r)
        {
                super(r);
        }
        void area()
        {
                        ans=3.14f*(z*z);
                        System.out.println("Area of Circle is="+ans);
```

```
    }
}
class p23{
    public static void main(String a[]){

        Scanner sc=new Scanner(System.in);
        System.out.println("Enter Value of L:");
        float l=sc.nextFloat();

        System.out.println("Enter Value of B:");
        float b=sc.nextFloat();

        Shape s=new Rectangle(l,b);
        s.area();
        Shape s1=new Triangle(l,b);
        s1.area();

        System.out.println("Enter Value of r:");
        float r=sc.nextFloat();

        Shape s3=new Circle(r);
        s3.area();
    }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p23
Enter Value of L:
10
Enter Value of B:
5
Area of Rectangle=50.0
Area of Triangle is=25.0
Enter Value of r:
6
Area of Circle is=113.04
```

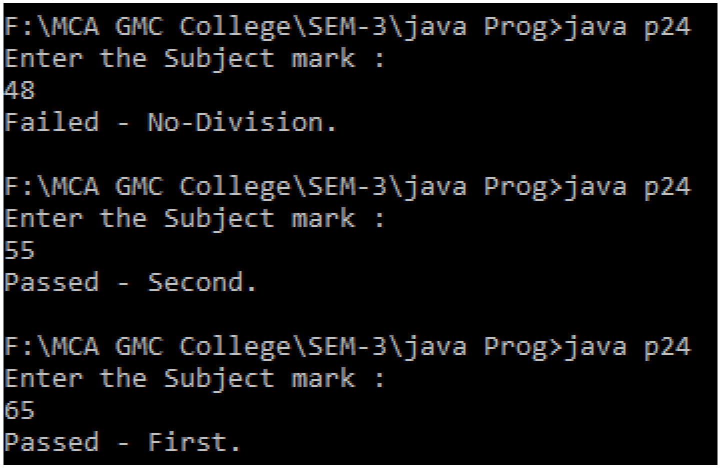
Program -24 Write a java program to implement an interface called Exam with a method Pass (int mark) that returns a boolean. Write another interface called Classify with a method Division (int average) which returns a String. Write a class called Result which implements both Exam and Classify. The Pass method should return true if the mark is greater than or equal to 50 else false. The Division method must return "First" when the parameter average is 60 or more, "Second" when average is 50 or more but below 60, "No division" when average is less than 50.

Code: -

```
import java.util.*;

interface Exam{
	boolean Pass(int mark);
}
interface Classify{
	String Division(int avg);
}

class Result implements Exam,Classify{
	public boolean Pass(int mark){
				if(mark>=50)
					return true;
				else
					return false;
	}

	public String Division(int avg){
			if(avg>=60)
				return "First";
			else if(avg>=50 && avg<=59)
				return "Second";
			else
				return "No-Division";
	}
}

public class p24 {
	public static void main(String[] args) {
			boolean pass;
			int mark,avg;
			String division;

			Scanner sc=new Scanner(System.in);
			System.out.println("Enter the Subject mark : ");
			mark=sc.nextInt();

			avg=mark/1;

			Result obj=new Result();
			pass=obj.Pass(mark);
```

```
                division=obj.Division(avg);

                if(pass)
                {
                        System.out.println("Passed - "+ division + ".");
                }
                else
                {
                        System.out.println("Failed - " + division+ ".");
                }
        }
}
```

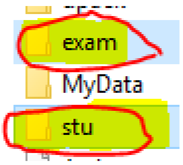
Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p24
Enter the Subject mark :
48
Failed - No-Division.

F:\MCA GMC College\SEM-3\java Prog>java p24
Enter the Subject mark :
55
Passed - Second.

F:\MCA GMC College\SEM-3\java Prog>java p24
Enter the Subject mark :
65
Passed - First.
```

Program -25 Assume that there are two packages, student and exam. A student package contains Student class and the exam package contains Result class. Write a program that generates mark sheet for students.

Code: -



exam
MyData
stu

stu Package Class Student

```
package stu;
public class Student
{
                    String n,eno,no;
                    public Student()
                    {

                    }
                    public Student(String n,String eno,String no)
                    {
                              this.n=n;
                              this.eno=eno;
                              this.no=no;
                    }
                    public void display()
                    {
                              System.out.println("Name = " + n + "\n Enrollment Number = " + eno + "\n Phone Number = " + no);
                    }
}
```

exam Package Class Res

```
package exam;
import stu.*;
public class Res extends Student
{
          int m1,m2,m3;
          public Res()
          {

          }
          public Res(String n,String eno,String no,int m1,int m2,int m3)
          {
                    super(n,eno,no);
                    this.m1=m1;
                    this.m2=m2;
                    this.m3=m3;
          }
          public void display()
```

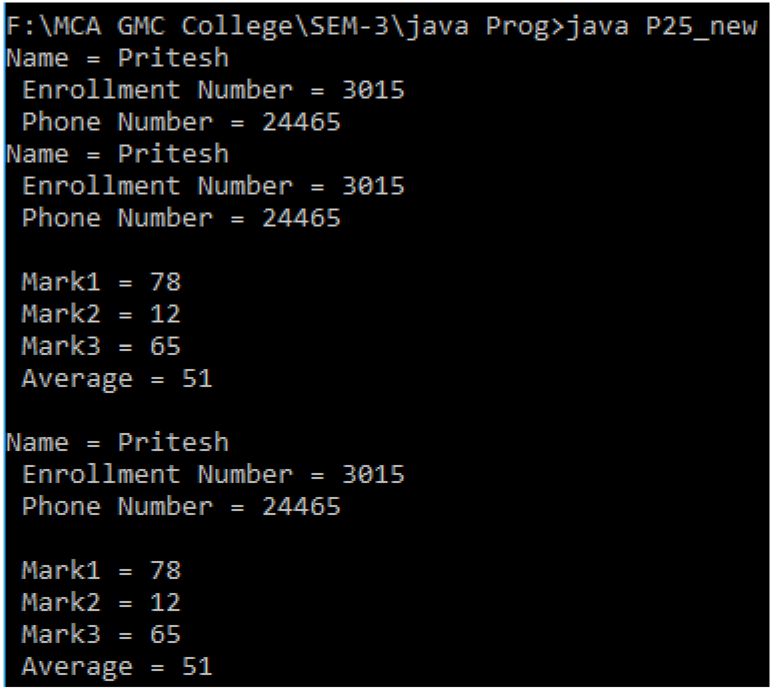
```
    {
        super.display();
        int avg;
        avg=(m1+m2+m3)/3;
        System.out.println("\n Mark1 = " + m1 + "\n Mark2 = " + m2 + "\n Mark3 = " + m3 + "\n
Average = " + avg);
    }
}
```

exam Package Class Result1

```
package exam;

import stu.*;

public class Result1 extends Student
{
    int m1,m2,m3;
    public Result1()
    {

    }
    public Result1(String n,String eno,String no,int m1,int m2,int m3)
    {
        super(n,eno,no);
        this.m1=m1;
        this.m2=m2;
        this.m3=m3;
    }
    public void display()
    {
        super.display();
        int avg;
        avg=(m1+m2+m3)/3;
        System.out.println("\n Mark1 = " + m1 + "\n Mark2 = " + m2 + "\n Mark3 = " + m3 + "\n
Average = " + avg);
    }
}

import exam.*;
import stu.*;
public class P25_new
{
    public static void main(String args[])
    {
        Student obj=new Student("Pritesh","3015","24465");
        obj.display();

        Res obj1=new Res("Pritesh","3015","24465",78,12,65);
        obj1.display();
```

```
                System.out.println();
                Result1 obj2=new Result1("Pritesh","3015","24465",78,12,65);
                obj2.display();
        }
}
```

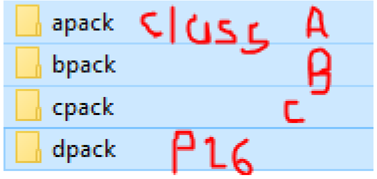
Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java P25_new
Name = Pritesh
 Enrollment Number = 3015
 Phone Number = 24465
Name = Pritesh
 Enrollment Number = 3015
 Phone Number = 24465

 Mark1 = 78
 Mark2 = 12
 Mark3 = 65
 Average = 51

Name = Pritesh
 Enrollment Number = 3015
 Phone Number = 24465

 Mark1 = 78
 Mark2 = 12
 Mark3 = 65
 Average = 51
```

<u>Program -26</u> Define a class A in package apack. In class A, three variables are defined of access modifiers protected, private and public. Define class B in package bpack which extends A and write display method which accesses variables of class A. Define class C in package cpack which has one method display() in that create one object of class A and display its variables. Define class ProtectedDemo in package dpack in which write main 0 method. Create objects of class B and C and class display method for both these objects.

Code: -



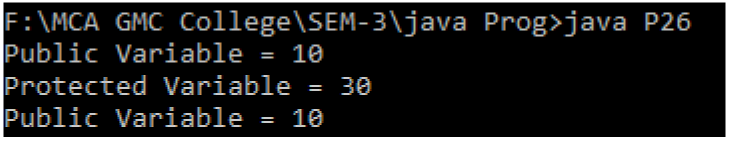
//dpack is not use p26 outer file is use

