Index

Part A

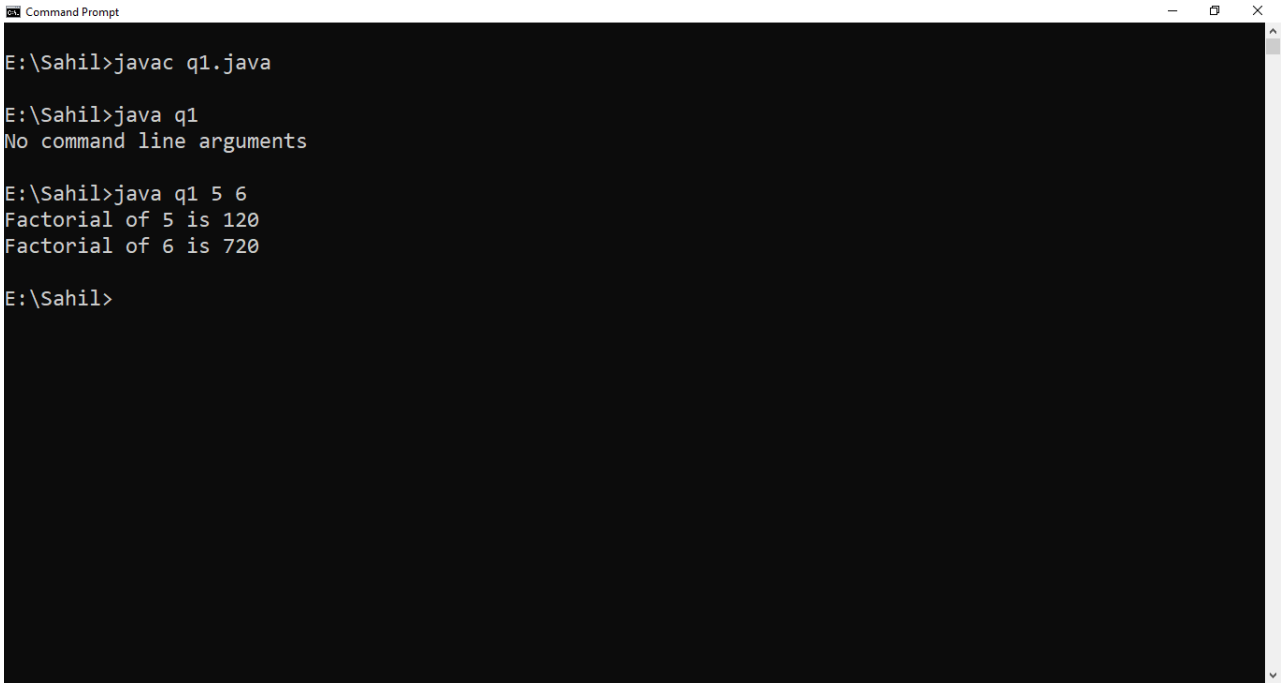
Question 1

Write a java program to find factorial list of a number recording inputs as command line arguments

```
class q1
{
	public static void main(String a[])
	{
		int[] arr= new int[10];
		int fact;
		if(a.length==0)
		{
			System.out.println("No command line arguments");
			return;
		}
		for(int i=0;i<a.length;i++)
		{
			arr[i]=Integer.parseInt(a[i]);
		}
		for(int i=0;i<a.length;i++)
		{
			fact=1;
			while(arr[i]>0)
			{
				fact=fact*arr[i];
				arr[i]--;
			}
```

```
                    System.out.println("Factorial of "+a[i]+" is "+fact);
                }
        }
}
```

Output:-



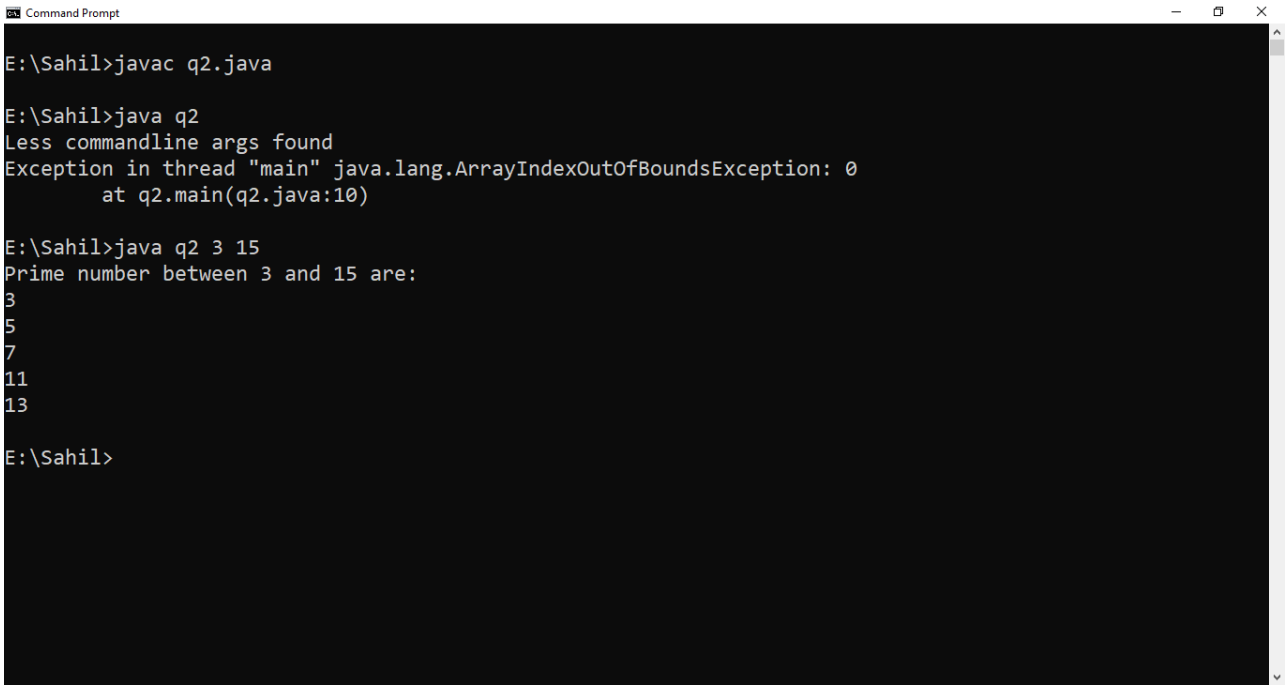
Question 2

Write a java program to display all prime number between 2 limits

```
class q2
{
	public static void main(String a[])
	{
		int i,j;
		if(a.length<2)
		{
			System.out.println("Less commandline args found");
		}
		int n1=Integer.parseInt(a[0]);
		int n2=Integer.parseInt(a[1]);
		System.out.println("Prime number between "+n1+" and "+n2+" are:");
		for(i=n1;i<n2;i++)
		{
			for(j=2;j<i;j++)
			{
				int n=i%j;
				if(n==0)
				{
					break;
				}
			}
```

```
                    if(i==j)
                    {
                        System.out.println(i);
                    }
                }
        }
}
```

Output



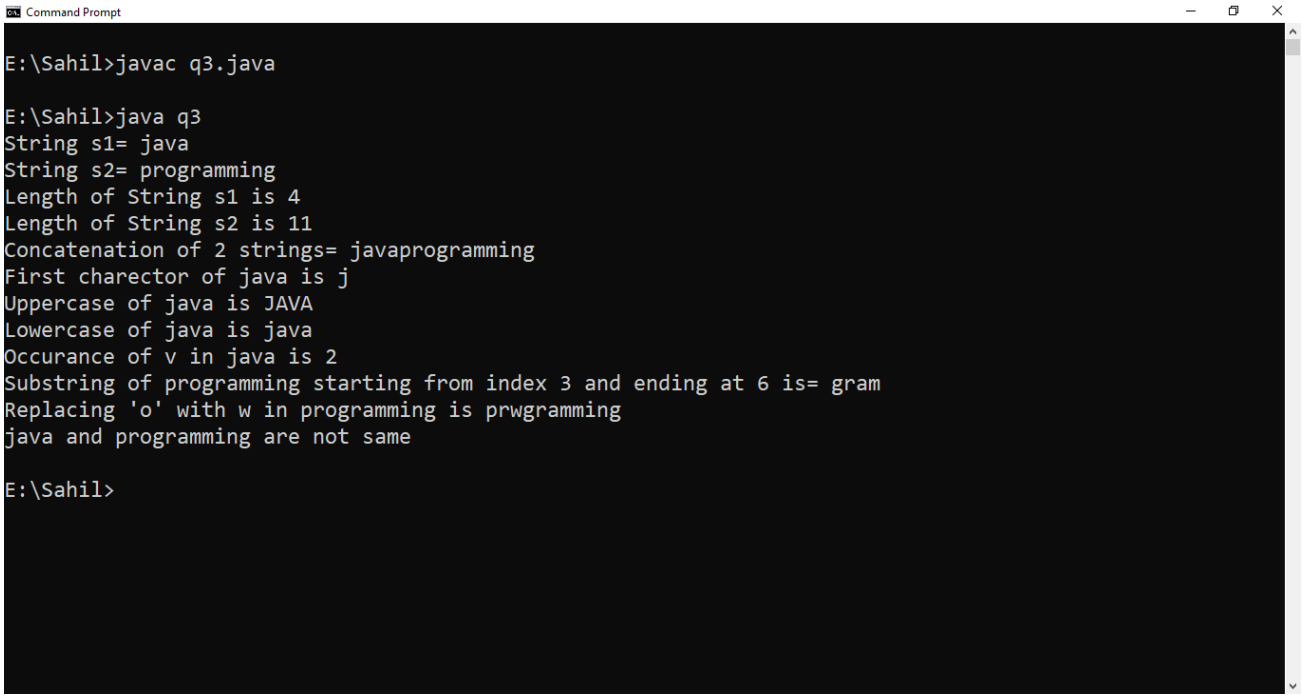
Question 3

Write a java program to implement all string operations

```
class q3
{
	public static void main(String a[])
	{
		String s1="java";
		String s2="programming";
		System.out.println("String s1= "+s1);
		System.out.println("String s2= "+s2);
		int l1 = s1.length();
		int l2 = s2.length();
		System.out.println("Length of String s1 is "+l1);
		System.out.println("Length of String s2 is "+l2);
		System.out.println("Concatenation of 2 strings= "+s1.concat(s2));
		System.out.println("First charector of "+s1+" is "+s1.charAt(0));
		System.out.println("Uppercase of "+s1+" is "+s1.toUpperCase());
		System.out.println("Lowercase of "+s1+" is "+s1.toLowerCase());
		System.out.println("Occurance of v in "+s1+" is "+s1.indexOf("v"));
		System.out.println("Substring of "+s2+" starting from index 3 and
ending at 6 is= "+s2.substring(3,7));
		System.out.println("Replacing 'o' with w in "+s2+" is
"+s2.replace('o','w'));
		boolean check = s1.equals(s2);
		if(check==false)
			System.out.println(s1+" and "+s2+" are not same");
```

```
            else
                System.out.println(s1+" and "+s2+" are same");
        }
}
```

