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JAVA LAB RECORD

1. BookDemo.java

PROGRAM:

```
import java.io.*;
class Publisher
{
        String Name,Location;
        int ISBN_number;

        void read()throws IOException
        {
                BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
                System.out.println("Enter Publisher Details ");
                System.out.println("Enter the Name : ");
                  Name = br.readLine();
                System.out.println("Enter the  location: ");
       Location = br.readLine();
                System.out.println("Enter the  ISBN Number: ");
       ISBN_number = Integer.parseInt(br.readLine());
        }
        void display()
        {
                System.out.println("Displaying  Publisher Details ");
                System.out.println("Name:"+ Name);
                System.out.println("Location:"+ Location);
                System.out.println("ISBN Number:"+ ISBN_number);
        }
}
class Book extends Publisher
{
         String Author ,Title,Publisher,Category;
         int Price ;
        void read()throws IOException
        {
                super.read();
                BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
```

```
                System.out.println("Enter Book Details ");
                System.out.println("Enter the Author name : ");
                  Author = br.readLine();
                System.out.println("Enter the  Title: ");
        Title = br.readLine();
                System.out.println("Enter the  Price: ");
        Price = Integer.parseInt(br.readLine());
                 System.out.println("Enter the  Publisher: ");
        Publisher = br.readLine();
                 System.out.println("Enter the Category:(Literature or Fiction )");
        Category = br.readLine();
          }

          void display()
          {
                super.display();
                System.out.println("\nDisplaying  Book  Details ");
                System.out.println("Author Name:"+Author);
                System.out.println("Title:"+Title);
                System.out.println("Price:"+Price);
                System.out.println("Publisher:"+Publisher);
                System.out.println("Category:"+Category);
          }
}
class BookDemo
{
          public static void main(String args[]) throws IOException
          {
          BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
          System.out.println("Enter the no of objects to be created:");
          int n = Integer.parseInt(br.readLine());
          Book f[] = new Book[n];
   for(int i=0;i<n;i++)
          {
          f[i] = new Book();
          f[i].read();
          System.out.println();
   }
          for(int i=0;i<n;i++)
          {
          System.out.println("Enter the category to be viewed:");
           System.out.println("\nLiterature or Fiction");
            String ch = br.readLine();
```

```
        for(int j=0;j<n;j++)
         if(ch.equalsIgnoreCase(f[j].Category))
                {
                        System.out.println("Displaying Details of Book with
Category:"+ch+" "+(j+1)+"\n");
                        f[j].display();
                        System.out.println();
                }

   }
  }
}
```

2. ComplexAddDemo.java

PROGRAM:

```
  Import
  java.io.;
                        class ComplexAdd
                        {
                                int real,imag;
                                void read()throws IOException
                                {
                                        DataInputStream dp = new
                        DataInputStream(System.in);
                                        System.out.println("Enter the real part:");
                                         real = Integer.parseInt(dp.readLine());
                                        System.out.println("Enter the imaginary part:");
                                         imag = Integer.parseInt(dp.readLine());
                                }
                                ComplexAdd  add(ComplexAdd c2)
                                {

                                        ComplexAdd S = new ComplexAdd();

                                        S.real = real + c2.real;
```

```
                S.imag = imag + c2.imag;
        return (S);
        }
        void display()

        {

                System.out.println("Sum is" + real + "+" +
imag + "i");

        }


}
class ComplexAddDemo
{
public static void main(String args[])throws IOException
{
        ComplexAdd c1 = new ComplexAdd();
        c1.read();
        ComplexAdd c2 = new ComplexAdd();
        c2.read();
        ComplexAdd c3 = new ComplexAdd();
        c3=c1.add(c2);
        c3.display();
}
}
```