```
package apack;
public class A
{
	public int a=10;
	private int b=20;
	protected int c=30;

	public A()
	{

	}
}

package bpack;
import apack.*;
public class B extends A
{
	public B()
	{

	}
	public void display()
	{
		//b is private so we can access in another package
		// error: b has private access in A
		//System.out.println("Public Variable = " + obj.a + "\nPrivate Variable = " + obj.b +
"\nProtected Variable = " + obj.c);

		System.out.println("Public Variable = " + super.a + "\nProtected Variable = " + super.c);
	}
}

package cpack;
import apack.*;
public class C
```

```
{
        public C()
        {

        }
        public void display()
        {
                A obj=new A();
                //b is private so we can access in another package
                // error: b has private access in A
                //Protected is only Access with its sub class
                //error: c has protected access in A
                //System.out.println("Public Variable = " + obj.a + "\nPrivate Variable = " + obj.b +
"\nProtected Variable = " + obj.c);

                System.out.println("Public Variable = " + obj.a);
        }
}
```

```
import apack.A;
import bpack.B;
import cpack.C;

public class P26
{
        public static void main(String args[])
        {
                B obj1=new B();
                obj1.display();

                C obj2=new C();
                obj2.display();
        }
}
```

Output: -



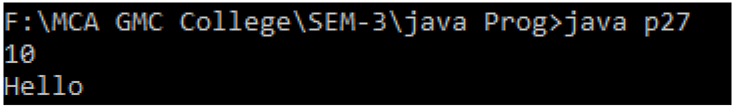
```
F:\MCA GMC College\SEM-3\java Prog>java P26
Public Variable = 10
Protected Variable = 30
Public Variable = 10
```

Program -27 Write a java program to implement lambda expression with functional interface in java

Code: -

```
// Java program to demonstrate lambda expressions
// single abstract method
interface FuncInterface
{
    // An abstract function
    void abstractFun(int x);

    // A non-abstract (or default) function
    default void normalFun()
    {
        System.out.println("Hello");
    }
}

class p27
{
    public static void main(String args[])
    {
        // lambda expression to implement above
        // functional interface. This interface
        // by default implements abstractFun()
        FuncInterface fobj = (int x)->System.out.println(2*x);

        // This calls above lambda expression and prints 10.
        fobj.abstractFun(5);
        fobj.normalFun();

        //full
        /*
            FuncInterface fobj =new FuncInterface();

            fobj.abstractFun(5);


            void abstractFun(int x)
            {
                System.out.println(2*x);
            }
        */
    }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p27
10
Hello
```

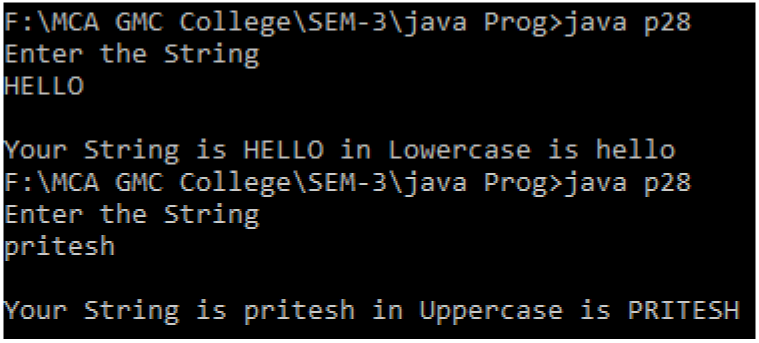
Program -28 Write a java program to accept string check whether it is in Upper or Lower case. As per case change it in according vise versa.

Code: -

```
import java.util.*;
class p28
{
	public static void main(String args[])
	{
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the String");
		String str=sc.nextLine();

		boolean value,value1;
		value=checkisUpperCase(str);
		value1=checkisLowerCase(str);


		if(value)
		{
			String ans=str.toLowerCase();
			System.out.print("\nYour String is " + str + " in Lowercase is " + ans);
		}
		else if(value1)
		{
			String ans1=str.toUpperCase();
			System.out.println("\nYour String is " + str + " in Uppercase is " + ans1);
		}
	}
	public static boolean checkisUpperCase(String s)
	{
		for(int i=0;i<s.length();i++)
		{
			if (!Character.isUpperCase(s.charAt(i)))
			{
				return false;
			}
		}
		return true;
	}
	public static boolean checkisLowerCase(String s)
	{
		for(int i=0;i<s.length();i++)
		{
			if (!Character.isLowerCase(s.charAt(i)))
			{
				return false;
			}
		}
```

```
                    return true;
          }
}
```

Output: -



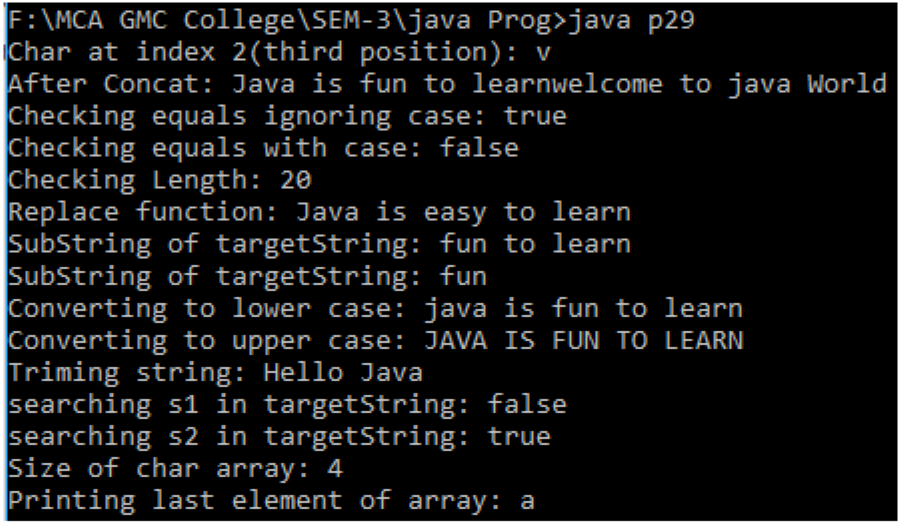
```
F:\MCA GMC College\SEM-3\java Prog>java p28
Enter the String
HELLO

Your String is HELLO in Lowercase is hello
F:\MCA GMC College\SEM-3\java Prog>java p28
Enter the String
pritesh

Your String is pritesh in Uppercase is PRITESH
```

Program -29 Write a java program to use important methods of String class.

Code: -

```
public class p29 {
	public static void main(String[] args) {
		String targetString = "Java is fun to learn";
		String s1= "JAVA";
		String s2= "Java";
		String s3 = "  Hello Java  ";

		System.out.println("Char at index 2(third position): " + targetString.charAt(2));
		System.out.println("After Concat: "+ targetString.concat("welcome to java World"));

		System.out.println("Checking equals ignoring case: " +s2.equalsIgnoreCase(s1));
		System.out.println("Checking equals with case: " +s2.equals(s1));

		System.out.println("Checking Length: "+ targetString.length());

		System.out.println("Replace function: "+ targetString.replace("fun", "easy"));

		System.out.println("SubString of targetString: "+ targetString.substring(8));
		System.out.println("SubString of targetString: "+ targetString.substring(8, 12));

		System.out.println("Converting to lower case: "+ targetString.toLowerCase());
		System.out.println("Converting to upper case: "+ targetString.toUpperCase());
		System.out.println("Triming string: " + s3.trim());
		System.out.println("searching s1 in targetString: " + targetString.contains(s1));
		System.out.println("searching s2 in targetString: " + targetString.contains(s2));
		char [] charArray = s2.toCharArray();
		System.out.println("Size of char array: " + charArray.length);
		System.out.println("Printing last element of array: " + charArray[3]);
	}
}
```

Output: -



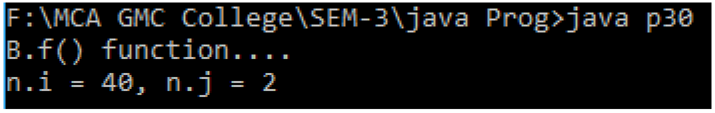
```
F:\MCA GMC College\SEM-3\java Prog>java p29
Char at index 2(third position): v
After Concat: Java is fun to learnwelcome to java World
Checking equals ignoring case: true
Checking equals with case: false
Checking Length: 20
Replace function: Java is easy to learn
SubString of targetString: fun to learn
SubString of targetString: fun
Converting to lower case: java is fun to learn
Converting to upper case: JAVA IS FUN TO LEARN
Triming string: Hello Java
searching s1 in targetString: false
searching s2 in targetString: true
Size of char array: 4
Printing last element of array: a
```

Program -30 Write a program in Java to demonstrate use of final class.

Code: -