Output:-



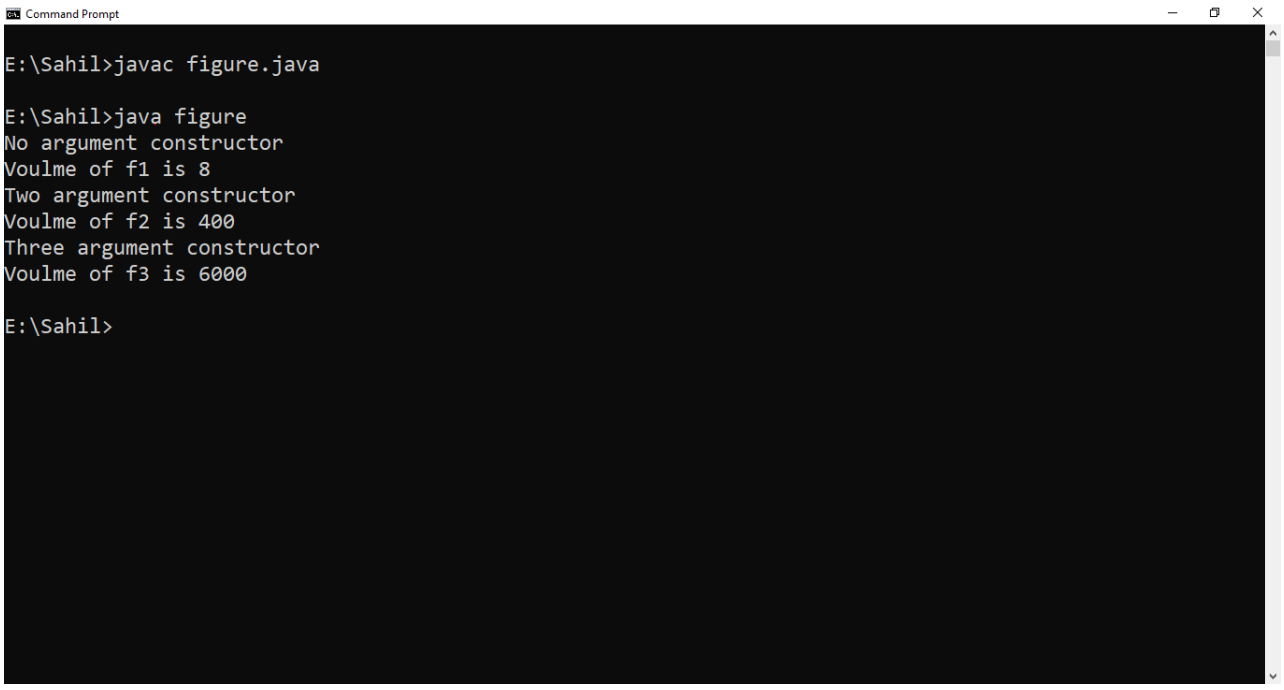
Question 4

Write a java program to implement constructor overloading by passing different no of parameters of different types

```
class figure
{
	int length,breadth,height;
	int volume()
	{
		return (length*breadth*height);
	}
	figure()
	{
		length=breadth=height=2;
		System.out.println("No argument constructor");
	}
	figure(int l,int b)
	{
		length=l;
		breadth=b;
		height=2;
		System.out.println("Two argument constructor");
	}
	figure(int l,int b,int h)
	{
		length=l;
		breadth=b;
```

```
            height=h;
            System.out.println("Three argument constructor");
        }
        public static void main(String a[])
        {
            figure f1 = new figure();
            System.out.println("Voulme of f1 is "+f1.volume());
            figure f2 = new figure(10,20);
            System.out.println("Voulme of f2 is "+f2.volume());
            figure f3 = new figure(10,20,30);
            System.out.println("Voulme of f3 is "+f3.volume());
        }
}
```

Output:-



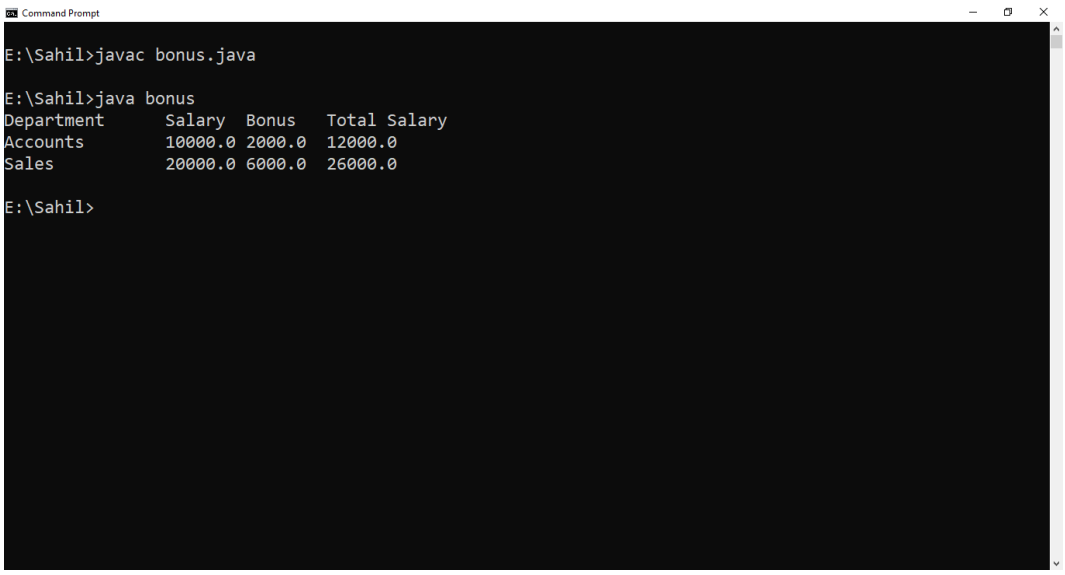
Question 5

Write a java program to calculate bonus for different departments using method overriding

```
abstract class Department
{
	double salary,bonus,totalSalary;
	public abstract void calBonus(double salary);
	public void displaysalary(String dept)
	{
		System.out.println(dept+"\t"+salary+"\t"+bonus+"\t"+totalSalary);
	}
}
class accounts extends Department
{
	public void calBonus(double sal)
	{
		salary=sal;
		bonus=sal*0.2;
		totalSalary=salary+bonus;
	}
}
class sales extends Department
{
	public void calBonus(double sal)
	{
		salary=sal;
```

```
            bonus=sal*0.3;
            totalSalary=salary+bonus;
        }
}
public class bonus
{
        public static void main(String ar[])
        {
            Department d1=new accounts();
            Department d2=new sales();
            d1.calBonus(10000);
            d2.calBonus(20000);
            System.out.println("Department\tSalary\tBonus\tTotal Salary");
            d1.displaysalary("Accounts");
            d2.displaysalary("Sales   ");
        }
}
```

Output:-



Question 6

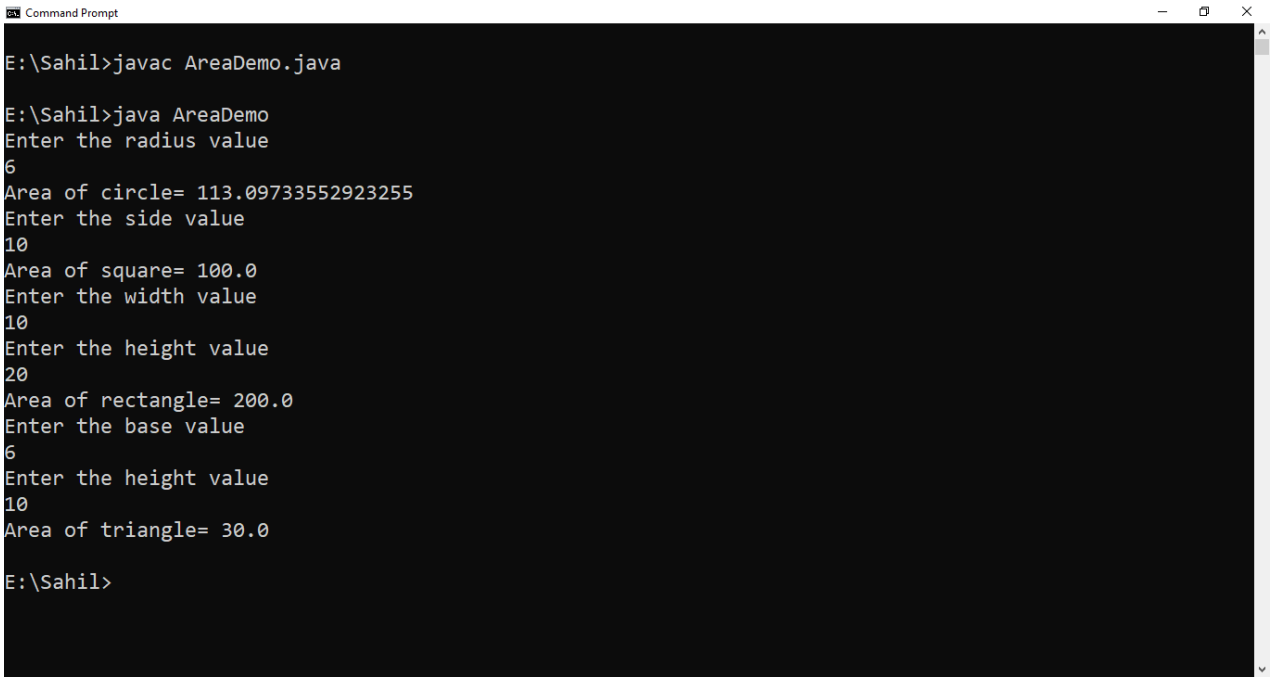
Write a java program to find area of geometric figures using method

```
import java.io.*;
class AreaDemo
{
	public static double circleArea(double r)
	{
		return Math.PI*r*r;
	}
	public static double squareArea(double r)
	{
		return r*r;
	}
	public static double rectArea(double w,double h)
	{
		return w*h;
	}
	public static double triArea(double b,double h2)
	{
		return 0.5*b*h2;
	}
	public static String readLine()
	{
		String input=" ";
```

```
        BufferedReader in=new BufferedReader(new
InputStreamReader(System.in));
        try
        {
            input=in.readLine();
        }
        catch(Exception e)
        {
            System.out.println("error"+e);
        }
        return input;
    }
    public static void main(String[] arg)
    {
        System.out.println("Enter the radius value");
        double r= Double.parseDouble(readLine());
        System.out.println("Area of circle= "+circleArea(r));

        System.out.println("Enter the side value");
        double s= Double.parseDouble(readLine());
        System.out.println("Area of square= "+squareArea(s));

        System.out.println("Enter the width value");
        double w= Double.parseDouble(readLine());
        System.out.println("Enter the height value");
        double h= Double.parseDouble(readLine());
        System.out.println("Area of rectangle= "+rectArea(w,h));
```

```
            System.out.println("Enter the base value");
            double b= Double.parseDouble(readLine());
            System.out.println("Enter the height value");
            double h2= Double.parseDouble(readLine());
            System.out.println("Area of triangle= "+triArea(b,h2));
        }
}
```

