



**ATSS's  
Institute of Industrial and Computer Management and Research,  
Nigdi Pune  
MCA Department  
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**Practical Journal  
on  
IT11L- Java Programming (SEM-I)**

**Submitted By:**

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Seat No. :

Roll no : 59

**Date :**



ATSS's

Institute of Industrial and Computer Management and Research, Nigdi Pune

**MCA Department**

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**Students Name : Yash Omkar Yeole**

**Roll No. : 59**

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**Q.1 Print the pattern:**

```

      5
    10 15 20
  25 30 35 40 45
    50 55 60
      65

```

**Solution:**

```

class pattern{
    public static void main(String []args) {
        int i, j, k;
        int num=5, rrow=3;
        for(i=1; i<=rrow; i++) {
            for(j=rrow-i; j>0; j--){
                System.out.print(" ");
            }
            for(k=1; k<= 2*i-1; k++){
                System.out.print(""+num+" ");
                num=num+5;
            }
            System.out.println();
        }

        int drow=2;
        for(i=2; i>=1; i--){

            for(j=drow-i; j>=0; j--){
                System.out.print(" ");
            }

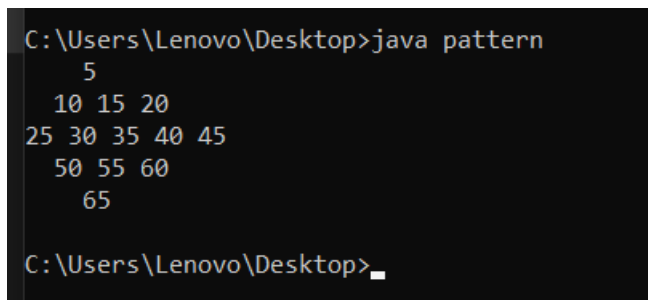
            for(k=1; k<=drow*i-1; k++){
                System.out.print(""+num+" ");
                num=num+5;
            }
        }
    }
}

```

```
        }  
        System.out.println("");  
    }  
}  
}
```

**Output:**

**Screen Shot:**



```
C:\Users\Lenovo\Desktop>java pattern  
5  
10 15 20  
25 30 35 40 45  
50 55 60  
65  
C:\Users\Lenovo\Desktop>_
```

**Q. 2** Design an interface **AdvancedArithmetic** which contains a method signature **int divisor\_sum(int n)**. You need to write a class called **MyCalculator** which implements the interface. **divisor\_sum(int n)** function takes an integer as input and return the sum of all its divisors. Divisors of 6 are 1, 2, 3 and 6, so **divisor\_sum** should return 12. ( $0 < n < 100$ )

**Solution:**

```
import java.util.*;

interface AdvancedArithmetic {

    int divisorSum(int n);

}

class MyCalculator implements AdvancedArithmetic {

    int sum=0;

    public int divisorSum(int n) {

        for(int i=1; i<=n; i++) {

            if(n%i==0) {

                sum=sum+i;

            }

        }

        return sum;

    }

}

class advance {

    public static void main(String[] args) {

        Scanner sc= new Scanner(System.in);

        int n=sc.nextInt();

        AdvancedArithmetic m1=new MyCalculator();

        int sum= m1.divisorSum(n);

        System.out.println("Answwer= "+sum);

    }

}
```

**Output:**

**Screen Shot:**

```
C:\Users\Lenovo\Desktop>javac advanceDemo.java
C:\Users\Lenovo\Desktop>java advanceDemo
6
Answer= 12
```

**Q. 3 Create an Interface 'Animals' with abstract method 'void sound()' and default method 'void walk()'. Implement abstract method in class 'Cat' & 'Dog'. Now create an object for each of the subclasses and call their respective methods and default method too.**

**Solution:**

```
interface Animals{
    public void sound();
    public default void walk() {
        System.out.println("Aniaml walk on 4 Legs");
    }
}

class Cat implements Animals {
    public void sound(){
        System.out.println("Cat sound is nice");
    }
}

class Dog implements Animals {
    public void sound() {
        System.out.println("Dog sound is horrible");
    }
}

class interfaceDemo{
    public static void main(String Arg[]) {
        Cat C=new Cat();
        C.sound();
        C.walk();

        Dog D=new Dog();
        D.sound();
        D.walk();
    }
}
```



**Output:**

**Screen Shot:**

```
C:\Users\Lenovo\Desktop>javac interfaceDemo.java

C:\Users\Lenovo\Desktop>java interfaceDemo
Cat sound is nice
Aniaml walk on 4 Legs
Dog sound is horrible
Aniaml walk on 4 Legs

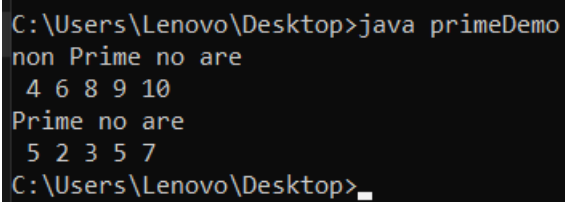
C:\Users\Lenovo\Desktop>
```

**Q. 4 Declare the integer array with 10 numbers. Generate 2 new arrays Prime and NonPrime with prime and non-prime numbers from main array.**

**Solution:**

```
class primeDemo {  
    public static void main(String[] args) {  
        int arr[]={5,2,3,4,5,6,7,8,9,10};  
        int arr1[]=new int[10];  
        int arr2[]=new int[10];  
        int a=0, b=0;  
        for(int num=0; num<arr.length; num++) {  
            int flag=0;  
            for (int i = 2; i < num; i++) {  
                if(arr[num] % i == 0) {  
                    flag=1;  
                    break;  
                }  
            }  
            if(flag == 1){  
                arr1[a]=arr[num];  
                a++;  
            }  
            else {  
                arr2[b]=arr[num];  
                b++;  
            }  
        }  
        System.out.println("non Prime no are");  
        for(int i=0; i<a; i++){  
            System.out.print( " "+arr1[i]);  
        }  
    }  
}
```

```
System.out.println("");  
  
    System.out.println("Prime no are");  
  
    for(int i=0; i<b; i++){  
  
        System.out.print(" "+arr2[i]);  
  
    }  
  
}  
  
}
```

**Output:****Screen Shot:**

```
C:\Users\Lenovo\Desktop>java primeDemo  
non Prime no are  
 4 6 8 9 10  
Prime no are  
 5 2 3 5 7  
C:\Users\Lenovo\Desktop>_
```

**Q. 5 Write an application to identify and move all 0's to the end of an array. Maintain the sequence of the other (non-zero) array elements.**

