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**JAVA PROGRAMMING LAB MANUAL**

**MCA- I SEM-I**

**A.Y.2020-21**

**Name:**

**Roll No:**

**Div:**

**Seat No:**

**List of Program**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr.No** | **Chapter No** | **Name of Program** | **Page.No** |
|  |  | Write a java program to find sum of digit e.g. 1234 =1+2+3+4=10 |  |
|  |  | Write a java program to check given number is palindrome or not.  e.g. Number = 121 then output =”The number is Palindrome” |  |
|  |  | Write a program in java to check whether the entered character through command line argument and check character is alphabet, digit or space character. If it is alphabet then print whether it is capital or small alphabet. Also change the alphabet into the reverse case. |  |
|  |  | Write a Java Program   * 1. To display alternate character of alphabets (a c e g)   2. b.To Display cumulative sum of natural numbers |  |
|  |  | Write a multi-threaded program which will display square of numbers from 1-50. |  |
|  |  | Design a class Employee. Include the following member Data member : No, Name, Basic salary,   * + - 1. DA(12% of basic) ,       2. HRA(25% of basic)       3. Professional Tax(5% of basic)   Methods :   * + - 1. 1)Accept details of employee   2) Calculate the Net Salary  3) Display the Employee details |  |
|  |  | Write a method add which add two number and two strings. Use method overloading. |  |
|  |  | Write a Java program to multiply two given matrices? |  |
|  |  | [Define an Interface Shape with abstract method area(). Write a java program to calculate an area of Circle and Sphere.(use final keyword)](http://nbhutkar.blogspot.in/p/bca-java-2015-slip-22.html" \t "_blank) |  |
|  |  | Write a program to find the exception of marks out of bounds. In this program create class called Student. If the marks is grater than 100 . It must create exception called MarksOutOfBoundsException and throw it. |  |
|  |  | Write a program to find the sum of command line arguments and count the invalid integer (Use NumberFormatException) . |  |
|  |  | Write a program to take ‘n’ no. of employees basic salary from user and calculate their Net Salary and display it (Consider proper HRA , DA,TA, PF ,LIC etc.) if Basic Salary is less than 3000 it must create user define exception called PayOutOfBoundsException and throw it. |  |
|  |  | Write a java program to create an abstract class named Shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea( ) that prints the area of the given shape. |  |
|  |  | Write a program to accept students details, create the object of student & store it in stud.txt file. [ use ObjectStreams] |  |
|  |  | WAP to count total number of characters, lines & Words from data.txt file. |  |
|  |  | WAP to display how many times the word ‘is’ occurs in a file. |  |
|  |  | WAP to accept three file names and copy the contents of first 2 files in a third file. |  |
|  |  | WAP in AWT/Swing which will accept two numbers in a text box with label (NO-1 and NO-2 ) and four buttons with labels ADD, SUB, MULT, DIV.  When user clicks on button perform the particular operation and display the result in Third textbox with labels Result.) |  |
|  |  | Write a Java Program to accept the details of Employee(Eno, EName,Sal) from the user and display it on the next Frame. (Use AWT) |  |
|  |  | [Write a java program to design a following GUI(Use Swing).](http://nbhutkar.blogspot.in/p/bca-java-2015-slip-8.html" \t "_blank) Description: http://2.bp.blogspot.com/-PJG6R2abbYY/VeajPZoGgLI/AAAAAAAAABc/51yCKFw125o/s1600/Personal.png |  |
|  |  | Write a Java program to sort arraylist of strings |  |
|  |  | Write a java program to add an element to specified index of Java ArrayList Example |  |
|  |  | Write a java program to [Remove specified element from Java LinkedHashSet example](http://www.instanceofjava.com/2016/03/remove-specified-element-linkedhashset.html) |  |
|  |  | Write a Java program to sort arraylist of integers |  |
|  |  | Write a java program that connects to a database using JDBC and does add, deletes, modify and retrieve operations. |  |
|  |  | [Write a JDBC program to accept the details of customer (CID, CName, Address, Ph\_No) and store it into the database (Use PreparedStatement interface)](https://bcaprogram.blogspot.com/2017/03/write-jdbc-program-to-accept-details-of.html) |  |
|  |  | Write a servlet program to accept username and password from html page, and if the user is present in the database then display “Welcome “ message as response to the user. |  |
|  |  | Write a program to accept employee name, address, salary, task from html page and store it into database using servlet |  |
|  |  | Write a JSP program to accept employee name, address, salary, task from html page and store it into database using servlet |  |
|  |  | Write a JSP program to accept username from html page as a request, and create a session using servlet |  |

1. **Write a java program to find sum of digit e.g. 1234 =1+2+3+4=10**

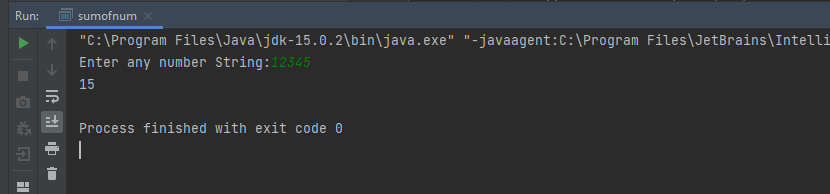
**Solution:**

**Program:**

import java.util.Scanner;  
public class sumofnum {  
void sumnum(int num){  
 int n=num;  
 int sum=0,rem=0;  
 while(n>0){  
 rem=n%10;  
 sum=sum+rem;  
 n/=10;  
  
 // System.out.println(rem);  
 //System.out.println(sum);  
 //System.out.println(n);  
 }  
 System.out.println(sum);  
 }

public static void main(String[] args) {  
 Scanner number=new Scanner(System.in);  
 sumofnum b=new sumofnum();  
 System.out.print("Enter any number String:");  
 int num= number.nextInt();  
 b.sumnum(num);  
 }  
 }

**Output:**

****

**2.Write a java program to check given number is palindrome or not.**

* 1. **e.g. Number = 121 then output =”The number is Palindrome”**

**Solution:**

**Program:**

import java.util.Scanner;

public class palidromnum {

public static void main(String args[]){

Scanner in = new Scanner(System.in);

System.out.print("Input a number: ");

int n = in.nextInt();

int sum = 0, r;

int temp = n;

while(n>0)

{

r = n % 10;

sum = (sum\*10)+r;

n = n/10;

}

if(temp==sum)

System.out.println("It is a Palindrome number.");

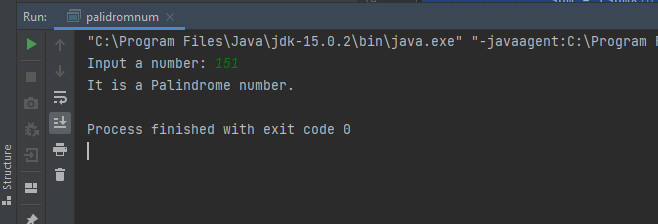
else

System.out.println("Not a palindrome");

}

}

**Output:**

****

**3.Write a program in java to check whether the entered character through command line argument and check character is alphabet, digit or space character. If it is alphabet then print whether it is capital or small alphabet. Also change the alphabet into the reverse case.**

**Solution:**

**Program:**

import java.io.\*;

public class check {

public static void main(String args[]) throws IOException

{

char ch;

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

System.out.println("Enter Any Character:-");

ch=(char) inputstream.read();

if(Character.isDigit(ch))

System.out.println("Entered Character is Digit");

else if(Character.isUpperCase(ch))

{

System.out.println("Entered Character is Upper case");

System.out.println("Lowe Case Characteris:"+Character.toLowerCase(ch));

}

else if(Character.isLowerCase(ch) {

System.out.println("Entered Character is Lower Case");

System.out.println("UpperCaseCharacteris:"+Character.toUpperCase(ch));

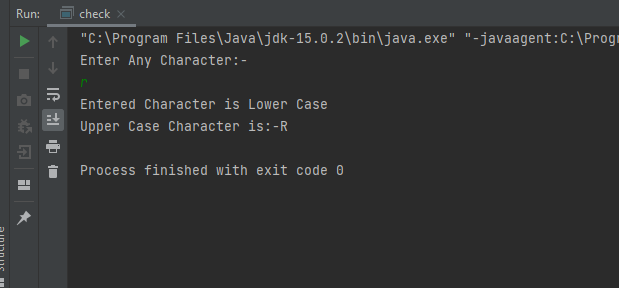
}

else

System.out.println("Entered Character is special char");

}}

**Output:**

****

**4.Write a Java Program**

* 1. **To display alternate character of alphabets (a c e g)**
  2. **To Display cumulative sum of natural numbers**

**Solution:**

**a. To display alternate character of alphabets (a c e g)**

**Program:**

public class alternet {

public static void main(String args[]) {

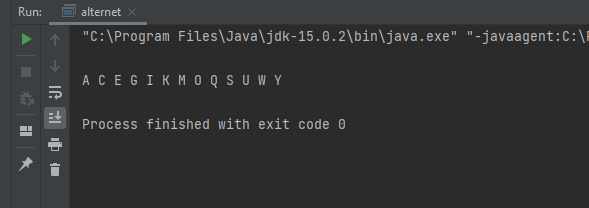
for (char ch = 'A'; ch <= 'Z'; ch = (char)(ch + 2)) {