Output:-



Question 7

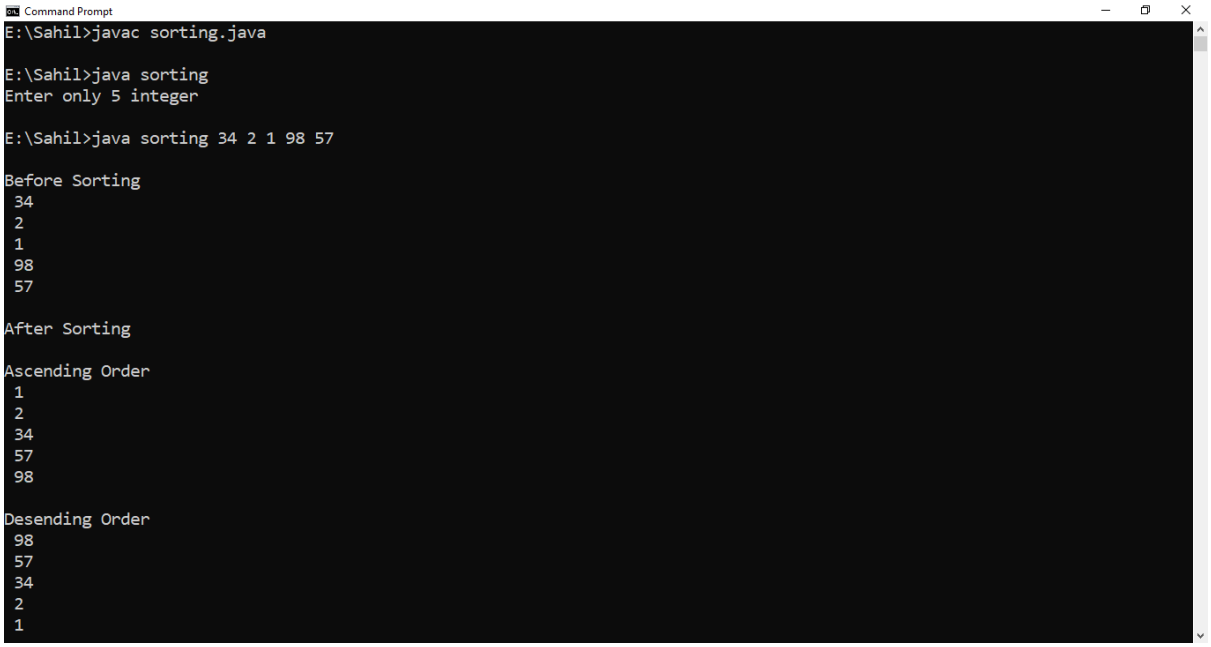
Write a java program to sort the list of elements in ascending and descending order and display exception handing

```
class sorting
{
	public static void main(String arg[])
	{
		int a[]=new int [10];
		try
		{
			for(int i=0;i<5;i++)
				a[i]= Integer.parseInt(arg[i]);
			System.out.println("\nBefore Sorting");
			for(int i=0;i<5;i++)
				System.out.println(" "+a[i]);
			bubblesort(a,5);
			System.out.println("\nAfter Sorting");
			System.out.println("\nAscending Order");
			for(int i=0;i<5;i++)
				System.out.println(" "+a[i]);
			System.out.println("\nDesending Order");
			for(int i=4;i>=0;i--)
				System.out.println(" "+a[i]);
```

```
        }
        catch(NumberFormatException e)
        {
                System.out.println("Enter only integer");
        }
        catch(ArrayIndexOutOfBoundsException e)
        {
                System.out.println("Enter only 5 integer");
        }
}
private static void bubblesort(int[] a,int l)
{
        int temp,i,j;
        for(i=0;i<l-1;i++)
        {
                for(j=0;j<l-i-1;j++)
                {
                        if(a[j]>a[j+1])
                        {
                                temp=a[j];
                                a[j]=a[j+1];
                                a[j+1]=temp;
                        }
                }
```

```
            }
        }
}
```

Output:-


Command Prompt
E:\Sahil>javac sorting.java
E:\Sahil>java sorting
Enter only 5 integer
E:\Sahil>java sorting 34 2 1 98 57
Before Sorting
34
2
1
98
57
After Sorting
Ascending Order
1
2
34
57
98
Desending Order
98
57
34
2
1

Question 8

Write a java program to implement keyboard and mouse events

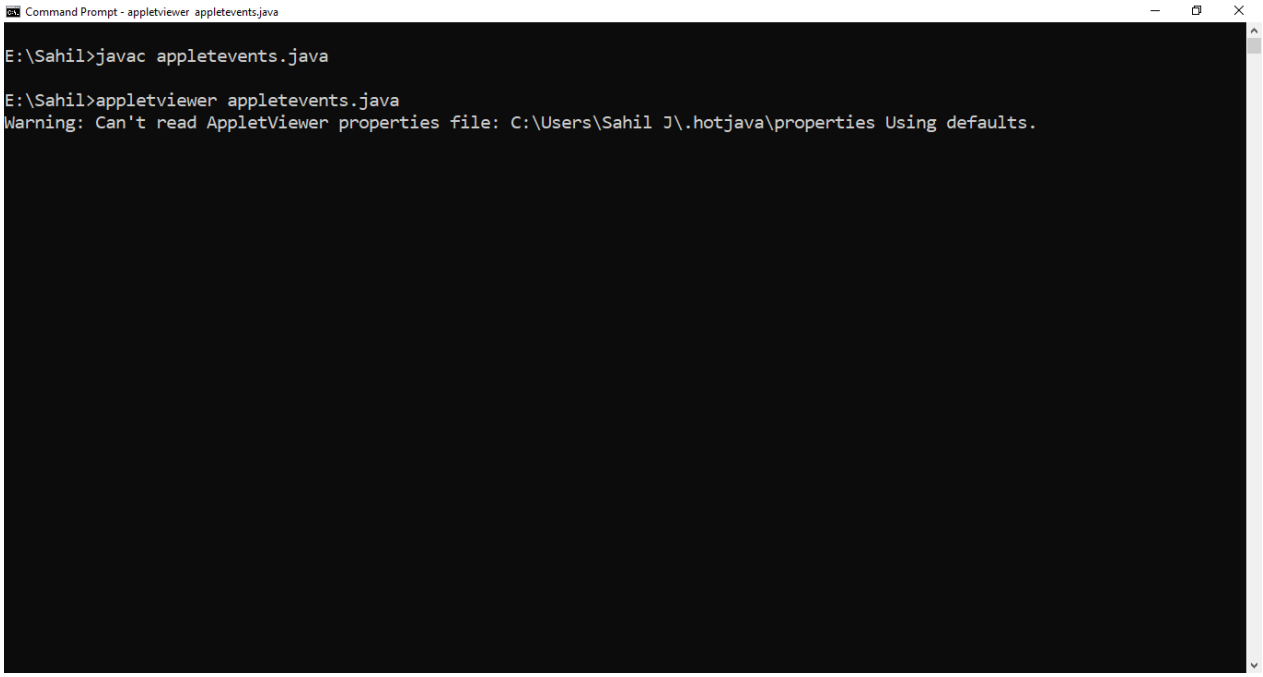
```
import java.awt.*;
import java.awt.event.*;
import java.applet.*;
/*
<applet code="appletevents" width=500 height=500>
</applet>
*/
public class appletevents extends Applet implements
MouseListener,MouseMotionListener,KeyListener
{
	String str="";
	String str2="";
	public void init()
	{
		addMouseListener(this);
		addMouseMotionListener(this);
		addKeyListener(this);
		requestFocus();
	}
	public void keyTyped(KeyEvent e)
	{
		str2 += e.getKeyChar();
		repaint();
```