**Solution:**

```
public class zeroDemo {

    public static void main(String[] args) {

        int arr[] = {1, 9, 8, 4, 0, 0, 2, 7, 0, 6, 0, 9};

        int n = arr.length;

        helperFunction(arr, n);

        for (int i:arr) {

            System.out.print(i+" ");

        }

    }

    static void helperFunction(int arr[], int n) {

        int count = 0;

        for(int i:arr) {

            if(i!=0) {

                arr[count++] = i;

            }

        }

        while(count<n) {

            arr[count++] = 0;

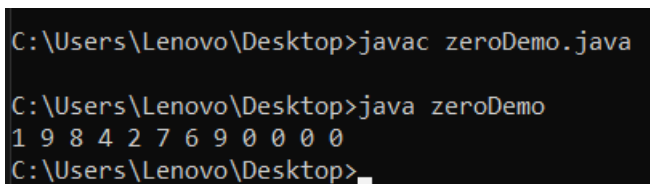
        }

    }

}
```

**Output:**

**Screen Shot:**



```
C:\Users\Lenovo\Desktop>javac zeroDemo.java

C:\Users\Lenovo\Desktop>java zeroDemo
1 9 8 4 2 7 6 9 0 0 0 0
C:\Users\Lenovo\Desktop>
```

**Q. 6 Write an application which will throw OverwtProductException if Product weight is above 60kg. (Use User defined exception)**

**Solution:**

```
import java.util.*;

class OverwtProductException extends Exception {

    OverwtProductException(String s) {

        super(s);

    }

}

class exceptionDemo {

    public static void main(String[] args) throws OverwtProductException {

        Scanner sc = new Scanner(System.in);

        int n=sc.nextInt();

        try {

            if(n>60) {

                throw new OverwtProductException("Weight Overload");

            } else {

                System.out.println("Exception not found");

            }

        }

        catch (Exception e) {

            System.out.println("Exception occur"+e);

        }

    }

}
```

**Output:**

**Screen Shot:**

```
C:\Users\Lenovo\Desktop>javac exceptionDemo.java  
  
C:\Users\Lenovo\Desktop>java exceptionDemo  
65  
Exception occurOverwtProductException: Weight Overload  
  
C:\Users\Lenovo\Desktop>java exceptionDemo  
55  
Exception not found  
  
C:\Users\Lenovo\Desktop>
```

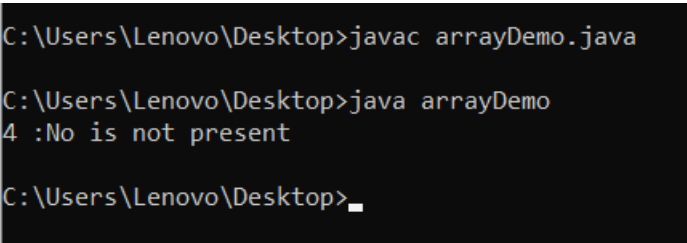
**Q. 7** Given two arrays, 1,2,3,4,5 and 2,3,1,1,0,5,0,2,1 find which number is not present in the second array.

**Solution:**

```
class arrayDemo {
    public static void main(String[] args) {
        int arr1[]={1,2,3,4,5};
        int arr2[]={2,3,1,1,0,5,0,2,1};
        boolean found=false;
        for(int i=0; i<arr1.length; i++) {
            for(int j=0; j<arr2.length; j++) {
                if(arr1[i] == arr2[j]) {
                    found =true;
                    break;
                }
                else {
                    found = false;
                }
            }
            if(!found){
                System.out.println(arr1[i]+" :No is not present");
            }
        }
    }
}
```

**Output:**

**Screen Shot:**



```
C:\Users\Lenovo\Desktop>javac arrayDemo.java
C:\Users\Lenovo\Desktop>java arrayDemo
4 :No is not present
C:\Users\Lenovo\Desktop>_
```

**Q. 8 Write code to check whether a no is a power of two or not?****Solution:**

```

import java.util.Scanner;

class noCheckDemo {

    public static void main(String[] args) {

        System.out.println("Enter the number");

        Scanner sc= new Scanner(System.in);

        int n=sc.nextInt();

        int count=0;

        if (n > 0) {

            while (n % 2 == 0) {          // continously divide i if it is even

                n = n / 2;

                count++;

            }

            if (n == 1) {                // check if n is a power of 2

                System.out.println(" is a power of 2 & 2 rise to "+count);

            } else {

                System.out.println("No is not power of 2");

            }

        }

        else{

            System.out.println("Enter a valid positive number");

        }

    }

}

```

**Output:****Screen Shot:**



```
C:\Users\Lenovo\Desktop>javac noCheckDemo.java  
  
C:\Users\Lenovo\Desktop>java noCheckDemo  
Enter the number  
5  
No is not power of 2  
  
C:\Users\Lenovo\Desktop>java noCheckDemo  
Enter the number  
8  
8 is a power of 2 & 2 rise to 3  
  
C:\Users\Lenovo\Desktop>_
```

**Q. 9 Write a code to display string in reverse order of words****Solution:**

```
import java.util.StringTokenizer;

public class ReverseString {

    public static void main(String args[]) {

        String s = "I am doing java program";

        StringTokenizer st = new StringTokenizer(s);

        String reverseMessage = "";

        while(st.hasMoreTokens()) {

            reverseMessage = st.nextToken()+" "+reverseMessage;

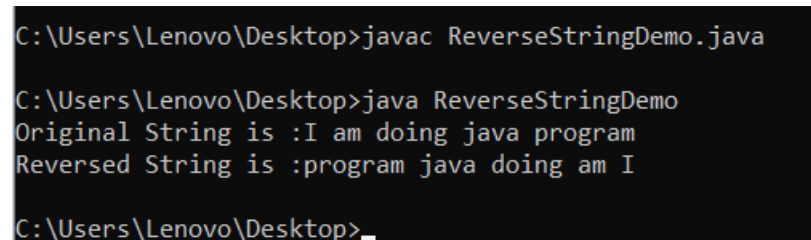
        }

        System.out.println("Original String is :"+s);

        System.out.println("Reversed String is :"+reverseMessage);

    }

}
```

**Output:****Screen Shot:**

```
C:\Users\Lenovo\Desktop>javac ReverseStringDemo.java

C:\Users\Lenovo\Desktop>java ReverseStringDemo
Original String is :I am doing java program
Reversed String is :program java doing am I

C:\Users\Lenovo\Desktop>
```