```
final class A
{

}
class B //extends A   // error: Cannot extend final class 'B'
{
   int i = 7;
   int j = 1;
   A x = new A();
   void f()
          {
                    System.out.println("B.f() function....");
   }
}
class p30
{
          public static void main(String args[])
          {
                    B n = new B();
                    n.f();
                    n.i = 40;
                    n.j++;
                    System.out.println("n.i = "+n.i+", n.j = "+n.j);

          }
}
```

Output: -



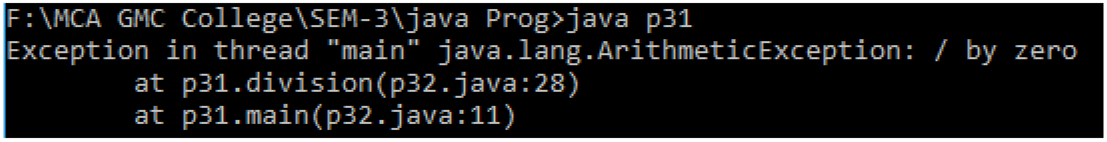
```
F:\MCA GMC College\SEM-3\java Prog>java p30
B.f() function....
n.i = 40, n.j = 2
```

Program -31 Write a program in Java to develop user defined exception for 'Divide by Zero' error

Code: -

```
class p31
{
        public static void main(String args[])
        {
                int a=10;
                int b=0;

                try
                {
                        //int c=a%b;
                        if(a==0 || b==0)
                        {
                                throw new MyException("Divide by Zero Exception");
                        }
                        // throw is used to create a new exception and throw it.
                }
                catch(MyException e)
                {
                        System.out.println(e) ;
                }
        }
}

class MyException extends Exception{
  String str1;

  MyException(String str2) {
        str1=str2;
  }
  public String toString(){
        return ("MyException Occurred: "+str1) ;
  }
}
```

Output: -



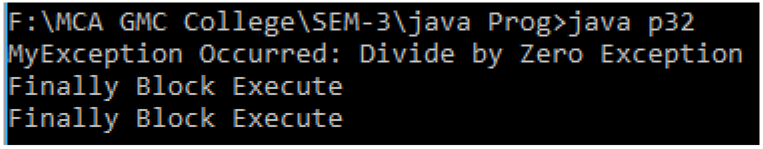
```
F:\MCA GMC College\SEM-3\java Prog>java p31
Exception in thread "main" java.lang.ArithmeticException: / by zero
        at p31.division(p32.java:28)
        at p31.main(p32.java:11)
```

Program -32 Write a program in Java to demonstrate throw, throws, finally, multiple try block and multiple catch exception.

Code: -

```
class p32
{
        public static void main(String args[])
        {
                try
                {
                        int c[]=new int[5];
                        c[5]=30/0;

                        try
                        {
                                int a=10;
                                int b=0;

                                //2 throw
                                if(a==0 || b==0)
                                {
                                        throw new MyException("Divide by Zero Exception");
                                }
                                //1 throws
                                p31 obj=new p31();
                                System.out.println(obj.division(15,0));
                        }

                        catch(MyException e)
                        {
                                System.out.println(e);
                        }
                        catch(Exception e)
                        {
                                System.out.println(e);
                        }
                        finally
                        {
                                System.out.println("Finally Block Execute");
                        }
                        // throw is used to create a new exception and throw it.
                }
                catch(ArithmeticException e)
                {
                        System.out.println(e);
                }
                catch(ArrayIndexOutOfBoundsException e)
                {
                        System.out.println(e);
                }
                catch(Exception e)
                {
                        System.out.println(e);
                }
                finally
                {
                        System.out.println("Finally Block Execute");
                }
        }


        int division(int a,int b) throws ArithmeticException
        {
                int c =a%b;
                return c;
        }
}
//user define Exception
class MyException extends Exception
{
  String str1;

  MyException(String str2)
  {
        str1=str2;
  }
  public String toString()
  {
        return ("MyException Occurred: "+str1) ;
  }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p32
MyException Occurred: Divide by Zero Exception
Finally Block Execute
Finally Block Execute
```

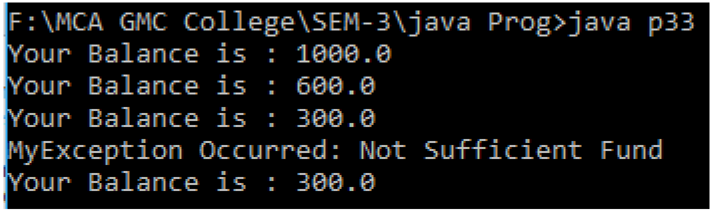
Program -33 Write a small application in Java to develop Banking Application in which user deposits the amount Rs 1000.00 and then start withdrawing of Rs 400.00, Rs 300.00 and it throws exception "Not Sufficient Fund" when user withdraws Rs. 500 thereafter.

Code: -

```
class p33  //Account
{
	public static void main(String args[])
	{
		bank obj=new bank();
		obj.deposit(1000.00);
		obj.checkbalance();
		obj.withdraw(400.00);
		obj.checkbalance();
		obj.withdraw(300.00);
		obj.checkbalance();
		obj.withdraw(500.00);
		obj.checkbalance();
	}
}
class bank
{
	double amount;
	void deposit(double b)
	{
		amount=b;
	}
	void checkbalance()
	{
		System.out.println("Your Balance is : " + amount);
	}
	void withdraw(double a)
	{
		try
		{
			if(a<this.amount)
			{
				double amt=this.amount-a;
				this.amount=amt;
			}
			else
			{
				throw new MyException("Not Sufficient Fund");
			}
		}
		catch(MyException e)
		{
			System.out.println(e);
		}
```

```
        }
}

class MyException extends Exception
{
        String str1;
        MyException(String str)
        {
                str1=str;
        }
        public String toString()
        {
                return ("MyException Occurred: " + str1) ;
        }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p33
Your Balance is : 1000.0
Your Balance is : 600.0
Your Balance is : 300.0
MyException Occurred: Not Sufficient Fund
Your Balance is : 300.0
```

Program -34 Write a program to write at least 10 objects of the Circle class in a File using ObjectOutputStream and perform basic operations: adding, retrieving, updating, removing elements. [Use Generic Data types and Collections for the this task]

Code: -

Output: -

Program -35 Write a program for Java Generics and Collections Sorting operations:

1. Sorting a list according to natural ordering of elements
2. Reversing sort order
3. Sorting a list whose elements of a custom type
4. Sorting a list using a Comparator

Code: -

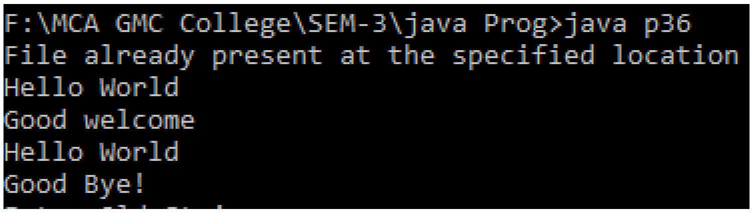
Output: -

Program -36 Write a program in Java to create, write, modify, read operations on a Text file.
Code: -

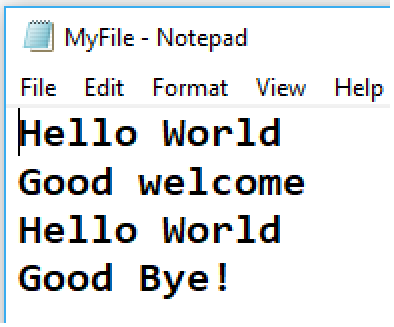
```
import java.util.*;
import java.io.*;

import java.util.*;
class p36 {

  public static void main(String[] args) {
    try
              {
                     //Create File
                     File file = new File("MyFile.txt");
                     boolean fvar = file.createNewFile();
                      if (fvar){
                             System.out.println("File has been created successfully");
                      }
                      else{
                             System.out.println("File already present at the specified location");
                      }

                     //write in a file
                     FileWriter writer = new FileWriter("MyFile.txt", true);  //true=if file not Exist it
create new File with that file name
      writer.write("Hello World");
      writer.write("\r\n");   // write new line
      writer.write("Good Bye!");
      writer.close();

                     //read from a file
      FileReader reader = new FileReader("MyFile.txt");
      int character;

      while ((character = reader.read()) != -1) {
        System.out.print((char) character);
      }
                     System.out.println();
                    reader.close();
                     //modify = ??
                      try
                     {
                            File file1 = new File("MyFile.txt");
                            FileReader fr=new FileReader(file1);
                            BufferedReader reader1 = new BufferedReader(fr);
                            String line = "", oldtext = "";
                            while((line = reader1.readLine()) != null)
                            {
                                   oldtext += line + "\r\n";
```

```
                                }
                                reader1.close();
                                // replace a word in a file
                                Scanner sc=new Scanner(System.in);
                                System.out.println("Enter Old String");
                                String old=sc.nextLine();
                                System.out.println("Enter New String");
                                String nw=sc.nextLine();
                                String newtext = oldtext.replaceAll(old,nw);

