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SEMESTER-V
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Submitted by:

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JAVA PRACTICALS

Q1 Implement bankaccount class using arrayList.

1. Implement a Bank Account having Instance variables: Account Number, Balance and having methods:

    float Deposit (float x)
    float withdraw (float x)
    int get account no ()
    float get balance ()
    tax deduction ()

    Then implement class Bank having an array list of accounts of type BankAccount. Implement following methods:

    AddAccount in Bank
    Get Total balance in Bank
    Get account number with max. and min. balance
    Find an account given a bank account no.
    Count no. of accounts having atleast specific balance

```
package demo1;

import java.util.ArrayList;

import java.util.Scanner;


class BankAccount{

        private

        float balance;

        int accNo;


        public

        BankAccount(){          //constructor

          balance=0;
```

```
accNo=0;
}
BankAccount(float b){ //constructor
balance=b;
accNo=accNo+1;
}
BankAccount(int a){              //constructor
accNo=a;
}
BankAccount(float b,int acc){          //constructor
balance=b;
accNo=acc;
}

float deposit(float x){
float newbal=balance+x;
balance=newbal;
return balance;
}
float withdrawl(float x){
float newbal=balance-x;
balance=newbal;
return balance;
}
int getAccNo(){
```

```
        return accNo;
        }
        float getBalance(){
        return balance;
        }
         int taxDeduction(int d){
        int x=(int)(d-(.02*d));
        return x;
        }
};

class Bank {

        public
        ArrayList<BankAccount> accounts=new ArrayList<BankAccount> ();

        public void addAccount(BankAccount a) {     //add account in bank
        accounts.add(a);
        System.out.println("YOUR ACCOUNT HAS BEEN CREATED");
        }

        public double getTotalBalance(){       //get total balance in bank
        double total=0;
        for(BankAccount a: accounts){
        total=total+a.getBalance();
```

```
}

return total;
}

public BankAccount getMax(){   //get account number with maximum balance
if(accounts.size()==0)
return null;
BankAccount largestYet=accounts.get(0);
for(int i=1;i<accounts.size();i++){
BankAccount a=accounts.get(i);
if(a.getBalance()>largestYet.getBalance()){
          largestYet=a;
}
}
return largestYet;
}

public BankAccount getMin(){          //get account number with minimum balance
if(accounts.size()==0)
return null;
BankAccount smallestYet=accounts.get(0);
for(int i=1;i<accounts.size();i++){
BankAccount a=accounts.get(i);
if(a.getBalance()<smallestYet.getBalance()){
```

```
            smallestYet=a;
        }
        }
        return smallestYet;
        }

        public BankAccount find(int accountNumber){ //find an account given a bank account number
        for(BankAccount a: accounts){
        if(a.getAccNo()==accountNumber){  //found a match
            return a;
        }
        }
        return null;
        }

        public int count(double atleast){   //count numbr of accounts having atleast specific balance
        int matches=0;
        for(BankAccount a:accounts){
        if(a.getBalance()>=atleast)     //found match
            matches++;
        }
        return matches;
        }
```

```
public void menu(){
Scanner a = new Scanner(System.in);
int ch,x;
do{
System.out.println("BANK MENU");
System.out.println("1. Create new account.");
System.out.println("2. Get total balance in bank.");
System.out.println("3. Get account number with maximum balance.");
System.out.println("4. Get account number with minimum balance.");
System.out.println("5. Find an account of given account number.");
System.out.println("6. Count number of accounts having atleast specific balance.");
System.out.println("ENTER YOUR CHOICE:");
x=a.nextInt();
switch(x){
        case 1:
        BankAccount acc=new BankAccount();
         this.addAccount(acc);
        break;
        case 2:
        double bal=getTotalBalance();
      System.out.println("Total balance of bank is "+bal);
        break;
        case 3:
        BankAccount a1=getMax();
        int m=a1.getAccNo();
```

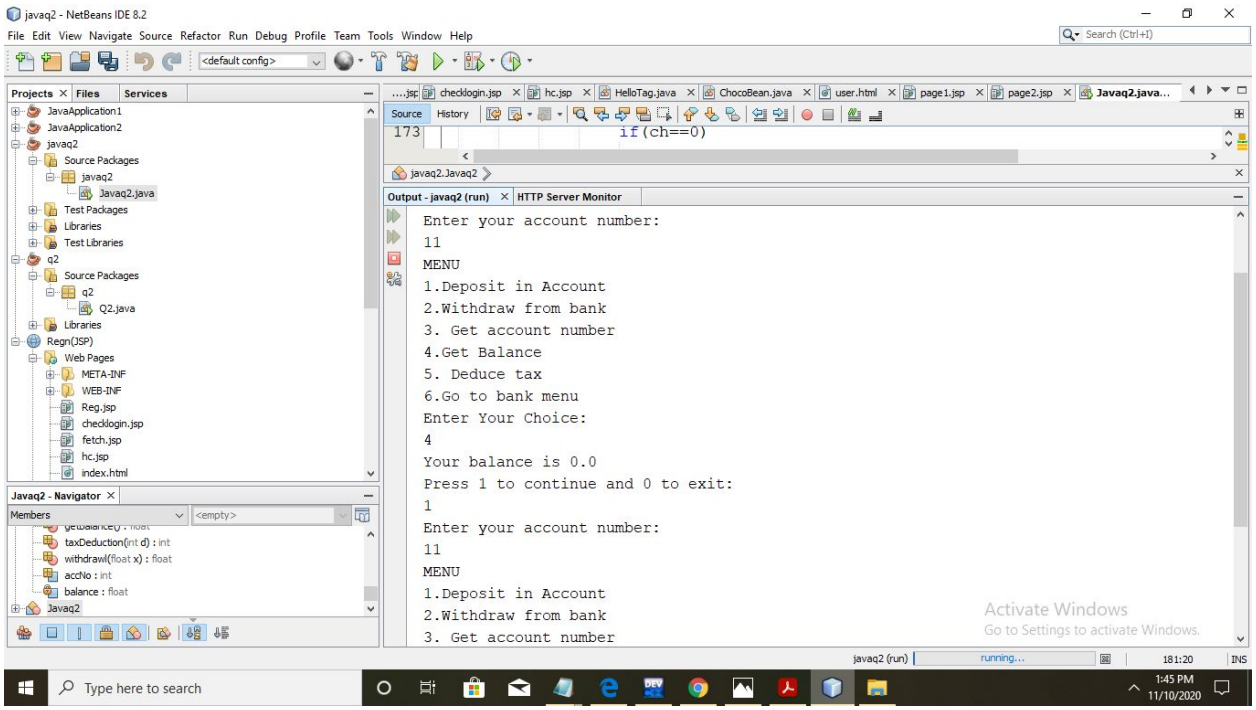
```
   float n=a1.getBalance();
System.out.println("Account number "+m+" has maximum balance of Rs. "+n);
   break;
   case 4:
   BankAccount a2=getMin();
   int y=a2.getAccNo();
   float z=a2.getBalance();
System.out.println("Account number "+y+" has minimum balance of Rs. "+z);
   break;
   case 5:
System.out.println("Enter the account number you want to search:");
   int AccNo=a.nextInt();
   BankAccount a3=find(AccNo);
   if(a3==null)
    System.out.println("This account does not exist.");
   else
   {
   BankAccount a4=getMax();
   int p=a4.getAccNo();
   float q=a4.getBalance();
    System.out.println("Account number "+p+" has balance of Rs. "+q);
   }
   break;
   case 6:
System.out.println("Enter the minimum amount you want to search:");
```

```
                double amount=a.nextInt();
                int c=count(amount);
            System.out.println("Number of accounts with minimum balance "+amount+" are
"+c);
                break;
                default:
            System.out.println("INVALID CHOICE");
                break;
                }
        System.out.println("Press 1 to continue and 0 to exit.");
        ch=a.nextInt();
        if(ch==0)
                System.exit(0);
        }while(ch==1);
        }
        };



public class Demo1 {
        public static void main(String[] args) {
        int ch,ch1;
        BankAccount b1=new BankAccount(2500);
        Bank b=new Bank();
        Scanner sc= new Scanner(System.in);
```

```
System.out.println("1.Existing account");
System.out.println("2.Bank ");
ch1=sc.nextInt();

if(ch1==1)
{
int r;
do{
        System.out.println("Enter your account number:");
        int m=sc.nextInt();
        BankAccount bacc=new BankAccount(m);
                System.out.println("MENU");
   System.out.println("1.Deposit in Account");
   System.out.println("2.Withdraw from bank");
        System.out.println("3. Get account number");
        System.out.println("4.Get Balance");
        System.out.println("5. Deduce tax");
                System.out.println("6.Go to bank menu");
                System.out.println("Enter Your Choice:");
                ch = sc.nextInt();
        switch(ch){
        case 1:
        System.out.println("Enter the amount you want to deposit:");
        float x=sc.nextInt();
        float bal=bacc.deposit(x);
```

```
System.out.println(bal);
break;
case 2:
System.out.println("Enter the amount you want to withdraw:");
float y=sc.nextInt();
float bal1=bacc.withdrawl(y);
System.out.println(bal1);
break;
case 3:
int ano=bacc.getAccNo();
System.out.println("Your account number is "+ano);
break;
case 4:
float bal2=bacc.getBalance();
System.out.println("Your balance is "+bal2);
break;
case 5:
int tax=bacc.taxDeduction(5);
System.out.println("Deduced tax is "+tax);
break;
case 6:
b.menu();
break;
default:
System.out.println("INVALID CHOICE");
```

```
                break;
                }
                System.out.println("Press 1 to continue and 0 to exit:");
                r=sc.nextInt();
                if(r==0)
                System.exit(0);
        }while(r==1);
        }
        else
        {
        b.menu();
        }
        }

}
//OUTPUT
```



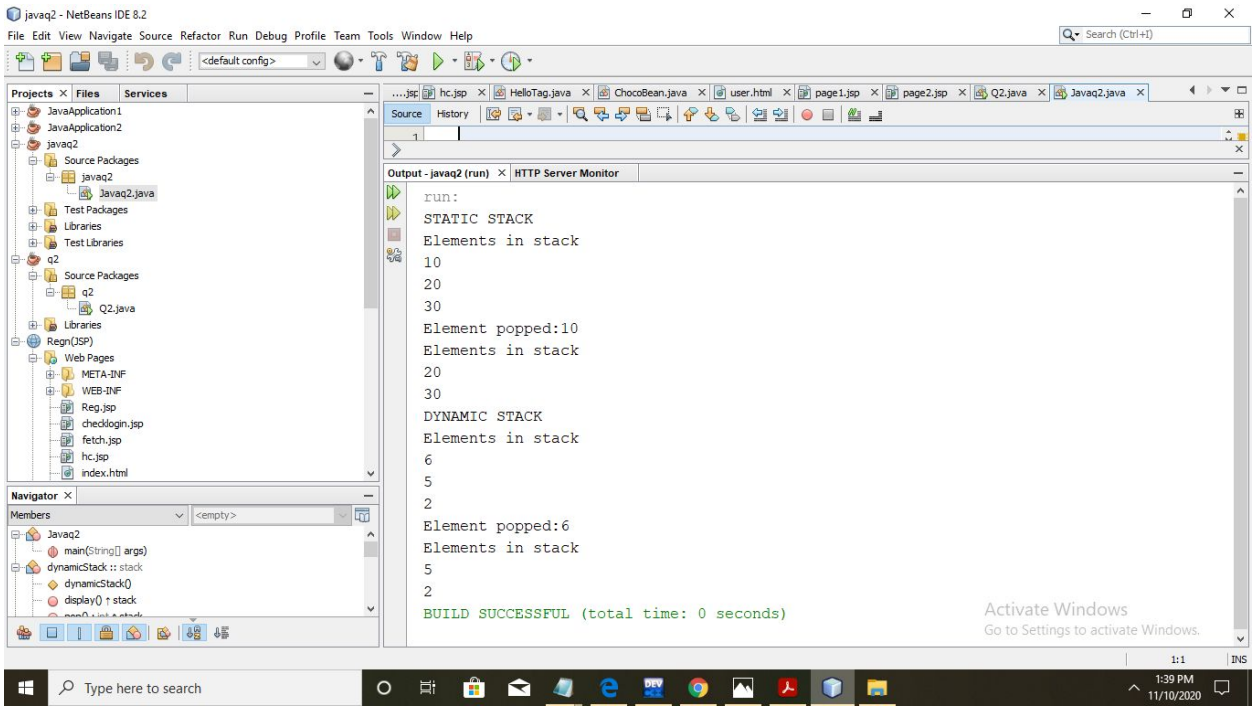
Q2 Implement Abstract class stack with methods push, pop, display for two classes Static stack and Dynamic stack.

```
package javaq2;

import java.util.List;
import java.util.ArrayList;

abstract class stack
{
  public int top;
  public stack()
  { top=-1;}

  public abstract void push(int e);
  public abstract int pop();
  public abstract void display();
}

class staticStack extends stack
{
```

```
 private int arr[];

 public staticStack()
 {
        super();
 }
 public staticStack(int size)
 {
        super();
     arr = new int [size];
 }

 public void push(int e)
 {
     if (super.top == arr.length-1)
     {
         System.out.println("STACK OVERFLOW");
         return;
     }

         super.top++;
     arr[super.top]= e;
 }

 public int pop()
 {
         if (super.top == -1)
     {
         System.out.println("STACK UNDERFLOW");
         return 0;
     }
         int x= arr[super.top];
     super.top --;
     return x;
 }
 public void display()
{
    int tp= super.top;
         System.out.println("Elements in stack");
         while(tp>=0)
     {
             System.out.println(arr[tp]);
         tp--;
```

```
        }
    }

}

class dynamicStack extends stack

{

    ArrayList<Integer> arr;

    public dynamicStack()
    {
          super();
        arr = new ArrayList<Integer>();
    }

    public void push(int e)
    {
       super.top++;
       arr.add(super.top,e);
     }
     public int pop()
     {

          if(super.top==-1)
          {
          System.out.println("STACK UNDERFLOW");
          return 0;
        }
        else{
           int x= arr.get(super.top);
           arr.remove(super.top);
           super.top--;
           return x;
         }
     }
     public void display()
   {
       int tp= super.top;
        System.out.println("Elements in stack");
           while(tp>=0)
        {
```

```
            System.out.println(arr.get(tp));
            tp--;
        }
    }

}

class Javaq2
{
    public static void main(String args[])
    {
            staticStack st= new staticStack(5);
        dynamicStack dst= new dynamicStack();

        System.out.println("STATIC STACK");
            st.push(30);
        st.push(20);
        st.push(10);
        st.display();
        System.out.println("Element popped:" + st.pop());
        st.display();

            System.out.println("DYNAMIC STACK");
            dst.push(2);
        dst.push(5);
        dst.push(6);
        dst.display();
        System.out.println("Element popped:" + dst.pop());
        dst.display();

    }
}

//OUTPUT
```