**Q. 10** Write a code to accept a string and check if there are two same consecutive letters, delete one of them.

**Solution:**

```
import java.util.Scanner;

public class lettersDemo {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter a string: ");

        String str = sc.nextLine();

        StringBuilder sb = new StringBuilder();

        for (int i = 0; i < str.length() - 1; i++) {

            if (str.charAt(i) == str.charAt(i + 1)) {

                continue;

            }

            sb.append(str.charAt(i));

        }

        sb.append(str.charAt(str.length() - 1));

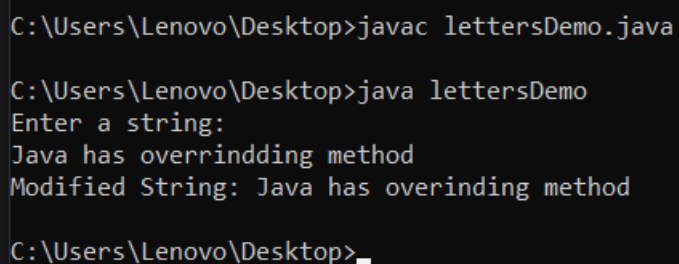
        System.out.println("Modified String: "+sb.toString());

    }

}
```

**Output:**

**Screen Shot:**



```
C:\Users\Lenovo\Desktop>javac lettersDemo.java

C:\Users\Lenovo\Desktop>java lettersDemo
Enter a string:
Java has overrindding method
Modified String: Java has overinding method

C:\Users\Lenovo\Desktop>_
```

**Q. 11 Write a threaded application to print in one text area 1,2,3,4.... and in other text area 1,4,9,16 ...**

**Solution:**

```
import javax.swing.*.*;
import java.awt.*.*;

class IncrementNumbersTask implements Runnable {
    private JTextArea textArea;

    IncrementNumbersTask(JTextArea textArea) {
        this.textArea = textArea;
    }

    public void run() {
        for (int i = 1; i <= 10; i++) {
            textArea.append(String.valueOf(i) + "\n");
        }
    }
}

class SquareNumbersTask implements Runnable {
    private JTextArea textArea;

    SquareNumbersTask(JTextArea textArea) {
        this.textArea = textArea;
    }

    public void run() {
        for (int i = 1; i <= 10; i++) {
            textArea.append(String.valueOf(i * i) + "\n");
        }
    }
}

public class ThreadedApp extends JFrame {
    private JTextArea textArea1;
    private JTextArea textArea2;
```

```

public ThreadedApp() {
    setTitle("Threaded Application");
    setSize(500, 300);
    setDefaultCloseOperation(EXIT_ON_CLOSE);
    Container container = getContentPane();
    container.setLayout(new FlowLayout());
    textArea1 = new JTextArea(10, 10);
    container.add(new JScrollPane(textArea1));
    textArea2 = new JTextArea(10, 10);
    container.add(new JScrollPane(textArea2));
    setVisible(true);
}

public static void main(String[] args) {
    ThreadedApp app = new ThreadedApp();
    Thread thread1 = new Thread(new IncrementNumbersTask(app.textArea1));
    Thread thread2 = new Thread(new SquareNumbersTask(app.textArea2));
    thread1.start();
    thread2.start();
}
}

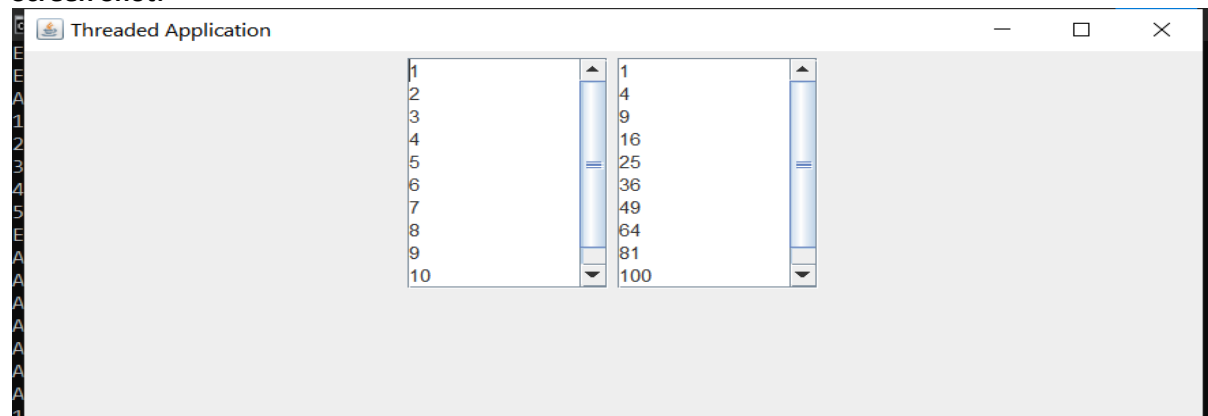
```