                                //To replace a line in a file
                                //String newtext = oldtext.replaceAll("This is test string 20000", "blah
blah blah");
                                FileWriter writer1 = new FileWriter("MyFile.txt");
                                writer1.write(newtext);
                                writer1.close();
                        }
                        catch (IOException e)
                        {
                                e.printStackTrace();
                        }
                }
                catch (IOException e)
                {
        e.printStackTrace();
      }
    }
}
```

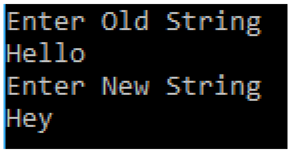
Output: -



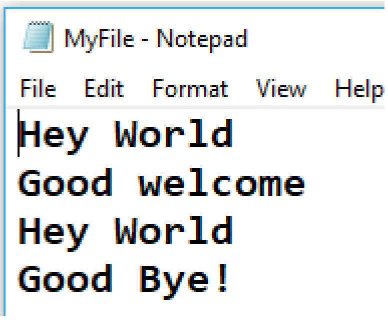
```
F:\MCA GMC College\SEM-3\java Prog>java p36
File already present at the specified location
Hello World
Good welcome
Hello World
Good Bye!
```



```
Hello World
Good welcome
Hello World
Good Bye!
```



```
Enter Old String
Hello
Enter New String
Hey
```



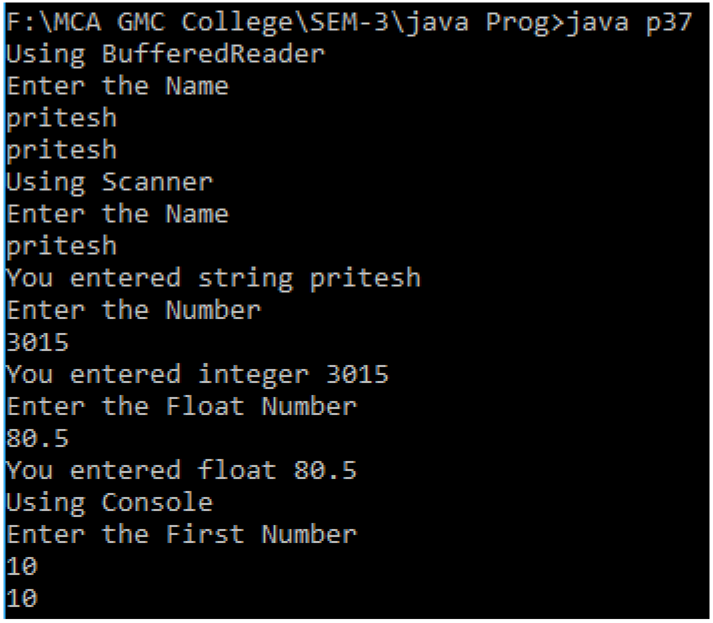
```
Hey World
Good welcome
Hey World
Good Bye!
```

Program -37 Write a java program to illustrates use of standard input stream to read the user input.

Code: -

```
//BufferedReader
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
//Scanner
import java.util.Scanner;


public class p37
{
	public static void main(String[] args) throws IOException
	{
		//BufferedReader
		System.out.println("Using BufferedReader");
		BufferedReader reader = new BufferedReader(new InputStreamReader(System.in));
		System.out.println("Enter the Name");
		String name = reader.readLine();
		System.out.println(name);

		//Scanner
		System.out.println("Using Scanner");
		Scanner in = new Scanner(System.in);
		System.out.println("Enter the Name");
		String s = in.nextLine();
		System.out.println("You entered string "+s);
		System.out.println("Enter the Number");
		int a = in.nextInt();
		System.out.println("You entered integer "+a);
		System.out.println("Enter the Float Number");
		float b = in.nextFloat();
		System.out.println("You entered float "+b);

		// Using Console to input data from user
		System.out.println("Using Console");
		System.out.println("Enter the First Number");
		String fname = System.console().readLine();
		System.out.println(fname);

	}
}
```

Output: -



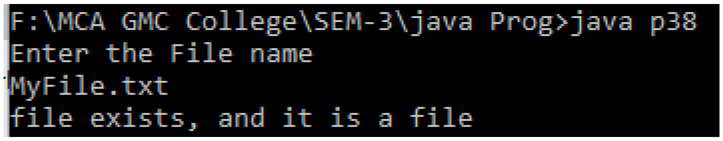
```
F:\MCA GMC College\SEM-3\java Prog>java p37
Using BufferedReader
Enter the Name
pritesh
pritesh
Using Scanner
Enter the Name
pritesh
You entered string pritesh
Enter the Number
3015
You entered integer 3015
Enter the Float Number
80.5
You entered float 80.5
Using Console
Enter the First Number
10
10
```

Program -38 Write a java program to checks the existence of a specified file.

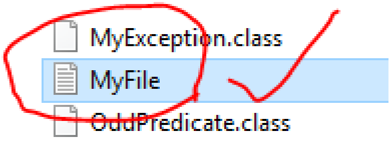
Code: -

```
import java.util.*;
import java.io.*;

class p38
{
 public static void main(String[] args)
 {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the File name");
        String fn=sc.next();
  // test to see if a file exists
  File file = new File(fn);
  if (file.exists() && file.isFile())
  {
   System.out.println("file exists, and it is a file");
  }
        else
        {
                System.out.println("file is not exists,or it is not a file");
        }
 }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p38
Enter the File name
MyFile.txt
file exists, and it is a file
```

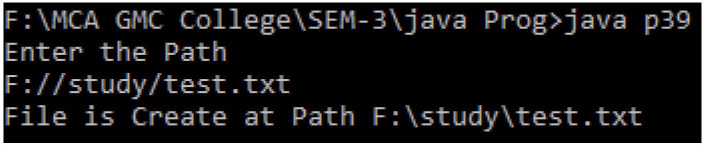


Program -39 Write a java program to create a file to the specified location.

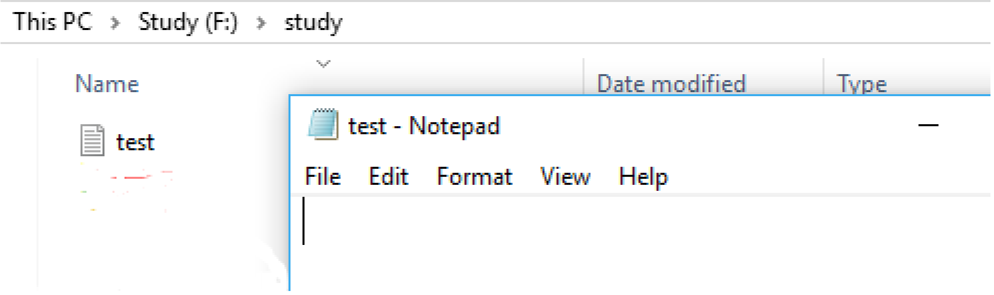
Code: -

```
import java.io.*;
import java.util.*;

public class p39 {

        public static void main(String[] args)
        {
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter the Path");
                String path=sc.next();

                // create File object
                File stockFile = new File(path); //"d://Stock/stockFile.txt"

                try
                {
                        stockFile.createNewFile();
                }
                catch (IOException e)
                {
                         System.out.println("Error while Creating File in Java" + e);
                }

                System.out.println("File is Create at Path " + stockFile.getPath());

        }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p39
Enter the Path
F://study/test.txt
File is Create at Path F:\study\test.txt
```

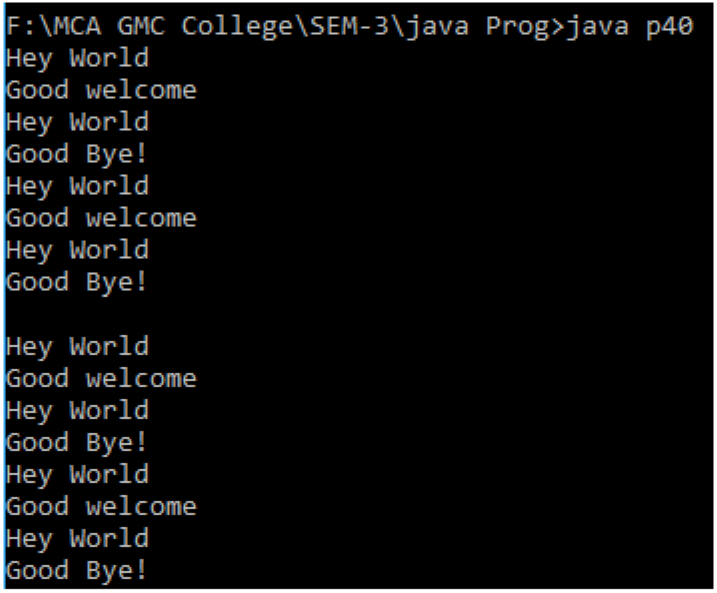


Program -40 Write a java program to demonstrate the way contents are read from a file.

Code: -