JAVABEANS PRACTICALS

Q1 Implement Student JavaBean using Serializability Interface.

```
<html>
   <head>
      <title>
         Student info:
      </title>
   </head>


   <body>
      <h2>Enter the student info:-</h2>
      <form action="stu.jsp" method="get">
        Enter your name: <input name="name" type="text" value=""><br/>
```

```
          <br/>
           Enter your rollno:<input name="rollno" type="text" value=""><br/><br/>
           Enter your Course:<input name="course" type="text" value=""><br/><br/>
           Enter your address:<input name="address" type="text" value=""><br/><br/>
           Enter your Emailid:<input name="email_id" type="text" value=""><br/><br/>
           Enter your DOB:<input name="dob" type="text" value=""><br/><br/>
           gender:<input name="gender" type="radio" value="female">Female
           <input name="male" type="radio" value="male">Male<br/>
           <input  type="submit" value="submit"><br/>
          <br/>
       </form>
   </body>
</html>
```

```
package pkg1.stu;


public class StudentBean implements java.io.Serializable {

    private static String[] GENDER_LIST={"m","f"};
    private String name;
    private int rollno;
    private String course;
    private String address;
    private String gender;
    private String dob;
    private String email_id;

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public boolean isNameValid()
    {
```

```
        boolean isValid=false;
        if(name!=null)
        {
            isValid=true;
        }
        return isValid;

    }
    public int getRollno() {
        return rollno;
    }
    public boolean isRollnoValid()
    {
        boolean isValid=false;
        if(rollno !=0)
        {
            isValid=true;
        }
        return isValid;

    }

    public void setRollno(int rollno) {
        this.rollno = rollno;
    }

    public String getCourse() {
        return course;
    }

    public void setCourse(String course) {
        this.course = course;
    }
public boolean isCourseValid()
    {
        boolean isValid=false;
        if(course!=null)
        {
            isValid=true;
        }
        return isValid;

    }
```

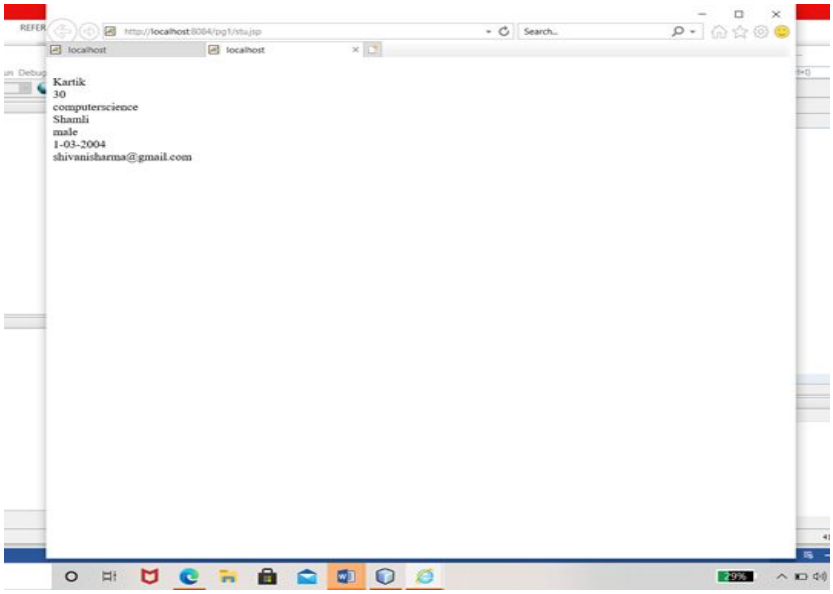
```
public String getAddress() {
    return address;
}

public void setAddress(String address) {
    this.address = address;
}

public boolean isAddressValid()
{
    boolean isValid=false;
    if(address!=null)
    {
        isValid=true;
    }
    return isValid;

}

public String getGender() {
    return gender;
}

public void setGender(String gender) {
    this.gender = gender;
}
public boolean isGenderValid()
{
    boolean isValid=false;
    if(gender=="m"||gender=="f")
    {
        isValid=true;
    }
    return isValid;

}

public String getDob() {
    return dob;
}

public void setDob(String dob) {
    this.dob = dob;
```

```
    }

    public boolean isDobValid()
    {
        boolean isValid=false;
        if(dob!=null)
        {
            isValid=true;
        }
        return isValid;

    }

    public String getEmail_id() {
        return email_id;
    }

    public void setEmail_id(String email_id) {
        this.email_id = email_id;
    }

    public boolean isEmail_idValid()
    {
        boolean isValid=false;
        if(email_id!=null)
        {
            isValid=true;
        }
        return isValid;

    }

}
```

Stu.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
```

```
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

    </head>
    <body>
        <jsp:useBean id="s1" scope="page" class="pkg1.stu.StudentBean"></jsp:useBean

 <jsp:setProperty name="s1" property="name" value="kartik" /><br/>
        <jsp:getProperty name="s1" property="name"/>


        <jsp:setProperty name="s1" property="rollno" value="256" /><br/>
        <jsp:getProperty name="s1" property="rollno"/>


        <jsp:setProperty name="s1" property="course" value="HR" /><br/>
        <jsp:getProperty name="s1" property="course"/>


            <jsp:setProperty name="s1" property="address" value="Delhi" /><br/>
        <jsp:getProperty name="s1" property="address"/>

            <jsp:setProperty name="s1" property="gender" value="female" /><br/>
        <jsp:getProperty name="s1" property="gender"/>

            <jsp:setProperty name="s1" property="dob" value="25-03-2001" /><br/>
        <jsp:getProperty name="s1" property="dob"/>

            <jsp:setProperty name="s1" property="email_id" value="shivangiVermai@gmail.com"
/><br/>
        <jsp:getProperty name="s1" property="email_id"/>


    </body>
</html>

//OUTPUT
```



Q2 Implement Employee JavaBean using Serializability Interface.

Index.html

```
<html>
   <head>
      <title>
         Student info:
      </title>
   </head>


   <body>
      <h2>Enter the Employee info:-</h2>
      <form action="Emp.jsp" method="get">
        Enter your Ename: <input name="ename" type="text" value=""><br/>
          <br/>
           Enter your Empid:<input name="empid" type="text" value=""><br/><br/>
           Enter your Department:<input name="dept" type="text" value=""><br/><br/>
           Enter your address:<input name="address" type="text" value=""><br/><br/>
           Enter your Salary:<input name="salary" type="text" value=""><br/><br/>
           Enter your Email-id:<input name="empail_id" type="text" value=""><br/><br/>
           gender:<input name="gender" type="radio" value="female">Female
           <input name="male" type="radio" value="male">Male<br/>
```

```
            <input  type="submit" value="submit"><br/>
           <br/>
        </form>
    </body>
</html>
```

EmployeeBean.java

```
public class EmployeeBean implements java.io.Serializable {

    private static String[] GENDER_LIST={"m","f"};
    private String ename;
    private int empid;
    private String dept;
    private int salary;
    private String address;
    private String gender;
    private String dob;
    private String email_id;

    public String getEname() {
        return ename;
    }

    public void setEname(String ename) {
        this.ename = ename;
    }

    public boolean isNameValid()
    {
        boolean isValid=false;
        if(ename!=null)
        {
            isValid=true;
        }
        return isValid;

    }
    public int getEmpid() {
        return empid;
    }
    public boolean isEmpidValid()
    {
```

```
        boolean isValid=false;
        if(empid !=0)
        {
            isValid=true;
        }
        return isValid;

    }

    public void setEmpid(int empid) {
        this.empid = empid;
    }

    public String getDept() {
        return dept;
    }

    public void setDept(String dept) {
        this.dept = dept;
    }
    public boolean isDeptValid()
    {
        boolean isValid=false;
        if(dept!="null")
        {
            isValid=true;
        }
        return isValid;

    }

     public int getSalary() {
        return salary;
    }

    public void setSalary(int salary) {
        this.salary = salary;
    }
public boolean isSalaryValid()
    {
        boolean isValid=false;
        if(salary!=0)
        {
```

```
        isValid=true;
    }
    return isValid;

}
public String getAddress() {
    return address;
}

public void setAddress(String address) {
    this.address = address;
}

public boolean isAddressValid()
{
    boolean isValid=false;
    if(address!=null)
    {
        isValid=true;
    }
    return isValid;

}

public String getGender() {
    return gender;
}

public void setGender(String gender) {
    this.gender = gender;
}
public boolean isGenderValid()
{
    boolean isValid=false;
    if(gender=="m"||gender=="f")
    {
        isValid=true;
    }
    return isValid;

}

public String getDob() {
```

```
        return dob;
    }

    public void setDob(String dob) {
        this.dob = dob;
    }

    public boolean isDobValid()
    {
        boolean isValid=false;
        if(dob!=null){

            isValid=true;
        }
        return isValid;

    }

    public String getEmail_id() {
        return email_id;
    }

    public void setEmail_id(String email_id) {
        this.email_id = email_id;
    }

    public boolean isEmail_idValid()
    {
        boolean isValid=false;
        if(email_id!=null)
        {
            isValid=true;
        }
        return isValid;

    }

}
```

Emp.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
```

```
<!DOCTYPE html>
<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>JSP Page</title>
   </head>
   <body>
      <jsp:useBean id="e1" scope="page" class="mypkg1.emp.EmployeeBean"></jsp:useBean>
      <jsp:setProperty name="e1" property="ename" value="shivii" /><br/>
      <jsp:getProperty name="e1" property="ename"/>


      <jsp:setProperty name="e1" property="empid" value="256" /><br/>
      <jsp:getProperty name="e1" property="empid"/>


      <jsp:setProperty name="e1" property="dept" value="HR" /><br/>
      <jsp:getProperty name="e1" property="dept"/>

            <jsp:setProperty name="e1" property="salary" value="20000" /><br/>
      <jsp:getProperty name="e1" property="salary"/>

            <jsp:setProperty name="e1" property="address" value="Delhi" /><br/>
      <jsp:getProperty name="e1" property="address"/>

            <jsp:setProperty name="e1" property="gender" value="female" /><br/>
      <jsp:getProperty name="e1" property="gender"/>

            <jsp:setProperty name="e1" property="dob" value="25-03-2001" /><br/>
      <jsp:getProperty name="e1" property="dob"/>

            <jsp:setProperty name="e1" property="email_id" value="shivangiVerma@gmail.com"
/><br/>
      <jsp:getProperty name="e1" property="email_id"/>


   </body>
</html>

//OUTPUT
```

JDBC PRACTICALS

Q1 Create Student and Results Tables in “IT_GALS” Database and perform the following operations using JDBC program after creating tables with below-mentioned fields…..

```
package galpro;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.*;

import java.io.*;


public class Galpro {
```

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


   //query0
 try{
    String query0="";


    Connection cnt;
    cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
    Statement st=cnt.createStatement();
    query0="SELECT COUNT(*) from student";


    ResultSet rs=st.executeQuery(query0);
    System.out.println("Output of query0");
    System.out.println("Total number of students : ");
    if(rs.next()){
        System.out.println(rs.getInt(1));
    }


 }
 catch(Exception ex)
 {
     System.out.println("SQLEXCEPTION :"+ex.getMessage());
 }
```

```
 //query1


  try{
        BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
          String query1="";
          Connection conn;
          conn=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
          Statement st= conn.createStatement();
   System.out.println("Output of Query 1");
System.out.println("Enter the subject whose average you want to see: ");
String sub = br.readLine();
switch(sub)
{
    case "English":
       query1 = "select avg(MARKS) from results where SUBJECT='English'";
       break;

    case "Maths":
       query1 = "select avg(MARKS) from results where SUBJECT='Maths'";
       break;



    default: System.out.println("You have entered wrong subject");
}
```

```
ResultSet rst = st.executeQuery(query1);


System.out.print("Average marks for subject "+ sub +" : ");
if(rst.next()){
   System.out.println(rst.getDouble(1));
}
      }
catch(Exception ex){
System.out.println("SQLEXCEPTION :"+ex.getMessage());
}




 //query2


 try{
    String query2="";


    Connection cnt;
    cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
    Statement st=cnt.createStatement();
    query2="SELECT SUBJECT,avg(MARKS) from results group by SUBJECT";


    ResultSet rs1=st.executeQuery(query2);
```

```
  System.out.println("Output of Query 2");
   System.out.println("Average marks for English subject : ");
   if(rs1.next()){
       System.out.println(rs1.getDouble(2));
   }
    System.out.println("Average marks for Maths subject : ");
   if(rs1.next()){
       System.out.println(rs1.getDouble(2));
   }

}
catch(Exception ex)
{
    System.out.println("SQLEXCEPTION :"+ex.getMessage());
}

//query3

 try{
   String query3="";

   Connection cnt;
   cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
   Statement st=cnt.createStatement();
```

```
    query3="SELECT name,rollno,sum(MARKS) from student,results where roll=rollno group by rollno
order by sum(MARKS) desc limit 1";


    ResultSet rs2=st.executeQuery(query3);
     System.out.println("Output of Query 3");
    System.out.println("Name of student getting highest marks : ");
    if(rs2.next()){
       String s=rs2.getString("name");
        System.out.println(s);
    }


}
catch(Exception ex)
{
    System.out.println("SQLEXCEPTION :"+ex.getMessage());
}



 //query4


  try{
    String query4="";


    Connection cnt;
    cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
```

```
Statement st=cnt.createStatement();

query4="SELECT name,rollno,'I' as 'Division' from student,results where roll=rollno group by rollno having sum(MARKS)>=190 UNION SELECT name,rollno,'II' as 'Division' from student,results where roll=rollno group by rollno having sum(MARKS)<=190 AND sum(MARKS)>185 UNION SELECT name,rollno,'III' as 'Division' from student,results where roll=rollno group by rollno having sum(MARKS)<=185";


ResultSet rs4=st.executeQuery(query4);

 System.out.println("Output of Query 4");

System.out.println("Student getting First Division : ");

if(rs4.next()){

   String s=rs4.getString("name");

    System.out.println(s);

}


  System.out.println("Student getting Second Division : ");

if(rs4.next()){

   String s=rs4.getString("name");

    System.out.println(s);

}


  System.out.println("Student getting Third Division : ");

if(rs4.next()){

   String s=rs4.getString("name");

    System.out.println(s);

}

if(rs4.next()){
```

```
            String s=rs4.getString("name");
             System.out.println(s);
        }



    }
    catch(Exception ex)
    {
        System.out.println("SQLEXCEPTION :"+ex.getMessage());
    }



     //query5


       try{
        String query5="";


        Connection cnt;
        cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
        Statement st=cnt.createStatement();
        query5="SELECT name,rollno,max(MARKS) as Highest,SUBJECT from student,results where
roll=rollno group by SUBJECT,rollno order by MARKS desc limit 2";


        ResultSet rs5=st.executeQuery(query5);
          System.out.println("Output of Query 5");
```

```
   System.out.println("Topper of subject English : ");


   if(rs5.next()){
      String s=rs5.getString("name");
       System.out.println(s);
   }
     System.out.println("Topper of subject Maths : ");
      if(rs5.next()){
       String s=rs5.getString("name");
        System.out.println(s);
   }


}
catch(Exception ex)
{
    System.out.println("SQLEXCEPTION :"+ex.getMessage());
}


  //query6


    try{
   String query6="";


   Connection cnt;
   cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
```

```
   Statement st=cnt.createStatement();
   query6="SELECT avg(MARKS) from results";


   ResultSet rs6=st.executeQuery(query6);
    System.out.println("Output of Query 6");

   System.out.println("Average marks : ");

   if(rs6.next()){

       System.out.println( rs6.getDouble(1));
   }



}
catch(Exception ex)
{
    System.out.println("SQLEXCEPTION :"+ex.getMessage());
}


    //query7
```

```
    try{
   String query7="";

   Connection cnt;
   cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
   Statement st=cnt.createStatement();
   query7="SELECT SUBJECT,avg(MARKS) from results group by SUBJECT";