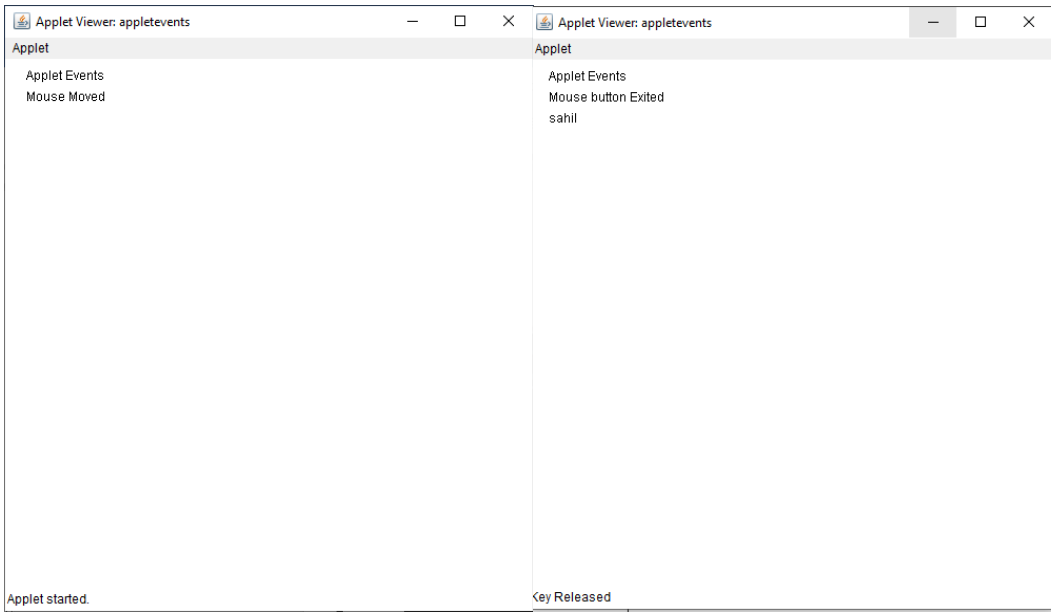
```
}
public void keyPressed(KeyEvent e)
{
        showStatus("Key Pressed");
}
public void keyReleased(KeyEvent e)
{
        showStatus("Key Released");
}
public void paint(Graphics g)
{
        g.drawString("Applet Events",20,20);
        g.drawString(str,20,40);
        g.drawString(str2,20,60);
}
public void mousePressed(MouseEvent me)
{
        str="Mouse button Pressed";
        repaint();
}
public void mouseClicked(MouseEvent me)
{
        str="Mouse button Clicked";
        repaint();
}
public void mouseReleased(MouseEvent me)
```

```
{
        str="Mouse button Released";
        repaint();
}
public void mouseEntered(MouseEvent me)
{
        str="Mouse button Entered";
        repaint();
}
public void mouseExited(MouseEvent me)
{
        str="Mouse button Exited";
        repaint();
}
public void mouseMoved(MouseEvent me)
{
        str="Mouse Moved";
        repaint();
}
public void mouseDragged(MouseEvent me)
{
        str="Mouse Dragged";
        repaint();
}
public void mouseDropped(MouseEvent me)
{
```

```
            str="Mouse dropped";
            repaint();
        }
}
```

Output:-





Question 9

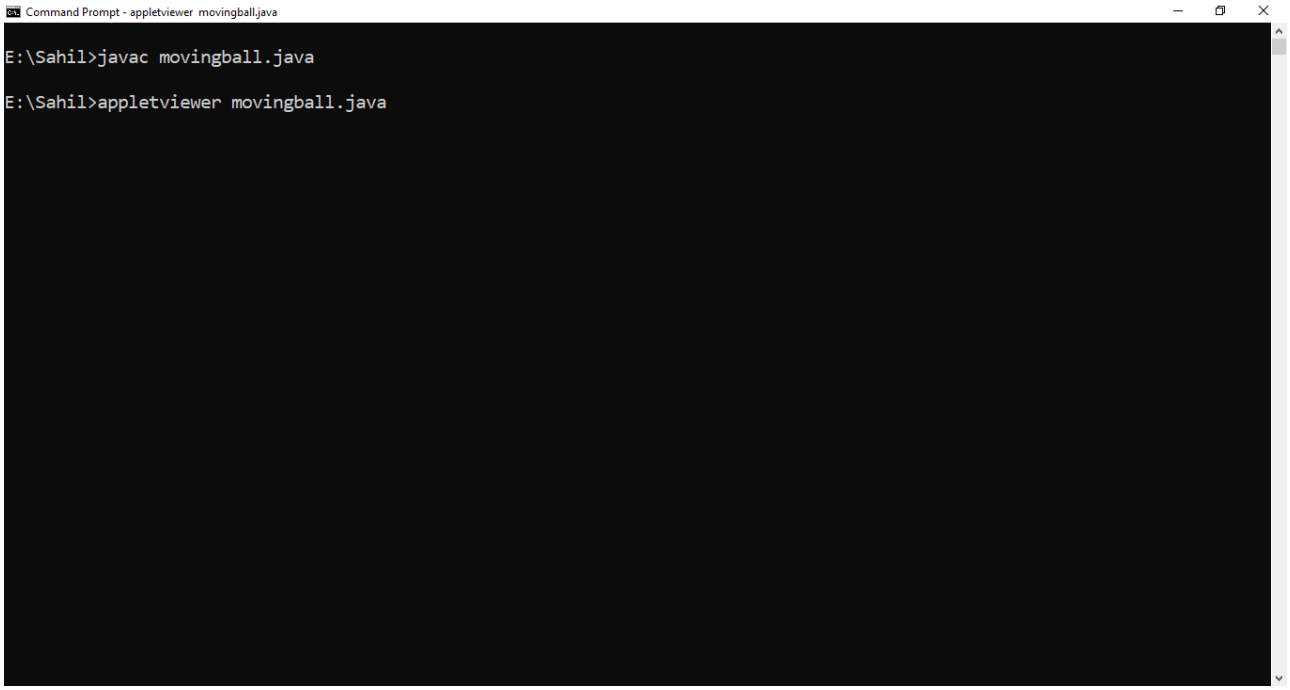
Write a java program to implement thread, applet and graphics by implementing moving ball

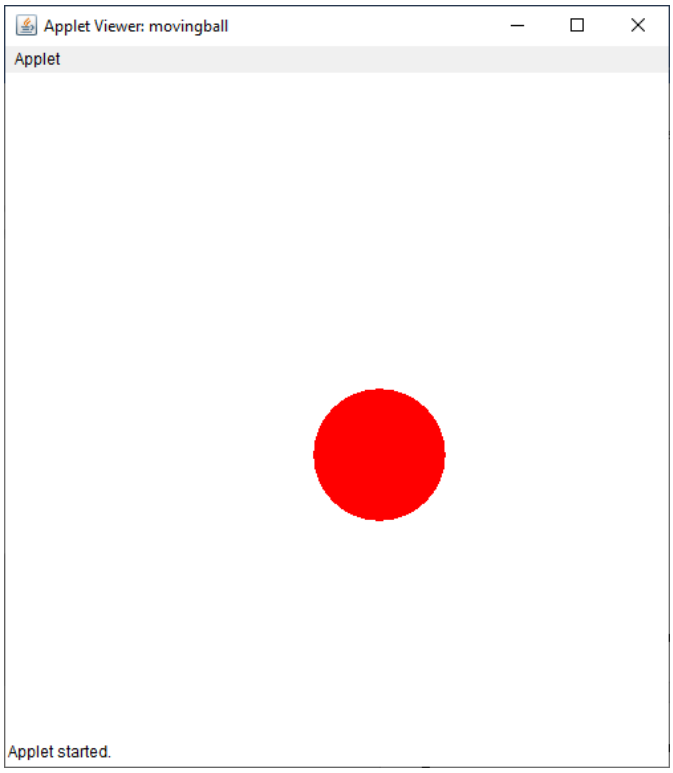
```
import java.awt.*;
import java.applet.*;
/*
<applet code="movingball" width=500 height=500>
</applet>
*/
public class movingball extends Applet implements Runnable
{
	int x=150,y=50,r=50;
	int dx=11,dy=7;
	Thread t;
	volatile boolean stop;
	public void paint(Graphics g)
	{
		g.setColor(Color.red);
		g.fillOval(x-r,y-r,r*2,r*2);
	}
	public void animate()
	{
		Rectangle bounds=getBounds();
		if((x-r+dx<0)||(x+r+dx>bounds.width))
			dx=-dx;
		if((y-r+dx<0)||(y+r+dx>bounds.width))
```

```
                dy=-dy;
        x+=dx;
        y+=dy;
        repaint();
}
public void run()
{
        while(!stop)
        {
                animate();
                try
                {
                        Thread.sleep(100);
                }
                catch(InterruptedException e)
                {}
        }
}
public void start()
{
        t=new Thread(this);
        stop=false;
        t.start();
}
public void stop()
{
```

```
            stop=true;
        }
}
```

Output:-





Question 10

Write a java program to create student report using applet read the input using textboxes and display the output using buttons.

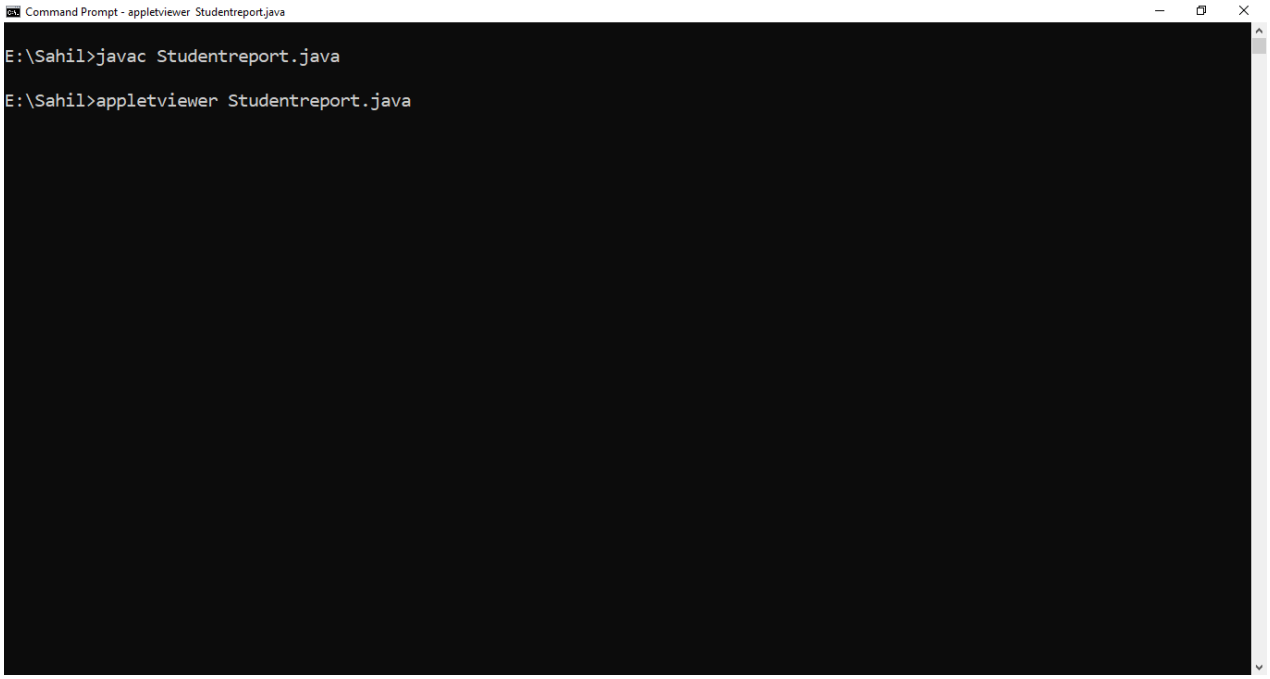
```
import java.awt.*;
import java.applet.*;
import java.awt.event.*;
/*
<applet code="studentreport" width=300 height= 200>
</applet>
*/
public class studentreport extends Applet implements ActionListener
{
    Label r,c,s,s1,s2;
    int isub1,isub2;
    TextField t1,t2,t3,t4,t5;
    Button b;
    String rno=" ",course=" ",sem=" ",sub1=" ",sub2=" ",avg=" ",heading=" ";
    public void init()
    {
```