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

}

}

}

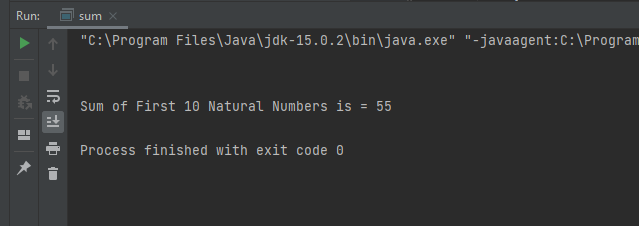
**Output:**

* 1. **To Display cumulative sum of natural numbers**

**Program:**

public class sum {  
 public static void main(String[] args)  
 {  
 System.out.println("\n");  
 int i, num = 10, sum = 0;

for(i = 1; i <= num; ++i)  
 {  
 sum = sum + i;  
 }  
 //prints the sum  
 System.out.println("Sum of First 10 Natural Numbers is = " + sum);  
 }  
 }

**Output: **

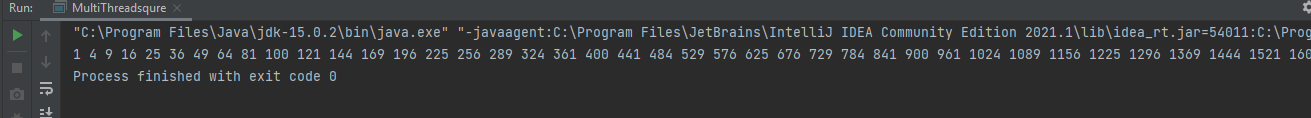
1. **Write a multi-threaded program which will display square of numbers from 1-50.**

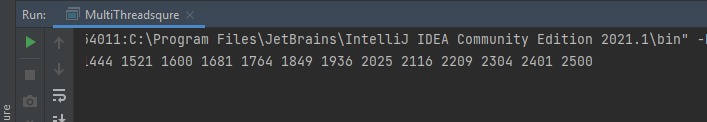
**Solution:**

**Program:**

class me extends Thread  
{  
 public int name,i;  
 public void run()  
 {  
 for(i=1;i<=50;i++)  
 {  
 System.out.print( (i\*i)+" ");  
 try  
 {  
 sleep(1000);  
 }  
 catch(Exception e)  
 {  
 System.out.println("some problem");  
 }  
 }  
 }  
}  
public class MultiThreadsqure  
{  
 public static void main(String[] args)  
 {  
 me a=new me();  
 me b=new me();  
 a.name=1;  
 a.start();  
  
 }  
}

**Output:**

****



1. **Design a class Employee. Include the following member Data member : No, Name, Basic salary,** 
   * + 1. **DA(12% of basic) ,**
       2. **HRA(25% of basic)**
       3. **Professional Tax(5% of basic)**

**Methods : 1)Accept details of employee**

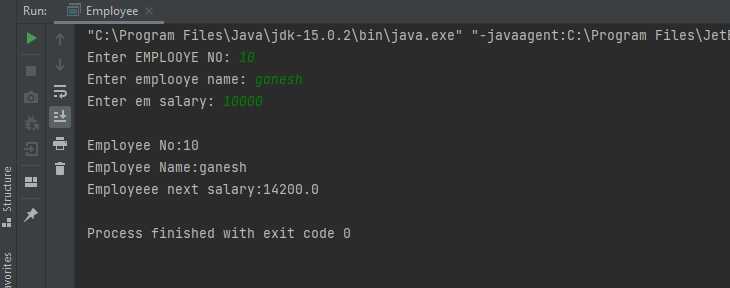
* + - 1. **2) Calculate the Net Salary**
      2. **) Display the Employee details**

**Solution:**

**Program:**

import java.util.Scanner;  
  
public class Employee {  
 double salary,netsalary;  
 int no;  
 String name;  
 public void details(int eno,String ename,double esalary){  
 this.no=eno;  
 this.name=ename;  
 this.salary=esalary;  
 }  
 public void calculate(){  
 double DA= salary\*0.12;  
 double HRA=salary\*0.25;  
 double P\_Tax=salary\*0.05;  
  
 netsalary=salary+DA+HRA+P\_Tax;  
  
 }  
 public void Display(){  
  
 System.out.println("\nEmployee No:"+no);  
 System.out.println("Employee Name:"+name);  
 System.out.println("Employeee next salary:"+netsalary);  
 }  
  
 public static void main(String[] args) {  
 Scanner sr=new Scanner(System.in);  
 System.out.print("Enter EMPLOOYE NO: ");  
 int eno = sr.nextInt();  
  
 System.out.print("Enter emplooye name: ");  
 String ename = sr.next();  
  
 System.out.print("Enter em salary: ");  
 double esalary = sr.nextInt();  
  
 Employee em=new Employee();  
 em.details(eno,ename,esalary);  
 em.calculate();  
 em.Display();  
  
  
 }}

**Output:**

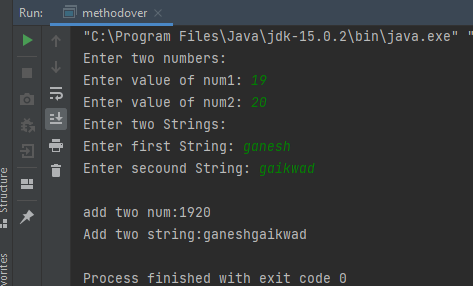


1. **Write a method add which add two number and two strings. Use method overloading.**

**Solution:**

**Program:**

import java.util.Scanner;  
public class methodover {  
 void num(int a,int b){  
 System.out.println("\nadd two num:"+a+b);  
 }  
 void num(String a,String b){  
 System.out.println("Add two string:"+(a+b));  
 }  
 public static void main(String[] args) {  
 methodover mv = new methodover();  
 Scanner sr =new Scanner(System.in);  
 System.out.println("Enter two numbers:");  
 System.out.print("Enter value of num1: ");  
 int a = sr.nextInt();  
 System.out.print("Enter value of num2: ");  
 int b = sr.nextInt();  
 System.out.println("Enter two Strings:");  
 System.out.print("Enter first String: ");  
 String c = sr.next();  
 System.out.print("Enter secound String: ");  
 String d = sr.next();  
  
 mv.num(a,b);  
 mv.num(c,d);  
 }  
 }



1. **Write a Java program to multiply two given matrices?**

**Solution;**

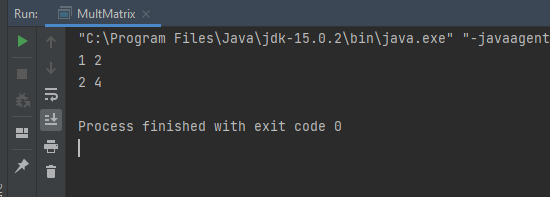
**Program:**

public class MultMatrix {  
 public static void main(String args[]){

int a[][]={{1,1},{2,2} };  
 int b[][]={{1,1},{2,2} };  
  
 int c[][]=new int[2][2];

for(int i=0;i<2;i++){  
 for(int j=0;j<2;j++){  
  
 c[i][j]+=a[i][j]\*b[j][i];  
 System.out.print(c[i][j]+" ");   
 }   
 System.out.println();   
 }  
 }}

**OutPut:**

****

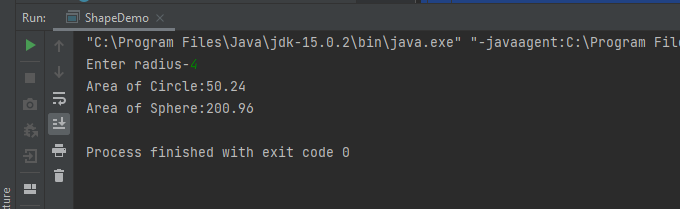
**9.Define an Interface Shape with abstract method area(). Write a java program to calculate an area of Circle and Sphere.(use final keyword)**

**Solution:**

**Program:**

import java.util.Scanner;  
  
 interface Shape  
 {  
 final float pi=3.14f;  
 float area(int r);  
 }  
 class Circle implements Shape  
 {  
 public float area(int r)  
 {  
 return(pi\*r\*r);  
 }  
 }  
 class Sphere implements Shape  
 {  
 public float area(int r)  
 {  
 return(4\*pi\*r\*r);  
 }  
 }  
 class ShapeDemo  
 {  
 public static void main(String arg[])  
 {  
 Scanner sr = new Scanner(System.in);  
 System.out.print("Enter radius-");  
 int r = sr.nextInt();  
 Circle c1=new Circle();  
 Sphere s1=new Sphere();  
 System.out.println("Area of Circle:"+c1.area(r));  
 System.out.println("Area of Sphere:"+s1.area(r));  
  
 }  
}

**OutPut:**

****

1. **Write a program to find the exception of marks out of bounds. In this program create class called Student. If the marks is grater than 100 . It must create exception called MarksOutOfBoundsException and throw it.**

**Solution:**

**Program:**

import java.util.Scanner;  
 class MarksOutOfBounds extends Exception{

public void showError() {  
  
 System.out.println("Invalid Marks");  
  
 }  
}  
  
class Student  
{

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

Scanner sr=new Scanner(System.in);  
 System.out.println("Enter Marks:");  
 int m= sr.nextInt();

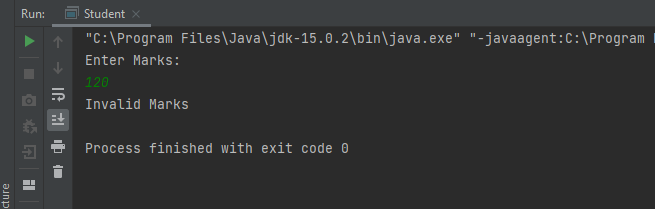
if(m>100)

throw new MarksOutOfBounds();  
 System.out.println("Your Marks:"+m);  
  
 }  
 catch(MarksOutOfBounds e)  
  
 {  
 e.showError();

}

}}

**Output:**

****

**11.Write a program to find the sum of command line arguments and count the invalid integer (Use NumberFormatException)**

public class CMD\_arg

{

private static final String inputString = "123.33";

public static void main(String[] args) {

try {

int a = Integer.parseInt(inputString);