   ResultSet rs7=st.executeQuery(query7);
     System.out.println("Output of Query 7");
  System.out.println("Average marks of subject English : ");
     if(rs7.next()){

       System.out.println(rs7.getDouble(2));
   }
    System.out.println("Average marks of subject Maths : ");
         if(rs7.next()){

       System.out.println(rs7.getDouble(2));
   }



}
catch(Exception ex)
```

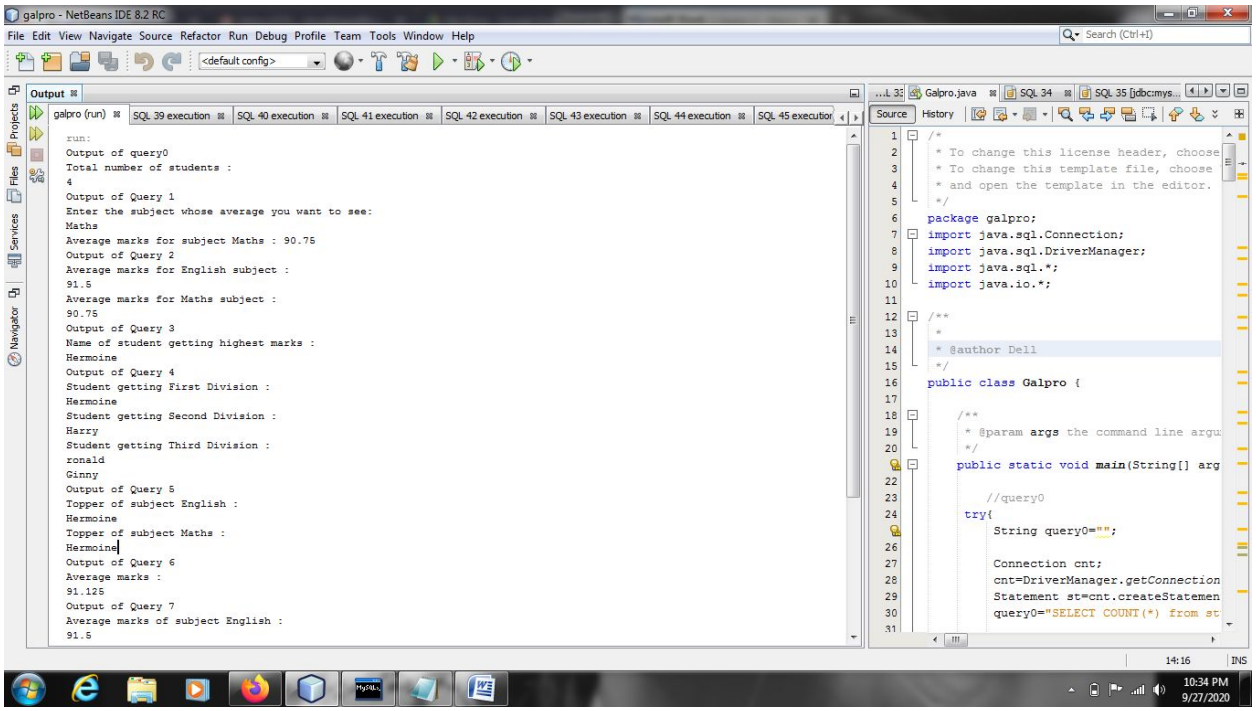
```
    {
        System.out.println("SQLEXCEPTION :"+ex.getMessage());
    }



      //query8


            try{
       String query8="";


       Connection cnt;
       cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
       Statement st=cnt.createStatement();
       query8="SELECT name,rollno,sum(MARKS) from student,results where roll=rollno group by rollno
order by sum(MARKS) desc limit 1,1";



       ResultSet rs8=st.executeQuery(query8);
         System.out.println("Output of Query 8");
      System.out.println("Student getting second Highest Marks : ");
          if(rs8.next()){
       String s=rs8.getString("name");
           System.out.println(s);
       }
```

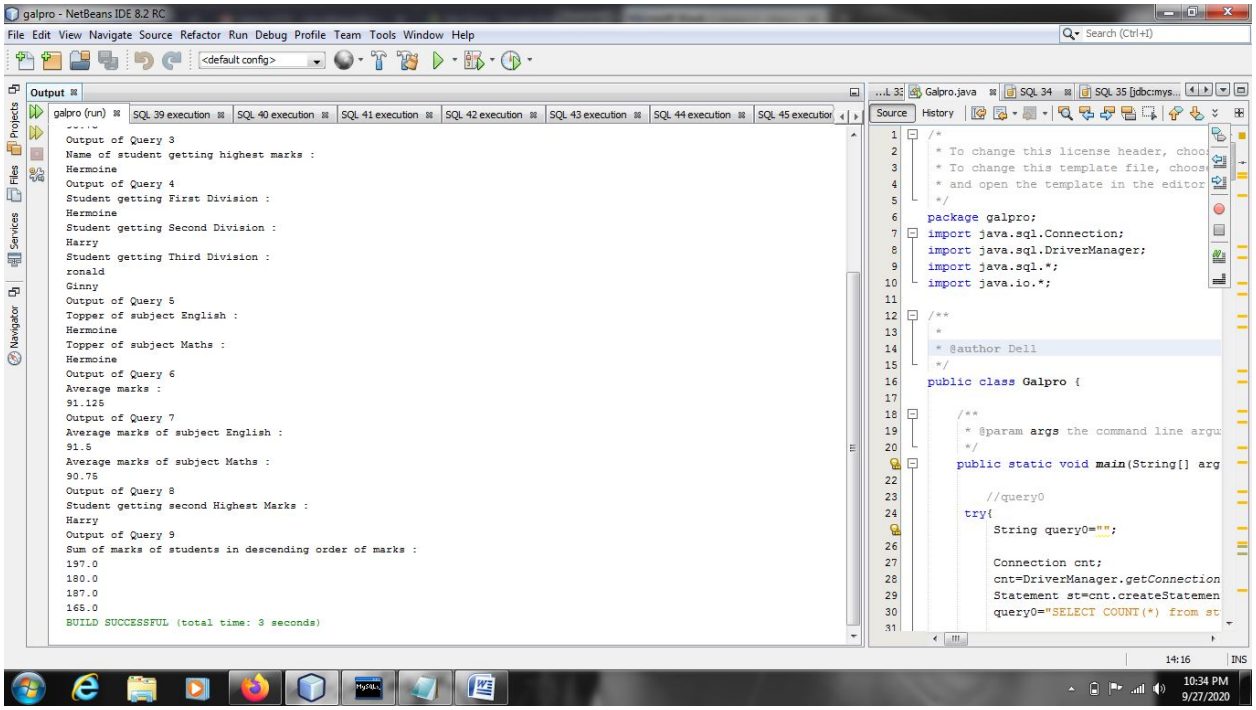
```
}
catch(Exception ex)
{
    System.out.println("SQLEXCEPTION :"+ex.getMessage());
}



 //query9


      try{
   String query9="";

   Connection cnt;
   cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/it_gals","root","root");
   Statement st=cnt.createStatement();
   query9="SELECT rollno,sum(MARKS) from results group by rollno order by MARKS desc limit 4";


   ResultSet rs9=st.executeQuery(query9);
    System.out.println("Output of Query 9");
  System.out.println("Sum of marks of students in descending order of marks : ");
```

```
    if(rs9.next()){

      System.out.println( rs9.getDouble(2));
   }

       if(rs9.next()){

      System.out.println( rs9.getDouble(2));
   }

          if(rs9.next()){

      System.out.println( rs9.getDouble(2));
   }

             if(rs9.next()){

      System.out.println( rs9.getDouble(2));
   }


}
```

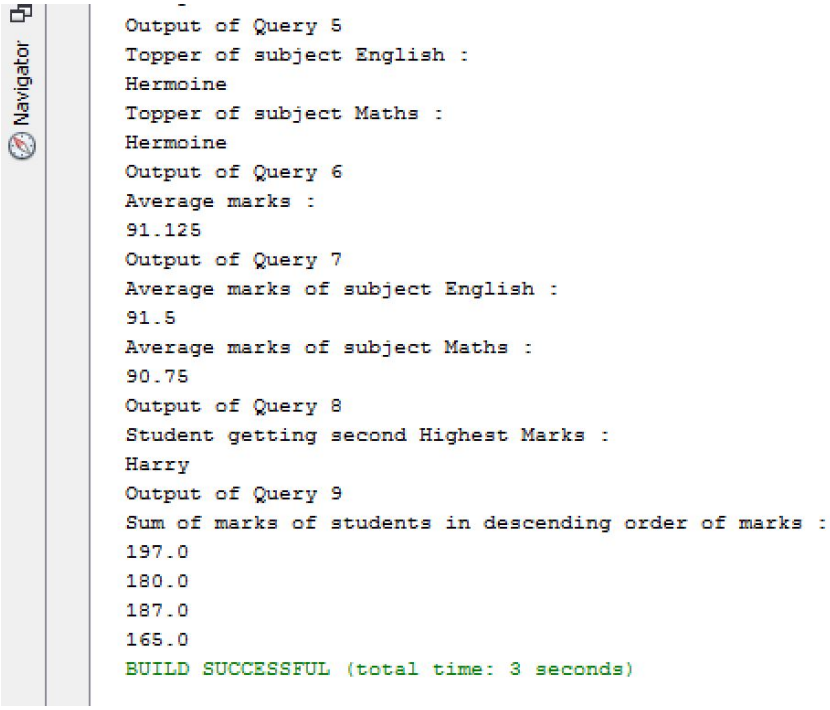
```
    catch(Exception ex)
    {
        System.out.println("SQLEXCEPTION :"+ex.getMessage());
    }

  }

}
```

// OUTPUT






```
run:
Output of query0
Total number of students :
4
Output of Query 1
Enter the subject whose average you want to see:
Maths
Average marks for subject Maths : 90.75
Output of Query 2
Average marks for English subject :
91.5
Average marks for Maths subject :
90.75
Output of Query 3
Name of student getting highest marks :
Hermoine
Output of Query 4
Student getting First Division :
Hermoine
Student getting Second Division :
Harry
Student getting Third Division :
ronald
Ginny
```



Q2 Create a procedure in MySQL to count the number of Rows in table 'Student'. Use CallableStatement to call this method from Java code.

```
package que1;

import java.sql.*;

public class Que1 {



   public static void main(String[] args)  {


      try{
```

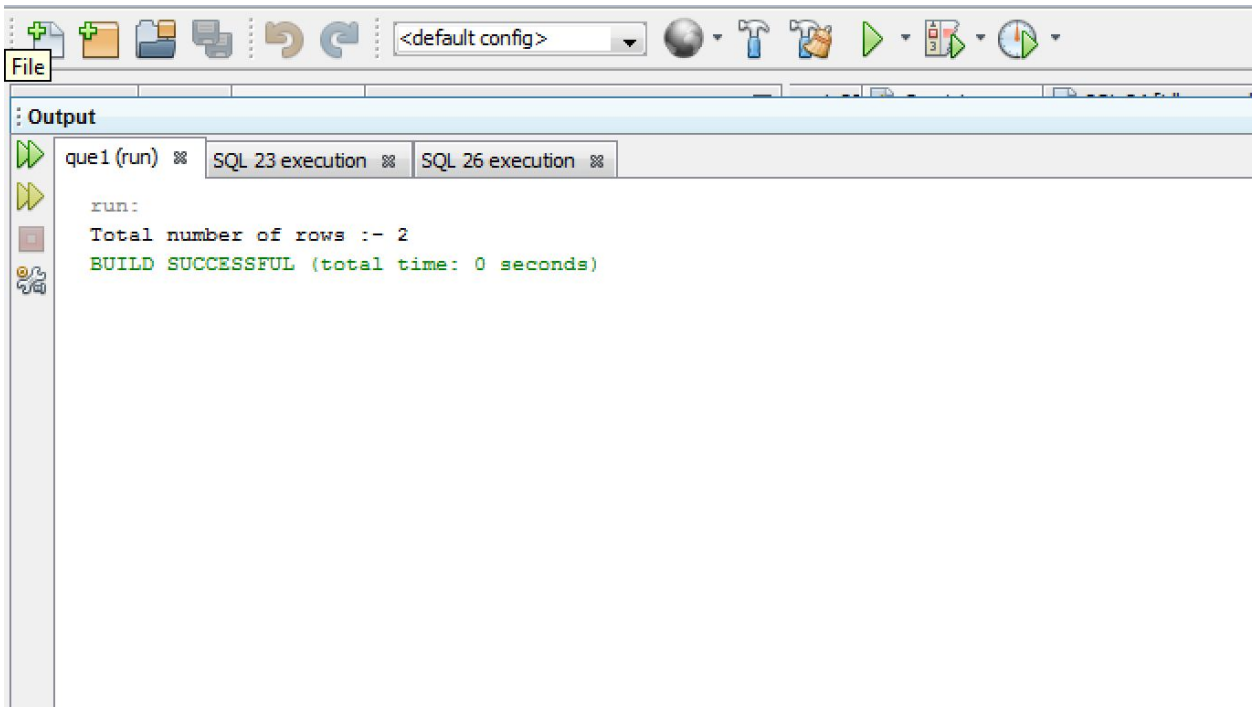
```
            Connection   cnt=DriverManager.getConnection("jdbc:mysql://localhost:3306/students",
"root", "root");


        CallableStatement stmt=cnt.prepareCall("{callcount_row(?)}");
        stmt.registerOutParameter(1, Types.INTEGER);
        stmt.execute();
        System.out.println("Total number of rows :- "+ stmt.getInt(1));
        cnt.close();
     }
     catch(Exception e){
        System.out.println(e.getMessage());
     }

   }

}
```

Procedure code:

```
use students;
DELIMITER //
CREATE PROCEDURE count_row
(OUT total INT)
begin
```