**Output:**

```

C:\Users\Lenovo\Desktop>javac ThreadedApp.java
C:\Users\Lenovo\Desktop>java ThreadedApp

```

**Screen Shot:**

**Q. 12 Write a code to create calculator application using AWT, which will calculate simple Arithmetic operations.**

**Solution:**

```
import java.awt.*;
import java.awt.event.*;

class MyCalc extends WindowAdapter implements ActionListener {
    Frame f;
    Label l1;
    Button b1, b2, b3, b4, b5, b6, b7, b8, b9, b0;
    Button badd, bsub, bmult, bdiv, bmod, bcalc, bclr, bpts, bneg, bback;
    double xd;
    double num1, num2, check;
    MyCalc() {
        f = new Frame("MY CALCULATOR");
        l1 = new Label();
        l1.setBackground(Color.LIGHT_GRAY);
        l1.setBounds(50, 50, 260, 60);

        b1 = new Button("1");
        b1.setBounds(50, 340, 50, 50);
        b2 = new Button("2");
        b2.setBounds(120, 340, 50, 50);
        b3 = new Button("3");
        b3.setBounds(190, 340, 50, 50);
        b4 = new Button("4");
        b4.setBounds(50, 270, 50, 50);
        b5 = new Button("5");
        b5.setBounds(120, 270, 50, 50);
        b6 = new Button("6");
        b6.setBounds(190, 270, 50, 50);
```

```
b7 = new Button("7");
b7.setBounds(50, 200, 50, 50);
b8 = new Button("8");
b8.setBounds(120, 200, 50, 50);
b9 = new Button("9");
b9.setBounds(190, 200, 50, 50);
b0 = new Button("0");
b0.setBounds(120, 410, 50, 50);
bneg = new Button("/-");
bneg.setBounds(50, 410, 50, 50);
bpts = new Button(".");
bpts.setBounds(190, 410, 50, 50);
bback = new Button("back");
bback.setBounds(120, 130, 50, 50);

badd = new Button("+");
badd.setBounds(260, 340, 50, 50);
bsub = new Button("-");
bsub.setBounds(260, 270, 50, 50);
bmult = new Button("*");
bmult.setBounds(260, 200, 50, 50);
bdiv = new Button("/");
bdiv.setBounds(260, 130, 50, 50);
bmod = new Button("%");
bmod.setBounds(190, 130, 50, 50);
bcalc = new Button("=");
bcalc.setBounds(245, 410, 65, 50);
bclr = new Button("CE");
bclr.setBounds(50, 130, 65, 50);
b1.addActionListener(this);
```

```
b2.addActionListener(this);
b3.addActionListener(this);
b4.addActionListener(this);
b5.addActionListener(this);
b6.addActionListener(this);
b7.addActionListener(this);
b8.addActionListener(this);
b9.addActionListener(this);
b0.addActionListener(this);
bpts.addActionListener(this);
bneg.addActionListener(this);
bback.addActionListener(this);
badd.addActionListener(this);
bsub.addActionListener(this);
bmult.addActionListener(this);
bdiv.addActionListener(this);
bmod.addActionListener(this);
bcalc.addActionListener(this);
bclr.addActionListener(this);
f.addWindowListener(this);
f.add(l1);
f.add(b1);
f.add(b2);
f.add(b3);
f.add(b4);
f.add(b5);
f.add(b6);
f.add(b7);
f.add(b8);
f.add(b9);
```



```

        f.add(b0);
        f.add(badd);
        f.add(bsub);
        f.add(bmod);
        f.add(bmult);
        f.add(bdiv);
        f.add(bmod);
        f.add(bcalc);
        f.add(bclr);
        f.add(bpts);
        f.add(bneg);
        f.add(bback);
        f.setSize(360, 500);
        f.setLayout(null);
        f.setVisible(true);
    }

    public void windowClosing(WindowEvent e) {
        f.dispose();
    }

    public void actionPerformed(ActionEvent e) {
        String z, zt;

        if (e.getSource() == b1) {
            zt = l1.getText();
            z = zt + "1";
            l1.setText(z);
        }

        if (e.getSource() == b2) {
            zt = l1.getText();
            z = zt + "2";
            l1.setText(z);
        }
    }

```

```
}  
  
if (e.getSource() == b3) {  
    zt = l1.getText();  
    z = zt + "3";  
    l1.setText(z);  
}  
  
if (e.getSource() == b4) {  
    zt = l1.getText();  
    z = zt + "4";  
    l1.setText(z);  
}  
  
if (e.getSource() == b5) {  
    zt = l1.getText();  
    z = zt + "5";  
    l1.setText(z);  
}  
  
if (e.getSource() == b6) {  
    zt = l1.getText();  
    z = zt + "6";  
    l1.setText(z);  
}  
  
if (e.getSource() == b7) {  
    zt = l1.getText();  
    z = zt + "7";  
    l1.setText(z);  
}  
  
if (e.getSource() == b8) {  
    zt = l1.getText();  
    z = zt + "8";  
    l1.setText(z);  
}
```

```
}  
  
if (e.getSource() == b9) {  
    zt = l1.getText();  
    z = zt + "9";  
    l1.setText(z);  
}  
  
if (e.getSource() == b0) {  
    zt = l1.getText();  
    z = zt + "0";  
    l1.setText(z);  
}  
  
if (e.getSource() == bpts) { // ADD DECIMAL PTS  
    zt = l1.getText();  
    z = zt + ".";  
    l1.setText(z);  
}  
  
if (e.getSource() == bneg) { // FOR NEGATIVE  
    zt = l1.getText();  
    z = "-" + zt;  
    l1.setText(z);  
}  
  
if (e.getSource() == bback) { // FOR BACKSPACE  
    zt = l1.getText();  
    try {  
        z = zt.substring(0, zt.length() - 1);  
    } catch (StringIndexOutOfBoundsException f) {  
        return;  
    }  
}
```

```
        l1.setText(z);
    }

    if (e.getSource() == badd) { // FOR ADDITION

        try {

            num1 = Double.parseDouble(l1.getText());

        } catch (NumberFormatException f) {

            l1.setText("Invalid Format");

            return;

        }

        z = "";

        l1.setText(z);

        check = 1;

    }

    if (e.getSource() == bsub) { // FOR SUBTRACTION

        try {

            num1 = Double.parseDouble(l1.getText());

        } catch (NumberFormatException f) {

            l1.setText("Invalid Format");

            return;

        }

        z = "";

        l1.setText(z);

        check = 2;

    }

    if (e.getSource() == bmult) { // FOR MULTIPLICATION

        try {

            num1 = Double.parseDouble(l1.getText());

        } catch (NumberFormatException f) {

            l1.setText("Invalid Format");

            return;

        }

    }

}
```

```

    }

    z = "";

    l1.setText(z);

    check = 3;
}

if (e.getSource() == bdiv) { // FOR DIVISION

    try {

        num1 = Double.parseDouble(l1.getText());

    } catch (NumberFormatException f) {

        l1.setText("Invalid Format");

        return;

    }

    z = "";

    l1.setText(z);

    check = 4;

}

if (e.getSource() == bmod) { // FOR MOD/REMAINDER

    try {

        num1 = Double.parseDouble(l1.getText());

    } catch (NumberFormatException f) {

        l1.setText("Invalid Format");

        return;

    }

    z = "";

    l1.setText(z);

    check = 5;

}

if (e.getSource() == bcalc) {

    try {

        num2 = Double.parseDouble(l1.getText());

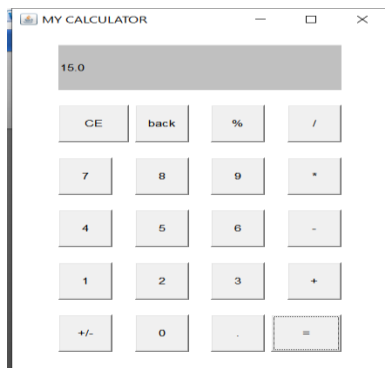
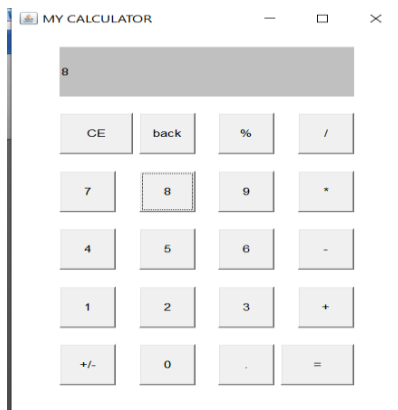
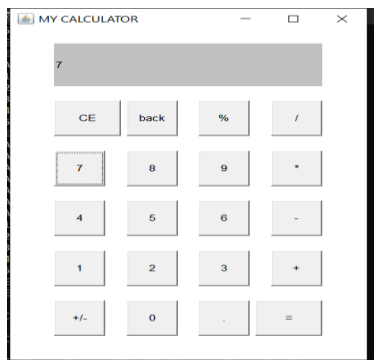
```

```

    } catch (Exception f) {
        l1.setText("ENTER NUMBER FIRST ");
        return;
    }
    if (check == 1)
        xd = num1 + num2;
    if (check == 2)
        xd = num1 - num2;
    if (check == 3)
        xd = num1 * num2;
    if (check == 4)
        xd = num1 / num2;
    if (check == 5)
        xd = num1 % num2;
    l1.setText(String.valueOf(xd));
}
if (e.getSource() == bclr) {
    num1 = 0;
    num2 = 0;
    check = 0;
    xd = 0;
    z = "";
    l1.setText(z);
}
}
public static void main(String args[]) {
    new MyCalc();
}
}