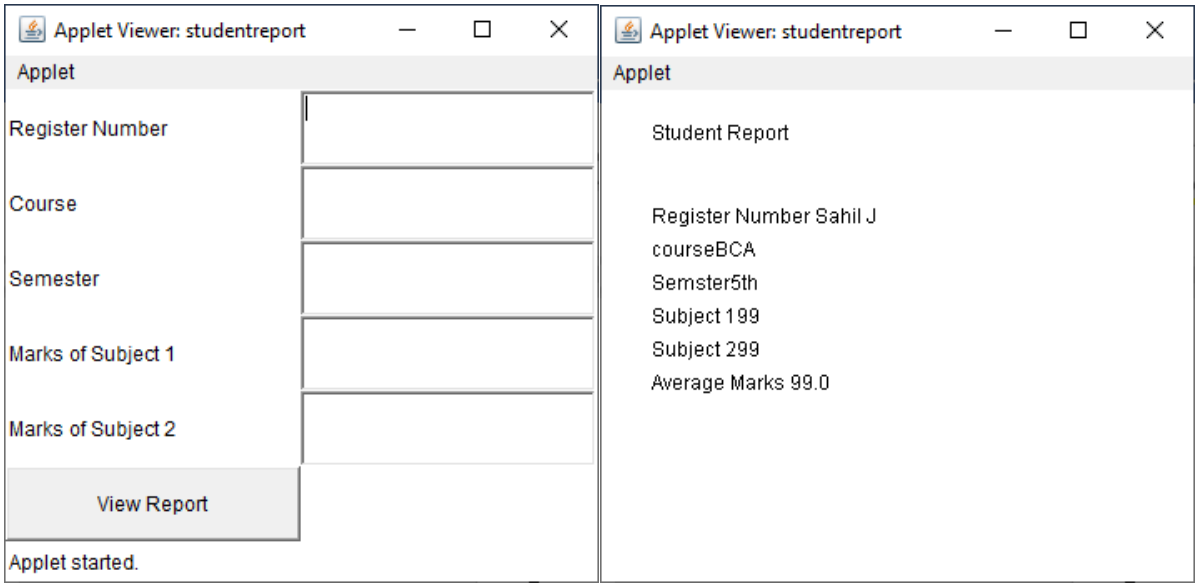
```
setLayout(new GridLayout(6,2));
r=new Label("Register Number");
t1=new TextField(25);
c=new Label("Course");
t2=new TextField(25);
s=new Label("Semester");
t3=new TextField(25);
s1=new Label("Marks of Subject 1");
t4=new TextField(25);
s2=new Label("Marks of Subject 2");
t5=new TextField(25);
b=new Button("View Report");
add(r);
add(t1);
add(c);
add(t2);
add(s);
add(t3);
add(s1);
add(t4);
add(s2);
add(t5);
```

```
        add(b);
        b.addActionListener(this);
    }
    public void paint(Graphics g)
    {
        g.drawString(heading,30,30);
        g.drawString(rno,30,80);
        g.drawString(course,30,100);
        g.drawString(sem,30,120);
        g.drawString(sub1,30,140);
        g.drawString(sub2,30,160);
        g.drawString(avg,30,180);
    }
    public void actionPerformed(ActionEvent e)
    {
        try
        {
            if(e.getSource()==b)
            {
                rno=t1.getText().trim();
                course=t2.getText().trim();
                sem=t3.getText().trim();
```

```
                    sub1=t4.getText().trim();
                    sub2=t5.getText().trim();
                    isub1=Integer.parseInt(sub1);
                    isub2=Integer.parseInt(sub2);
                    avg="Average Marks
"+((isub1+isub2)/2.0);
                    rno="Register Number "+rno;
                    course="course\t"+course;
                    sem="Semster\t"+sem;
                    sub1="Subject 1\t"+sub1;
                    sub2="Subject 2\t"+sub2;
                    heading="Student Report";
                    removeAll();
                    showStatus("");
                    repaint();
                }
            }
            catch(Exception ex)
                {}
        }
}
```

Output:-


Command Prompt - appletviewer Studentreport.java
E:\Sahil>javac Studentreport.java
E:\Sahil>appletviewer Studentreport.java


Applet Viewer: studentreport
Applet
Register Number
Course
Semester
Marks of Subject 1
Marks of Subject 2
View Report
Applet started.
Applet Viewer: studentreport
Applet
Student Report
Register Number Sahil J
courseBCA
Semster5th
Subject 199
Subject 299
Average Marks 99.0

Part B

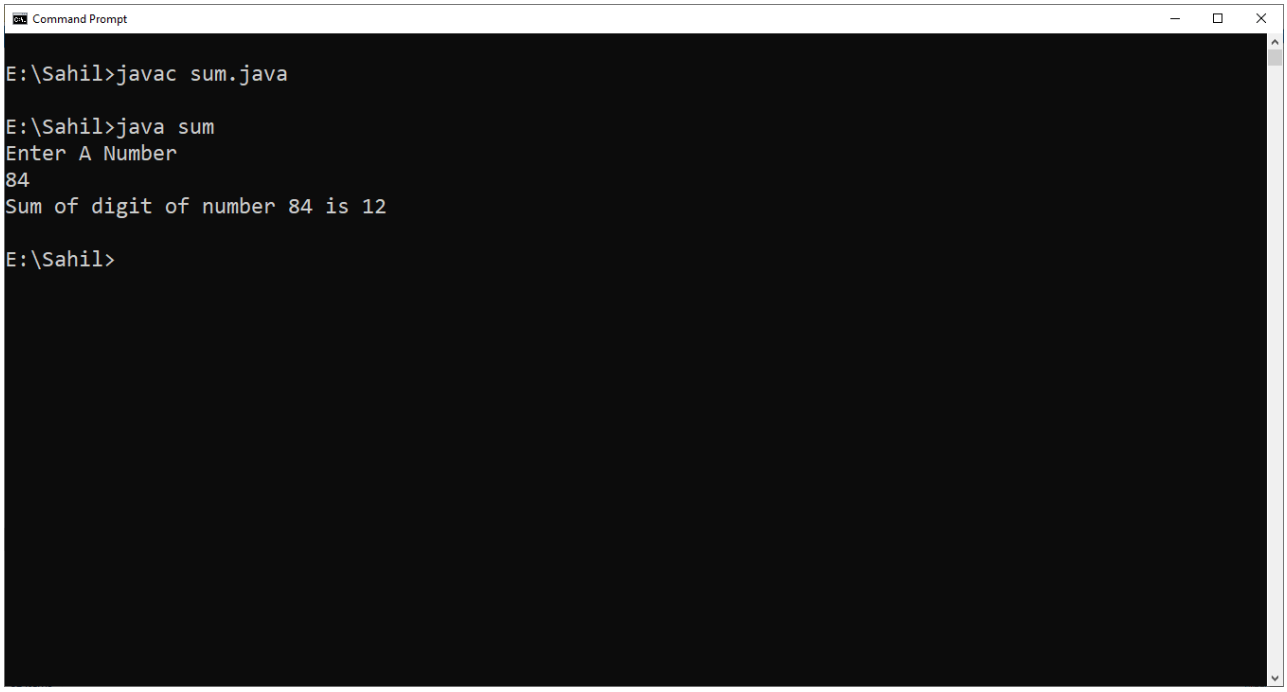
Question 1

Write a java program to find sum of digits.

```
import java.io.*;
import java.util.*;
public class sum
{
	public static void main(String b[])
	{
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter A Number");
		int number= sc.nextInt();
		int sum=0;
		int input=number;
		while (input!=0)
		{
			int lastdigit=input%10;
			sum+=lastdigit;
			input/=10;
		}
```

```
            System.out.println("Sum of digit of number
"+number+" is "   +sum);
            sc.close();
      }
}
```