3. EmployeeExample.java

PROGRAM:

```
Import
    java.i.*
    ;
                class Employee
                {
                String eName;
                int eNo,eSalary;


                    void read() throws IOException
                    {

                        DataInputStream dp = new DataInputStream(System.in);
                     System.out.println("Enter the Employee Number");
                     eNo = Integer.parseInt(dp.readLine());
                     System.out.println("Enter the Employee Name");
                     eName = dp.readLine();
                        System.out.println("Enter the Employee Salary");
                     eSalary = Integer.parseInt(dp.readLine());
                    }

                    void display()
                    {
                    System.out.println("Employee Name = "+eName);
                    System.out.println("Employee Number = "+eNo);
                    System.out.println("Employee Salary = "+eSalary);
```

```
    }
}
class EmployeeExample
{
public static void main(String args[])throws IOException


{
    DataInputStream dp = new DataInputStream(System.in);
    System.out.println("Enter the no of objects:");
    int n = Integer.parseInt(dp.readLine());
    Employee e[] = new Employee[n];
    for(int i=0;i<n;i++)
    {
    System.out.println("\nEMPLOYEE "+(i+1));
      e[i] = new Employee();
      e[i].read();
    }
    System.out.println("\nEnter the Employee No you want
    search?:");
    int srch = Integer.parseInt(dp.readLine());
    for(int i=0;i<n;i++)
    {
    if(e[i].eNo == srch)
    {
    System.out.println("\nThe Employee you searched is :");
    e[i].display();
     break;
    }
    }
}
```

```
    }
```

4. **InheritPersonDemo.java**

PROGRAM:

```
Import java.io.*;
        class Person
        {
                String Name;
          char Gender;
          String          Address;
                int Age;

                Person(String n,char gen,String add,int age)
                {
                        Name = n;
              Gender = gen;
                Address = add;
                        Age = age;
                }
        }

        class Employee extends Person
        {
                int Empid;
                String Company_name, Qualification;
                float Salary;

                Employee(String n,char gen,String add,int age,int emp,String
        comp, String qual,float sal)
                {
                        super(n,gen,add,age);
                         Empid = emp;
```

```
            Company_name = comp;
                Qualification = qual;
             Salary = sal;
        }
}


class Teacher extends Employee
{
        String Subject,Department;
        int Teacherid;

        Teacher(String n,char gen,String add,int age,int emp,String
comp, String qual,float sal,String sub,String depart,int teachid)
        {
                super(n,gen,add,age,emp,comp,qual,sal);
                Subject = sub;
                 Department = depart;
            Teacherid = teachid;
        }

        void display()
        {
                System.out.println(" Name: " + Name);
                System.out.println("Gender: "+Gender);
                System.out.println("Address: "+ Address);
                System.out.println("Age: "+ Age);
                System.out.println("Employee Id :"+ Empid);
                System.out.println("Company  Name: "+
Company_name);
                System.out.println("Employee Qualification :"+
Qualification);
                System.out.println("Employee Salary : "+ Salary);
                 System.out.println("Teacher Subjects : "+ Subject);
```

```
                    System.out.println("Teacher Department : "+
Department);
                    System.out.println("Teacher ID : "+ Teacherid);
          }
}

class InheritPersonDemo
{
public static void main(String args[]) throws IOException
{
          BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
          System.out.println("Enter the no of teachers details to be
entered:");
          int n = Integer.parseInt(br.readLine());
          Teacher teach[] = new Teacher[n];
  for(int i=0;i<n;i++)
          {
                    System.out.println("\n"+" "+"Enter  Details " + (i+1));
                    System.out.println("Enter the Name: ");
                    String  Name = br.readLine();
                    System.out.println("Enter the Gender:");
                    char Gender = br.readLine().charAt(0);
                    System.out.println("Enter the  Address: ");
                     String  Address = br.readLine();
                    System.out.println("Enter the Age: ");
                    int  Age = Integer.parseInt(br.readLine());
                    System.out.println("Enter the Employee Id: ");
                    int Empid =Integer.parseInt(br.readLine());
                    System.out.println("Enter Company  Name: ");
                     String Company_name =  br.readLine();
                     System.out.println(" Enter Employee Qualification:
");
                    String Qualification = br.readLine();
```

```
                    System.out.println(" Enter Employee Salary: ");
                    float Salary = Float.parseFloat(br.readLine());
                     System.out.println(" Enter Teacher Subjects ");
                      String Subject = br.readLine();
                     System.out.println("Enter Teacher Department:");
                     String Department = br.readLine();
                    System.out.println("Enter Teacher ID ");
                    int Teacherid = Integer.parseInt(br.readLine());

                        teach[i] = new
        Teacher(Name,Gender,Address,Age,Empid,Company_name,Qualific
        ation,Salary,Subject,Department,Teacherid);
                        System.out.println();
                        System.out.println("\nDisplaying  Details " + (i+1));
                        System.out.println("-------------------------------------");
                        teach[i].display();
                }

        }

        }
```