```

**Output:**

**Screen Shot:**

**Q. 13 Write a Menu Driven Program for Blood Donor application for following task**

- a. Insert blood donor details into database.**
- b. Display blood group-wise details of donors**
- c. Update the address of a specific donor.**
- d. Delete the record of donors whose age is below 18.**

**Solution:**

```
import java.sql.*;
import java.sql.DriverManager;
import java.sql.Connection;
import java.io.*;

public class Doner {

    public static void main(String[] args)throws Exception {
        try {

            Class.forName("com.mysql.cj.jdbc.Driver");

            Connection
con=DriverManager.getConnection("jdbc:mysql://localhost/my_java","root","");

            String name,bg,addr;

            int age;

            Statement stmt=con.createStatement ();

            ResultSet rs;

            DataInputStream dis=new DataInputStream(System.in);

            while(true) {

                System.out.println("Enter choice : ");

                System.out.println("Menu ....");

                System.out.println("1.Insert");

                System.out.println("2.Display blood group wise");

                System.out.println("3.Update address");

                System.out.println("4.Delete record whose age is less than 18");

                System.out.println("5.Exit");
```



```
int ch=Integer.parseInt(dis.readLine());
switch(ch)    {
```

case 1:

```
    System.out.println("Enter name : ");
    name=dis.readLine();
    System.out.println("Enter age : ");
    age=Integer.parseInt(dis.readLine());
    System.out.println("Enter address : ");
    addr=dis.readLine();
    System.out.println("Enter blood group : ");
    bg=dis.readLine();
    String q="insert into Doner
values('"+name+"','"+age+"','"+addr+"','"+bg+"')";
    stmt.executeUpdate(q);
    System.out.println("Record inserted successfully.....");
    break;
```

case 2:

```
    System.out.println("Blood Group wise Doner display.....");
    String q1="select * from Doner order by bg";
    ResultSet res=stmt.executeQuery(q1);
    while(res.next()) {
        System.out.print(" Name = "+res.getString(1));
        System.out.print(" Age = "+res.getInt(2));
        System.out.print(" address = "+res.getString(3));
        System.out.print(" Blood group =
"+res.getString(4));
        System.out.println();
    }
```

```

        break;

    case 3:
        System.out.println("Enter name of Doner whose address
you want to update : ");

        String n=dis.readLine();

        String q3="select * from Doner where name='"+n+"'";

        ResultSet r=stmt.executeQuery(q3);

        if(r.next()) {

            System.out.print(" Name = "+r.getString(1));

            System.out.print(" Age = "+r.getInt(2));

            System.out.print(" address = "+r.getString(3));

            System.out.print(" Blood group = "+r.getString(4));

            System.out.println();

            System.out.println("Enter new address : ");

            String addr1=dis.readLine();

            String q4="update Doner set addr = '"+addr1+"'
where name='"+n+"'";

            int no=stmt.executeUpdate(q4);

            System.out.println("Record updated ");

        }

        else {

            System.out.println("NO RECORD FOUND ");

        }

        break;

    case 4:

        int a=18;

        String q5="delete from Doner where age < "+a;

```

```
stmt.executeUpdate(q5);  
  
System.out.println("Record deleted successfully...");  
  
break;
```

case 5:

```
System.out.println("System exit successfully");  
  
System.exit(0);  
  
break;
```

```
}
```

```
}
```

```
}
```

```
catch(Exception e){System.out.println(e);
```

```
}
```

```
}
```

```
}
```

```
}
```

**Output:**

**Screen Shot:**

```
Console x Problems Debug Shell Debug Output Browser Output
<terminated> Doner [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (15-Mar-2023, 12:19:55 am – 12:22:18 am) [pid: 14624]
Enter choice :
Menu ....
1.Insert
2.Display blood group wise
3.Update address
4.Delete record whose age is less than 18
5.Exit
1
Enter name :
yash
Enter age :
21
Enter address :
nagpur
Enter blood group :
b+
Record inserted successfully.....
Enter choice :
Menu ....
1.Insert
2.Display blood group wise
3.Update address
4.Delete record whose age is less than 18
5.Exit
1
Enter name :
pratik
Enter age :
```

```
Console x Problems Debug Shell Debug Output Browser Output
<terminated> Doner [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (15-Mar-2023, 12:19:55 am – 12:22:18 am) [pid: 14624]
Enter name :
pratik
Enter age :
22
Enter address :
amravati
Enter blood group :
A+
Record inserted successfully.....
Enter choice :
Menu ....
1.Insert
2.Display blood group wise
3.Update address
4.Delete record whose age is less than 18
5.Exit
1
Enter name :
akash
Enter age :
23
Enter address :
pune
Enter blood group :
a-
Record inserted successfully.....
Enter choice :
Menu ....
<
```

```

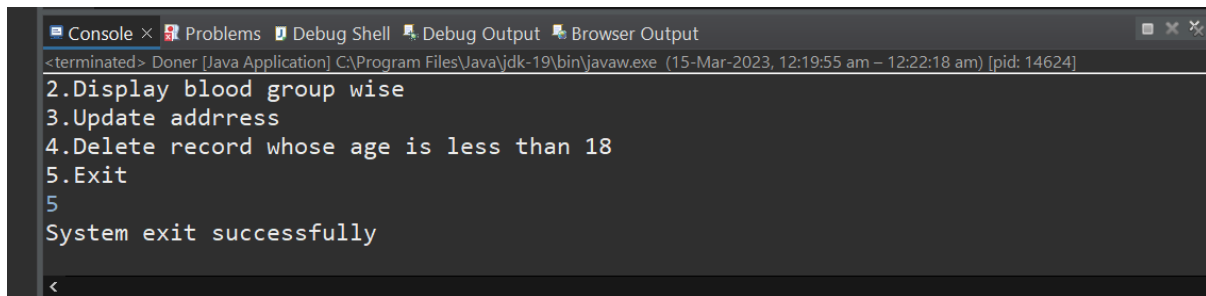
Console × Problems Debug Shell Debug Output Browser Output
<terminated> Doner [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (15-Mar-2023, 12:19:55 am – 12:22:18 am) [pid: 14624]
Menu ....
1.Insert
2.Display blood group wise
3.Update address
4.Delete record whose age is less than 18
5.Exit
2
Blood Group wise Doner display.....
Name = pratik Age = 22 address = amravati Blood group = A+
Name = akash Age = 23 address = pune Blood group = a-
Name = yash Age = 21 address = nagpur Blood group = b+
Name = dsf Age = 33 address = fdff Blood group = s+
Enter choice :
Menu ....
1.Insert
2.Display blood group wise
3.Update address
4.Delete record whose age is less than 18
5.Exit
3
Enter name of Doner whose address you want to update :
akash
Name = akash Age = 23 address = pune Blood group = a-
Enter new address :
mumbai
Record updated
Enter choice :
Menu ....
<