Output:-



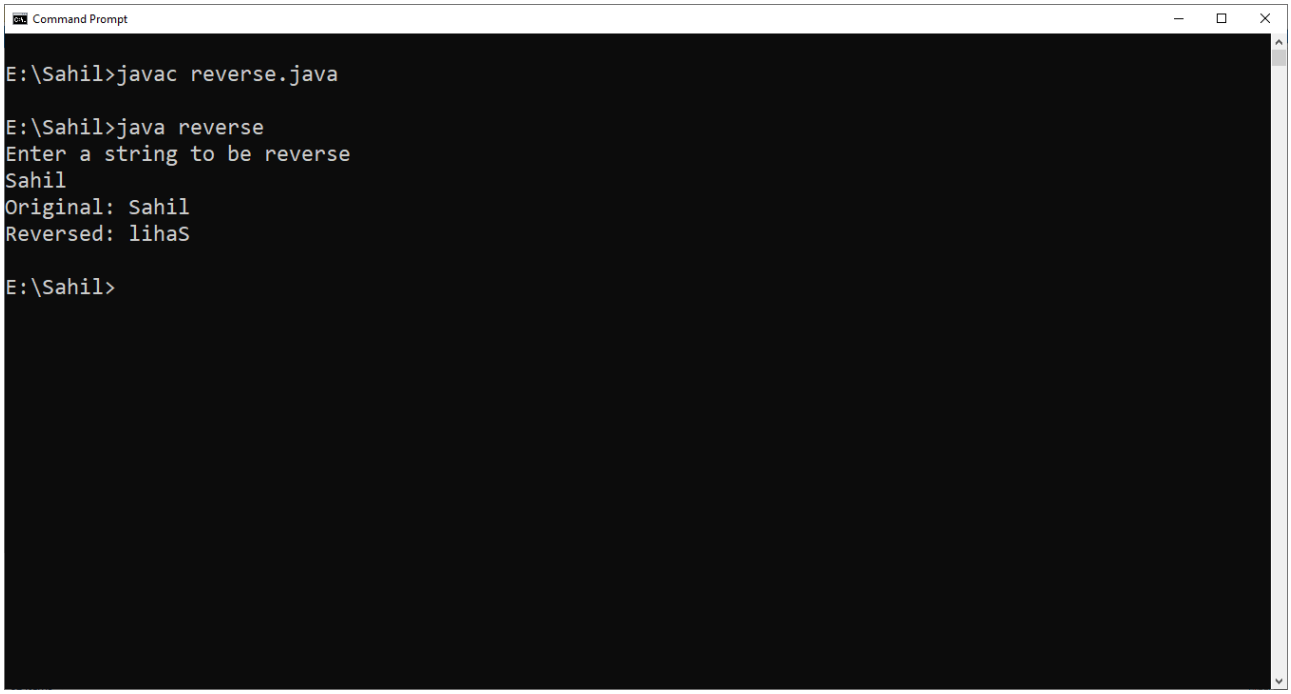
Question 2

Write a java program to reverse a string.

```
import java.util.*;
class reverse
{
    public static void main(String arg[])
    {
        String original,reverse="";
        Scanner in = new Scanner(System.in);
        System.out.println("Enter a string to
be reverse");
        original=in.nextLine();
        int length=original.length();
        for(int i=length-1;i>=0;i--)
            reverse=reverse+original.charAt(i);
        System.out.println("Original:
"+original);
```

```
            System.out.println("Reversed:
"+reverse);
            in.close();
        }
}
```

Output:-



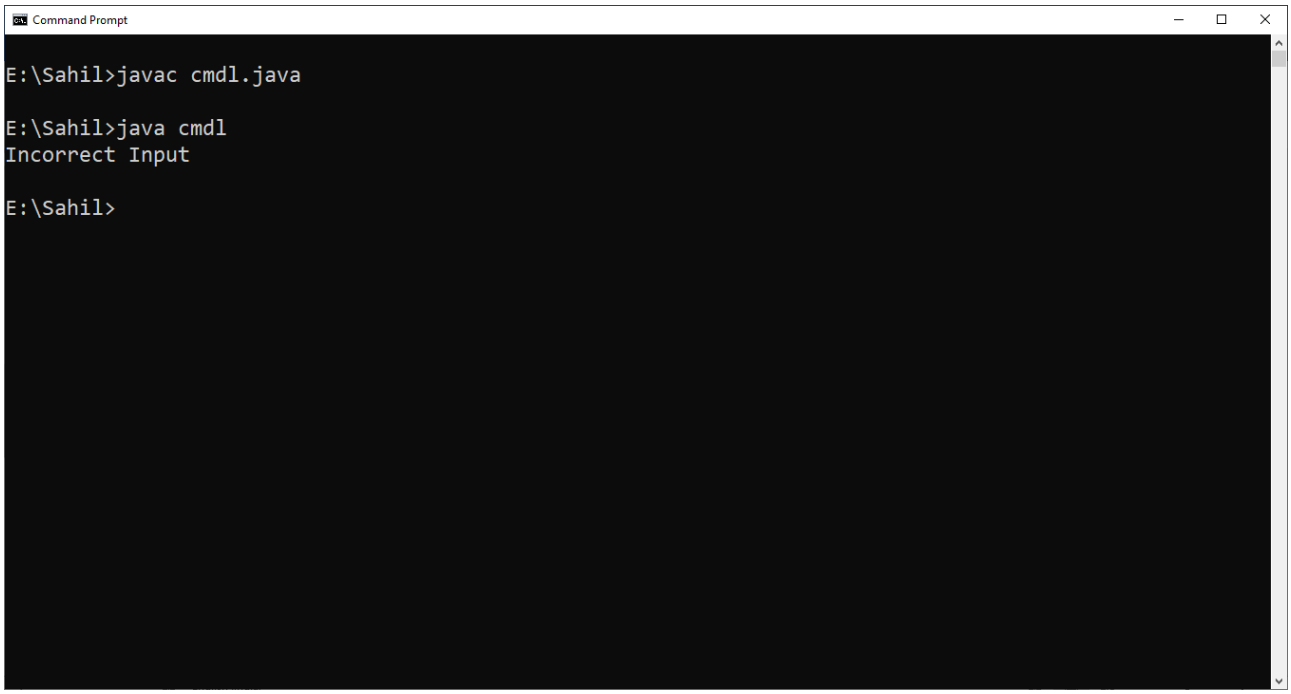
Question 3

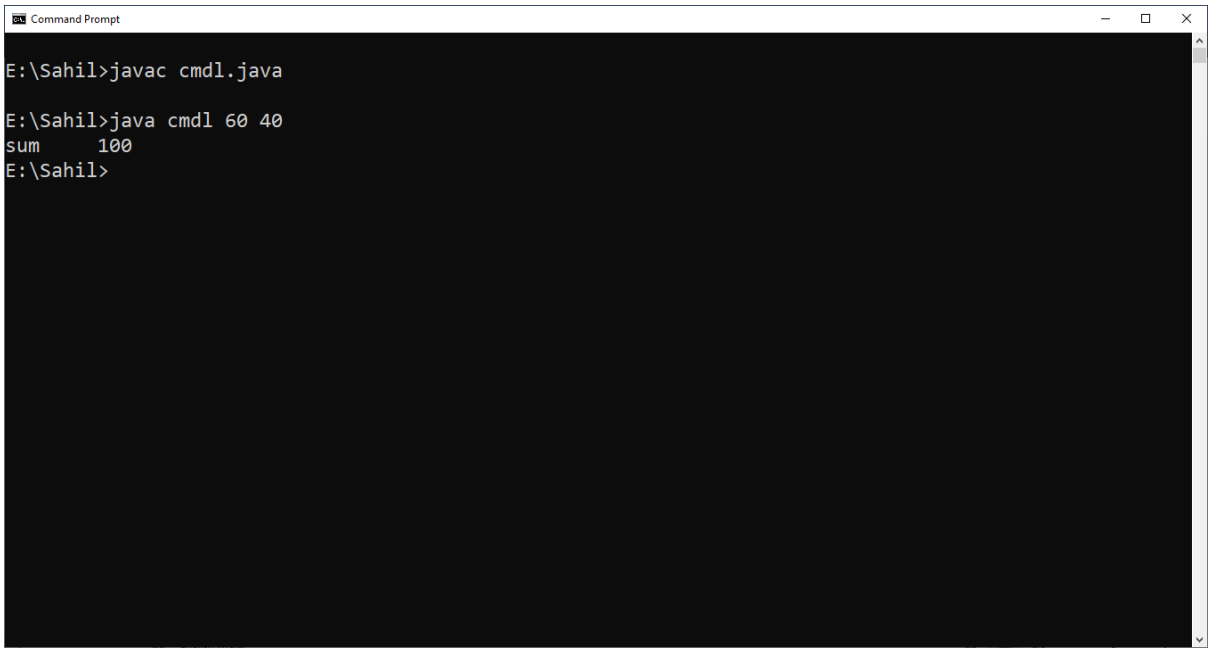
Write a java program to implement command line argument.

```
public class cmdl
{
    public static void main(String arg[])
    {
        if(arg.length>=2)
        {
            int n1=Integer.parseInt(arg[0]);
            int n2=Integer.parseInt(arg[1]);
            int sum=n1+n2;
            System.out.print("sum     " + sum);
        }
        else
        {
            System.out.println("Incorrect
Input");
```

```
        }
    }
}
```

Output:-


Command Prompt
E:\Sahil>javac cmdl.java
E:\Sahil>java cmdl
Incorrect Input
E:\Sahil>


Command Prompt
E:\Sahil>javac cmdl.java
E:\Sahil>java cmdl 60 40
sum 100
E:\Sahil>

Question 4

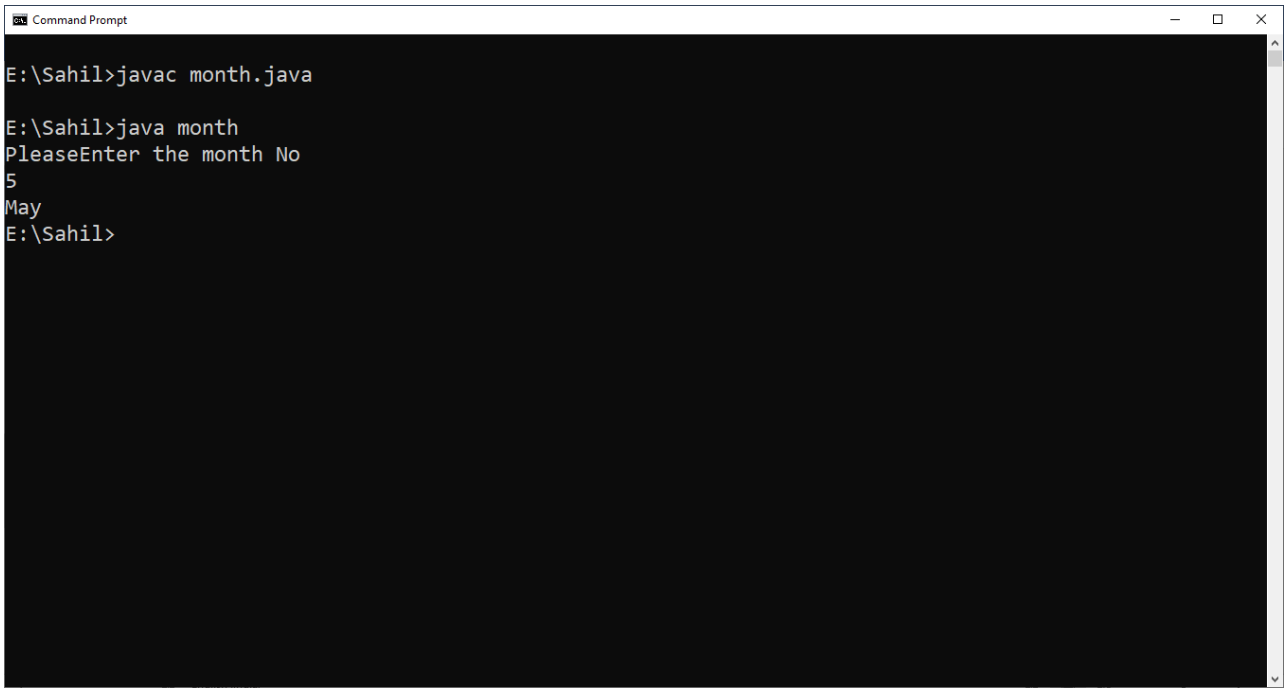
Write a java program to display the month using switch statement.

```
import java.util.*;
class month
{
	public static void main(String agr[])
	{
		int month;
		Scanner sc=new Scanner(System.in);
		System.out.println("PleaseEnter the month No");
		month=sc.nextInt();
		switch(month)
		{
			case 1:System.out.print("January");break;
			case 2:System.out.print("Febuary");break;
```

```
                case
3:System.out.print("March");break;
                case
4:System.out.print("April");break;
                case
5:System.out.print("May");break;
                case
6:System.out.print("June");break;
                case 7:System.out.print("July");break;
                case
8:System.out.print("August");break;
                case
9:System.out.print("September");break;
                case
10:System.out.print("October");break;
                case
11:System.out.print("November");break;
                case
12:System.out.print("December");break;
                default:System.out.print("Invalid
Input");break;
```

```
            }
        }
}
```