```
import java.io.*;
import java.io.File;
import java.util.*;
import java.nio.*;
//check method 4 and 5 (Paths and Files Keyword Error)
public class p40
{
        public static void main(String[] args)throws Exception
        {
                //(1) using BufferedReader
                // We need to provide file path as the parameter:
                // double backquote is to avoid compiler interpret words
                // like \test as \t (ie. as a escape sequence)
                File file = new File("F:\\MCA GMC College\\SEM-3\\java Prog\\MyFile.txt");

                BufferedReader br = new BufferedReader(new FileReader(file));

                String st;
                while ((st = br.readLine()) != null)
                {
                        System.out.println(st);
                }

                // (2) FileReader using FileReader
                // pass the path to the file as a parameter
                FileReader fr = new FileReader("F:\\MCA GMC College\\SEM-3\\java Prog\\MyFile.txt");
                int i;
                while ((i=fr.read()) != -1)
                {
                        System.out.print((char) i);
                }
                System.out.println();
                //(3) using Scanner Class
                // pass the path to the file as a parameter
                File file1 = new File("F:\\MCA GMC College\\SEM-3\\java Prog\\MyFile.txt");
                Scanner sc2 = new Scanner(file1);

                while (sc2.hasNextLine())
                {
                        System.out.println(sc2.nextLine());
                }

                //Scanner class but without using While loops
                File file2 = new File("F:\\MCA GMC College\\SEM-3\\java Prog\\MyFile.txt");
                Scanner sc1 = new Scanner(file2);
                // we just need to use \\Z as delimiter
                sc1.useDelimiter("\\Z");
                System.out.println(sc1.next());

                /*
                //(4) Reading whole file in a list
                // Java program to illustrate reading data from file
                // using nio.File
                //import java.nio.charset.StandardCharsets;
                //import java.nio.file.*;

                List l = readFileInList("F:\\MCA GMC College\\SEM-3\\java Prog\\MyFile.txt");

                Iterator<String> itr = l.iterator();
                while (itr.hasNext())
                System.out.println(itr.next());



                //(5) Reading Text file as String
                String data = readFileAsString("F:\\MCA GMC College\\SEM-3\\java Prog\\MyFile.txt");
                System.out.println(data); */
        }
        /*
        //(4) Reading whole file in a list
                // Java program to illustrate reading data from file
                // using nio.File
                //import java.nio.charset.StandardCharsets;
                //import java.nio.file.*;

                public static List<String> readFileInList(String fileName)
                {

                        List<String> lines = Collections.emptyList();
                        try
                        {
                        lines = Files.readAllLines(Paths.get(fileName), StandardCharsets.UTF_8);
                        }

                        catch (IOException e)
                        {

                        // do something
                        e.printStackTrace();
                        }
                        return lines;
                }
        //(5) Reading Text file as String
                public static String readFileAsString(String fileName)throws Exception
                {
                        String data = "";
                        data = new String(Files.readAllBytes(Paths.get(fileName)));
                        return data;
                }*/
}
```

Output: -



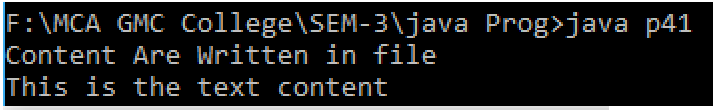
```
F:\MCA GMC College\SEM-3\java Prog>java p40
Hey World
Good welcome
Hey World
Good Bye!
Hey World
Good welcome
Hey World
Good Bye!

Hey World
Good welcome
Hey World
Good Bye!
Hey World
Good welcome
Hey World
Good Bye!
```

Program -41 Write a java program to first checks the existence of the specified file. If the file exists, the data is written to the file through the object of the FileOutputStream class.

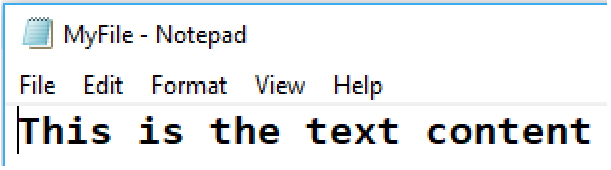
Code: -

```
import java.io.*;
import java.util.*;

public class p41 {
    public static void main(String[] args) {
        File file = new File("F:\\MCA GMC College\\SEM-3\\java Prog\\MyFile.txt");
        try {
            // if file doesn't exists, then create it
            if (!file.exists() && !file.isFile())
            {
                System.out.println("File is Not Exist");
                //file.createNewFile();
            }
            else
            {
                FileOutputStream fop = new FileOutputStream(file);
                String content = "This is the text content";
                // get the content in bytes
                byte[] contentInBytes = content.getBytes();
                fop.write(contentInBytes);
                System.out.println("Content Are Written in file");
                //show file contain
                Scanner sc2 = new Scanner(file);
                while (sc2.hasNextLine())
                {
                    System.out.println(sc2.nextLine());
                }
                fop.flush();
                fop.close();
            }
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p41
Content Are Written in file
This is the text content
```



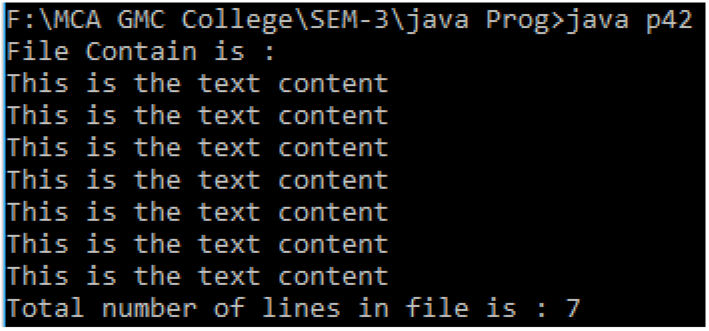
```
This is the text content
```

Program -42 Write a java program to count the availability of text lines in the particular file. A file is read before counting lines of a particular file.

Code: -

```
import java.io.*;
class p42
{
	public static void main(String args[])
	{
		try
		{
			FileReader fr=new FileReader("F:\\MCA GMC College\\SEM-3\\java 
Prog\\MyFile.txt");
			BufferedReader br=new BufferedReader(fr);
			String line=br.readLine();
			int count=0;

			System.out.println("File Contain is : ");
			while(line!=null){
				System.out.println(line);
				count++;
				line=br.readLine();
			}

			System.out.print("Total number of lines in file is : "+count);
			br.close();
		}
		catch(Exception e)
		{
			e.printStackTrace();
			System.out.println("error"+e.getMessage());
		}
	}
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p42
File Contain is :
This is the text content
This is the text content
This is the text content
This is the text content
This is the text content
This is the text content
This is the text content
Total number of lines in file is : 7
```

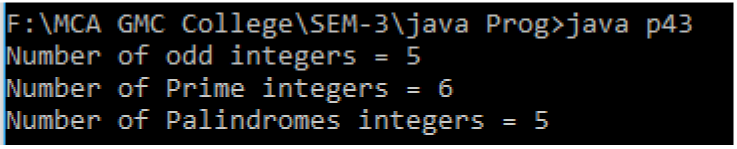
Program -43 Write a generic method to count the number of elements in a collection that have a specific property (for example, odd integers, prime numbers, palindromes).

Code: -

```
import java.util.*;
class p43
{
   public static void main(String[] args)
          {
      Collection<Integer> ci = Arrays.asList(2,3,5,7,19,11);
      int count = Algorithm.countIf(ci, new OddPredicate());
                 int count1 = Algorithm.countIf(ci, new PrimeNumber());
                 int count2 = Algorithm.countIf(ci, new Palindromes());
      System.out.println("Number of odd integers = " + count);
                 System.out.println("Number of Prime integers = " + count1);
                 System.out.println("Number of Palindromes integers = " + count2);
   }
}
final class Algorithm
{
   public static <T> int countIf(Collection<T> c, UnaryPredicate<T> p)
          {

      int count = 0;
      for (T elem : c)
                 {
         if (p.test(elem))
                        {
           ++count;
                        }
                 }
      return count;
   }
}

interface UnaryPredicate<T>
{
   public boolean test(T obj);
}

class OddPredicate implements UnaryPredicate<Integer>
{
   public boolean test(Integer i)
          {
                 return i % 2 != 0;
          }
}

class PrimeNumber implements UnaryPredicate<Integer>
```

```
{
  public boolean test(Integer no)
        {
                boolean value=false;
                int flag=0;
                int m=no/2;
                for(int i=2;i<=m;i++)
                {
                        if(no%i==0)
                        {
                                flag=1;
                                break;
                        }
                }
                if(flag==0)
                {
                        value=true;
                }
                return value;
        }
}

class Palindromes implements UnaryPredicate<Integer>
{
  public boolean test(Integer no)
        {
                boolean value=false;
                int m = no;
                int x,a=0;
    while(no > 0)
    {
      x = no % 10;
      a = a * 10 + x;
      no = no / 10;
    }
    if(a == m)
    {
      value=true;
    }
                return value;
        }
}
```

Output: -



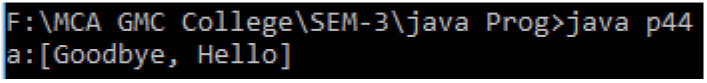
```
F:\MCA GMC College\SEM-3\java Prog>java p43
Number of odd integers = 5
Number of Prime integers = 6
Number of Palindromes integers = 5
```

Program -44 Write a generic method to exchange the positions of two different elements in an array.

Code: -