```

```

Console × Problems Debug Shell Debug Output Browser Output
<terminated> Doner [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (15-Mar-2023, 12:19:55 am – 12:22:18 am) [pid: 14624]
Menu ....
1.Insert
2.Display blood group wise
3.Update address
4.Delete record whose age is less than 18
5.Exit
2
Blood Group wise Doner display.....
Name = pratik Age = 22 address = amravati Blood group = A+
Name = akash Age = 23 address = mumbai Blood group = a-
Name = yash Age = 21 address = nagpur Blood group = b+
Name = dsf Age = 33 address = fdff Blood group = s+
Enter choice :
Menu ....
1.Insert
2.Display blood group wise
3.Update address
4.Delete record whose age is less than 18
5.Exit
4
Record deleted successfully...
Enter choice :
Menu ....
1.Insert
2.Display blood group wise
3.Update address
4.Delete record whose age is less than 18
5.Exit
7

```



The screenshot shows an IDE's console window with the following content:

```
<terminated> Doner [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (15-Mar-2023, 12:19:55 am – 12:22:18 am) [pid: 14624]
2.Display blood group wise
3.Update address
4.Delete record whose age is less than 18
5.Exit
5
System exit successfully
```

The console window has tabs for 'Console', 'Problems', 'Debug Shell', 'Debug Output', and 'Browser Output'. The 'Console' tab is active. The output shows a list of menu options, a selection of option 5, and a confirmation message 'System exit successfully'.

**Q. 14 Write a servlet to check username & password passed from html page. If it is “Scott” & “tiger”, display welcome message else show the same html page again. [With res.sendRedirect (“http://localhost:8080/login.html”)]**

**Solution:**

```
<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1" />

<title>Insert title here</title>

</head>

<body>

<h1>Login Form</h1>

<form method="post" action="Register">

<label id="name">Name</label>

<input type="text" name="name" /> <br />

<br />

<label id="password">Password</label>

<input type="text" name="password" /> <br />

<br />

<button type="submit">Submit</button>

</form>

</body>

</html>
```

Resister.java

```
import java.io.*;

import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

public class Register extends HttpServlet {

    private static final long serialVersionUID = 1L;
```

```
protected void doPost(HttpServletRequest req, HttpServletResponse resp) throws
ServletException, IOException {

    resp.setContentType("text/html");

    PrintWriter pw = resp.getWriter();

    String username = req.getParameter("name");

    String password = req.getParameter("password");

    if (username.equals("Scott") && password.equals("tiger")) {

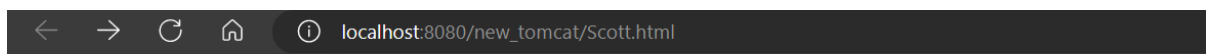
        pw.write("Welcome " + username);

        return;

    }

    resp.sendRedirect("http://localhost:8080/Scott.html");

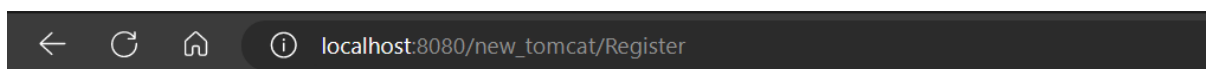
}
```

**Output:****Screen Shot:**

## Login Form

Name

Password



Welcome Scott



**Q. 15 Write a program to draw a circle on panel and move the circle as mouse is moving.**

**Solution:**

```
import java.awt.Color;

import java.awt.Graphics;

import java.awt.event.MouseEvent;

import java.awt.event.MouseMotionAdapter;

import javax.swing.JFrame;

import javax.swing.JPanel;

public class CircleMover extends JPanel {

    private int x, y; // The current position of the circle

    public CircleMover() {

        setBackground(Color.WHITE);

        // Add a mouse motion listener to track mouse movement

        addMouseMotionListener(new MouseMotionAdapter() {

            public void mouseMoved(MouseEvent e) {

                // Update the position of the circle

                x = e.getX();

                y = e.getY();

                repaint(); // Redraw the panel with the new position

            }

        });

    }

    public void paintComponent(Graphics g) {

        super.paintComponent(g);

        g.setColor(Color.RED);

        g.fillOval(x - 10, y - 10, 20, 20);

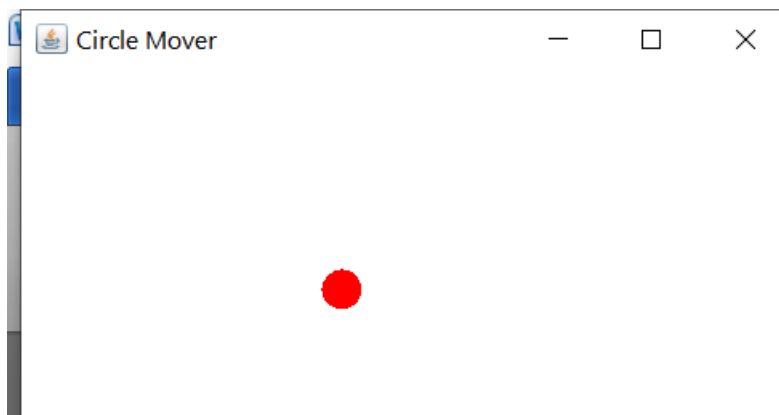
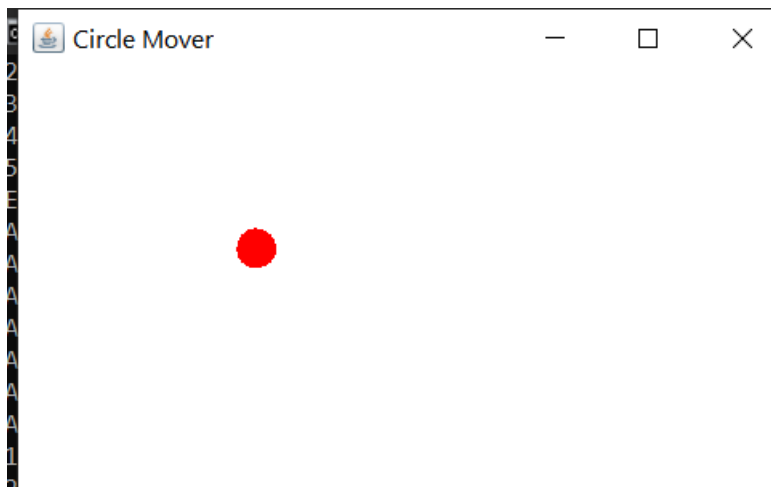
    }

    public static void main(String[] args) {

        JFrame frame = new JFrame("Circle Mover");

        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
```

```
    frame.setSize(400, 400);  
    CircleMover panel = new CircleMover();  
    frame.add(panel);  
    frame.setVisible(true);  
}  
}
```