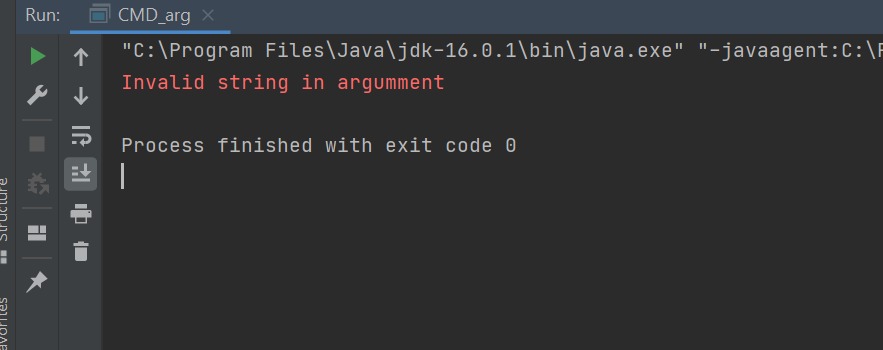
}catch(NumberFormatException ex){

System.err.println("Invalid string in argumment");

//request for well-formatted string

} }

}



**12.Write a program to take ‘n’ no. of employees basic salary from user and calculate their Net Salary and display it (Consider proper HRA , DA,TA, PF ,LIC etc.) if Basic Salary is less than 3000 it must create user define exception called PayOutOfBoundsException and throw it.** **public class PayOutOfBoundException**

**Solution:**

extends Exception

{

public String toString()

{

return "<< basic salary must be > 3000 >>";

} }

class employee

{

int emp\_no;

String name;

float basic,hra,da,ta,pf,lic,nsal;

public employee(int n,String s,float b)throws PayOutOfBoundException {

emp\_no = n;

name = s;

try {

if (b < 3000)

throw new PayOutOfBoundException();

else

{

basic = b;

da = b \* 0.2f;

pf = b \* 0.7f;

ta = b \* 0.05f;

hra = b \* 0.5f;

lic = b \* 0.15f;

nsal = basic + hra + da + ta + pf + lic;

}

System.out.println("Employee No :" + emp\_no + "\n Employee Name :" + name + "\n Basic Salary :"+basic);

System.out.println("da :" + da + "\n ta :" + ta + "\n pf :" + pf + "\n hra :" + hra + "\n lic :" + lic);

}

}

catch (PayOutOfBoundException e)

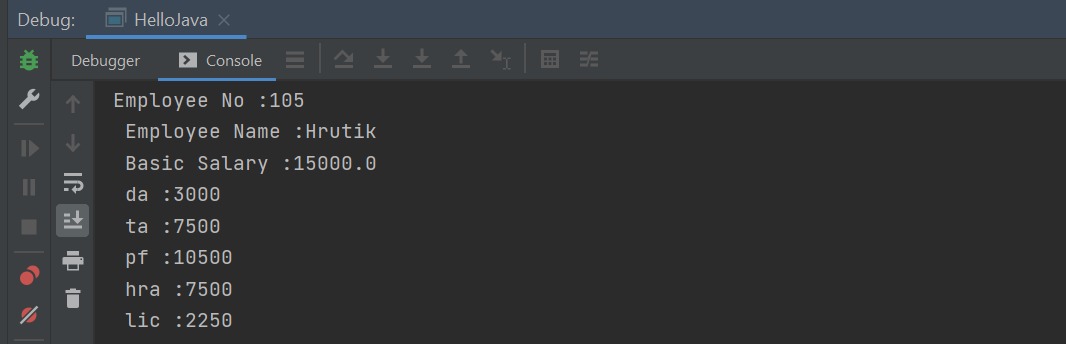
{

System.out.println("exception catch"+e);

}

}

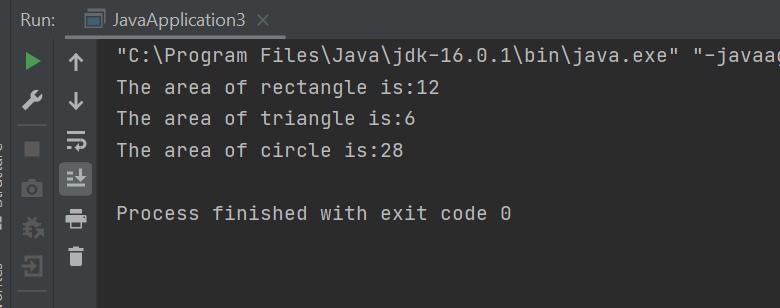
}



**13.Write a java program to create an abstract class named Shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea( ) that prints the area of the given shape.**

**Solution:**

**abstract class shape  
{  
 int a=3,b=4;  
 abstract public void print\_area();  
}  
class rectangle extends shape  
{  
 public int area\_rect;  
 @Override  
 public void print\_area()  
 {  
 area\_rect=a\*b;  
 System.out.println("The area of rectangle is:"+area\_rect);  
 }  
}  
class triangle extends shape  
{  
 int area\_tri;  
 @Override  
 public void print\_area()  
 {  
 area\_tri=(int) (0.5\*a\*b);  
 System.out.println("The area of triangle is:"+area\_tri);  
 }  
}  
class circle extends shape  
{  
 int area\_circle;  
 @Override  
 public void print\_area()  
 {  
 area\_circle=(int) (3.14\*a\*a);  
 System.out.println("The area of circle is:"+area\_circle);  
 }  
}  
class JavaApplication3 {  
  
 public static void main(String[] args) {  
  
 rectangle r = new rectangle();  
 r.print\_area();  
 triangle t = new triangle();  
 t.print\_area();  
 circle r1 = new circle();  
 r1.print\_area();  
  
 }  
}**

****

**14.Write a program to accept students details, create the object of student & store it in stud.txt file. [ use ObjectStreams]**

**Solution:**

import java.io.\*;

import java.util.Scanner;

class studentDetails {

public String name[][] = new String[10][10];

void getDetails(int n)

{

Scanner get = new Scanner(System.in);

int limit=n;

System.out.println("Enter "+limit+" Student Details\n");

for(int i=0;i<limit;i++)

{

System.out.println("Enter Student #"+(i+1)+" Name, Roll Number & Marks:");

for(int j=0;j<3;j++)

{

name[i][j] = get.nextLine();

}

}

display(limit);

}

void display(int limit)

{

System.out.println("Student Name"+"\t"+"Roll"+"\t\t"+"Marks");

for(int i=0;i<limit;i++)

{

for(int j=0;j<3;j++)

{

System.out.print(name[i][j]+"\t\t");

}

System.out.println();

}

}

}

class collegeOffice {

public static void main(String args[]) throws IOException

{

Scanner in = new Scanner(System.in);

System.out.print("Enter Number of Students:");

int n = in.nextInt();

studentDetails std = new studentDetails();

std.getDetails(n);

PrintStream output=new PrintStream(new File("d:\\Student.txt"));

output.println("Student Name"+"\t"+"Roll"+"\t\t"+"Marks");

output.println("======================================");

for(int i=0;i<n;i++)

{

for(int j=0;j<3;j++)

{

output.print(std.name[i][j]+"\t\t");

}

output.println();

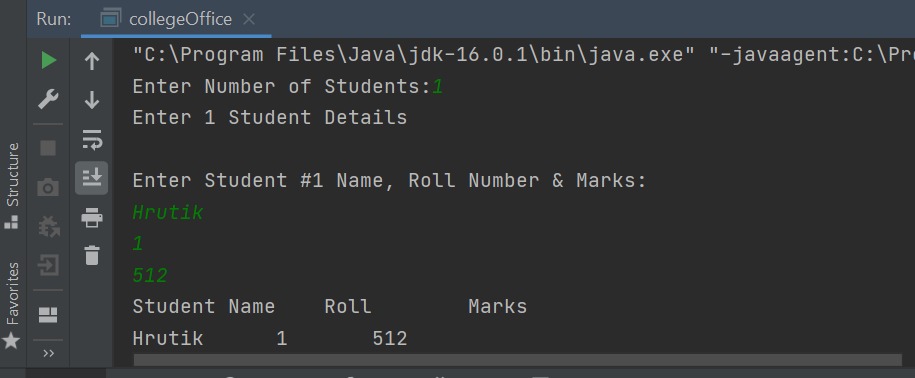
output.println("======================================");

}

output.close();

}

}



**15.WAP to count total number of characters, lines & Words from data.txt file.**

**Solution:**

**import java.io.BufferedReader;  
import java.io.FileReader;  
import java.io.IOException;  
public class WordCount\_15  
{  
 public static void main(String[] args)  
 {  
 BufferedReader reader = null;  
 int charCount = 0;  
 int wordCount = 0;  
 int lineCount = 0;  
 try  
 {  
 reader = new BufferedReader(new FileReader ("C:\\Users\\amulm\\Desktop\\Projects\\Amol.txt"));  
  
 String currentLine = reader.readLine();  
  
 while (currentLine != null)  
 {  
 lineCount++;**

**String[] words = currentLine.split(" ");**

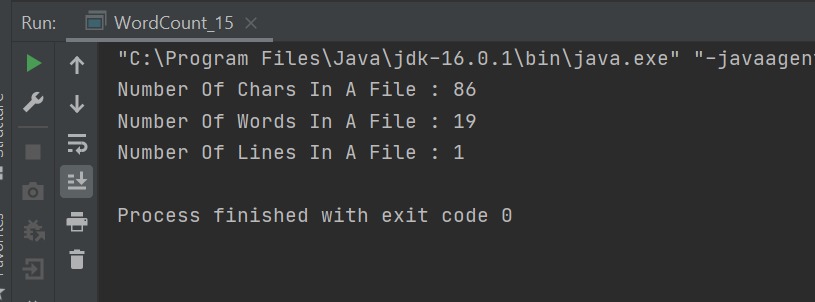
**wordCount = wordCount + words.length;  
  
 for (String word : words)  
 {  
 charCount = charCount + word.length();  
 }  
 currentLine = reader.readLine();  
 }  
 System.out.println("Number Of Chars In A File : "+charCount);**