```
SELECT COUNT(*)
INTO total
FROM student;
end
//
DELIMITER;
```

// OUTPUT



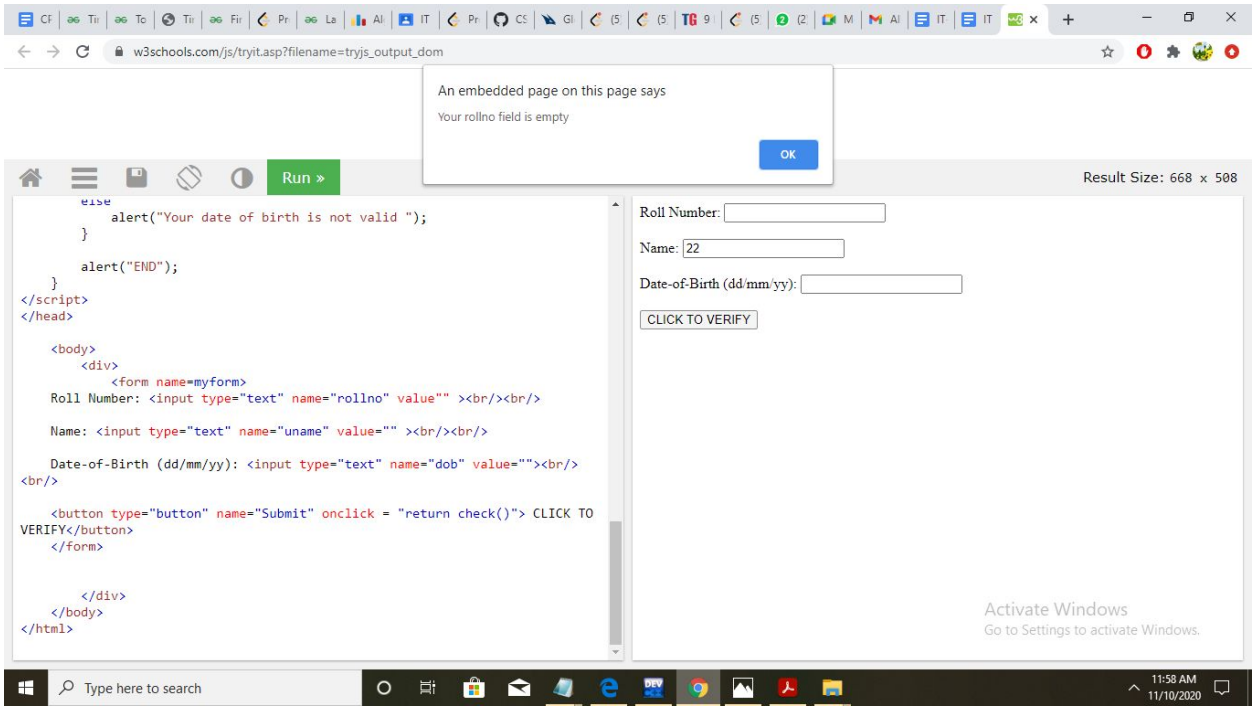
JAVASCRIPT PRACTICALS

Q1. Create a student registration form. Create functions to perform the following checks:
a. Roll number is a 7 digit numeric value
b. Name should be an alphabetical value (String)
c. DOB entered in dd/mm/yy format and should be display in words (e.g. Saturday, January 01, 2000)
d. Check on non-empty fields

```
<html>
   <head>
      <title> Student Registration Form </title>
  <script>

          function check()
          {
          alert("HELLO, WELCOME");
          var rollno =document.myform.elements[0].value
          var uname=document.myform.elements[1].value
          var dob = document.myform.elements[2].value

             if(rollno =="" || rollno == null)
             {      alert("Your rollno field is empty");
                    document.myform.elements[0].focus();
                    }
             else
             {      if(/^\d+$/.test(rollno))
```

```
		{	if(rollno.length==7)
				alert("Your rollno field is valid !!!");
			else
				alert("Warning : Roll No. should contain 7 digits");
		}
		else
			alert("Rollno should be a number");
	}

	if(uname =="" ||uname== null)
	{   alert("Your name field is empty");
		document.myform.elements[1].focus();
	}
	else
	  {
		if(/^[a-zA-Z ]+$/.test(uname))
		{
			alert("Your name is valid !!!");
		}
		else
		{
			alert("Your name is not valid !!!");
		}
	}

	if(dob =="" ||dob== null)
	{
		alert("Your Date-of-Birth field is empty");
		document.myform.elements[2].focus();
	}
	else
	{
		//regular expression
		var frmat= /^(0?[1-9]|[12][0-9]|3[01])[\/](0?[1-9]|1[012])[\/]\d{2}$/;

		//Check whether valid dd/MM/yy Date format
		if(frmat.test(dob))
		{
			alert("Your date of birth is valid ");
			var parts=dob.split('/');
			var mydt = new Date(parts[2],parts[1]-1,parts[0]);
			var days =
["Sunday","Monday","Tuesday","Wednesday","Thursday","Friday","Saturday"];
```

```
                        var day = days[mydt.getDay()];
                        var months = ["January", "February", "March", "April", "May", "June",
"July", "August", "September", "October", "November", "December"];
                        var mon = months[mydt.getMonth()];
                        var dt = mydt.getDate();
                        var yr = mydt.getFullYear();
                        alert("You were born on "+day+", "+dt+" "+mon+" "+ yr);
                }
                else
                        alert("Your date of birth is not valid ");
            }

                alert("END");
        }
</script>
</head>

   <body>
      <div>
         <form name=myform>
         Roll Number: <input type="text" name="rollno" value"" ><br/><br/>

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

         Date-of-Birth (dd/mm/yy): <input type="text" name="dob" value=""><br/><br/>

         <button type="button" name="Submit" onclick = "return check()"> CLICK TO
VERIFY</button>
         </form>


      </div>
   </body>
</html>

// OUTPUT
```

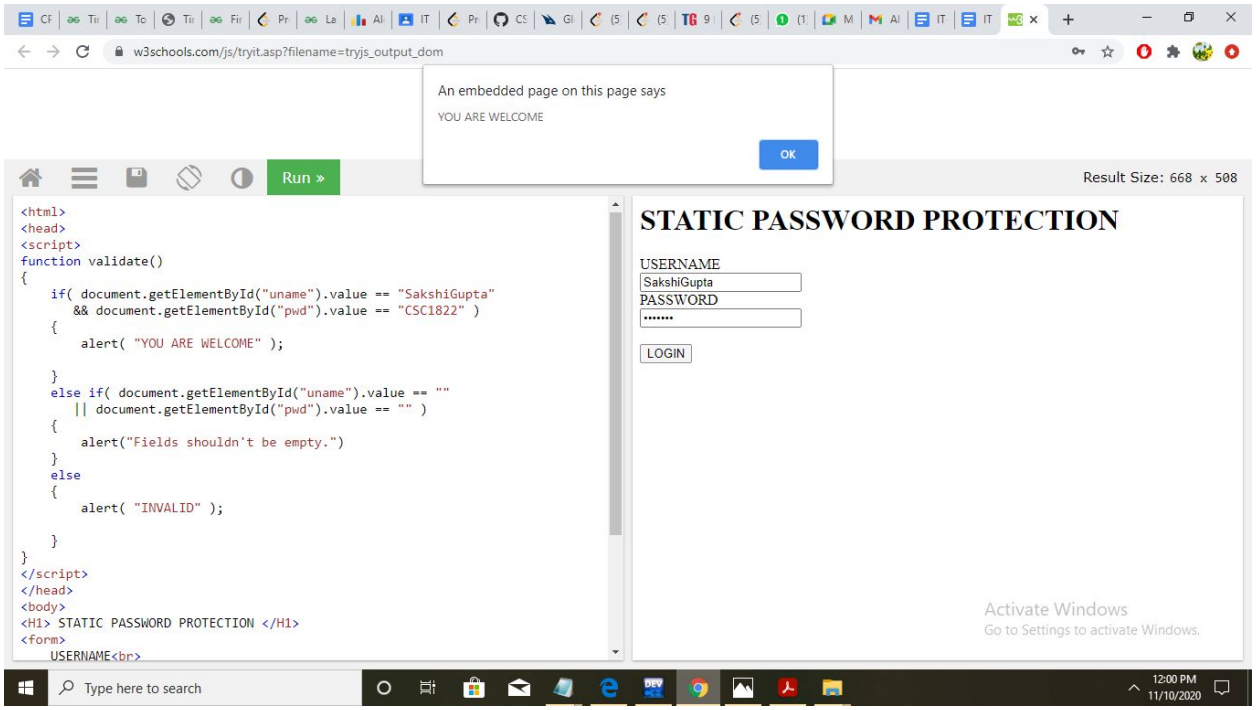


Q2 Implement a Static Password Protection.

```
<html>
<head>
<script>
function validate()
{
   if( document.getElementById("uname").value == "SakshiGupta"
      && document.getElementById("pwd").value == "CSC1822" )
   {
       alert( "YOU ARE WELCOME" );

   }
   else if( document.getElementById("uname").value == ""
      || document.getElementById("pwd").value == "" )
   {
       alert("Fields shouldn't be empty.")
   }
   else
   {
       alert( "INVALID" );
```

```
    }
}
</script>
</head>
<body>
<H1> STATIC PASSWORD PROTECTION </H1>
<form>
    USERNAME<br>
   <input type="text" placeholder="Username" id="uname" /><br>
    PASSWORD<br>
    <input type="password" placeholder="Password" id="pwd" /><br><br>
    <input type="button" value="LOGIN"  onclick="validate()" />
</form>

</body>
</html>
```

//OUTPUT



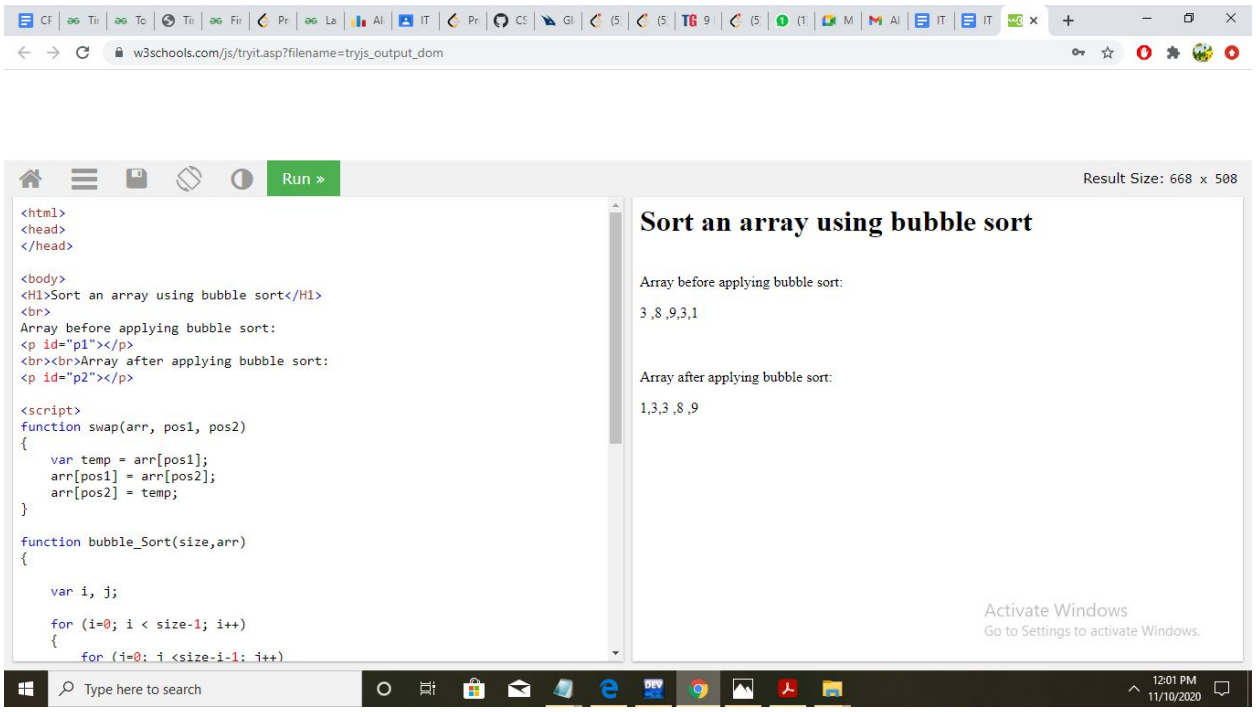
Q3. Write a java script to sort an array using bubble sort. Take the number of elements and array from user.

```
<html>
```

```
<head>
</head>

<body>
<H1>Sort an array using bubble sort</H1>
<br>
Array before applying bubble sort:
<p id="p1"></p>
<br><br>Array after applying bubble sort:
<p id="p2"></p>

<script>
function swap(arr, pos1, pos2)
{
   var temp = arr[pos1];
   arr[pos1] = arr[pos2];
   arr[pos2] = temp;
}

function bubble_Sort(size,arr)
{

   var i, j;

   for (i=0; i < size-1; i++)
   {
      for (j=0; j <size-i-1; j++)
      {
         if (arr[j] > arr[j+1])
            swap(arr, j, j+1);
      }
   }
   return arr;
}

var arr = [];
var size = prompt('Give the size of an array');

for(var i=0; i<size; i++)
{
         arr[i] = prompt('Enter Element of an array');
}
document.getElementById("p1").innerHTML = arr;
```

```
bubble_Sort(size,arr);
document.getElementById("p2").innerHTML = arr;

</script>

</body>
</html>
```

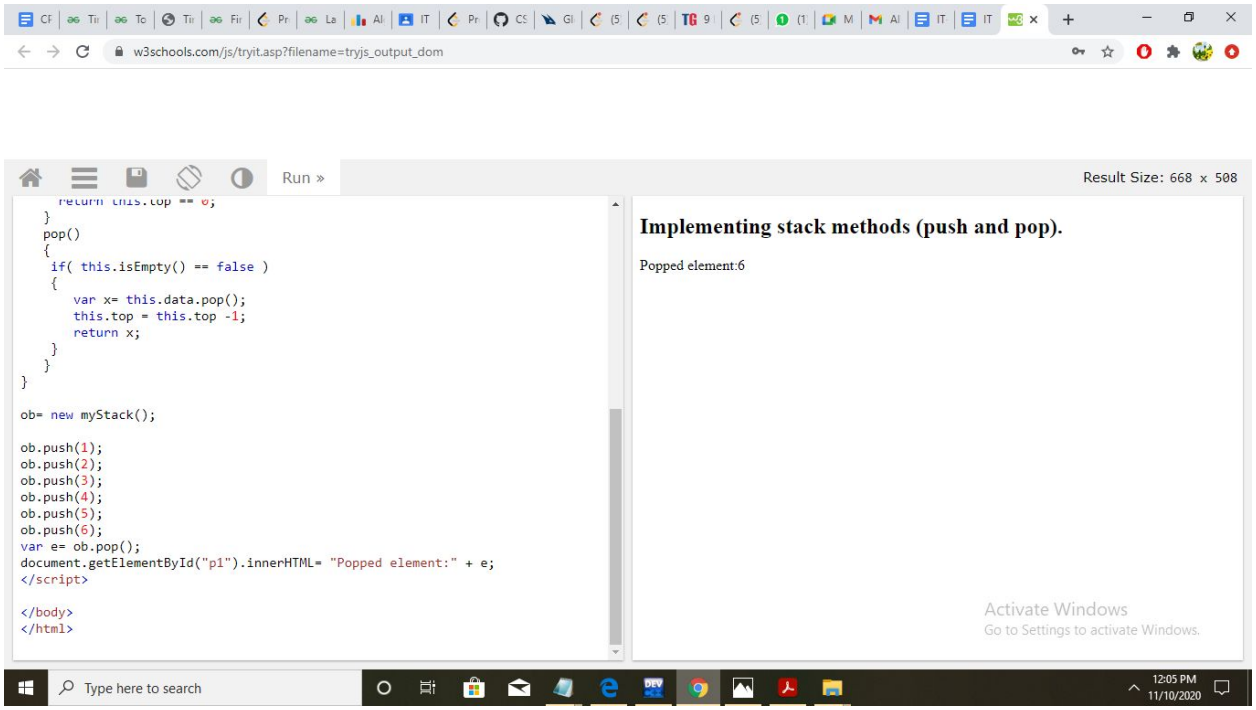
//OUTPUT



Q4. Write a JavaScript to implement stack methods (push and pop).