**Output:****Screen Shot:**

**Q. 16** Write a servlet to add a Cookie to clients machine that stores username, current date & time. Display the same.

**Solution:**

**Cookie1.html**

```
<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Insert title here</title>

</head>

<body>

<form action="cookie1" method=post>

User name: <input type=text name="uname">

<input type=submit>

</form>

</body>

</html>
```

**cookie1.java**

```
import java.io.*;
import java.sql.*;
import java.util.*;
import javax.servlet.*;
import javax.servlet.http.HttpServlet;
import java.util.Date;
import java.time.*;
import java.text.*;

public class cookie1 extends HttpServlet {

    private static final long serialVersionUID = 1L;
```

```

protected void service(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {

    response.setContentType("text/html");

    PrintWriter pw = response.getWriter();

    Date d = new Date();

    //String date1=d.toString();

    String n = request.getParameter("uname");

    pw.print("Welcome " + n);

    String name3 = "abc";

    Cookie c = new Cookie("name", n);

    response.addCookie(c);

    String f1;

    SimpleDateFormat f = new SimpleDateFormat("dd/MM/yyyy HH:mm:ss z");

    f1 = f.toString();

    LocalDateTime dt = LocalDateTime.now();

    String datetime;

    Cookie c2 = new Cookie("datetime", "date1");

    response.addCookie(c2);

    pw.print("<form action='cookie2'>");

    pw.print("<input type='submit'>");

    pw.print("</form>");

    pw.close();

}

}

```

cookie2.java

```

import javax.servlet.*;

import java.io.*;

import java.io.IOException;

import javax.servlet.http.HttpServlet;

```

```

import javax.servlet.http.Cookie;

import java.util.*;

import java.time.*;

import java.text.*;

public class cookie2 extends HttpServlet {

    private static final long serialVersionUID = 1L;

    public cookie2() {

        super();}

    protected void service(HttpServletRequest request, HttpServletResponse response)

        throws ServletException, IOException {

        response.setContentType("text/html");

        PrintWriter pw = response.getWriter();

        String name1, dateandtime, Value;

        Cookie c1[] = request.getCookies();

        for (int i = 0; i < c1.length; i++) {

            // name1=c1[i].getName();

            Value = c1[i].getValue();

            pw.println(Value);

        }

        java.util.Date date = new java.util.Date();

        pw.println("Current date and time : " + date.toString());

        pw.close();

    }

}

```

**Output:**

**Screen Shot:**



A screenshot of a web browser window. The address bar shows 'localhost:8080/new\_tomcat/cookie1.html'. Below the address bar, there is a form with the label 'User name:' followed by a text input field containing 'IICMR' and a 'Submit' button.



A screenshot of a web browser window. The address bar shows 'localhost:8080/new\_tomcat/cookie1'. Below the address bar, the text 'Welcome IICMR' is displayed, followed by a 'Submit' button.



A screenshot of a web browser window. The address bar shows 'localhost:8080/new\_tomcat/cookie2?'. Below the address bar, the text 'IICMR date! Current date and time : Wed Mar 15 01:28:22 IST 2023' is displayed.

**Q. 17 Write java program to generate 10 terms of Fibonacci series using threads.**

**Solution:**

```
import java.io.*;

class Fibonacci extends Thread{

    public void run() {
        try {
            int a=0, b=1, c=0;

            BufferedReader br=new BufferedReader(new
InputStreamReader(System.in));

            int n=10;

            System.out.println("Fibonacci series:");

            while (n>0) {
                System.out.print(c+" ");

                a=b;
                b=c;
                c=a+b;
                n=n-1;
            }
        }
        catch (Exception ex) {
            ex.printStackTrace();
        }
    }
}

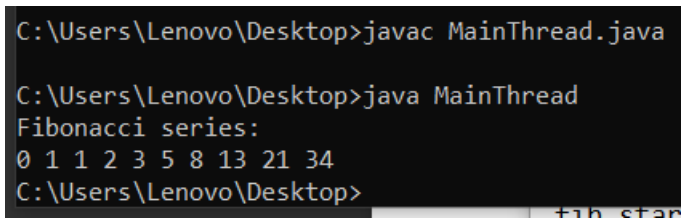
class MainThread {

    public static void main(String[] args) {
        try {
            Fibonacci fib = new Fibonacci();

            fib.start();

            fib.sleep(2000);
        }
    }
}
```

```
    }  
    catch (Exception ex) {  
        ex.printStackTrace();  
    }  
}  
}
```

**Output:****Screen Shot:**

```
C:\Users\Lenovo\Desktop>javac MainThread.java  
C:\Users\Lenovo\Desktop>java MainThread  
Fibonacci series:  
0 1 1 2 3 5 8 13 21 34  
C:\Users\Lenovo\Desktop>
```



**Q. 18 Create a menu driven program for Bank account(acc\_no, Name, amt) (Hint: use vector)**

**1. Add    2. Search    3. Delete    4. Display**

**Solution:**

```
import java.util.Scanner;

import java.util.Vector;

public class BankAccount {

    private int accNo;

    private String name;

    private double balance;

    public BankAccount(int accNo, String name, double balance) {

        this.accNo = accNo;

        this.name = name;

        this.balance = balance;

    }

    public int getAccNo() {

        return accNo;

    }

    public String getName() {

        return name;

    }

    public double getBalance() {

        return balance;

    }

    public void setBalance(double balance) {

        this.balance = balance;

    }

    public static void main(String[] args) {

        Vector<BankAccount> accounts = new Vector<>();

        Scanner scanner = new Scanner(System.in);

        while (true) {
```

```

System.out.println("1. Add Account");
System.out.println("2. Search Account");
System.out.println("3. Delete Account");
System.out.println("4. Display Accounts");
System.out.println("5. Exit");
System.out.print("Enter your choice: ");
int choice = scanner.nextInt();

switch (choice) {
case 1:
    System.out.print("Enter Account Number: ");
    int accNo = scanner.nextInt();
    System.out.print("Enter Account Holder Name: ");
    String name = scanner.next();
    System.out.print("Enter Account Balance: ");
    double balance = scanner.nextDouble();
    accounts.add(new BankAccount(accNo, name, balance));
    System.out.println("Account added successfully!");
    break;
case 2:
    System.out.print("Enter Account Number: ");
    accNo = scanner.nextInt();
    boolean found = false;
    for (BankAccount account : accounts) {
        if (account.getAccNo() == accNo) {
            System.out.println("Account Holder Name: " +
account.getName());
            System.out.println("Account Balance: " +
account.getBalance());
            found = true;
            break;