Output:-


Command Prompt
E:\Sahil>javac month.java
E:\Sahil>java month
PleaseEnter the month No
5
May
E:\Sahil>

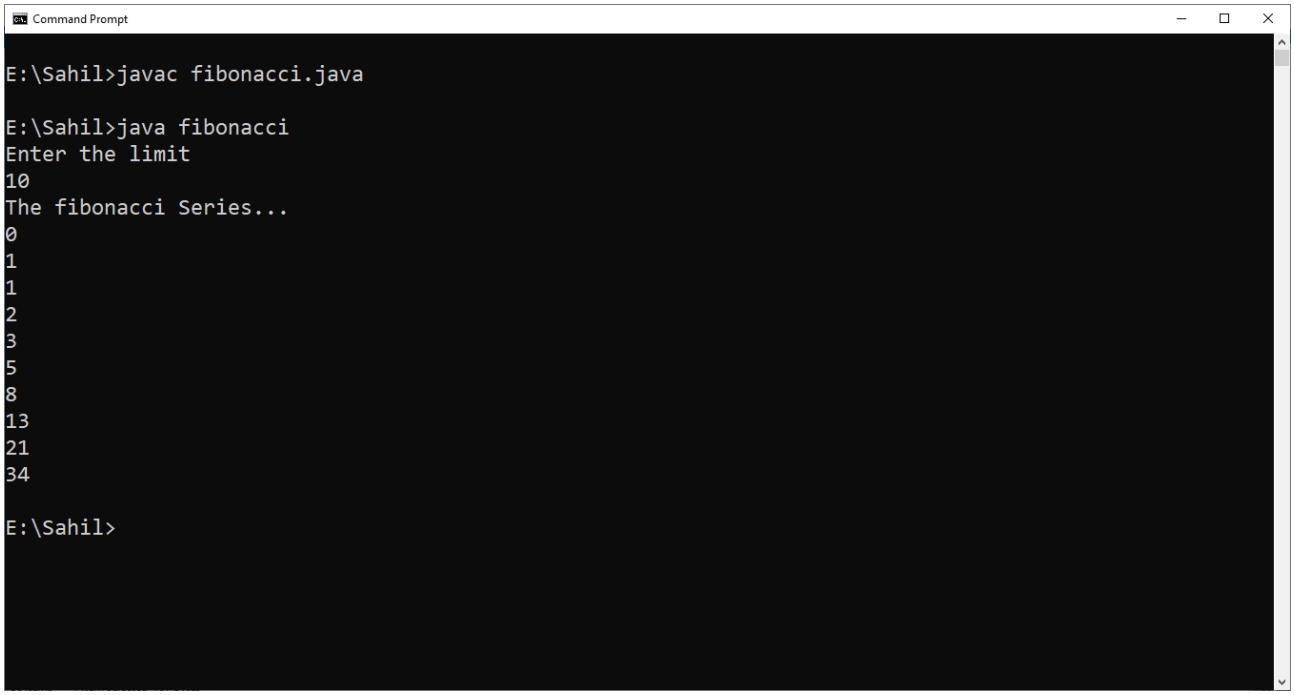
Question 5

Write a java program to implement Fibonacci series.

```
import java.util.*;
public class fibonacci
{
   public static void main(String arg[])
   {
      int fib1=0,fib2=1,temp=0,num;
      Scanner sc= new Scanner(System.in);
      System.out.println("Enter the limit");
      num=sc.nextInt();
      System.out.println("The fibonacci Series...");
      System.out.println(fib1);
      System.out.println(fib2);
      for (int i=2;i<num;i++)
      {
         temp=fib1+fib2;
         System.out.println(temp);
         fib1=fib2;
         fib2 = temp;
```

```
        }
    }
}
```

Output:-


Command Prompt
E:\Sahil>javac fibonacci.java
E:\Sahil>java fibonacci
Enter the limit
10
The fibonacci Series...
0
1
1
2
3
5
8
13
21
34
E:\Sahil>

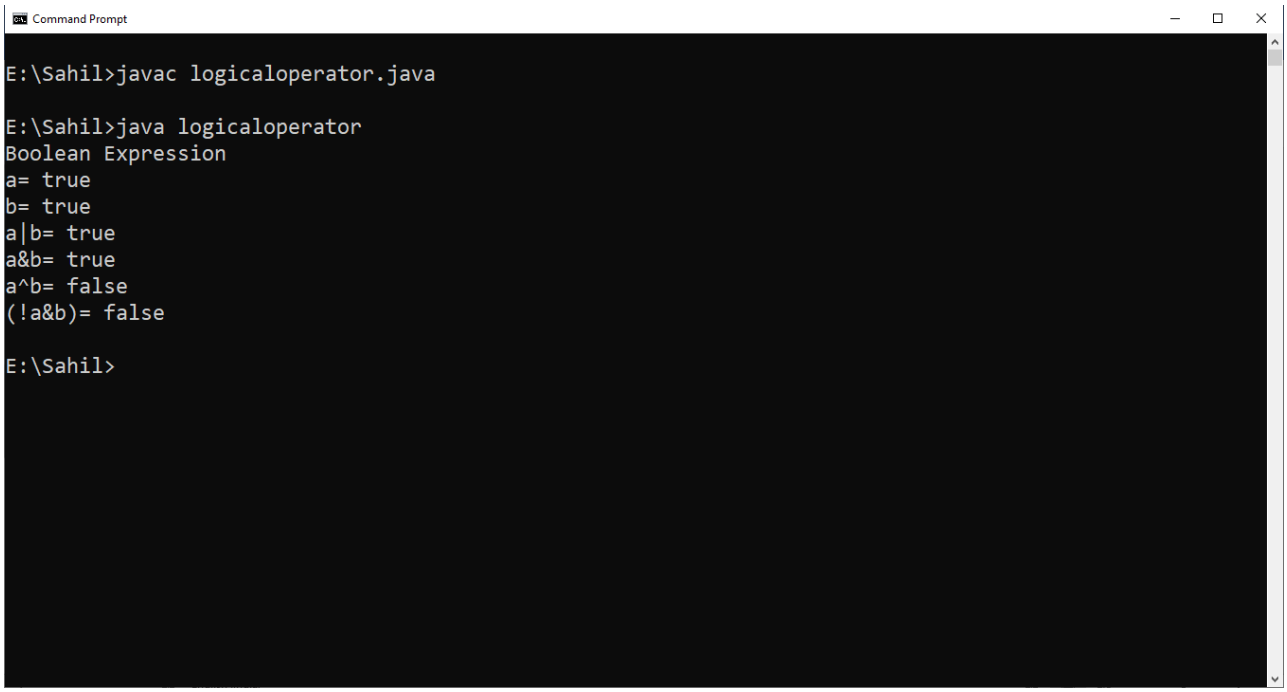
Question 6

Write a java program to implement logical operators.

```
class logicaloperator
{
	public static void main(String arg[])
	{

	boolean a=true;
	boolean b=true;
	boolean c=a|b;
	boolean d=a&b;
	boolean e=a^b;
	boolean f=(!a&b);
	System.out.println("Boolean Expression");
	System.out.println("a= "+a);
	System.out.println("b= "+b);
	System.out.println("a|b= "+c);
	System.out.println("a&b= "+d);
	System.out.println("a^b= "+e);
	System.out.println("(!a&b)= "+f);
```

```
    }
}
```

Output:-


Command Prompt
E:\Sahil>javac logicaloperator.java
E:\Sahil>java logicaloperator
Boolean Expression
a= true
b= true
a|b= true
a&b= true
a^b= false
(!a&b)= false
E:\Sahil>