```
<!DOCTYPE html>
<html>
<body>

<h2>Implementing stack methods (push and pop).</h2>

<p id="p1"></p>

<script>
class myStack
```

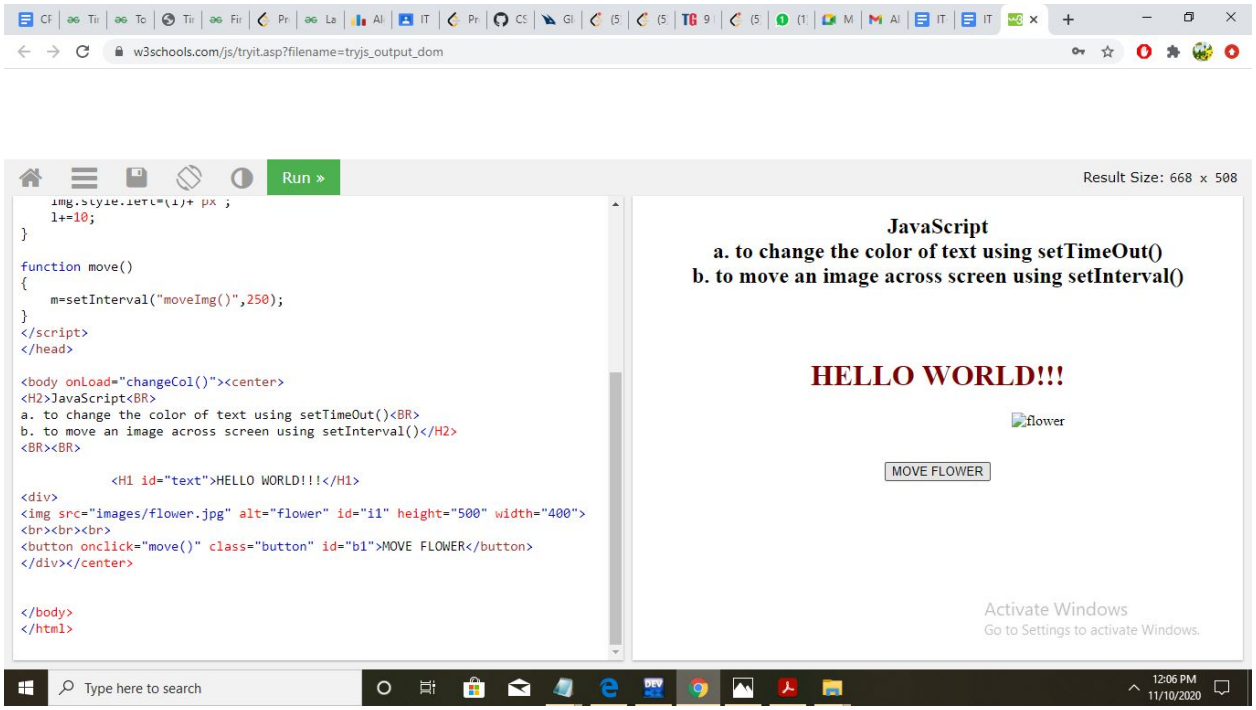
```
{
    constructor()
    {
        this.data = [];
        this.top = -1;
    }
    push(el)
    {
      this.top = this.top + 1;
      this.data[this.top] = el;
    }
   isEmpty()
   {
     return this.top == 0;
   }
   pop()
   {
    if( this.isEmpty() == false )
    {
       var x= this.data.pop();
       this.top = this.top -1;
       return x;
    }
   }
}

ob= new myStack();

ob.push(1);
ob.push(2);
ob.push(3);
ob.push(4);
ob.push(5);
ob.push(6);
var e= ob.pop();
document.getElementById("p1").innerHTML= "Popped element:" + e;
</script>

</body>
</html>

//OUTPUT
```



Q5.Write a JavaScript
a. to change the color of text using setTimeOut()
b. to move an image across screen using setInterval()

```
<!DOCTYPE html>
<html>
<head>
<script>
var l=0;
var m;
function changeCol()
{
  setTimeout(()=>{document.getElementById("text").style.color="maroon";},     5000);
}

function moveImg()
{
        var img = document.getElementById("i1");
        img.style.position="relative";
        img.style.left=(l)+"px";
```

```
        l+=10;
}

function move()
{
        m=setInterval("moveImg()",250);
}
</script>
</head>

<body onLoad="changeCol()"><center>
<H2>JavaScript<BR>
a. to change the color of text using setTimeOut()<BR>
b. to move an image across screen using setInterval()</H2>
<BR><BR>

                        <H1 id="text">HELLO WORLD!!!</H1>
<div>
<img src="images/flower.jpg" alt="flower" id="i1" height="500" width="400"><br><br><br>
<button onclick="move()" class="button" id="b1">MOVE FLOWER</button>
</div></center>


</body>
</html>

//OUTPUT
```



Q6. Implement the question no. 1 of hands on exercises of chapter 10 (page 190).

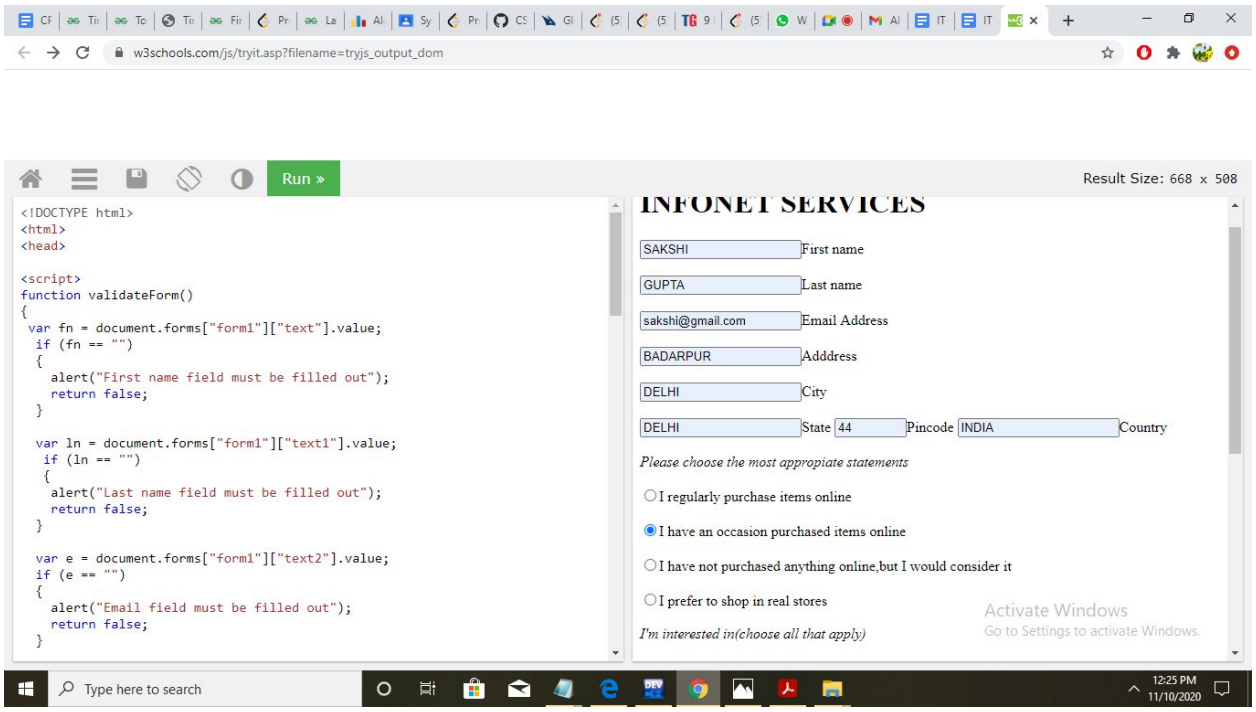
```
<!DOCTYPE html>
<html>
<head>

<script>
function validateForm()
{
 var fn = document.forms["form1"]["text"].value;
  if (fn == "")
  {
    alert("First name field must be filled out");
    return false;
  }

  var ln = document.forms["form1"]["text1"].value;
   if (ln == "")
   {
    alert("Last name field must be filled out");
    return false;
```

```
}

var e = document.forms["form1"]["text2"].value;
if (e == "")
{
  alert("Email field must be filled out");
  return false;
}

var add = document.forms["form1"]["text3"].value;
if (add == "")
{
  alert("Address field must be filled out");
  return false;
}

var c = document.forms["form1"]["text4"].value;
if (c == "")
{
  alert("City field must be filled out");
  return false;
}

var s = document.forms["form1"]["text5"].value;
if (s == "")
{
  alert("State field must be filled out");
  return false;
}

var pin = document.forms["form1"]["text6"].value;
if (pin == "")
{
  alert("Pincode field must be filled out");
  return false;
}

var cy = document.forms["form1"]["text7"].value;
if (cy == "")
{
  alert("Country field must be filled out");
  return false;
}
```

```
  else
  alert("All data is filled out");
}
</script>
</head>

<body>
<H1>INFONET SERVICES</H1>
<form name="form1" action="/action_page.php" onsubmit="return validateForm()"
method="post">

 <input name ="text" Type = "Text" >First name<br/><br/>
<input name ="text1" Type = "Text">Last name<br/><br/>
<input name ="text2" Type = "Text">Email Address<br/><br/>
<input name ="text3" Type = "Text">Adddress<br/><br/>
<input name ="text4" Type = "Text">City<br/><br/>
<input name ="text5" Type = "Text">State
<input name ="text6" Type = "Text" size = 6>Pincode
<input name ="text7" Type = "Text"/>Country<br/><br/>

<i>Please choose the most appropiate statements</i><br/><br/>
<input name="radio" type="Radio" />I regularly purchase items online<br/><br/>
<input name="radio" type="Radio" />I have an occasion purchased items online<br/><br/>
<input name="radio" type="Radio" />I have not purchased anything online,but I would consider
it<br/><br/>
<input name="radio" type="Radio" />I prefer to shop in real stores<br/><br/>

<i>I'm interested in(choose all that apply)</i><br/><br/>
<input name= "Check" Type = "CheckBox"/>Hiking<br/><br/>
<input name= "Check" Type = "CheckBox"/>Camping<br/><br/>
<input name= "Check" Type = "CheckBox"/>Rock climbing<br/><br/>
<input name= "Check" Type = "CheckBox"/>Off-Road 4WD<br/><br/>
<input name= "Check" Type = "CheckBox"/>Cross-Country Skiing<br/><br/>

<label for="Sites">I learned about this site from</label>
  <select name="site" id="Sites">
    <option value="printads">Print Ads</option>
    <option value="tv ads">TV Ads</option>
    <option value="another">Another</option>
  </select>
  <br><br>

<H4>Comments</H4>
```

```
<textarea rows="6" cols="60" name="comment">
Please type any comments here</textarea>
<br><br>
<input type="submit" value="Submit">
<input type="reset" value="Start Over"/>
</form>

</body>
</html>
```

//OUTPUT



JSP PRACTICALS

Q1 Display the pattern:

1
1 2
1 2 3

Take ‘n’ in a textbox from the user.

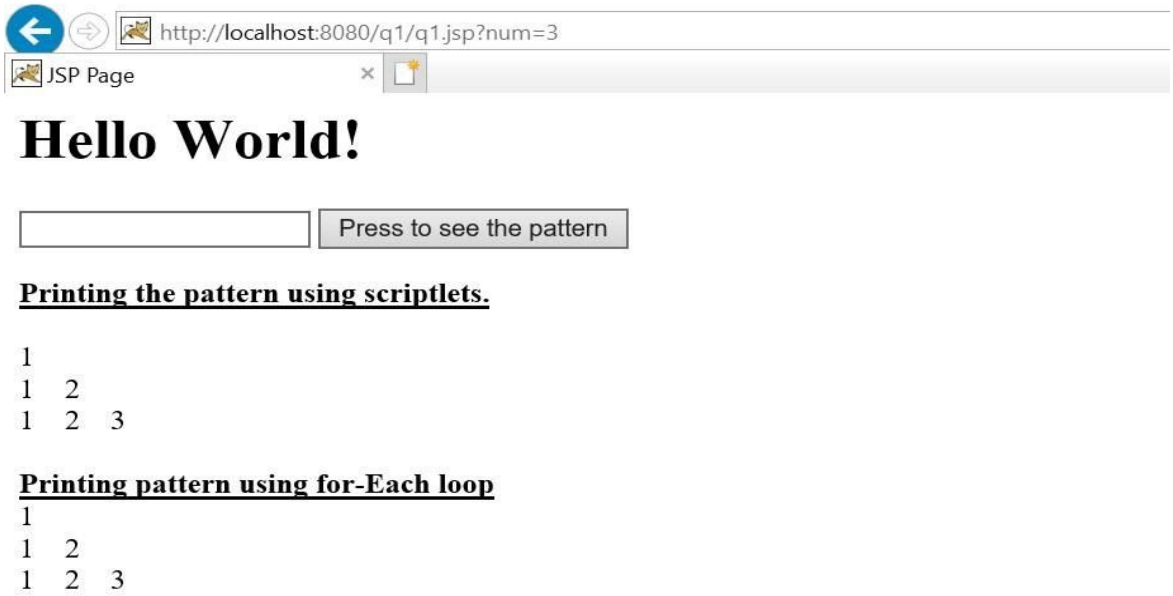
Display this pattern using

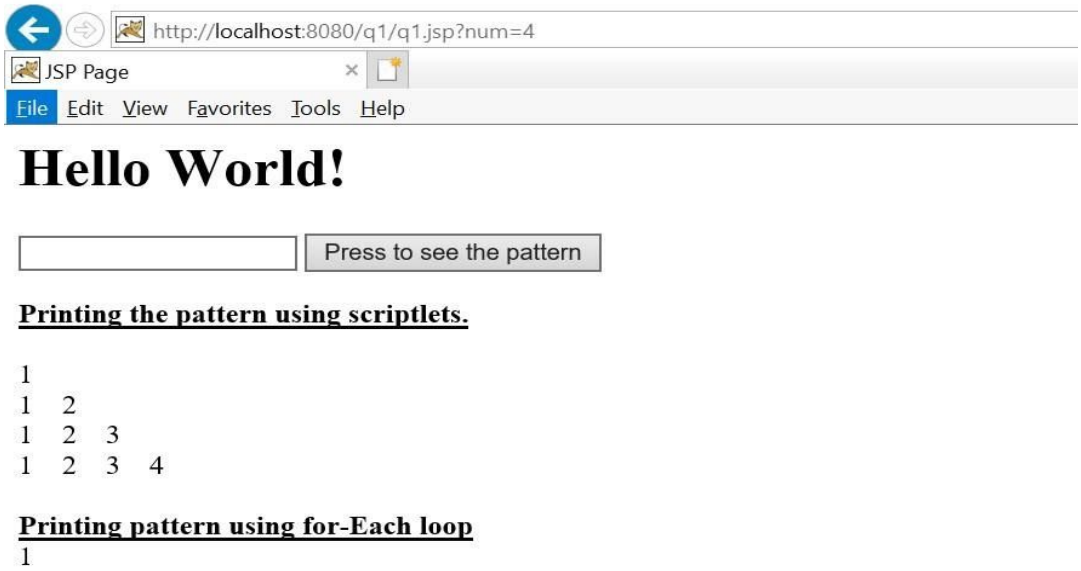
---> Scriptlets
---><c:forEach> loop

```
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<%@page contentType="text/html" pageEncoding="UTF-8" language="java"%>


<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>JSP Page</title>
   </head>
   <body>
      <h1>Hello World!</h1>
      <form action="q1.jsp" method="GET">
         <input type =text" name="num" onclick = "this.select()"/>
         <input type="submit" value="Press to see the pattern"/>
      </form>
      <%
         String r = request.getParameter("num");
         if(r!=null && r!=""){
          int n = Integer.parseInt(r);
          out.println("<U><B>Printing the pattern using
         scriptlets.</U></B><BR/><BR/>");
             if(n>=1){
          for(int i=0;i<n;i++)
         {
                   for(int j=1;j<=i+1;j++)
                   out.println(j+"   
                   ;");
                   out.println("<BR/>");
               }
            }
         }
```