**System.out.println("Number Of Words In A File : "+wordCount);**

**System.out.println("Number Of Lines In A File : "+lineCount);  
 }  
 catch (IOException e)  
 {  
 e.printStackTrace();  
 }  
 finally  
 {  
 try  
 { reader.close();**

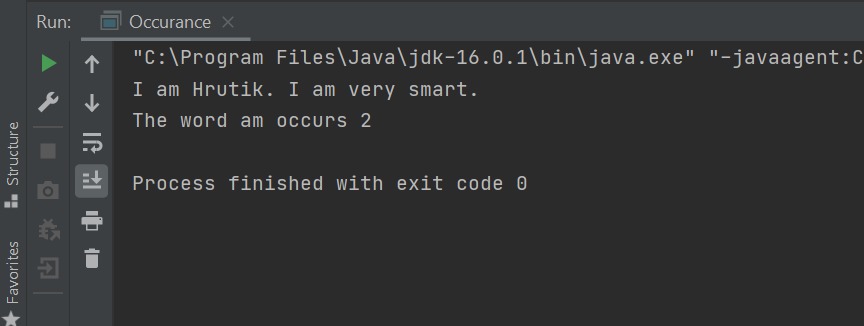
**}  
  
 catch (IOException e)  
 {  
 e.printStackTrace();  
 }  
 }  
 }  
 }**

**Output:**

****

**16.WAP to display how many times the word ‘is’ occurs in a file.**

**public class Occurance {  
 public static void main(String args[]) {  
 String string = "I am Hrutik. I am very smart.";  
 String word = "am";  
  
 String temp[] = string.split(" ");  
 int count = 0;  
 for (int i = 0; i < temp.length; i++) {  
 if (word.equals(temp[i]))  
 count++;  
 }  
 System.out.println(string);  
 System.out.println("The word " + word + " occurs " + count );  
 }  
}**

****

**17. WAP to accept three file names and copy the contents of first 2 files in a third file.**

**import** java.io.\*;  
**public class** copyTwoFile  
{  
 **public static void** main(String[] args)  
 {  
 **try** {  
 String[] filePaths = {**"d:\\Amol1.txt"**, **"d:\\Amol2.txt"**};  
  
 File outfile = **new** File(**"d:\\Amol3.txt"**);  
 FileOutputStream outstream = **new** FileOutputStream(outfile);  
 **for** (String filePath : filePaths)

{  
 FileInputStream instream = **new** FileInputStream(**new** File(filePath));

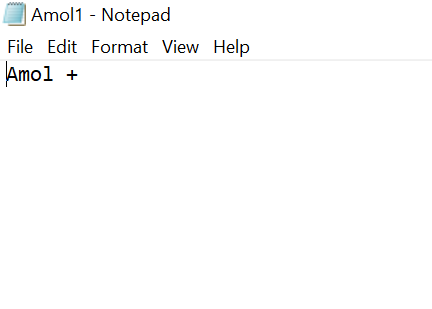
**byte**[] buffer = **new byte**[1024];  
 **int** length;

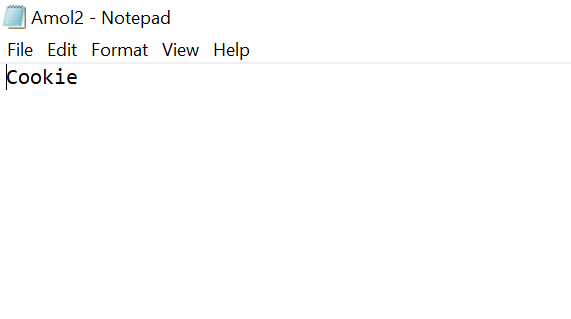
**while** ((length = instream.read(buffer)) > 0) {  
 outstream.write(buffer, 0, length);  
 }  
 instream.close();  
 }  
 outstream.close();

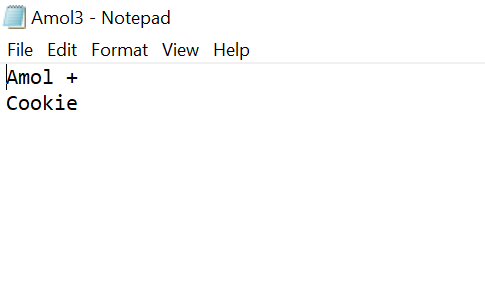
System.**out**.println(**"File Copied successfully"**);

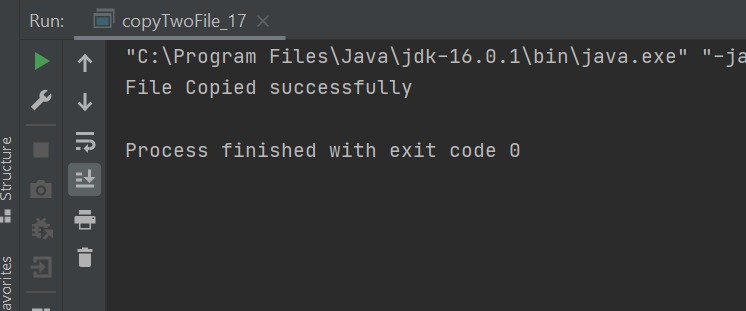
} **catch** (IOException ioe) {  
 ioe.printStackTrace();  
 }  
  
 }  
}

**Output:**

****

****

****



**18.WAP in AWT/Swing which will accept two numbers in a text box with label (NO-1 and NO-2 ) and four buttons with labels ADD, SUB, MULT, DIV.**

**When user clicks on button perform the particular operation and display the result in Third textbox with** labels **Result.**

import java.awt.\*;

import java.awt.event.\*;

public class Add\_AWT\_18 extends Frame

{

TextField tf1;

TextField tf2;

Label l1;

Button b;

Add\_AWT\_18()

{

setTitle("Adder");

tf1 = new TextField();

tf1.setBounds(100, 50, 85, 20);

tf2 = new TextField();

tf2.setBounds(100, 100, 85, 20);

b = new Button("Add");

b.setBounds(110,220,60,40);

l1 = new Label("");

l1.setBounds(100, 120, 85, 20);

add(b);

add(tf1);

add(tf2);

add(l1);

setSize(300,300);

setVisible(true);

b.addActionListener(new ActionListener()

{

public void actionPerformed(ActionEvent e)

{

int a = Integer.parseInt(tf1.getText());

int b = Integer.parseInt(tf2.getText());

int c = a + b;

l1.setText("Their sum is = " + String.valueOf(c));

}

}

);

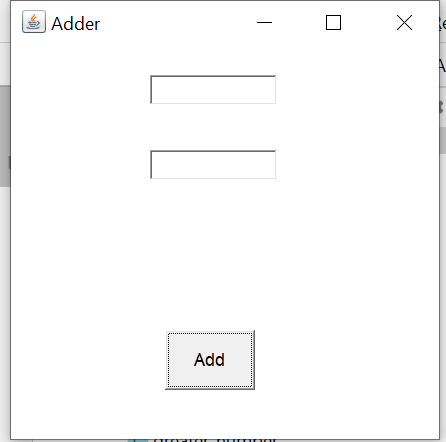
}

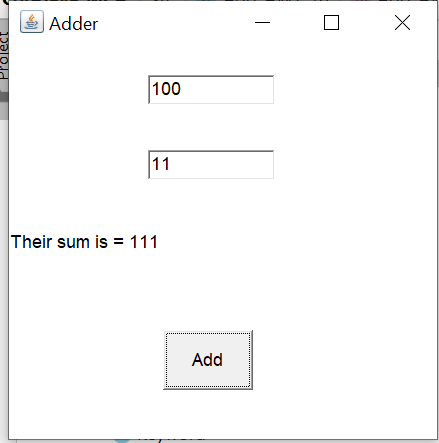
public static void main(String []args) {

new Add\_AWT\_18();