```
//our prog use
import java.util.Arrays;

//not use
import java.util.ArrayList;
import java.util.Collections;
import java.util.List;


public class p44 {
        public static void main(String...args)
        {
                test();
        }

        private static void test()
        {
          String [] a = {"Hello", "Goodbye"};
          swap(a, 0, 1);
          System.out.println("a:"+Arrays.toString(a));

          //List Swap (Not in Our Program)
          /*List<String> l = new ArrayList<String>(Arrays.asList(a));
          swap(l, 0, 1);
          System.out.println("l:"+l);*/
        }

        //Array Swap
        public static final <T> void swap (T[] a, int i, int j)
        {
          T t = a[i];
          a[i] = a[j];
          a[j] = t;
        }

        //List Swap
        /*public static final <T> void swap (List<T> l, int i, int j)
        {
          Collections.<T>swap(l, i, j);
        }*/
}
```

Output: -



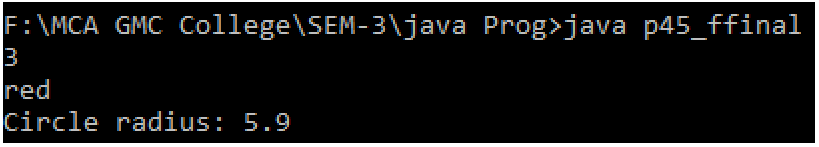
```
F:\MCA GMC College\SEM-3\java Prog>java p44
a:[Goodbye, Hello]
```

<u>Program -45</u> Write a generic method to find the maximal element in the range [begin, end) of a list.

Code: -

```
public class p45_ffinal {
   public static void main(String[] args) {
      Integer[] numbers = {1, 2, 3}; //Creates array of integers
      System.out.println(max(numbers));
      String[] words = {"red", "green", "blue"}; //Creates an array of strings
      System.out.println(max(words));
      Circle[] circles = {new Circle(3), new Circle(2.9), new Circle(5.9)}; //creates an array of circles
      System.out.println(max(circles));
   }
   static class Circle implements Comparable<Circle> { //Circle object implements Comparable to
compare with Circle
      double radius;
      public Circle (double radius){
         this.radius = radius; //sets value of radius from main method for radius
         }
      @Override
      public int compareTo(Circle c) {
         if (radius < c.radius)
            return -1;
         else if (radius == c.radius)
            return 0;
         else
            return 1;
      }
      @Override
      public String toString() {
         return "Circle radius: " + radius;
      }
      }
   public static <E extends Comparable<E>> E max(E[] list) {
      E max = list[0]; //sets the first value in the array as the current maximum
      for (int i = 1; i < list.length; i++) {
         if (list[i].compareTo(max) > 0) {
            max = list[i];
         }
      }
      return max;
   }
}
```

Output: -



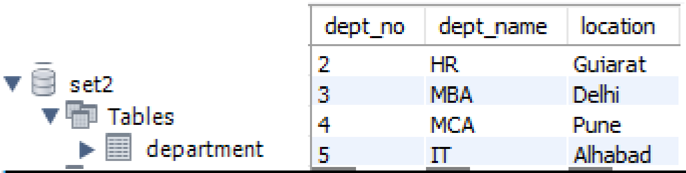
```
F:\MCA GMC College\SEM-3\java Prog>java p45_ffinal
3
red
Circle radius: 5.9
```

<u>Program -46</u> Write a program to implement JDBC/ODBC connectivity to data base using java program.

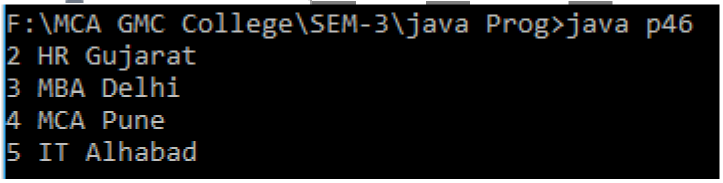
Code: -

```
import java.io.*;
import java.sql.*;
public class p46
{
        public static void main(String args[]) throws Exception,IOException
        {
                try
                {
                        Class.forName("com.mysql.cj.jdbc.Driver");
                        Connection 
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/set2","root","admin");
                        Statement stmt=con.createStatement();
                        ResultSet rs=stmt.executeQuery("select * from department");

                                while(rs.next())
                                {
                                        System.out.println(rs.getInt(1) + " " + rs.getString(2) + " " + 
rs.getString(3));
                                }
                                con.close();
                }
                catch(Exception e)
                {
                        System.out.println(e);
                }
        }
}
```

Output: -



dept_no	dept_name	location
2	HR	Gujarat
3	MBA	Delhi
4	MCA	Pune
5	IT	Alhabad



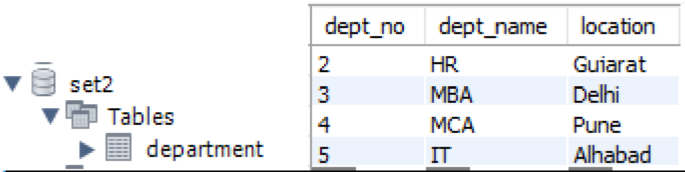
```
F:\MCA GMC College\SEM-3\java Prog>java p46
2 HR Gujarat
3 MBA Delhi
4 MCA Pune
5 IT Alhabad
```

Program -47 Write a java program to connect any of database e.g. MYSQL / Oracle /MS Access/ etc.

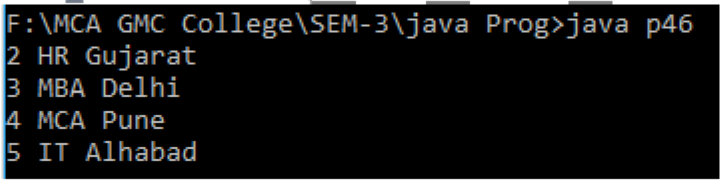
Code: -

```
import java.io.*;
import java.sql.*;
public class p47
{
        public static void main(String args[]) throws Exception,IOException
        {
                try
                {
                        Class.forName("com.mysql.cj.jdbc.Driver");
                        Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/set2","root","admin");
                        Statement stmt=con.createStatement();
                        ResultSet rs=stmt.executeQuery("select * from department");

                                while(rs.next())
                                {
                                        System.out.println(rs.getInt(1) + " " + rs.getString(2) + " " +
rs.getString(3));
                                }
                                con.close();
                }
                catch(Exception e)
                {
                        System.out.println(e);
                }
        }
}
```

Output: -



dept_no	dept_name	location
2	HR	Gujarat
3	MBA	Delhi
4	MCA	Pune
5	IT	Alhabad



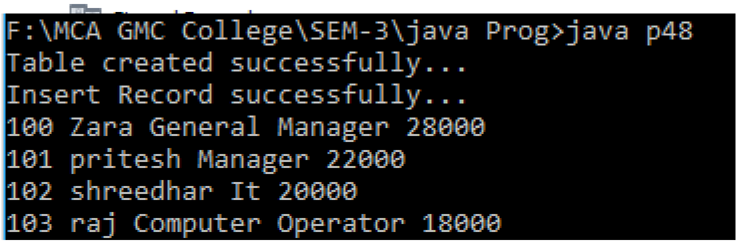
```
F:\MCA GMC College\SEM-3\java Prog>java p46
2 HR Gujarat
3 MBA Delhi
4 MCA Pune
5 IT Alhabad
```

<u>Program -48</u> Write a java program to create Employee table(Empno., Name, Designation, Salary) and insert a record in it.

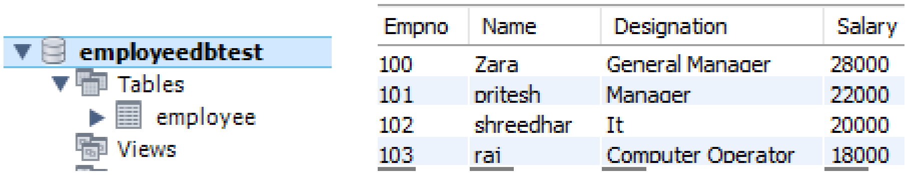
Code: -

```
import java.io.*;
import java.sql.*;
public class p48
{
    public static void main(String args[]) throws Exception,IOException
    {
        try
        {
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/EmployeeDbTest","root","admin");
            Statement stmt=con.createStatement();

            String sql="create table Employee(Empno int,Name varchar(20),Designation
varchar(30),Salary int,PRIMARY KEY(Empno));";
            stmt.executeUpdate(sql);
            System.out.println("Table created successfully...");