```
        %>


        <c:if test="${param.num!=null}">
            <BR/> <U><B> Printing pattern using for-Each loop </U></B><BR/>
            <c:forEach begin="1" end="${param.num}" var="i">
                <c:forEach begin="1" end="${i}" var="j">
                    <c:out value="${j}"/>   
                </c:forEach>
                <BR/>
            </c:forEach>
        </c:if>
    </body>
</html>
```

//OUTPUT-





Q2 Make two files as follows:

a. main.html: shows 2 text boxes and 3 radio buttons with values "addition", "subtraction" and "multiplication"

b. operate.jsp: depending on what the user selects perform the corresponding function (Give two implementations: using request.getParameter() and using expression language)

main.html

```
<!-- Make two files →

<html>
   <head>
      <title>Operations Form Page</title>
   </head>
   <body>
```

```
<div>Calculator for Addition/Subtraction/Multiplication</div>
<form name="myForm" action="operate.jsp">
   <table>
      <thead>
         <tr>
            <th>Number</th>
            <th>Operation</th>
         </tr>
      </thead>
      <tbody>
         <tr>
            <td>First Number</td>
            <td><input type="text" name="num1" value="0"
onfocus="this.select()"/></td>
         </tr>
         <tr>
            <td>Second Number</td>
            <td><input type="text" name="num2" value="0"
onfocus="this.select()"/></td>
         </tr>
         <tr>
            <td>Operation:</td>
            <td>
               Addition<input type="radio" name="operation" value="addition"
checked />
               <br/>Subtraction<input type="radio" name="operation"
value="subtraction" />
               <br/>Multiplication<input type="radio" name="operation"
value="multiplication" />
            </td>
         </tr>
         <tr>
            <td>Output:</td>
            <td><input type="submit" value="Compute" name="compute" /></td>
         </tr>
      </tbody>
   </table>


</form>
```

```
   </body>
</html>
```

operate.jsp :

```
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>Output Page</title>
   </head>
   <body>
      <h1>Here is the result:</h1>
      <table border="1">
         <thead>
            <tr>
               <th>Using "request.getParameter()"</th>
               <th>Using Expression Language</th>
            </tr>
         </thead>
         <tbody>
            <tr>
               <td>
                  <%
                                                int
          r=Integer.parseInt(request.getParameter("num1"));
         int s=Integer.parseInt(request.getParameter("num2"));
                     String op = request.getParameter("operation");
                                          switch(op){
case "addition": out.println("<B>RESULT:"+(r+s)+"</B>");
                           break;
                           case "subtraction": out.println("<B>RESULT:"+(r-s)+"</B>");
                           break;
                           case "multiplication": out.println("<B>RESULT:"+(r*s)+"</B>");
                           break;
                           default: out.println("<BR/>No operation<BR/>");
```

```
                }
            %>
             <BR/>



        </td>
        <td>



            <c:set var="oper" value="${param.operation}"/>
            <c:set var="num1" value= "${param.num1}"/>
            <c:set var="num2" value= "${param.num2}"/>
            <c:choose>
               <c:when test="${oper == 'addition'}">
                  <c:out value="${param.num1 + param.num2}"/>
               </c:when>
               <c:when test= "${oper== 'subtraction'}">
                  <c:out value="${param.num1 - param.num2}"/>
               </c:when>
               <c:when test= "${oper=='multiplication'}">
                  <c:out value="${param.num1 * param.num2}"/>
               </c:when>
               <c:otherwise>
                  <c:out value="No operation"/>
               </c:otherwise>
            </c:choose>



         </td>
      </tr>


   </tbody>
</table>


</body>
</html>
```

//OUTPUT
Calculator for Addition/Subtraction/Multiplication

Number **Operation**

34
First Number

87
Second Number

Addition
Subtraction
Operation:
Multiplication

Output: Compute

Here is the result:

Using "request.getParameter()"	Using Expression Language
RESULT:121	121

Q3 Validate User input entered in a form. The input must include Name, DOB, Email ID, Lucky Number, Favorite food etc.

---pagevalidate.jsp---

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@taglib uri="http://java.sun.com/jsp/jstl/core"  prefix="c"%>
<%@taglib uri="http://java.sun.com/jsp/jstl/functions" prefix="fn"%>
<!DOCTYPE html>
<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>JSP Page</title>
   </head>
```

```
   <body>
      <c:set var="uname" value="${param.uname}"/>
      <c:set var="dob" value="${param.dob}"/>
      <c:set var="Id" value="${param.Id}"/>
      <c:set var="lno" value="${param.lno}"/>
      <c:set var="food" value="${param.food}"/>



      <c:if var = "cur" test="${uname == '' || dob == '' || Id == ''  || lno == ' ' || food == '
'}">
          <p style="font: bolder; color: red">NO FIELD CAN BE LEFT UNFILLED!</p>
           <jsp:include page="newhtml.html"/>
      </c:if>


           <c:if test = "${cur==false}">
              <p style="font: bolder; color: darkblue">WELCOME </p>
              <c:out value="${uname}"/><br/><br/>
           </c:if>
   </body>
</html>
```

---newhtml.html---

```
<html>
   <head>
      <title> User validation Form </title>
  <script>



           function check()

          {


          alert("alert”);
```

```
        var Id=document.myform.elements[0].value
var uname=document.myform.elements[1].value
var dob = document.myform.elements[2].value
var lno = document.myform.elements[3].value
var food = document.myform.elements[4].value

            if(Id =="" || Id == null)
          {     alert("Your EmailId field is empty");
document.myform.elements[0].focus();
                }


          if(uname =="" ||uname==
null)      {  alert("Your name field is
empty");
                  document.myform.elements[1].focus();
                }


els
e

{

                  if(/^[a-zA-Z ]+$/.test(uname))
                {
                        alert("Your name is valid !!!");
```

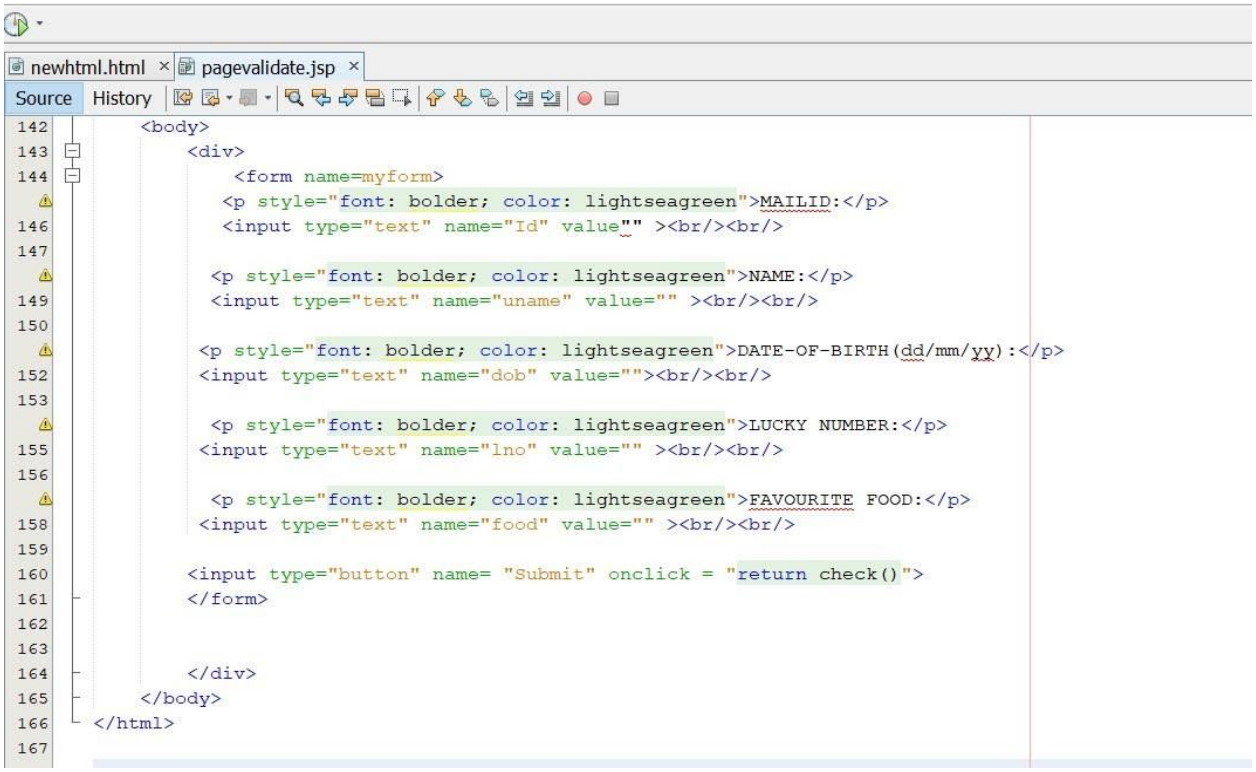
```
                }
                else
                {
                        alert("Your name is not valid !!!");
                }
            }

              if(dob =="" ||dob== null)
               {   alert("Your Date-of-Birth field is empty");
                   document.myform.elements[2].focus();
                }
            else
            {//regular expression                    var frmat=
/^(0?[1-9]|[12][0-9]|3[01])[\/](0?[1-9]|1[012])[\/]\d{2}$/;




                //Check whether valid dd/MM/yy Date format
if(frmat.test(dob))
                {
                        alert("Your date of birth is valid ");
                var parts=dob.split('/');
var mydt = new Date(parts[2],parts[1]-1,parts[0]);
                        var days =
["Sunday","Monday","Tuesday","Wednesday","Thursday","Friday","Saturday"];

                         var day = days[mydt.getDay()];
                           var months = ["January", "February", "March", "April", "May",
"June", "July", "August", "September", "October", "November", "December"];
```

```
                    var mon = months[mydt.getMonth()];
                    var dt = mydt.getDate();
                   var yr = mydt.getFullYear();
alert(" You were born on "+day+", "+dt+" "+mon+" "+
yr);
}
 else
          alert("Your date of birth is not valid ");
            }


                    alert("1111111111");
         }

      if(lno =="" ||lno== null)
                {   alert("Your lucky number field is empty");
                    document.myform.elements[3].focus();
                  }


Els
e
{

                     if(/^[0-9 ]+$/.test(lno))
                   {
                              alert("Your number is valid !!!");
```

```
                }
                else
                {
                        alert("Your number is not valid !!!");
                }
            }
        if(food =="" ||food== null)
            {   alert("Your favourite food field is empty");
                document.myform.elements[4].focus();
                }


els
e

{

                if(/^[a-zA-Z ]+$/.test(food))
                {
                        alert("It is valid !!!");


                }
                else
                {
                        alert("It is not valid !!!");
                }
            }
</script>
```

```
  </head>
   <body>
      <div>
         <form name=myform>
            <p style="font: bolder; color: lightseagreen">MAILID:</p>
          <input type="text" name="Id" value"" ><br/><br/>

        <p style="font: bolder; color: lightseagreen">NAME:</p>
              <input type="text" name="uname" value="" ><br/><br/>

           <p style="font: bolder; color:
lightseagreen">DATE-OF-BIRTH(dd/mm/yy):</p>     <input type="text" name="dob"
value=""><br/><br/>

        <p style="font: bolder; color: lightseagreen">LUCKY NUMBER:</p>
<input type="text" name="lno" value="" ><br/><br/>

        <p style="font: bolder; color: lightseagreen">FAVOURITE FOOD:</p>
<input type="text" name="food" value="" ><br/><br/>

              <input type="button" name= "Submit" onclick = "return check()">
           </form>


      </div>
   </body>
</html>
```

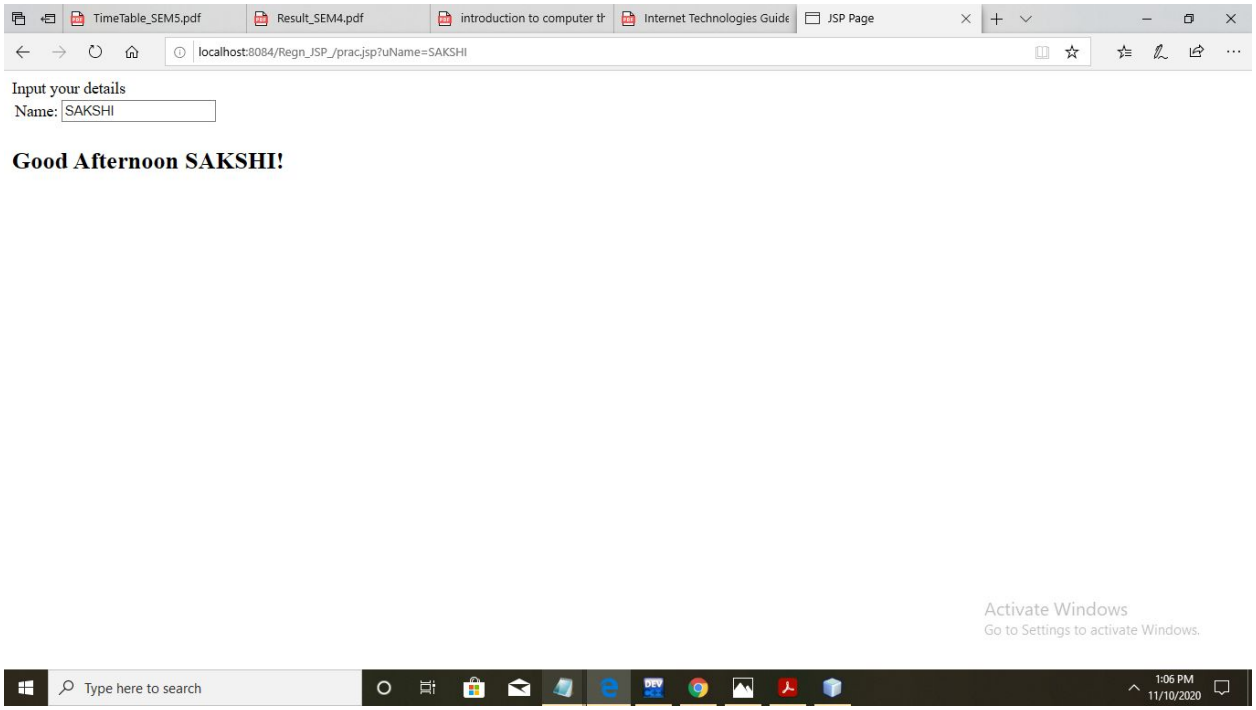
---newhtml.html---



Q4 Display Good Morning <uname>, Good Afternoon <uname> or Good Evening <uname> based on the current time of the day.

```
<%@page import="java.time.LocalDateTime"%>
<%@page import="java.util.Calendar"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>JSP Page</title>
   </head>
   <body>
      <div>Input your details</div>
      <form action="prac.jsp" method="get">
```

```
        <table>
            <tr>
                <td>Name:</td><td><input type="text" name="uName" value =
"${param.uName!=null ? param.uName: ''}"
                                placeholder="Type your name here: "></td>
            </tr>
            <tr>


        </table>
        </form>


        <%            int hr =
LocalDateTime.now().getHour();



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


            if(uname!="" && uname!=null ){
if(hr<12 && hr>4)
out.println("<H2>Good Morning "+ uname
+"! </H2>");                else if(hr>12 &&
hr<16)
out.println("<H2>Good Afternoon "+
uname +"! </H2>");
                else if(hr<20)
                    out.println("<H2>Good Evening "+ uname +"! </H2>");
            }
        %>
    </body>


</html>
//OUTPUT
```



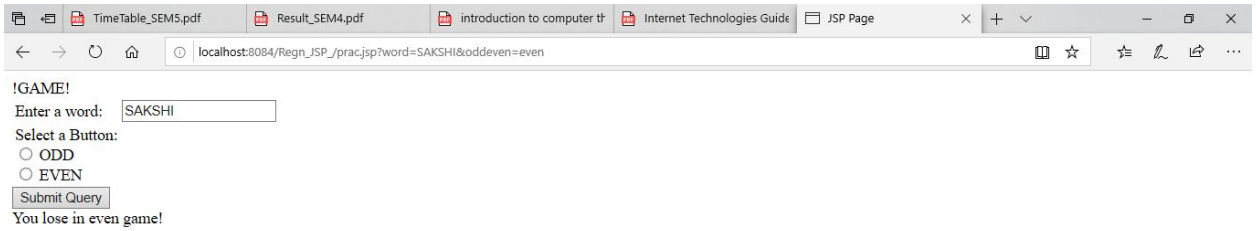
Q5 Let the user enter a word a in a textbox and let her/him select one of even or odd radio buttons. If she/he selects odd, check the odd positions in the word entered, if they all contain vowels, then display the message 'You win', else display 'You lose'. Similarly, if the user selects even, check for vowels in all even positions in the word entered. Use jstl's 'fn' library.