}

}



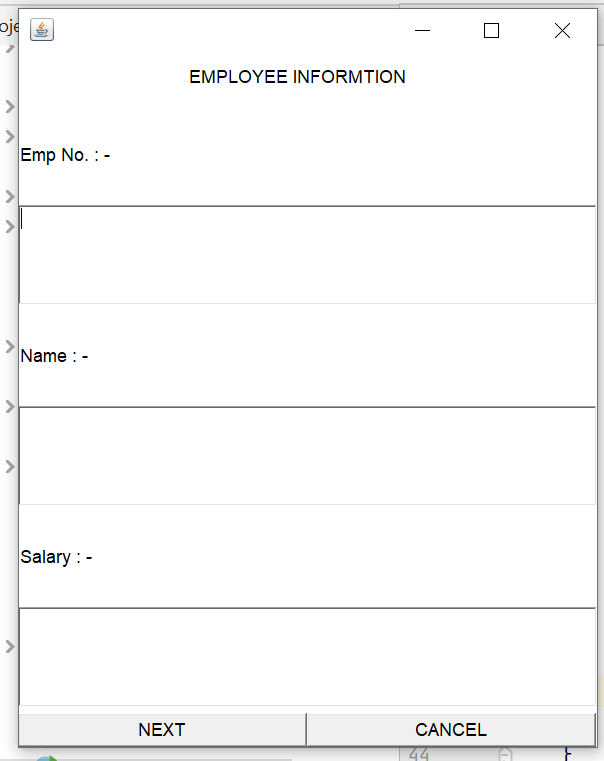


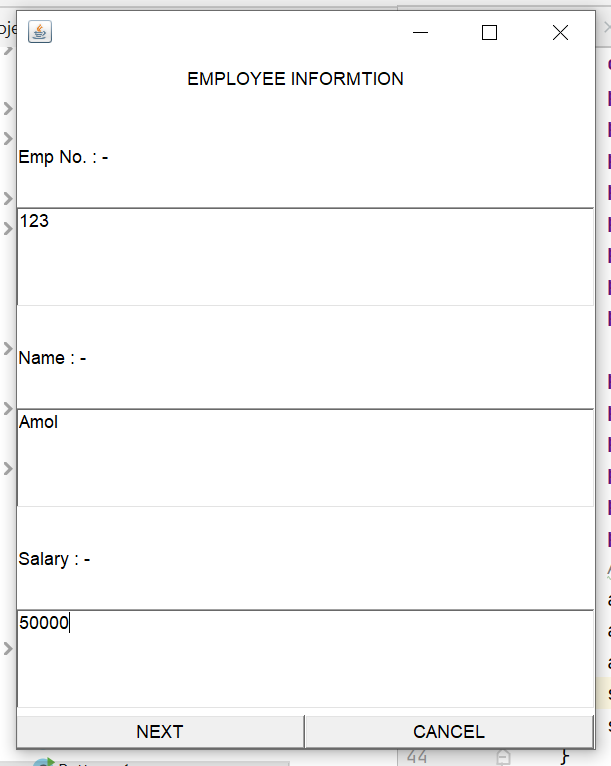
**19.Write a Java Program to accept the details of Employee(Eno, EName,Sal) from the user and display it on the next Frame. (Use AWT)**

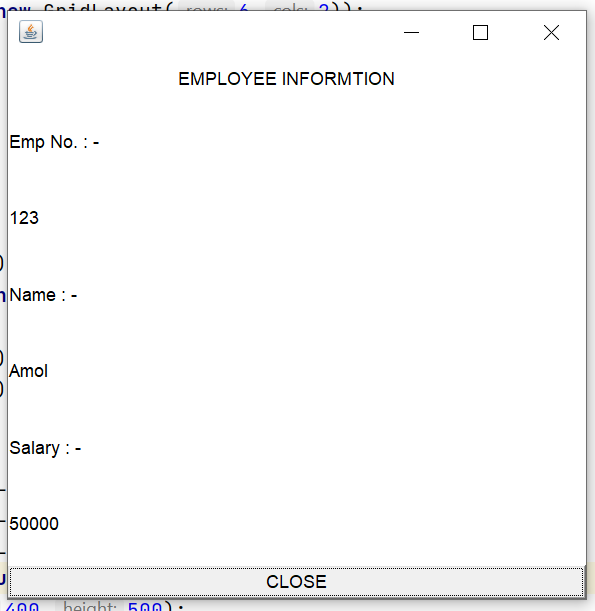
**Solution:**

**import** java.awt.\*;  
**import** java.awt.event.\*;  
**import** java.io.\*;  
**class** emp **extends** Frame **implements** ActionListener  
{  
 Label **l1**,**l2**,**l3**;  
 TextField **txt1**,**txt2**,**txt3**;  
 Button **next**,**cancel**;  
 Panel **p1**,**p2**,**p3**;  
 Label **ll**;  
 emp()  
 {  
 **ll**=**new** Label(**"EMPLOYEE INFORMTION"**);  
 **l1**=**new** Label(**"Emp No. : -"**);  
 **l2**=**new** Label(**"Name : -"**);  
 **l3**=**new** Label(**"Salary : -"**);  
 **txt1**=**new** TextField(20);  
 **txt2**=**new** TextField(20);  
 **txt3**=**new** TextField(20);  
  
 **next**=**new** Button(**"NEXT"**); **next**.addActionListener(**this**);  
 **cancel**=**new** Button(**"CANCEL"**); **cancel**.addActionListener(**this**);  
 **p1**=**new** Panel();  
 **p1**.setLayout(**new** GridLayout(6,2));  
 **p1**.add(**l1**);  
 **p1**.add(**txt1**);  
 **p1**.add(**l2**);  
 **p1**.add(**txt2**);  
 **p1**.add(**l3**);  
 **p1**.add(**txt3**);  
  
 **p2**=**new** Panel();  
 **p2**.setLayout(**new** GridLayout(1,2));  
 **p2**.add(**next**);  
 **p2**.add(**cancel**);  
 **p3**=**new** Panel();  
 **p3**.add(**ll**);  
  
 add(**p3**,BorderLayout.**NORTH**);  
 add(**p1**,BorderLayout.**CENTER**);  
 add(**p2**,BorderLayout.**SOUTH**);  
 setVisible(**true**);  
 setSize(400,500);  
 }  
 **public void** actionPerformed(ActionEvent ae)  
 {  
 **if**(ae.getSource()==**next**)  
 {  
 **new** empdet(**txt1**.getText(),**txt2**.getText(),**txt3**.getText());  
  
 }  
 **if**(ae.getSource()==**cancel**)  
 {  
 System.exit(0);  
 }  
 }  
 **public static void** main(String args[])  
 {  
 **new** emp().show();  
 }

}







**20. [Write a java program to design a following GUI (Use Swing).](http://nbhutkar.blogspot.in/p/bca-java-2015-slip-8.html" \t "_blank)**

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.\*;

class MyFrame

extends JFrame

implements ActionListener {

// Components of the Form

private Container c;

private JLabel title;

private JLabel First\_name;

private JTextField tname;

private JLabel Last\_Name;

private JTextField lname;

private JLabel mno;

private JTextField tmno;

private JLabel gender;

private JRadioButton male;

private JRadioButton female;

private ButtonGroup gengp;

private JLabel add;

private JTextArea tadd;

private JCheckBox term;

private JLabel Your;

private JCheckBox C;

private JCheckBox java;

private JCheckBox python;

private JButton sub;

private JButton reset;

private JTextArea tout;

private JLabel res;

private JTextArea resadd;

// constructor, to initialize the components

// with default values.

public MyFrame()

{

setTitle("Registration Form");

setBounds(300, 90, 700, 500);

setDefaultCloseOperation(EXIT\_ON\_CLOSE);

setResizable(false);

c = getContentPane();

c.setLayout(null);

title = new JLabel("Registration Form");

title.setFont(new Font("Arial", Font.PLAIN, 30));

title.setSize(300, 30);

title.setLocation(300, 30);

c.add(title);

First\_name = new JLabel("First Name:");

First\_name.setFont(new Font("Arial", Font.PLAIN, 20));

First\_name.setSize(150, 20);

First\_name.setLocation(100, 100);

c.add(First\_name);

tname = new JTextField();

tname.setFont(new Font("Arial", Font.PLAIN, 15));

tname.setSize(190, 20);

tname.setLocation(250, 100);

c.add(tname);

Last\_Name = new JLabel("Last Name:");

Last\_Name.setFont(new Font("Arial", Font.PLAIN, 20));

Last\_Name.setSize(150, 20);

Last\_Name.setLocation(100, 125);

c.add(Last\_Name);

lname = new JTextField();

lname.setFont(new Font("Arial", Font.PLAIN, 15));

lname.setSize(190, 20);

lname.setLocation(250, 125);

c.add(lname);

add = new JLabel("Address:");

add.setFont(new Font("Arial", Font.PLAIN, 20));

add.setSize(150, 20);

add.setLocation(100, 175);

c.add(add);

tadd = new JTextArea();

tadd.setFont(new Font("Arial", Font.PLAIN, 15));

tadd.setSize(190, 20);

tadd.setLocation(250, 175);

tadd.setLineWrap(true);

c.add(tadd);

mno = new JLabel("Mobile:");

mno.setFont(new Font("Arial", Font.PLAIN, 20));

mno.setSize(100, 20);

mno.setLocation(100, 200);

c.add(mno);

tmno = new JTextField();

tmno.setFont(new Font("Arial", Font.PLAIN, 15));

tmno.setSize(190, 20);

tmno.setLocation(250, 200);

c.add(tmno);

gender = new JLabel("Gender:");

gender.setFont(new Font("Arial", Font.PLAIN, 20));

gender.setSize(100, 20);

gender.setLocation(100, 250);

c.add(gender);

male = new JRadioButton("Male");

male.setFont(new Font("Arial", Font.PLAIN, 15));

male.setSelected(true);

male.setSize(75, 20);

male.setLocation(250, 250);

c.add(male);

female = new JRadioButton("Female");

female.setFont(new Font("Arial", Font.PLAIN, 15));

female.setSelected(false);

female.setSize(80, 20);

female.setLocation(350, 250);

c.add(female);

gengp = new ButtonGroup();

gengp.add(male);

gengp.add(female);

Your = new JLabel("Your Interest:");

Your.setFont(new Font("Arial", Font.PLAIN, 20));

Your.setSize(150, 20);

Your.setLocation(100, 280);

c.add( Your);

JCheckBox checkBox1 = new JCheckBox("C");

checkBox1.setBounds(250,270, 100,50);

JCheckBox checkBox2 = new JCheckBox("Java");

checkBox2.setBounds(330,270, 100,50);

JCheckBox checkBox3 = new JCheckBox("Python");

checkBox3.setBounds(430,270, 100,50);

c.add(checkBox1);

c.add(checkBox2);

c.add(checkBox3);

c.setSize(400,400);

c.setLayout(null);

c.setVisible(true);

sub = new JButton("Submit");

sub.setFont(new Font("Arial", Font.PLAIN, 15));

sub.setSize(100, 20);

sub.setLocation(150, 400);

sub.addActionListener(this);

c.add(sub);

reset = new JButton("Reset");

reset.setFont(new Font("Arial", Font.PLAIN, 15));

reset.setSize(100, 20);

reset.setLocation(350, 400);

reset.addActionListener(this);

c.add(reset);

res = new JLabel("");

res.setFont(new Font("Arial", Font.PLAIN, 20));

res.setSize(500, 25);

res.setLocation(100, 500);

c.add(res);

setVisible(true);