            String sql1 = "INSERT INTO Employee " +
     "VALUES (100, 'Zara', 'General Manager', 28000)";
            stmt.executeUpdate(sql1);

            String sql2 = "INSERT INTO Employee " +
     "VALUES (101, 'pritesh', 'Manager', 22000)";
            stmt.executeUpdate(sql2);

            String sql3 = "INSERT INTO Employee " +
     "VALUES (102, 'shreedhar', 'It', 20000)";
            stmt.executeUpdate(sql3);

            String sql4 = "INSERT INTO Employee " +
     "VALUES (103, 'raj', 'Computer Operator', 18000)";
            stmt.executeUpdate(sql4);


            System.out.println("Insert Record successfully...");

            String sql5 = "Select * from Employee";
            ResultSet rs=stmt.executeQuery(sql5);

            while(rs.next())
            {
                System.out.println(rs.getInt(1) + " " + rs.getString(2) + " " +
rs.getString(3) + " " + rs.getInt(4));
            }
				con.close();
			}
			catch(Exception e)
			{
				System.out.println(e);
			}
		}
}
```

Output: -



```
F:\MCA GMC College\SEM-3\java Prog>java p48
Table created successfully...
Insert Record successfully...
100 Zara General Manager 28000
101 pritesh Manager 22000
102 shreedhar It 20000
103 raj Computer Operator 18000
```



Empno	Name	Designation	Salary
100	Zara	General Manager	28000
101	pritesh	Manager	22000
102	shreedhar	It	20000
103	raj	Computer Operator	18000

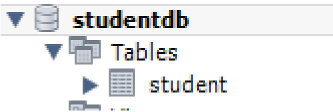
Program -49 Write a JAVA program to accept the details of student (Rno , SName , Per) from the user and insert it into the table. (use PreparedStatement Class).

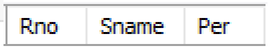
Code: -

```
import java.sql.*;
import java.io.*;
import java.util.*;

public class p49 {

        private static final String DB_DRIVER = "com.mysql.cj.jdbc.Driver";
        private static final String DB_CONNECTION = "jdbc:mysql://localhost:3306/StudentDb";
        private static final String DB_USER = "root";
        private static final String DB_PASSWORD = "admin";

        public static void main(String[] argv) throws IOException,SQLException,Exception
        {
                try
                {
                        //Insert Recored
                        Class.forName(DB_DRIVER);
                        Connection
con=DriverManager.getConnection(DB_CONNECTION,DB_USER,DB_PASSWORD);

                        String insertTableSQL = "INSERT INTO student VALUES(?,?,?)";
                        PreparedStatement stmt = con.prepareStatement(insertTableSQL);

                        Scanner sc=new Scanner(System.in);
                        System.out.println("Enter the Roll Number");
                        int rn=sc.nextInt();

                        System.out.println("Enter the Student Name");
                        String nm=sc.next();

                        System.out.println("Enter the Student Percentage");
                        int per=sc.nextInt();

                        stmt.setInt(1, rn);
                        stmt.setString(2, nm);
                        stmt.setInt(3, per);

                        // execute insert SQL stetement
                        int i=stmt.executeUpdate();
                        System.out.println(i+" records inserted");


                        //Display Records
                        Statement stmt1=con.createStatement();
                        ResultSet rs=stmt.executeQuery("select * from student");
```

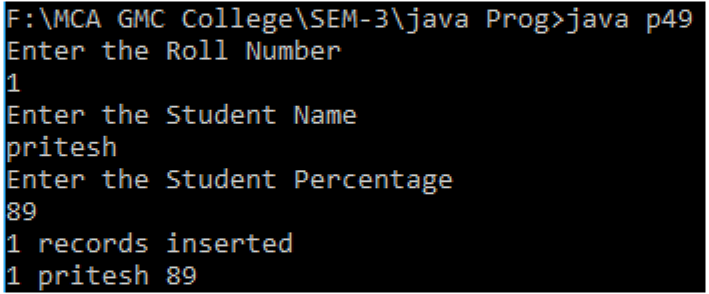
```
            while(rs.next())
            {
                System.out.println(rs.getInt(1)+" "+rs.getString(2)+ " " + rs.getInt(3));
            }
            stmt.close();
            con.close();
        }
        catch (SQLException e)
        {
            System.out.println(e.getMessage());
        }
    }
}
```

Output: -

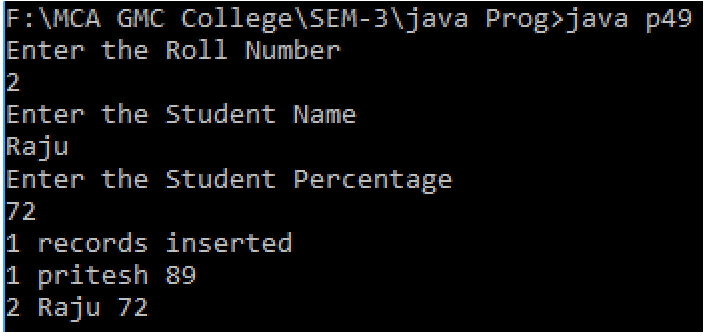




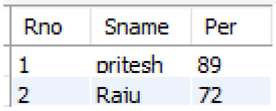
Rno	Sname	Per



```
F:\MCA GMC College\SEM-3\java Prog>java p49
Enter the Roll Number
1
Enter the Student Name
pritesh
Enter the Student Percentage
89
1 records inserted
1 pritesh 89
```



```
F:\MCA GMC College\SEM-3\java Prog>java p49
Enter the Roll Number
2
Enter the Student Name
Raju
Enter the Student Percentage
72
1 records inserted
1 pritesh 89
2 Raju 72
```



Rno	Sname	Per
1	pritesh	89
2	Raju	72

Program -50 Write a Menu driven program in Java for the following.
1. Create a Library Table (BookID, ISSNNo., Author, BookTitle, Price, Publisher, Year)
2. Insert Record into the Library Table.
3. Update The Existing Record.
4. Display all the Records from the Table.
5. Display names of books stating with "J" character
6. Delete the record
7. Exit from the program.

Code: -

```
import java.io.*;
import java.sql.*;
import java.util.*;
public class p50
{
        public static void main(String args[]) throws Exception,IOException
        {
                int choice;

                        System.out.println("*************MENU***************");
                        System.out.print("1. Create Library Table\n2. Insert Record into Library
Table\n3. Update the Existing Record\n4. Display all Records From the Table\n5. Display the name
Starting with 'J' Character\n6. Delete the Record\n7. Exit\n");
                        System.out.println("********************************");

                        System.out.println("Enter the Choice");
                        Scanner sc=new Scanner(System.in);
                        choice=sc.nextInt();

                        SqlOperation obj=new SqlOperation();

                        switch(choice)
                        {
                                case 1:
                                        obj.create();
                                        break;
                                case 2:
                                        obj.insert();
                                        obj.display();
                                        break;
                                case 3:
                                        obj.display();
                                        obj.update();
                                        obj.display();
                                        break;
                                case 4:
                                        obj.display();
                                        break;
                                case 5:
```

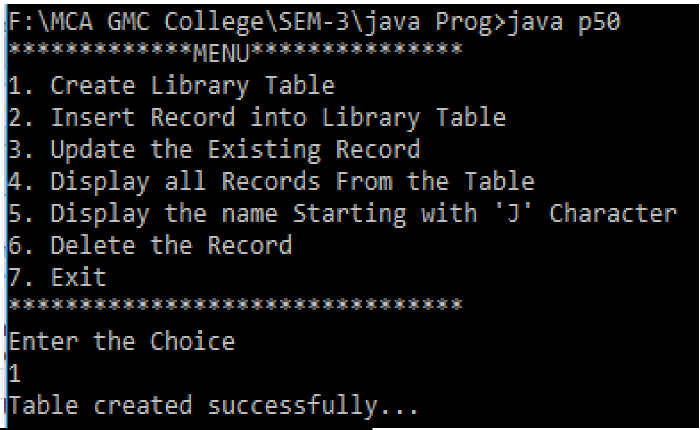
```
                    obj.displaywhere();
                    break;
                case 6:
                    obj.display();
                    obj.delete();
                    obj.display();
                    break;
                case 7:
                    System.out.println("Exit");
                    break;
                default:
                    System.out.println("Not Valid");
            }
    }
}

class SqlOperation
{
    public void create() throws IOException,Exception,SQLException
    {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con =
DriverManager.getConnection("jdbc:mysql://localhost/LibraryDb","root","admin");

     try{
            Statement stmt=con.createStatement();

            String sql="create table Library(BookId int,ISSNNo int,Author
varchar(20),BookTitle varchar(30),price int,Publisher varchar(20),Year varchar(4));";
            stmt.executeUpdate(sql);
            System.out.println("Table created successfully...");
     }
     catch(Exception e)
     {
            System.out.println(e);
     }
    }
    public void  insert() throws IOException,Exception,SQLException
    {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con =
DriverManager.getConnection("jdbc:mysql://localhost/LibraryDb","root","admin");
        try
        {
            String insertTableSQL = "INSERT INTO Library VALUES(?,?,?,?,?,?,?)";