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@taglib uri="http://java.sun.com/jsp/jstl/functions" prefix="fn" %>
<%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>

<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <div>!GAME!</div>
        <form action="prac.jsp" method="get">
```

```
      <table>
         <tr>
            <td>Enter a word:</td><td><input type="text" name="word" value =
"${param.word!=null ? param.word: ''}"
                                 placeholder="Type a word here and press enter"></td>
         </tr>
         <tr>
            <td>
               Select a Button:<BR/>
               <input type="radio" name="oddeven" value="odd"/> ODD <BR/>
               <input type="radio" name="oddeven" value="even"/> EVEN <BR/>
            </td>


      </table>
                                 <input type="submit"/><br/>
      </form>


      <c:set var="winflag" value="t"/>
      <c:set var="word" value="${param.word}"/>


      <c:if test = "${param.oddeven == 'odd'}">
         <c:forEach var="i" begin="0" end="${param.word.length()-2}" step="2">
            <c:choose>
               <c:when test="${fn:substring(word,i,i+1)=='a' ||
fn:substring(word,i,i+1)=='e'|| fn:substring(word,i,i+1)=='i'||
fn:substring(word,i,i+1)=='o'|| fn:substring(word,i,i+1)=='u'}">
                  <c:set var = "winflag" value = 't'/>
               </c:when>
               <c:otherwise>
                  <c:set var = "winflag" value = 'f'/>
                  <c:set var = "i" value = "${param.word.length()}"/>
               </c:otherwise>
            </c:choose>


         </c:forEach>
         <c:if test="${winflag == 't'}">
            <c:out value="You win in odd game! "/>
         </c:if>
         <c:if test="${winflag == 'f'}">
            <c:out value="You lose in odd game! "/>
         </c:if>
```

```
      </c:if>
      <c:if test = "${param.oddeven == 'even'}">
         <c:forEach var="i" begin="1" end="${param.word.length()-1}" step="2">
            <c:choose>
               <c:when test="${fn:substring(word,i,i+1)=='a' ||
fn:substring(word,i,i+1)=='e'|| fn:substring(word,i,i+1)=='i'||
fn:substring(word,i,i+1)=='o'|| fn:substring(word,i,i+1)=='u'}">
                  <c:set var = "winflag" value = 't'/>
               </c:when>
               <c:otherwise>
                  <c:set var = "winflag" value = 'f'/>
                  <c:set var = "i" value = "${param.word.length()}"/>
               </c:otherwise>
            </c:choose>
         </c:forEach>
         <c:if test="${winflag == 't'}">
            <c:out value="You win in even game! "/>
         </c:if>
         <c:if test="${winflag == 'f'}">
            <c:out value="You lose in even game! "/>
         </c:if>
      </c:if>
   </body>
</html>
```

//OUTPUT



Q6 Create your custom library which contains two tags: <hello>, <choco>.
Usage of the tags:

- <hello name="Ajay">: Output should be Hello Ajay. It contains a mandatory attribute 'name' which can accept Dynamic value.
- <choco texture="Chewy">: Output should be FiveStar, BarOne.

<choco texture="Crunchy">: Output should be Munch. KitKat.

That means the mandatory attribute must accept a value, and based on the attributes value, it should give output. You must use a bean ChocoBean for this purpose.

---HelloTag.java---

```
package mypkg;
import java.io.IOException; import
javax.servlet.jsp.tagext.*;
public class HelloTag extends
SimpleTagSupport {
private String name = "";
 public void setName(String k)
{
      name=k;
   }
   public void doTag() throws IOException
{       getJspContext().getOut().println("Hello "+name);
   }
}
```

---ChocoBean.java---

```
package mypkg;

import java.io.IOException; import
java.io.StringWriter; import
javax.servlet.jsp.JspWriter; import
javax.servlet.jsp.tagext.SimpleTagSupport;


public class ChocoBean extends SimpleTagSupport{
   private String texture ="";
public void setTexture(String
m)
{
  texture = m;
   }
   public void doTag() throws IOException{

      JspWriter out =
getJspContext().getOut();
if(texture.equalsIgnoreCase("Chewy"))
out.println("FiveStar, BarOne");        else
if(texture.equalsIgnoreCase("Crunchy"))
out.println("Munch, Kitkat");


   }
}
```

---custom.tld---

```
<?xml version="1.0" encoding="UTF-8"?>
<taglib version="2.1" xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-jsptaglibrary_2_1.xsd">
  <tlib-version>1.0</tlib-version>
```

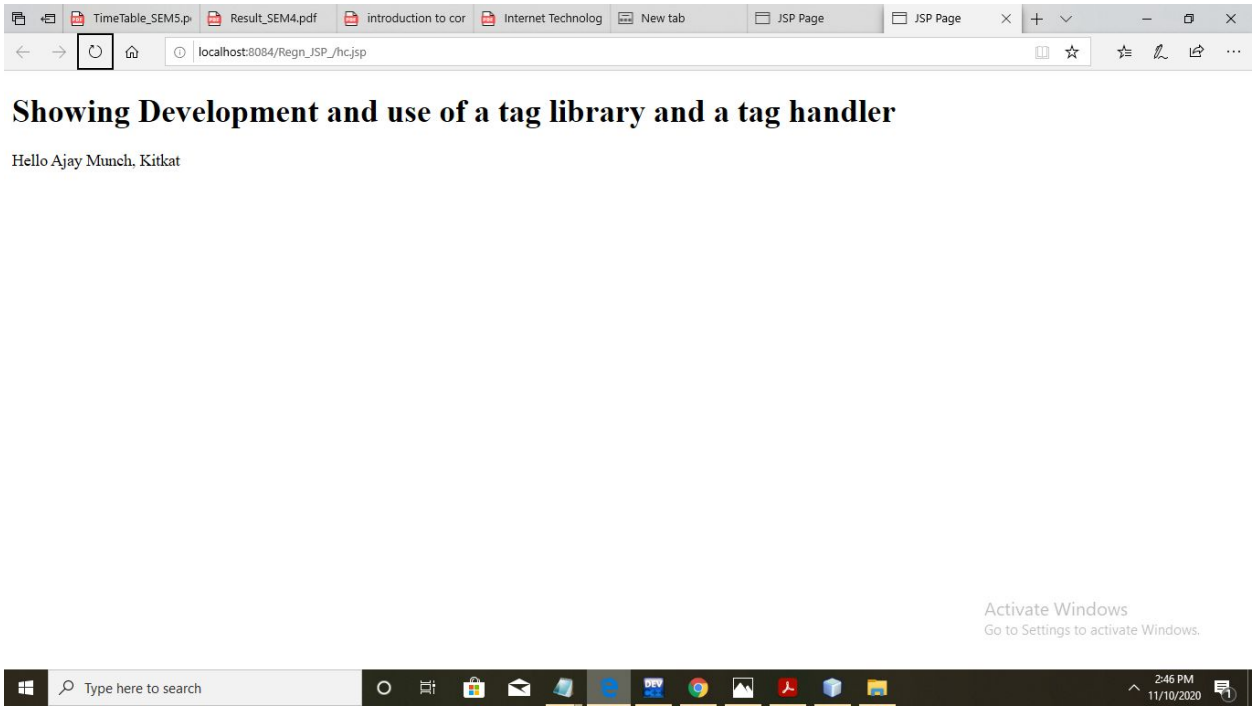
```
  <short-name>custom</short-name>
  <uri>/WEB-INF/tlds/custom</uri>
  <tag>
     <name>Hello</name>
     <tag-class>mypkg.HelloTag</tag-class>
     <attribute>
        <name>name</name>
        <required>true</required>
        <type>String</type>
     </attribute>
     <body-content>empty</body-content>
  </tag>
  <tag>
     <name>choco</name>
     <tag-class>mypkg.ChocoBean</tag-class>
     <attribute>
        <name>texture</name>
        <required>true</required>


        <type>String></type>
     </attribute>
     <body-content>empty</body-content>
  </tag>
</taglib>
```

---hc.jsp---

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>JSP Page</title>
   </head>
   <body>
      <h1>Showing Development and use of a tag library and a tag handler</h1>
      <%@taglib uri="/WEB-INF/tlds/custom.tld" prefix="m"%>
      <m:Hello name="Ajay"/>
      <m:choco texture="crunchy"></m:choco>


   </body>
```

</html>

//OUTPUT



Q7 & Q8 Create a custom tag “substring” with 3 mandatory attributes “input”, “start”, “end” which will do substring operation on given input .Create a custom tag “reverse” with a mandatory attribute “input” to reverse a string.

---Substringreverse.tld---

```
<?xml version="1.0" encoding="UTF-8"?>
<taglib version="2.1" xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-jsptaglibrary_2_1.xsd">
```

```
<tlib-version>1.0</tlib-version>
<short-name>substringreverse</short-name>
<uri>/WEB-INF/tlds/Substringreverse</uri>
<jsp-version>2.0</jsp-version>


<tag>
    <name>Substring</name>
    <tag-class>pkg.CustomTag</tag-class>
    <body-content>scriptless</body-content>
    <attribute>
        <name>input</name>
        <fragment>true</fragment>
        <type>String</type>
        <required>true</required>
    </attribute>
    <attribute>
        <name>start</name>
        <fragment>true</fragment>
        <type>Integer</type>
        <required>true</required>
    </attribute>
    <attribute>
        <name>end</name>
        <fragment>true</fragment>
        <type>Integer</type>
        <required>true</required>
    </attribute>
</tag>


<tag>
    <name>Reverse</name>
    <tag-class>pkg.CustomTag</tag-class>
    <body-content>scriptless</body-content>
    <attribute>
        <name>s</name>
        <required>true</required>
        <fragment>true</fragment>
        <type>String</type>
    </attribute>
</tag>
</taglib>
```

---CustomTag.java---

```
package pkg; import
javax.servlet.jsp.*; import
javax.servlet.jsp.tagext.*;
import java.io.*;  import
java.io.Serializable;

public class CustomTag extends SimpleTagSupport implements Serializable {          private
String input, s;      private int start, end;

    public void setS(String s) {
this.s = s;
    }

    public void setInput(String input) {
this.input = input;
    }

    public void setStart(int start) {
this.start = start;
    }

    public void setEnd(int end) {
this.end = end;
    }
```

```
    StringWriter sw = new StringWriter();


    public void doTag() throws JspException, IOException{
JspWriter out = getJspContext().getOut();
if(input!=null){
            String sub = input.substring(start, end);
out.println("Substring of the string is :- "+sub);
        }
        else if(s!=null){
            //String rev = s.substring(-1);
            StringBuilder inp = new
StringBuilder();              inp.append(s);
inp = inp.reverse();
out.println("Reversed String is :- "+ inp);


}
el
se
{
            getJspBody().invoke(sw);
getJspContext().getOut().println(sw.toString());
        }
    }


}
```

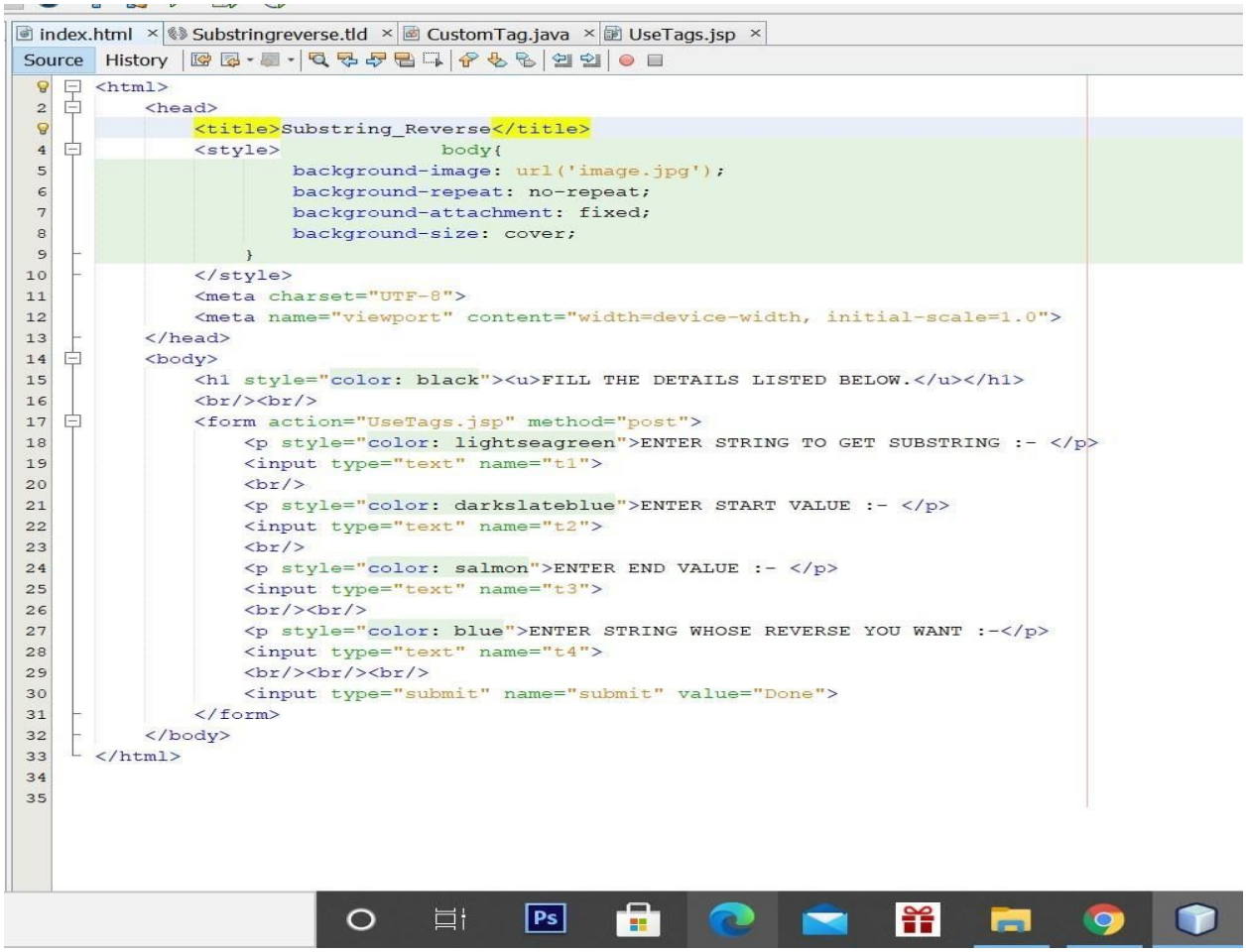
---UseTags.jsp---

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@taglib uri="/WEB-INF/tlds/Substringreverse.tld" prefix="m"%>
<!DOCTYPE html>
<html>
```