5. InheritanceEmployeeDemo.java

PROGRAM:

```
import.io.*;
        class Employee
        {
                int Empid;
                String  Name,Address;
```

```
        float Salary ;

        Employee(int e,String n,String a,float s)

        {
                Empid = e;
                Name = n;
                Address = a;
                Salary = s;
        }
}
class Teacher extends Employee
{
        String Department;
   String Subjects;

        Teacher(int e,String n,String a,float s,String d,String st)
        {
                super(e,n,a,s);
                Department = d;
                Subjects = st;
        }

        void display()
        {

                System.out.println("Employee Id: "+ Empid);
                System.out.println("Employee Name: "+
Name);
```

```
                System.out.println("Employee Address: "+
Address);
                System.out.println("Employee Salary: "+
Salary);
                System.out.println("Employee Department: "+
Department);
                System.out.println("Employee Subjects: "+
Subjects);
        }
}


class InheritanceEmployeeDemo
{
public static void main(String args[]) throws IOException
{
        BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
        System.out.println("Enter the no of teachers details to be
entered:");
        int n = Integer.parseInt(br.readLine());
        Teacher teach[] = new Teacher[n];
  for(int i=0;i<n;i++)
        {
                System.out.println("\n"+" "+"Enter Employee
Details " + (i+1));
                System.out.println("Enter the Employee Id: ");
                int Empid = Integer.parseInt(br.readLine());
                System.out.println("Enter the Employee Name:
");
                String  Name = br.readLine();
                System.out.println("Enter the Employee
Address: ");
```

```
                    String  Address = br.readLine();
                    System.out.println("Enter the Employee Salary:
");
                    float Salary =Float.parseFloat(br.readLine());
                    System.out.println("Enter the Employee
Department: ");
                    String Department = br.readLine();
                    System.out.println("Enter the Employee
Subjects: ");
                    String Subjects = br.readLine();


                    teach[i] = new
Teacher(Empid,Name,Address,Salary,Department,Subjects);
                    System.out.println();
                    System.out.println("\nDisplaying Employee
Details " + (i+1));

System.out.println("-------------------------------------");
                    teach[i].display();
                }
}
}
```

6. MatrixAdd.java
   PROGRAM:

```
import.io.*;
                class MatrixAdd
                {
                        public static void main(String args[])throws
                IOException
                        {
```

```
int i,j,m,n,p,q;
int sum[][]=new int [10][10];
DataInputStream dp = new
DataInputStream(System.in);
System.out.println("First Matrix");
System.out.println("Enter the no of rows:");
m = Integer.parseInt(dp.readLine());
System.out.println("Enter the no of columns:");
n = Integer.parseInt(dp.readLine());
int a[][]=new int [m][n];
System.out.println("Enter the elements of first
matrix:");
for(i=0;i<m;i++)
        for(j=0;j<n;j++)
                a[i][j] =
Integer.parseInt(dp.readLine());
System.out.println("Second Matrix");
System.out.println("Enter the no of rows:");
p = Integer.parseInt(dp.readLine());
System.out.println("Enter the no of columns:");
q = Integer.parseInt(dp.readLine());
int b[][]=new int [p][q];
System.out.println("Enter the elements of second
matrix:");
for(i=0;i<p;i++)
        for(j=0;j<q;j++)
                b[i][j] =
Integer.parseInt(dp.readLine());
if(m==p && n==q)
{
```

```
                    for(i=0;i<m;i++)
                    {
                     for(j=0;j<n;j++)
                     {
                            sum[i][j]=a[i][j]+b[i][j];
                     }

                    }
                    System.out.println("Sum of matrix: ");
                    for(i=0;i<p;i++)
                    {
                        for(j=0;j<q;j++)

                        {

                            System.out.print(" " +
sum[i][j]+"   ");
                        }
                            System.out.println();
                    }
                }
                else
                {
                    System.out.println("The rows and
columns of two matrices are not same");
                }
        }
}
```