}

// method actionPerformed()

// to get the action performed

// by the user and act accordingly

public void actionPerformed(ActionEvent e)

{

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

if (term.isSelected()) {

String data1;

String data

= "First Name : "

+ tname.getText() + "\n"

+ "Last Name : "

+ lname.getText() + "\n"

+ "Mobile : "

+ tmno.getText() + "\n";

if (male.isSelected())

data1 = "Gender : Male"

+ "\n";

else

data1 = "Gender : Female"

+ "\n";

if (male.isSelected())

data1 = " YourInterest: c++"

+ "\n";

else if (male.isSelected())

data1 = "YourInterest : java"

+ "\n";

else

data1 = "YourInterest : python"

+ "\n";

}

}

}

}

class Registration {

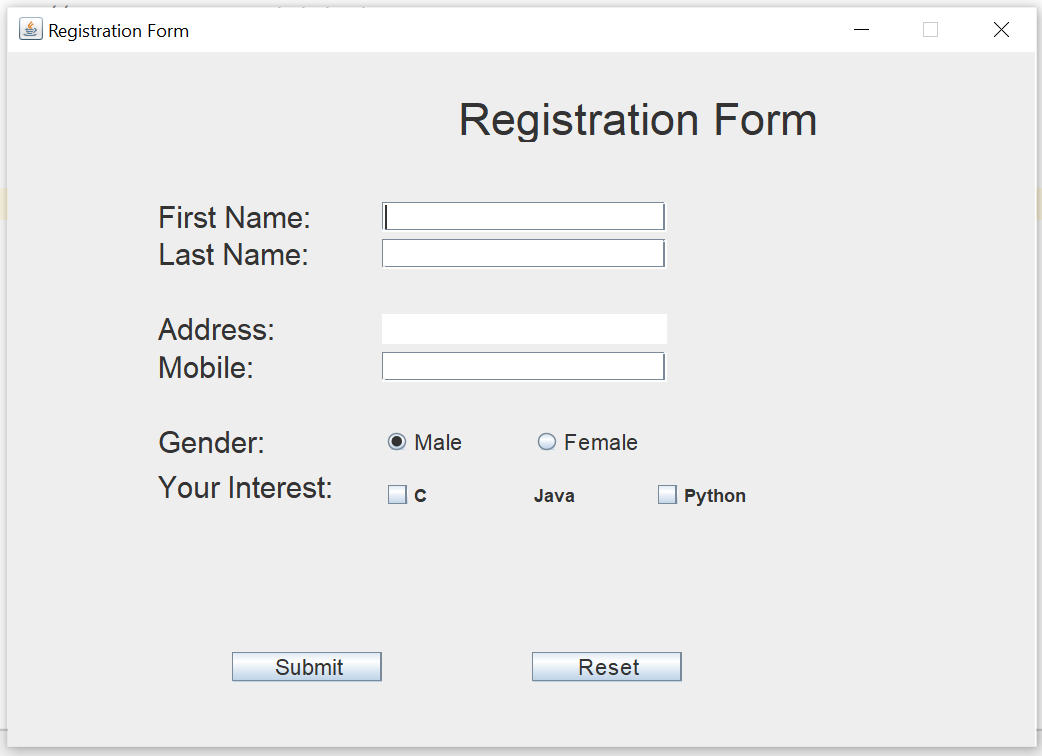
public static void main(String[] args) throws Exception

{

MyFrame f = new MyFrame();

}

}



**21.Write a Java program to sort arraylist of strings**

package com.company;

import java.util.\*;

public class SortArrayList

{

public static void main(String[] args)

{

// creating object of ArrayList class

ArrayList<String> list = new ArrayList<String>();

// adding elements to the ArrayList

list.add("Hitpremanand");

list.add("Ramkrushna");

list.add("Chitanaya");

list.add("Narayan");

list.add("Vasudeo");

list.add("Madhav");

list.add("Gopal");

list.add("Krishna");

// printing the unsorted ArrayList

System.out.println("Before Sorting: "+ list);

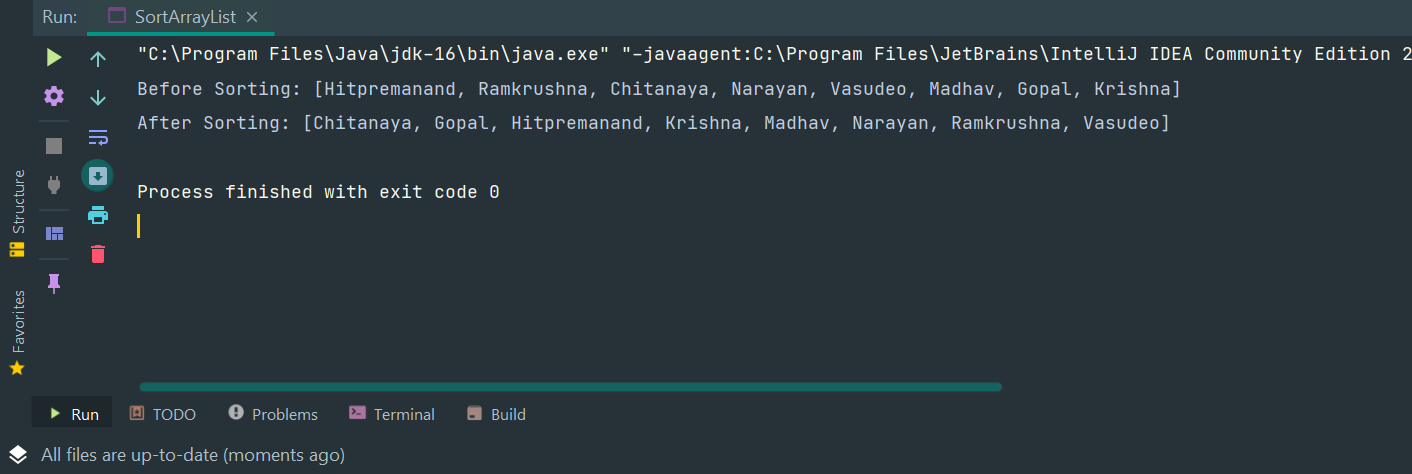
// Sorting ArrayList in ascending Order

Collections.sort(list);

// printing the sorted ArrayList

System.out.println("After Sorting: "+ list);

}

}

**22.Write a java program to add an element to specified index of Java Array List Example**

package com.company;

import java.util.\*;

public class ArrayList1

{

public static void main(String[] args)

{

ArrayList<String> namesList = new ArrayList<String>(Arrays.asList( "Ram", "Krushna", "Hari") );

System.out.println(namesList); //list size is 3

//Add element at 0 index

namesList.add(0, "Gopal");

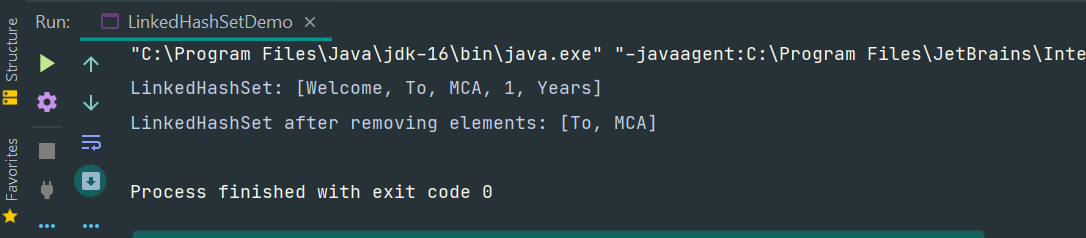
System.out.println(namesList); //list size is 4

}

}



**23. Write a java program to Remove specified element from Java LinkedHashSet example  
 Java code to illustrate LinkedHashSet.remove() method**  
  
package com.company;  
import java.util.\*;  
import java.util.LinkedHashSet;  
  
public class LinkedHashSetDemo {  
 public static void main(String args[])  
 {  
 // Creating an empty LinkedHashSet  
 LinkedHashSet<String> set = new LinkedHashSet<String>();  
  
 // Use add() method to add elements into the Set  
 set.add("Welcome");  
 set.add("To");  
 set.add("MCA");  
 set.add("1");  
 set.add("Years");  
  
 // Displaying the LinkedHashSet  
 System.out.println("LinkedHashSet: " + set);  
  
 // Removing elements using remove() method  
 set.remove("Years");  
 set.remove("1");  
 set.remove("Welcome");  
  
 // Displaying the LinkedHashSet after removal  
 System.out.println("LinkedHashSet after removing "  
 + "elements: " + set);  
 }  
}



**24.Write a Java program to sort arraylist of integers**

package com.company;

import java.util.ArrayList;

public class ArrayListDemo {

public static void main(String[] args) {

// create an empty array list with an initial capacity

ArrayList<Integer> arrlist = new ArrayList<Integer>(5);

// use add() method to add elements in the list

arrlist.add(15);

arrlist.add(22);

arrlist.add(30);

arrlist.add(40);

// adding element 25 at third position

arrlist.add(2,25);