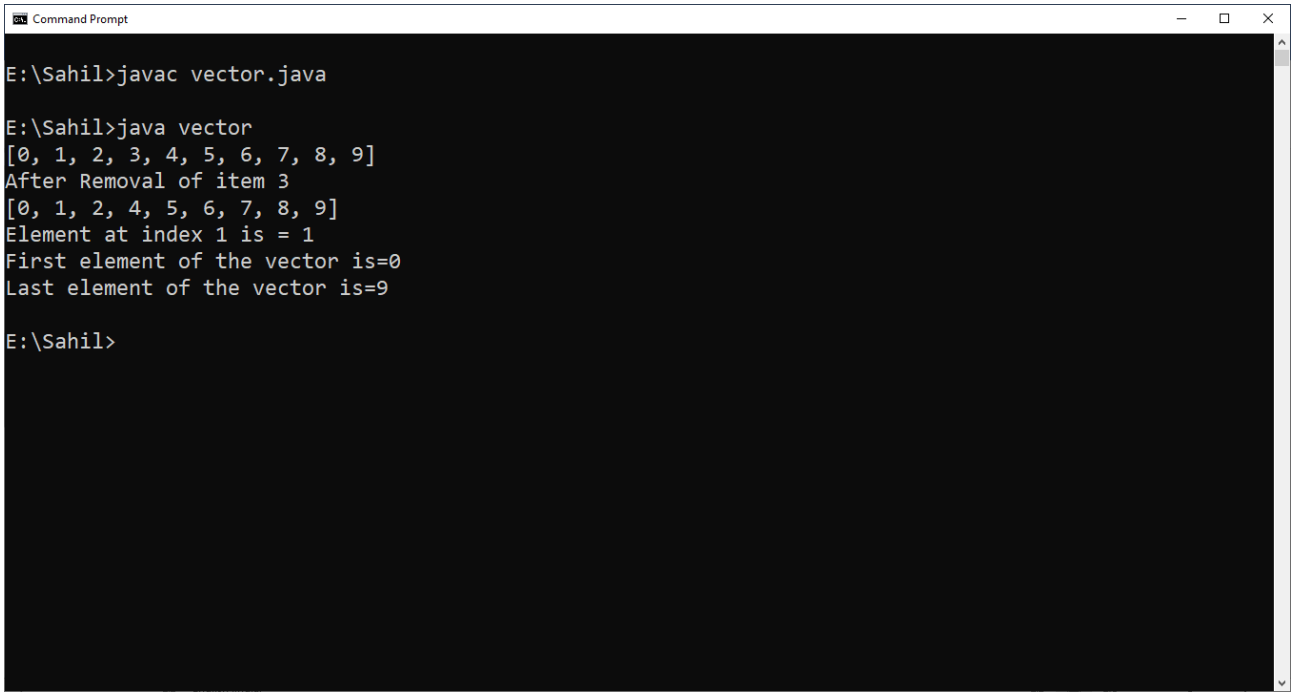
Question 7

Write a java program to implement vector operations.

```
import java.util.*;
class vector
{
	public static void main(String arg[])
	{
		Vector<Integer> v= new Vector<Integer>();
		for(int i=0;i<10;i++)
		{
			v.add(i);
		}
		System.out.println(v);
		System.out.println("After Removal of item 3");
		v.remove(3);
		System.out.println(v);
		System.out.println("Element at index 1 is = "+v.get(1));
		System.out.println("First element of the vector is="+v.firstElement());
```

```
            System.out.println("Last element of the vector
is="+v.lastElement());
        }
}
```

Output:-



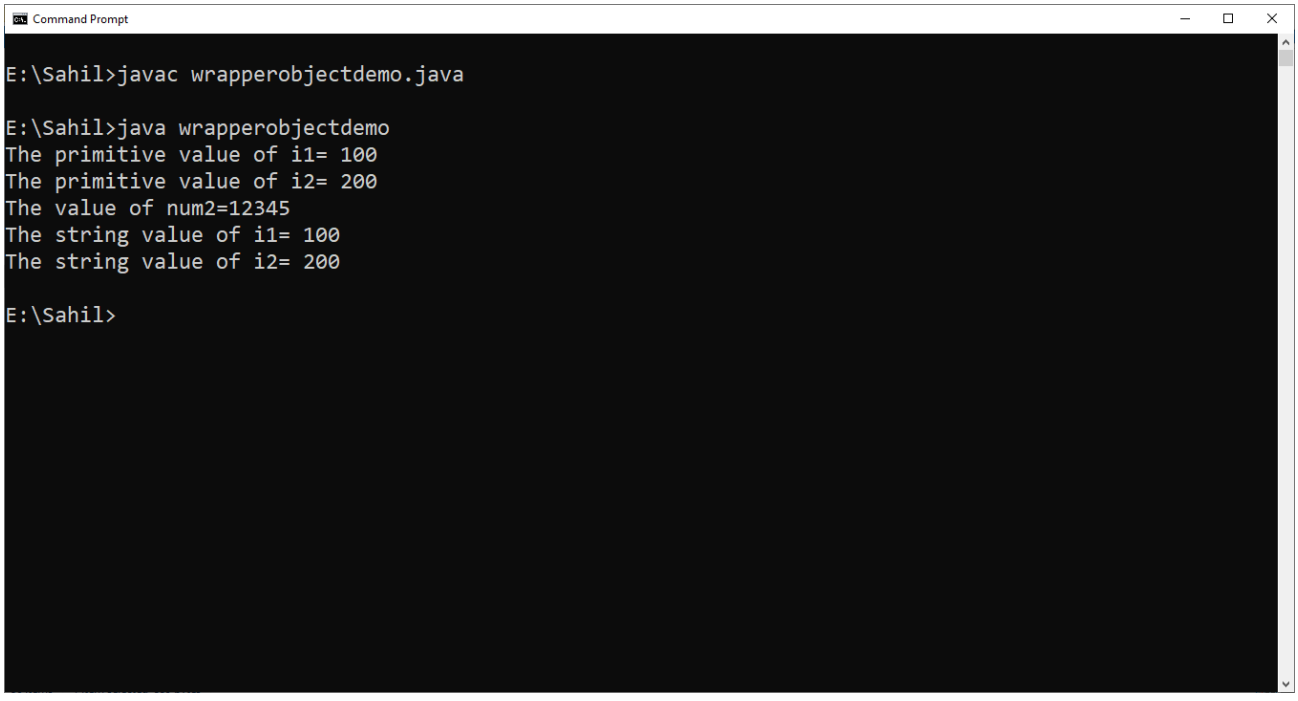
Question 8

Write a java program to implement different methods of wrapper classes.

```
public class wrapperobjectdemo
{
	public static void main(String arg[])
	{
		int i=100;
		Integer i1= new Integer(i);

		Integer i2=Integer.valueOf("200");

		System.out.println("The primitive value of i1= "+i1.intValue());
		System.out.println("The primitive value of i2= "+i2.intValue());

		String str1="12345";
		int num2=Integer.parseInt(str1);
		System.out.println("The value of num2="+num2);
```

```
        System.out.println("The string value of i1= "+i1.toString());
        System.out.println("The string value of i2= "+i2.toString());
    }
}
```

Output:-



Question 9

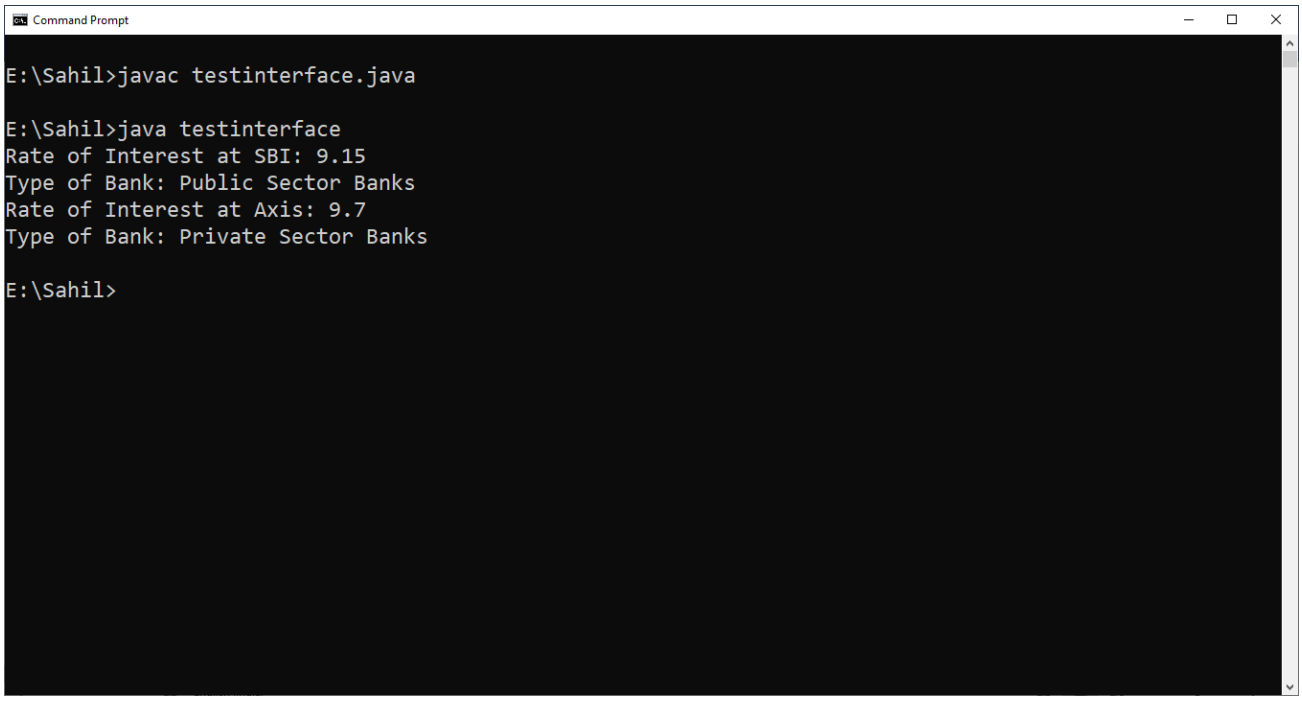
Write a java program to implement multiple inheritance.

```
interface bank
{
	float rateofinterest();
}
interface institute
{
	String institutetype();
}
class sbi implements bank,institute
{
	public float rateofinterest()
	{
		return 9.15f;
	}
	public String institutetype()
	{
		return "Public Sector Banks";
```

```
    }
}
class axis implements bank,institute
{

    public float rateofinterest()
    {
        return 9.7f;
    }
    public String institutetype()
    {
        return "Private Sector Banks";
    }
}
class testinterface
{
    public static void main(String[] arg)
    {
        sbi a=new sbi();
```

```
        System.out.println("Rate of Interest at SBI:
"+a.rateofinterest());
        System.out.println("Type of Bank:
"+a.institutetype());
        axis b=new axis();
        System.out.println("Rate of Interest at Axis:
"+b.rateofinterest());
        System.out.println("Type of Bank:
"+b.institutetype());
    }
}
```

Output:-



Question 10

Write a java program to make a simple applet.

```
import java.awt.*;
import java.applet.*;
/*
<applet code="SimpleApplet" width=200 height=200>
</applet>
*/
public class SimpleApplet extends Applet
{
	public void paint(Graphics g)
	{
		g.drawString("A Simple Applet",20,20);
		g.drawRect(25,25,75,75);
		g.fillRect(25,25,75,75);
	}
}
```

Output:-