7. ProductDemo.java

PROGRAM:

```
import.io.*;
                    class Product
                    {
                    String pname;
                    int pcode,price;


                      void read() throws IOException
                      {


                          DataInputStream dp = new
                    DataInputStream(System.in);
                              System.out.println("Enter the Product
                    Code");
                    pcode = Integer.parseInt(dp.readLine());
                    System.out.println("Enter the Product name");
                    pname = dp.readLine();
                          System.out.println("Enter the Product Price");
                    price = Integer.parseInt(dp.readLine());
                      }


                      void  display()
                      {
                            System.out.println("PRODUCT CODE
                    ="+pcode);
                            System.out.println("PRODUCT NAME
                    ="+pname);
                            System.out.println("PRODUCT PRICE
                    ="+price);
```

```
        }
}
class ProductDemo
{
public static void main(String args[])throws IOException


{
        Product p[] = new Product[3];
        for(int i=0;i<3;i++)
        {
                System.out.println("PRODUCT\t"+(i+1));
         p[i] = new Product();
        p[i].read();
        }
        int low = 0;
        for(int i=0;i<3;i++)
        {
                if(p[low].price>p[i].price)
                {
                        low = i;
                }
        }


        System.out.println("The Product with Lowest Price is
:");
        p[low].display();
```

```
}
}
```

8. SearchDemo.java
   PROGRAM:

```
import java.io.*;

class SearchDemo
{
public static void main(String args[])throws
IOException
{
        int i,n;
        int flag=0;
        DataInputStream dp = new
DataInputStream(System.in);
        System.out.println("Enter the limit");
        n = Integer.parseInt(dp.readLine());
        int a[] = new int[n];
        System.out.println("Enter the elements ");
        for(i=0;i<n;i++)
        {
                a[i]=Integer.parseInt(dp.readLine());
        }
        System.out.println("Enter the element to be
searched?");
        int find = Integer.parseInt(dp.readLine());
        for(i=0;i<n;i++)
        {
                if(a[i]==find)
                {
```

```
                    flag=1;
                    break;
                }
            }
            if(flag==1)
            {
                System.out.println("Element found at
position: "+(i+1));
            }
            else
            {
                System.out.println("Element not
found");
            }
}
}
```

9. StringManipulations.java
   PROGRAM:

```
import java.util.*;
    class StringManipulations
    {
     public static void main(String args[])
       {
            Scanner sc=new Scanner(System.in);
                System.out.println("Length of a
    string");

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

```
                String str1=sc.next();
                System.out.println(str1.length());
                System.out.println("String
Concatenation");
      System.out.println("----------------");
                System.out.println("Enter string1:
");
                String s1=sc.next();
                System.out.println("Enter string2:
");
                String s2=sc.next();
                String s3=s1+s2;
                System.out.println(s3);
                System.out.println("String
Character Extraction");

System.out.println("----------------");
                System.out.println("Enter a
string: ");
                String string1=sc.next();
                System.out.println("Enter
character position: ");
                int n=sc.nextInt();
                char ch=string1.charAt(n-1);
                System.out.println("character:
"+ch);
                System.out.println("String
Equals");

System.out.println("----------------");
                System.out.println("Enter string1:
");
                String st1=sc.next();
```

```
                    System.out.println("Enter string2:
");
                    String st2=sc.next();

System.out.println(st1.equals(st2));
                    System.out.println("Upper case
and Lower case");

System.out.println("----------");
                    System.out.println("Enter a
string: ");
                    String stg=sc.next();
                    String lower=stg. toLowerCase();
                    System.out.println(lower);
                    String upper=stg. toUpperCase();
                    System.out.println(upper);

            }
}
```

10. StringSort.java

PROGRAM:

```
import
java.io.*;
class StringSort
{
        public static void main(String args[])throws
IOException
        {
                int n,i,j;
                DataInputStream dp = new
DataInputStream(System.in);
```

```
                System.out.println("Enter the no of
strings: ");
                n = Integer.parseInt(dp.readLine());
                String str[]= new String[n];
                System.out.println("Enter the strings to
be sorted: ");
                for(i=0;i<n;i++)
                        str[i] = dp.readLine();
                for(i=0;i<n;i++)
                {
                        for(j=i+1;j<n;j++)
                        {


if(str[i].compareTo(str[j])>0)
                                {
                                        String temp =
str[i];
                                        str[i]=str[j];
                                        str[j]=temp;
                                }
                        }
                }

                System.out.println("STRINGS IN
SORTED ORDER : ");

System.out.println("----------------------- ");
                for(i=0;i<n;i++)
            System.out.print(str[i]+" ");
        }
}
```

11. Symmetric.java

PROGRAM:

```
import
java.io.*;


class Symmetric
{
public static void main(String args[])throws IOException
{
        int m,n,i,j;
        int b[][]=new int[10][10];
        DataInputStream dp = new
DataInputStream(System.in);
        System.out.println("Enter the no of rows: ");
        m = Integer.parseInt(dp.readLine());
        System.out.println("Enter the no of columns: ");
        n = Integer.parseInt(dp.readLine());
        int a[][] = new int[m][n];
        System.out.println("Enter the Elements of the
matrix: ");
        for(i=0;i<m;i++)
                for(j=0;j<n;j++)
                        a[i][j] =
Integer.parseInt(dp.readLine());


        for(i=0;i<m;i++)
        {
                for(j=0;j<n;j++)
                {
```

```
                    if(a[i][j]==a[j][i])
                    {
                        b[i][j]=a[j][i];
                    }
                    else
                    {
                        System.out.println(" The Given Matrix Is Not Symmetric!!!");
                        System.exit(1);
                    }
                }
            }
            System.out.println("The Given Matrix Is Symmetric");
            for(i=0;i<m;i++)
            {
                for(j=0;j<n;j++)
                {
                    System.out.print(b[i][j]+" ");
                }
                System.out.println();
            }
        }
    }
```

12. overloaddd.java

PROGRAM:

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

```
class Numbers
{


        void calculate(int n, char ch)
        {
                if(ch == 's')
                {
                        int square = n*n;
                        System.out.println("SQUARE =
"+square);
                }
                else
                {
                        int cube = n*n*n;
                        System.out.println("CUBE =
"+cube);

                }
        }

   void calculate(int n, int m, char ch)
        {
                         if(ch == 'p')
                {
                        int product =  n*m;
                        System.out.println("PRODUCT =
"+product);
                }
                else
                {
```

```
                int add = n+m;
                System.out.println("ADD =
"+add);
        }
    }
        void calculate(String str1,String str2)
    {
            if(str1.equals(str2))
        {
                System.out.println("Both the
strings are equal");
        }
        else
        {
                System.out.println("Both the
strings are not equal");
        }
    }
}


class overloaddd
{
public static void main(String args[])throws IOException
  {
        BufferedReader br = new
BufferedReader(new InputStreamReader(System.in));
        Numbers n = new Numbers();

        System.out.println("Enter a number: ");
        int num = Integer.parseInt(br.readLine());
```

```
                System.out.println("Enter your choice ('s'
for Square,else cube) : ");
                char ch = (char)br.readLine().charAt(0);
                n.calculate(num,ch);

                System.out.println("Enter first  number:
");
                int num1 = Integer.parseInt(br.readLine());
                System.out.println("Enter the second
number: ");
                int num2 = Integer.parseInt(br.readLine());
                System.out.println("Enter your choice ('p'
for Product ,else sum): ");
                char ch1 = (char)br.readLine().charAt(0);
                n.calculate(num1,num2,ch1);

                System.out.println("Enter the first String:
");
                String str11 = br.readLine();
                System.out.println("Enter the second
String: ");
                String str12 = br.readLine();
                n.calculate(str11,str12);
        }
}
```