// let us print all the elements available in list

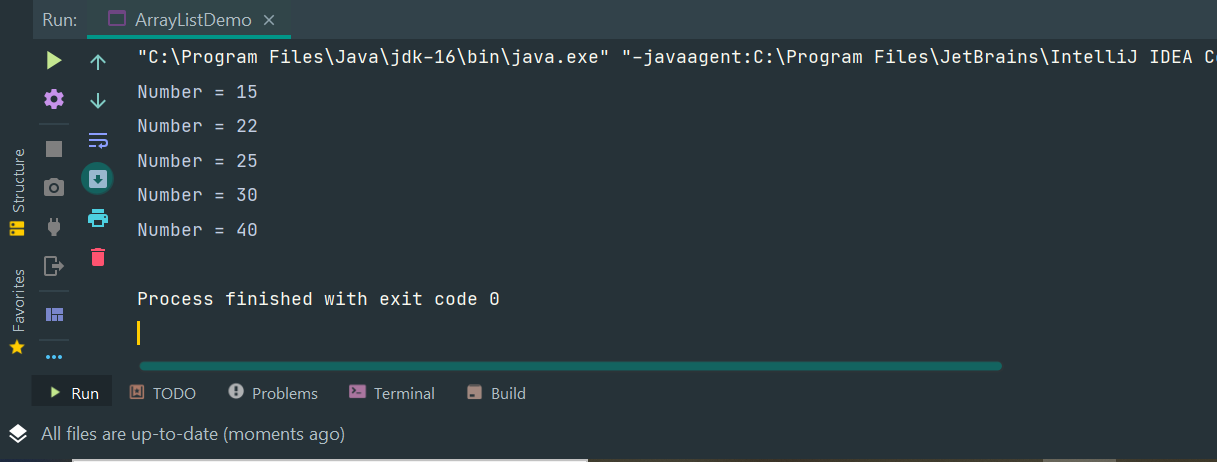
for (Integer number : arrlist) {

System.out.println("Number = " + number);

}

}

}



**25. Write a java program that connects to a database using JDBC and does add, deletes, mod**

import java.sql.\*;

public class prog1 {

public static void main(String[]args) {

String id = "1";

String pwd = "shriradhe";

String fullname = "Ravindra Kailas Thombre";

String email = "ravindrathombre01@gamil.com";

// String id = "1";

// String pwd = "newpwd";

// String newPwd = "radheshyam";

// String id = "1";

// String pwd = "radheshyam";

try {

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

Connection conn=DriverManager.getConnection("jdbc:mysql://localhost:3306/connect","root","123456789");

// System.out.println("Connected Established");

Statement stmt = conn.createStatement();

if (conn != null)

System.out.println("Connected");

else

System.out.println("Not Connected");

// Inserting data in database

String q1 = "insert into user values('" +id+ "', '" +pwd+

"', '" +fullname+ "', '" +email+ "')";

int x = stmt.executeUpdate(q1);

if (x > 0)

System.out.println("Successfully Inserted");

else

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

// // Updating database

// String q2 = "UPDATE user set pwd = '" + newPwd +

// "' WHERE id = '" +id+ "' AND pwd = '" + pwd + "'";

// int x = stmt.executeUpdate(q2);

//

// if (x > 0)

// System.out.println("Password Successfully Updated");

// else

// System.out.println("ERROR OCCURED :(");

//

// Deleting from database

// String q3 = "DELETE from user WHERE id = '" + id +

// "' AND pwd = '" + pwd + "'";

//

// int x = stmt.executeUpdate(q3);

//

// if (x > 0)

// System.out.println("One User Successfully Deleted");

// else

// System.out.println("ERROR OCCURED :(");

conn.close();

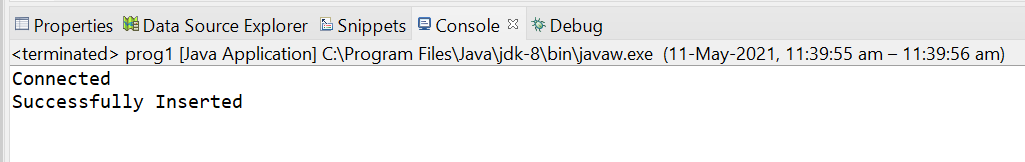
} catch (Exception e) {

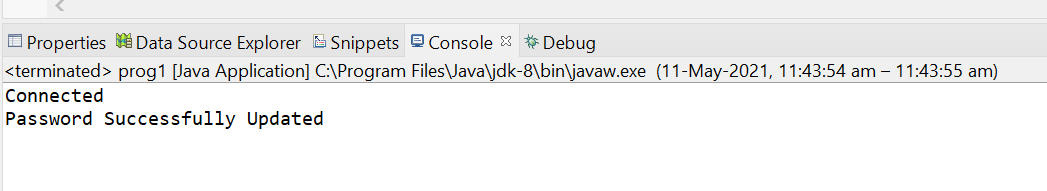
e.printStackTrace();

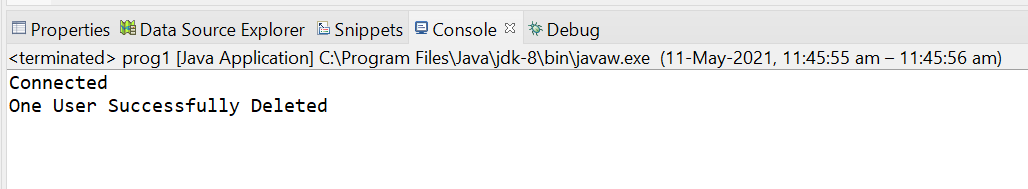
}

}

}







**26. Write a JDBC program to accept the details of customer (CID, CName, Address, Ph\_No) and store it into the database (Use Prepared Statement interface)**

import java.sql.\*;

import java.io.\*;

public class Customer

{

public static void main(String arg[])

{

int id;

String phno;

String cname,Address;

try {

DataInputStream din=new DataInputStream(System.in);

System.out.println("Enter information of Customer.");

System.out.println("Enter ID of Customer.");

id=Integer.parseInt(din.readLine());

System.out.println("Enter Name of Customer.");

cname=din.readLine();

System.out.println("Enter Address of Customer.");

Address=din.readLine();

System.out.println("Enter Contact\_No of Customer.");

phno=din.readLine();

// phno=Integer.parseInt(din.readLine());

// Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");

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

//Connection conn=DriverManager.getConnection("jdbc:odbc:BCA");

Connection conn=DriverManager.getConnection("jdbc:mysql://localhost:3306/customer","root","123456789");

//use prepared statement

PreparedStatement pst=conn.prepareStatement("insert into user values(?,?,?,?)");

pst.setInt(1,id);

pst.setString(2,cname);

pst.setString(3,Address);

pst.setString(4,phno);

// pst.setInt(4,phno);

int n=pst.executeUpdate();

if(n>0)

{

System.out.println("Record is Inserted...!!!");

}

else {

System.out.println("Error...!!!");

}

pst.close();

conn.close();

}

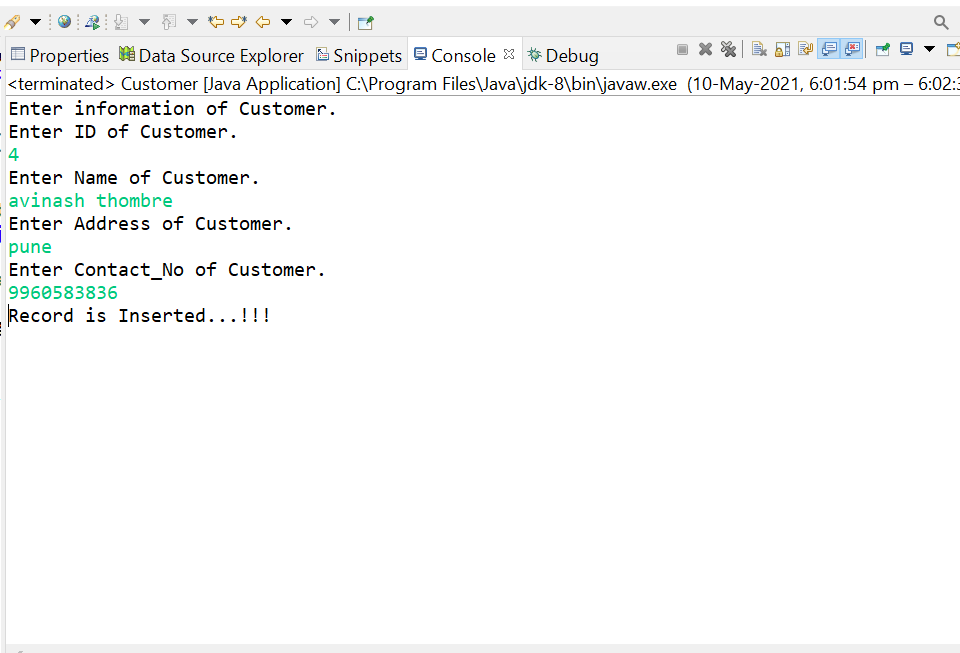
catch(Exception e)

{

System.out.println(e);

}

}

}

**27.Write a servlet program to accept username and password from html page, and if the user is present in the database then display “Welcome “ message as response to the user.**

**Index.html**

<!doctype html>

<html lang=*"en"*>

<head>

<title>Document</title>

</head>

<body>

<form action=*"servlet1"* method=*"post"*>

<fieldset style="width:*20%*; background-color:*#ccffcc*">

<h2 align=*"center"*>Login Page</h2>

<hr>

<table>

<tr><td>Name</td><td><input type=*"text"* name=*"username"*/></td>

<tr><td>Password</td><td><input type=*"password"* name=*"userpass"*/></td></tr>

<tr><td></td><td><input type=*"submit"* value=*"login"*/></td></tr>

</table>

</fieldset>

</form>

</body>

</html>

**FirstServlet.java**

import java.io.IOException;

import java.io.PrintWriter;

import jakarta.servlet.RequestDispatcher;

import jakarta.servlet.ServletException;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

public class FirstServlet extends HttpServlet

{

public void doPost(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException

{

response.setContentType("text/html");

PrintWriter out = response.getWriter();

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

String p=request.getParameter("userpass");

if(LoginDao.validate(n, p))

{

RequestDispatcher rd=request.getRequestDispatcher("servlet2");

rd.forward(request,response);

}

else

{

out.print("Sorry username or password error");

RequestDispatcher rd=request.getRequestDispatcher("index.html");

rd.include(request,response);

}

out.close();

} }

LoginDao.java

import java.sql.\*;

public class LoginDao

{

public static boolean validate(String name,String pass)

{

boolean status=true;

try

{

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

Connection conn = DriverManager.getConnection("jdbc:mysql://localhost:3306/cookie","root","123456789");

Connection con = null;

PreparedStatement ps=con.prepareStatement(

"select \* from userreg where name=? and pass=?");

ps.setString(1,name);

ps.setString(2,pass);

ResultSet rs=ps.executeQuery();

status=rs.next();

}

catch(Exception e)

{

System.out.println(e);

}

return status;

}

}

WelcomeServlet.java

import java.io.IOException;

import java.io.PrintWriter;

import jakarta.servlet.ServletException;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

public class WelcomeServlet extends HttpServlet

{

public void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException

{

response.setContentType("text/html");

PrintWriter out = response.getWriter();

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

out.print("Welcome "+n);

out.close();

}

}

Web.xml

<?xml version="1.0" encoding="UTF-8"?>

<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://xmlns.jcp.org/xml/ns/javaee" xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee http://xmlns.jcp.org/xml/ns/javaee/web-app\_4\_0.xsd" id="WebApp\_ID" version="4.0">

<servlet>

<servlet-name>FirstServlet</servlet-name>

<servlet-class>FirstServlet</servlet-class>

</servlet>

<servlet>

<servlet-name>WelcomeServlet</servlet-name>

<servlet-class>WelcomeServlet</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>FirstServlet</servlet-name>

<url-pattern>/servlet1</url-pattern>

</servlet-mapping>

<servlet-mapping>

<servlet-name>WelcomeServlet</servlet-name>

<url-pattern>/servlet2</url-pattern>

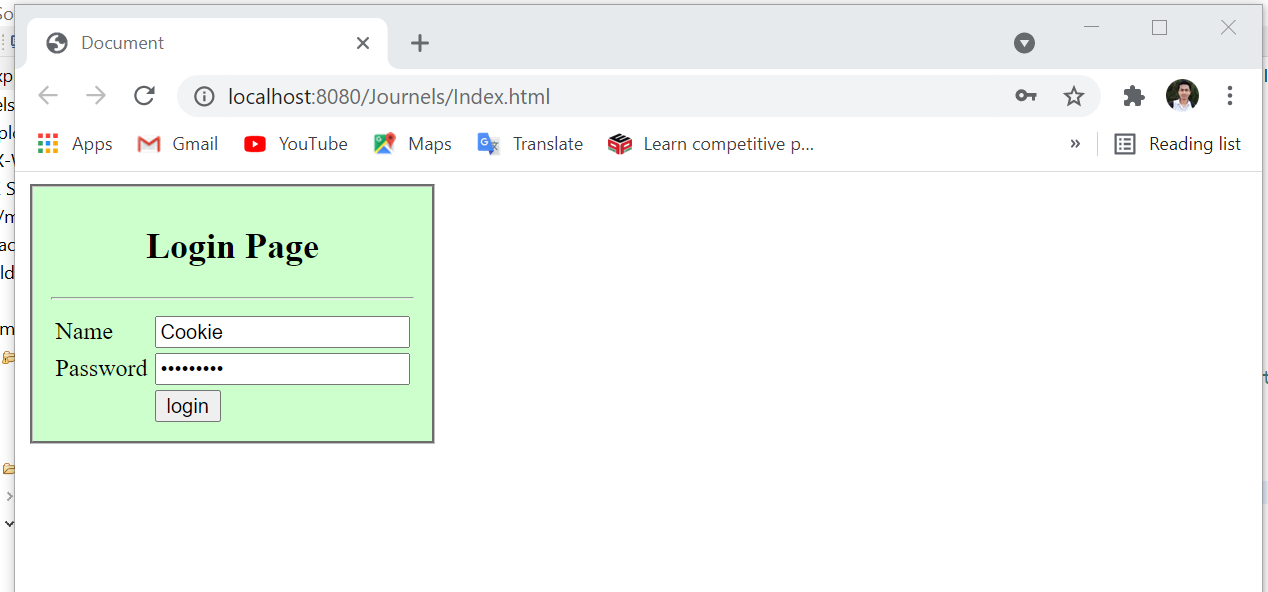
</servlet-mapping>

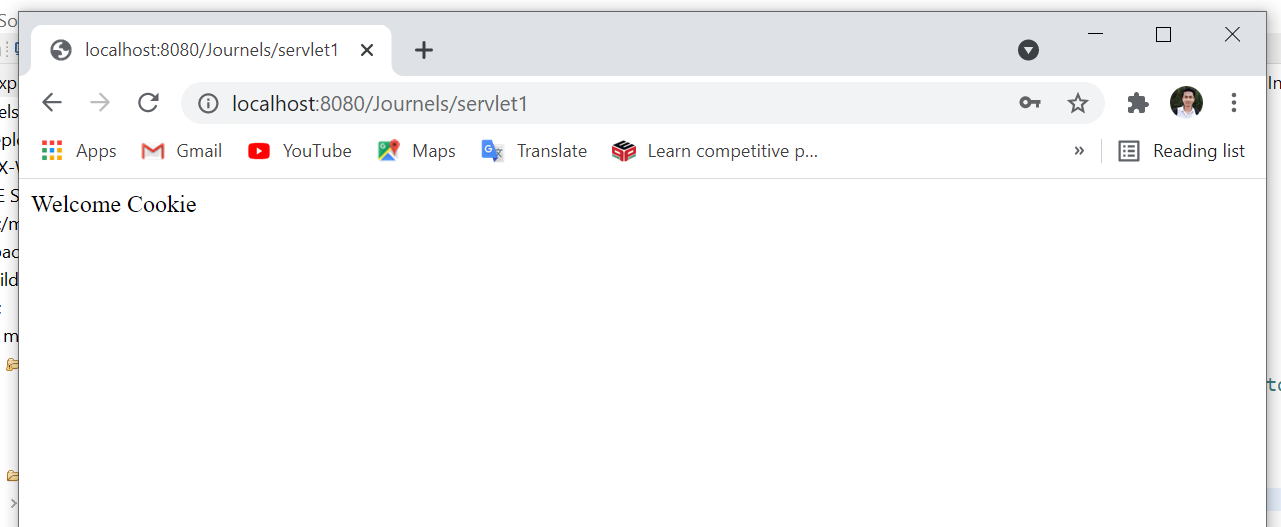
<welcome-file-list>

<welcome-file>index.html</welcome-file>

</welcome-file-list>

</web-app>

****



**28.Write a program to accept employee name, address, salary, task from html page and store it into database using servlet**

**1. Register.java**

import java.io.\*;

import java.sql.\*;

import javax.servlet.ServletException;

import javax.servlet.http.\*;

public class Register extends HttpServlet {

public void doPost(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException {

response.setContentType("register.html");

PrintWriter out = response.getWriter();

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

String a=request.getParameter("address");

String s=request.getParameter("salary");

String t=request.getParameter("task");

try{

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

Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/register","root","123456789");

PreparedStatement ps=con.prepareStatement(

"insert into user values(?,?,?,?)");

ps.setString(1,n);

ps.setString(2,a);

ps.setString(3,s);

ps.setString(4,t);

int i=ps.executeUpdate();

if(i>0)

out.print("You are successfully registered...");

}catch (Exception e2) {System.out.println(e2);}

out.close();

}

}

**2.register.html**

<!DOCTYPE html>

<html>

<head>

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

<title>Insert title here</title>

</head>

<body>

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

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

Address:<input type="text" name="address"/><br/><br/>

Salary:<input type="text" name="salary"/><br/><br/>

Work: <input type="text" name="task"/><br/><br/>

<br/><br/>

<input type="submit" value="register"/>

</form>

</body>

</html>

**3.web.xml**

<?xml version="1.0" encoding="UTF-8"?>

<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xmlns="http://java.sun.com/xml/ns/javaee"

xsi:schemaLocation="http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-app\_3\_0.xsd"

id="WebApp\_ID" version="3.0">

<display-name>Company</display-name>

<servlet>

<servlet-name>Register</servlet-name>

<servlet-class>Register</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>Register</servlet-name>

<url-pattern>/servlet/Register</url-pattern>

</servlet-mapping>

<welcome-file-list>

<welcome-file>index.html</welcome-file>

<welcome-file>register.html</welcome-file>

<welcome-file>index.htm</welcome-file>

<welcome-file>index.jsp</welcome-file>

<welcome-file>default.html</welcome-file>

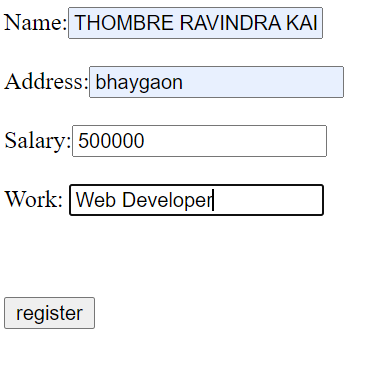
<welcome-file>default.htm</welcome-file>

<welcome-file>default.jsp</welcome-file>

</welcome-file-list>

</web-app>

**Output:-**

****