```

```

        }
    }
    if (!found) {
        System.out.println("Account not found!");
    }
    break;
case 3:
    System.out.print("Enter Account Number: ");
    accNo = scanner.nextInt();
    found = false;
    for (BankAccount account : accounts) {
        if (account.getAccNo() == accNo) {
            accounts.remove(account);
            System.out.println("Account deleted successfully!");
            found = true;
            break;
        }
    }
    if (!found) {
        System.out.println("Account not found!");
    }
    break;
case 4:
    if (accounts.isEmpty()) {
        System.out.println("No accounts found!");
    } else {
        System.out.println("Account Details:");
        for (BankAccount account : accounts) {
            System.out.println("Account Number: " +
account.getAccNo());

```

```
account.getName();
                                System.out.println("Account Holder Name: " +
account.getBalance();
                                System.out.println("Account Balance: " +
                                }
                                }
                                break;
case 5:
    System.out.println("Exiting...");
    System.exit(0);
default:
    System.out.println("Invalid choice! Try again.");
}
}
}
```

**Output:**

**Screen Shot:**

```
C:\Windows\System32\cmd.exe
C:\Users\Lenovo\Desktop>
C:\Users\Lenovo\Desktop>javac BankAccount.java

C:\Users\Lenovo\Desktop>java BankAccount
1. Add Account
2. Search Account
3. Delete Account
4. Display Accounts
5. Exit
Enter your choice: 1
Enter Account Number: 11
Enter Account Holder Name: yash
Enter Account Balance: 50000
Account added successfully!
1. Add Account
2. Search Account
3. Delete Account
4. Display Accounts
5. Exit
Enter your choice: 1
Enter Account Number: 12
Enter Account Holder Name: pratik
Enter Account Balance: 60000
Account added successfully!
1. Add Account
2. Search Account
3. Delete Account
4. Display Accounts
5. Exit
Enter your choice: 1
Enter Account Number: 13
Enter Account Holder Name: akash
Enter Account Balance: 70000
Account added successfully!
1. Add Account
2. Search Account
3. Delete Account
4. Display Accounts
5. Exit
Enter your choice: 2
Enter Account Number: 12
Account Holder Name: pratik
Account Balance: 60000.0
1. Add Account
2. Search Account
3. Delete Account
4. Display Accounts
5. Exit
Enter your choice: 3
Enter Account Number: 12
```

```
C:\Windows\System32\cmd.exe
5. Exit
Enter your choice: 3
Enter Account Number: 12
Account deleted successfully!
1. Add Account
2. Search Account
3. Delete Account
4. Display Accounts
5. Exit
Enter your choice: 4
Account Details:
Account Number: 11
Account Holder Name: yash
Account Balance: 50000.0
Account Number: 13
Account Holder Name: akash
Account Balance: 70000.0
1. Add Account
2. Search Account
3. Delete Account
4. Display Accounts
5. Exit
Enter your choice: 5
Exiting...

C:\Users\Lenovo\Desktop>
```

**Q. 19 Write a program to store employee in TreeSet and make sure employees are stored in sorted order of their age.**

**Solution:**

```
import java.util.TreeSet;

class Employee implements Comparable<Employee> {

    private int age;

    private String name;

    public Employee(int age, String name) {

        this.age = age;

        this.name = name;

    }

    public int getAge() {

        return age;

    }

    public String getName() {

        return name;

    }

    public int compareTo(Employee o) {

        return this.age - o.age;

    }

    public String toString() {

        return "Employee [age=" + age + ", name=" + name + "]\n";

    }

}

public class treeDemo {

    public static void main(String[] args) {

        TreeSet<Employee> employees = new TreeSet<>();

        employees.add(new Employee(22, "Enumerator"));

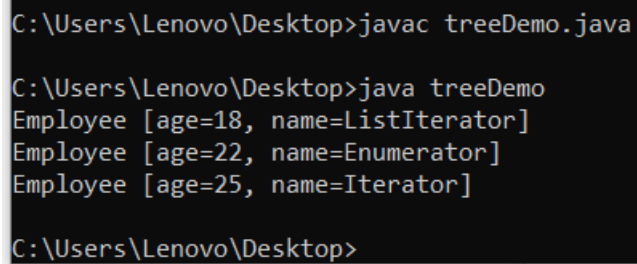
        employees.add(new Employee(25, "Iterator"));

        employees.add(new Employee(18, "ListIterator"));

    }

}
```

```
        for (Employee employee : employees) {  
            System.out.println(employee);  
        }  
    }  
}
```

**Output:****Screen Shot:**

```
C:\Users\Lenovo\Desktop>javac treeDemo.java  
  
C:\Users\Lenovo\Desktop>java treeDemo  
Employee [age=18, name=ListIterator]  
Employee [age=22, name=Enumerator]  
Employee [age=25, name=Iterator]  
C:\Users\Lenovo\Desktop>
```



**Q. 20 Create the list of patients and display the names of patients starting with 'A'****Solution:**

```
import java.util.ArrayList;

import java.util.List;

class Patient {

    private String name;

    public Patient(String name) {

        this.name = name;

    }

    public String getName() {

        return name;

    }

}

public class ArrayDemo {

    public static void main(String[] args) {

        List<Patient> patients = new ArrayList<>();

        patients.add(new Patient("Hasrish"));

        patients.add(new Patient("Ram"));

        patients.add(new Patient("Aanand"));

        patients.add(new Patient("Akash"));

        patients.add(new Patient("Avinash"));

        for (Patient patient : patients) {

            if (patient.getName().startsWith("A")) {

                System.out.println(patient.getName());

            }

        }

    }

}
```

**Output:****Screen Shot:**

```
C:\Users\Lenovo\Desktop>javac ArrayDemo.java  
  
C:\Users\Lenovo\Desktop>java ArrayDemo  
Aanand  
Akash  
Avinash  
  
C:\Users\Lenovo\Desktop>_
```