            PreparedStatement stmt = con.prepareStatement(insertTableSQL);
```

```
                    Scanner sc=new Scanner(System.in);
                    System.out.println("Enter the Book BookId");
                    int bid=sc.nextInt();

                    System.out.println("Enter the Book ISSNNO");
                    int issn=sc.nextInt();

                    System.out.println("Enter the Book Author");
                    String author=sc.next();

                    System.out.println("Enter the Book Title");
                    String title=sc.next();

                    System.out.println("Enter the Book Price");
                    int price=sc.nextInt();

                    System.out.println("Enter the Book Publisher");
                    String pub=sc.next();

                    System.out.println("Enter the Book Year");
                    String y=sc.next();

                    stmt.setInt(1, bid);
                    stmt.setInt(2, issn);
                    stmt.setString(3, author);
                    stmt.setString(4, title);
                    stmt.setInt(5, price);
                    stmt.setString(6, pub);
                    stmt.setString(7, y);

                    // execute insert SQL stetement
                    stmt.executeUpdate();
            }
            catch(Exception e)
            {
                    System.out.println(e);
            }

    }
    public void update() throws IOException,Exception,SQLException
    {
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection con =
DriverManager.getConnection("jdbc:mysql://localhost/LibraryDb","root","admin");

            Scanner sc=new Scanner(System.in);
            System.out.println("Enter the Book ISSN No");
            int isbn=sc.nextInt();
```

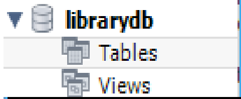
```
                System.out.println("Enter the Book New Price");
                int price=sc.nextInt();

                String query = "update Library set price = ? where ISSNNO = ?";
                PreparedStatement preparedStmt = con.prepareStatement(query);
                preparedStmt.setInt(1,price);
                preparedStmt.setInt(2,isbn);

    // execute the java preparedstatement
    preparedStmt.executeUpdate();
        }
        public void display() throws IOException,Exception,SQLException
        {
                Class.forName("com.mysql.cj.jdbc.Driver");
                Connection con = 
DriverManager.getConnection("jdbc:mysql://localhost/LibraryDb","root","admin");

                Statement stmt1=con.createStatement();
                ResultSet rs=stmt1.executeQuery("select * from Library");
                while(rs.next())
                {
                        System.out.println(rs.getInt(1) + " " + rs.getInt(2) + " " + rs.getString(3)+ " "  + 
rs.getString(4)+ " "  + rs.getInt(5) + " " + rs.getString(6) + " " + rs.getString(7));
                }
        }
        public void displaywhere() throws IOException,Exception,SQLException
        {
                Class.forName("com.mysql.cj.jdbc.Driver");
                Connection con = 
DriverManager.getConnection("jdbc:mysql://localhost/LibraryDb","root","admin");

                Statement stmt2=con.createStatement();
                ResultSet rs1=stmt2.executeQuery("select * from Library where BookTitle like'j%'");
                while(rs1.next())
                {
                        System.out.println(rs1.getInt(1) + " " + rs1.getInt(2) + " " + rs1.getString(3)+ " " 
+ rs1.getString(4)+ " "  + rs1.getInt(5) + " " + rs1.getString(6) + " " + rs1.getString(7));
                }
        }
        public void delete() throws IOException,Exception,SQLException
        {
                Class.forName("com.mysql.cj.jdbc.Driver");
                Connection con = 
DriverManager.getConnection("jdbc:mysql://localhost/LibraryDb","root","admin");

                Scanner sc=new Scanner(System.in);
                System.out.println("Enter the Book ISSN No");
```

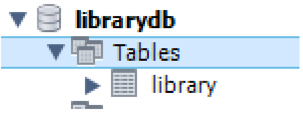
```
                    int isbn=sc.nextInt();

                    String query = "delete from Library where  ISSNNo= ?";
                    PreparedStatement preparedStmt = con.prepareStatement(query);
                    preparedStmt.setInt(1,isbn);

                    preparedStmt.executeUpdate();
          }
}
```

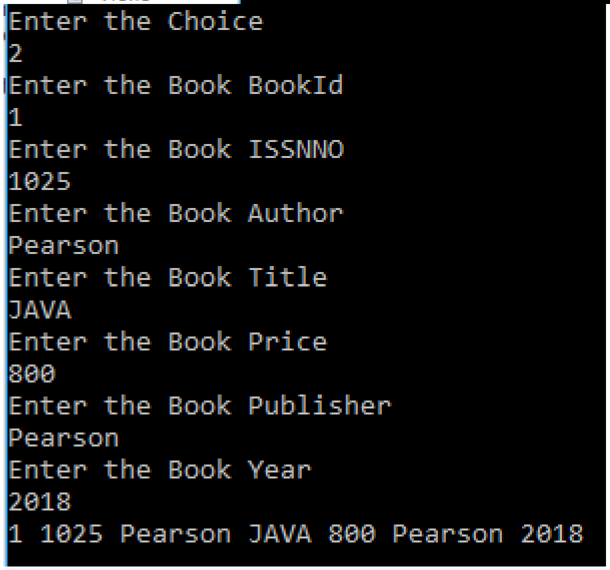
Output: -



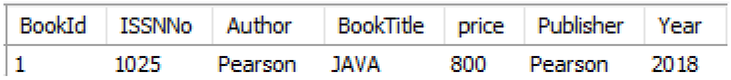
```
F:\MCA GMC College\SEM-3\java Prog>java p50
*************MENU****************
1. Create Library Table
2. Insert Record into Library Table
3. Update the Existing Record
4. Display all Records From the Table
5. Display the name Starting with 'J' Character
6. Delete the Record
7. Exit
********************************
Enter the Choice
1
Table created successfully...
```



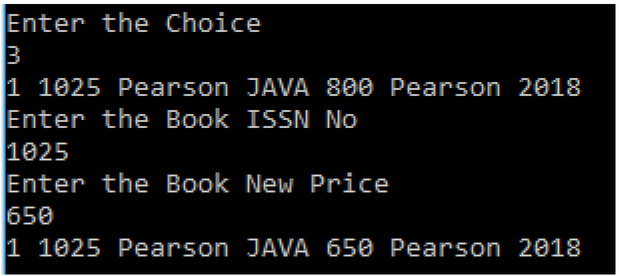




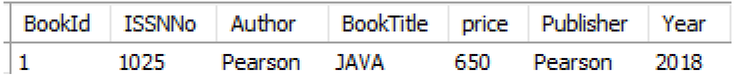
```
Enter the Choice
2
Enter the Book BookId
1
Enter the Book ISSNNO
1025
Enter the Book Author
Pearson
Enter the Book Title
JAVA
Enter the Book Price
800
Enter the Book Publisher
Pearson
Enter the Book Year
2018
1 1025 Pearson JAVA 800 Pearson 2018
```



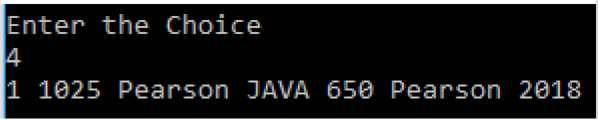
BookId	ISSNNo	Author	BookTitle	price	Publisher	Year
1	1025	Pearson	JAVA	800	Pearson	2018



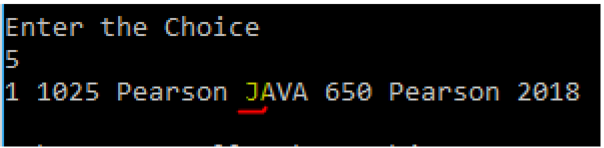
```
Enter the Choice
3
1 1025 Pearson JAVA 800 Pearson 2018
Enter the Book ISSN No
1025
Enter the Book New Price
650
1 1025 Pearson JAVA 650 Pearson 2018
```



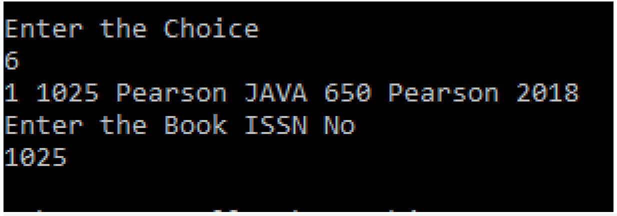
BookId	ISSNNo	Author	BookTitle	price	Publisher	Year
1	1025	Pearson	JAVA	650	Pearson	2018



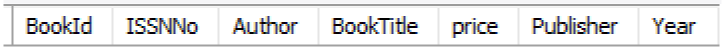
```
Enter the Choice
4
1 1025 Pearson JAVA 650 Pearson 2018
```



```
Enter the Choice
5
1 1025 Pearson JAVA 650 Pearson 2018
```



```
Enter the Choice
6
1 1025 Pearson JAVA 650 Pearson 2018
Enter the Book ISSN No
1025
```



BookId	ISSNNo	Author	BookTitle	price	Publisher	Year