```
   <head>
      <style>                    body{
background-image: url('image.jpg');
background-repeat: no-repeat;
background-attachment: fixed;
background-size: cover;
         }
      </style>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>JSP Page</title>
   </head>
   <body>
      <%! String i, str, start,
end;         int s, e;%>


      <% i =
request.getParameter("t1");
str = request.getParameter("t4");
start = request.getParameter("t2");
s = Integer.parseInt(start);
end = request.getParameter("t3");
e = Integer.parseInt(end); %>
      <h1 style="color: blueviolet; text-align: center">THIS IS MY TAGS!</h1>
      <br/>
      <h3 style="color: seagreen">THIS IS SUBSTRING TAG.</h3>
      <br/>
      <h3 style="background-color: captiontext; color: steelblue"><m:Substring
input="<%= i%>" start="<%= s%>" end="<%= e%>">
         This is the body of substring tag.
      </m:Substring>
         </h3>
         <br/><br/>
          <h3 style="color: seagreen">THIS IS REVERSE TAG.</h3>
          <br/>
         <h3 style="color: darkcyan; background-color:
lightgoldenrodyellow"><m:Reverse s="<%= str%>">this id</m:Reverse></h3>
</body>
```

</html>

---index.html---


index.html
Substringreverse.tld
CustomTag.java
UseTags.jsp
Source
History
<html>
<head>
<title>Substring_Reverse</title>
<style> body{
background-image: url('image.jpg');
background-repeat: no-repeat;
background-attachment: fixed;
background-size: cover;
}
</style>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>
<body>
<h1 style="color: black"><u>FILL THE DETAILS LISTED BELOW.</u></h1>

<form action="UseTags.jsp" method="post">
ENTER STRING TO GET SUBSTRING :-
<input type="text" name="t1">

ENTER START VALUE :-
<input type="text" name="t2">

ENTER END VALUE :-
<input type="text" name="t3">

ENTER STRING WHOSE REVERSE YOU WANT :-
<input type="text" name="t4">

<input type="submit" name="submit" value="Done">
</form>
</body>
</html>
Ps

Q9 Create a custom tag "today" that displays today's date and time.
tld file

```
<?xml version="1.0" encoding="UTF-8"?>
<taglib version="2.1" xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-jsptaglibrary_2_1.xsd">
  <tlib-version>1.0</tlib-version>
  <jsp-version>2.0</jsp-version>
  <short-name>mytag</short-name>
  <uri>/tlds/mytag</uri>

  <tag>
     <name>Today</name>
     <tag-class>pk1.t1.timehandler</tag-class>
     <body-content>empty</body-content>
  </tag>


</taglib>
```

taghandler file

```
package pk1.t1;
import javax.servlet.jsp.*;
import javax.servlet.jsp.tagext.*;
import java.io.*;
import java.util.Calendar;
```

```
public class timehandler extends SimpleTagSupport {



    public void doTag() throws JspException,IOException{

          JspWriter out=getJspContext().getOut();
          out.println(Calendar.getInstance().getTime());
        }

    }
```

Jsp file

```
<%@taglib prefix="m" uri="/WEB-INF/tlds/mytag.tld"%>
<html>
    <head>
        <title>A simple tag</title>

    </head>
    <body>

        Today's date:<m:Today/>
    </body>
</html>
```

Q10 Ask a user's name and age on a HTML form. Then display Hello <uname> on a JSP. On the same page ask the product the user would like to buy. Then redirect to another
JSP which would display: Hello <uname>, You have ordered <product>. (Use

Session Scope Variable using setTag)

user.html --→ page1.jsp -→ page2.jsp

user.html

```
<!DOCTYPE html>
<html>
   <head>
      <title>User entry form</title>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
   </head>
   <body>
      <div>Enter your details: </div>
      <form name="form1" action="page1.jsp">
         <table>
            <tr><td>Your name:</td>
               <td>
                  <input type="text" name="uname" value="" /><br/><br/>
               </td>
            </tr>
            <tr>
               <td>Your age:</td>
```

```
                <td>
                    <input type="text" name="age" value="" /> <br/><br/>
                </td>
            </tr>
        </table>

        <input type="submit" value="OK" name="ok" />
    </form>
  </body>
</html>
```

page1.jsp

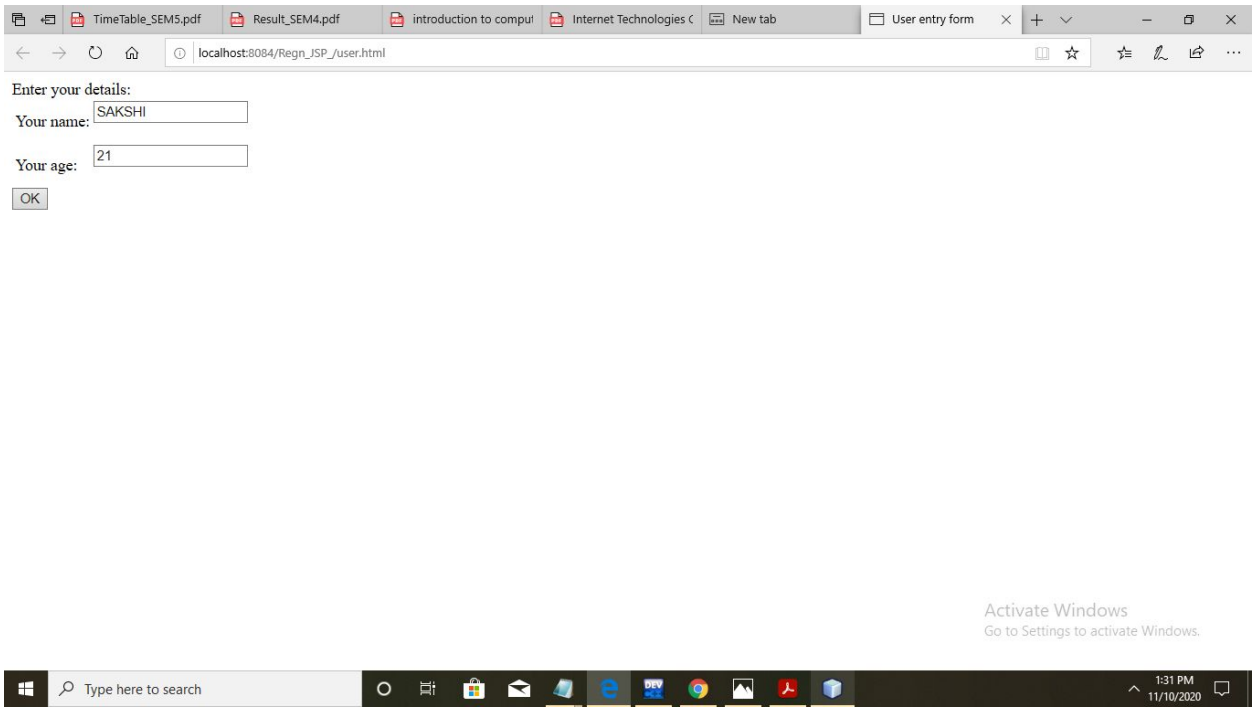
```
<%--
    Document   : page1 --%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>JSP Page</title>
  </head>
  <body>
    <%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
    <h1>Hello ${param.uname}</h1>
    <c:set var="session_uname" value="${param.uname}" scope="session"/>
    <form name="myForm" action="page2.jsp">
        Select a product that you would like to buy: <br/>
        <input type="radio" name="product" value="electronics" checked="checked"
/>Electronics <BR/>
        <input type="radio" name="product" value="cosmetics" />Cosmetics <BR/>
        <input type="submit" value="Submit" name="submit" />
    </form>

  </body>
</html>
```

page2.jsp

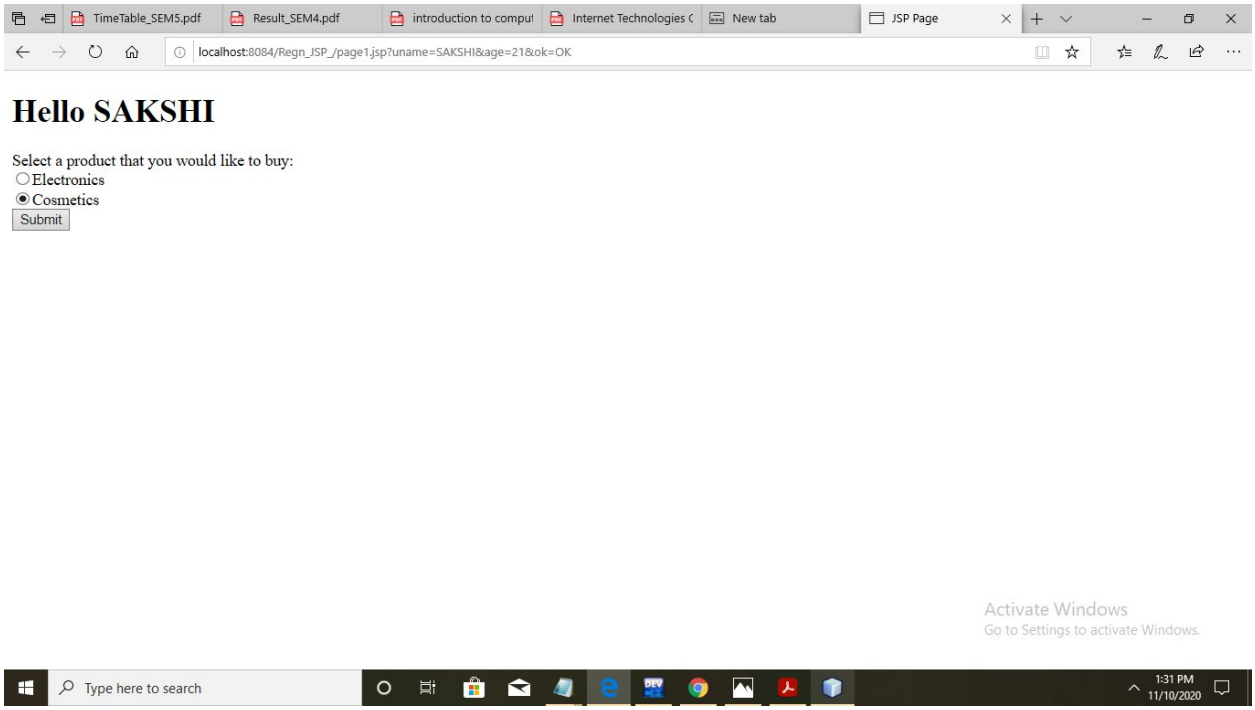
```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <h1>Hello ${sessionScope.session_uname}, You have ordered
${param.product}</h1>
    </body>
</html>
```

//OUTPUT

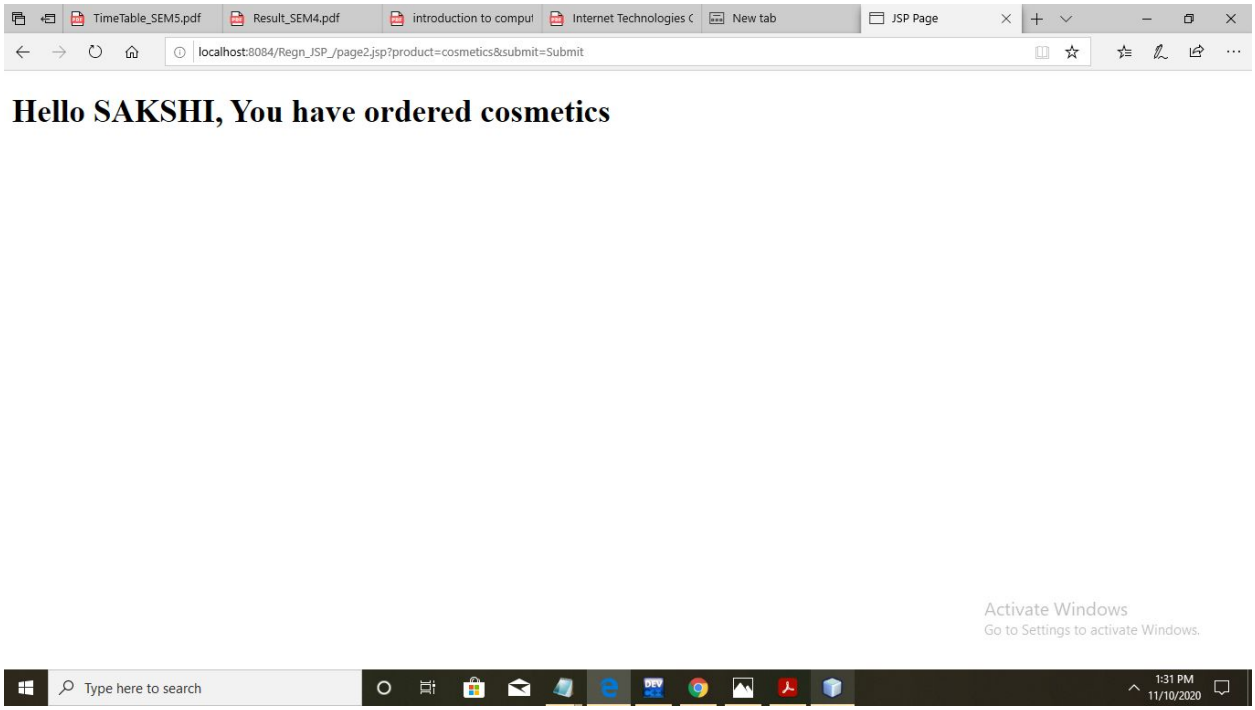
//user.html



//page1.jsp


TimeTable_SEM5.pdf
Result_SEM4.pdf
introduction to compul
Internet Technologies (
New tab
JSP Page
localhost:8084/Regn_JSP_/page1.jsp?uname=SAKSHI&age=21&ok=OK
Hello SAKSHI
Select a product that you would like to buy:
Electronics
Cosmetics
Submit
Activate Windows
Go to Settings to activate Windows.
Type here to search
1:31 PM
11/10/2020

//page2.jsp


TimeTable_SEM5.pdf
Result_SEM4.pdf
introduction to compul
Internet Technologies (
New tab
JSP Page
localhost:8084/Regn_JSP_/page2.jsp?product=cosmetics&submit=Submit
Hello SAKSHI, You have ordered cosmetics
Activate Windows
Go to Settings to activate Windows.
Type here to search
1:31 PM
11/10/2020