

Lab Exercise -2
JAVA Programming
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Q.1 Write a servlet program to accept online voter details for registration of voters. Assume suitable table structure.

Ans –

- **RegisterForm.html**

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>

    <form action=Register>
        Name:<input type="text" name="name"> <br>
        age:<input type="text" name="age"> <br>
        epic no:<input type="text" name="epic"> <br>
        <input type="submit" value="Register">
    </form>

</body>
</html>
```

- **Register.java (Servlet)**

```
import java.io.IOException;
import java.io.PrintWriter;

import javax.servlet.ServletException; import
javax.servlet.annotation.WebServlet; import
javax.servlet.http.HttpServlet; import
javax.servlet.http.HttpServletRequest; import
javax.servlet.http.HttpServletResponse;
import java.sql.Connection; import
java.sql.DriverManager; import
java.sql.SQLException; import
java.sql.Statement;

/**
 * Servlet implementation class Register
 */
@WebServlet("/Register")
public class Register extends HttpServlet {
    private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public Register() {        super();
        // TODO Auto-generated constructor stub
    }
```

```

/**
 * @see HttpServlet#service(HttpServletRequest request, HttpServletResponse response)
 */
protected void service(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
    // TODO Auto-generated method stub
    response.setContentType("text/html");           PrintWriter
    out = response.getWriter();
        String name=request.getParameter("name");
        String epic=request.getParameter("epic");
        String age=request.getParameter("age");
        try {
            Class.forName("com.mysql.jdbc.Driver");
            Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/voter", "root", "");
            Statement stmt = con.createStatement();

            String s = "insert into voter values('"+name+"','"+epic+"','"+age+"')";
                int i = stmt.executeUpdate(s);
                out.println(i+ "Record Insrted");
                con.close();

        }
        catch(Exception e) {out.println(e);}

    }
}

```

O/p-

1Record Insrted

Name: Tokyo
age: 28
epic no: THNOS
Register

Q.2 - Validate the data by using a servlet. Employee Information .

Validation parameters: a) All fields are compulsory. b) Emp-no should be numeric c) E-name should not contain special characters d) Salary should be numeric with two precision.

Ans –

- EmployeeForm.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>

    <form action=EmployeeValidate>
        Employee Name:<input type="text" name="name" required> <br>
        Employee Number:<input type="text" name="enum" required> <br>
        Salary :<input type="text" name="salary" required> <br>
        <input type="submit" value="Validate">
    </form>

</body>
</html>
```

- EmployeeValidate.java

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException; import
javax.servlet.annotation.WebServlet; import
javax.servlet.http.HttpServlet; import
javax.servlet.http.HttpServletRequest; import
javax.servlet.http.HttpServletResponse;

import java.sql.Connection; import
java.sql.DriverManager; import
java.sql.SQLException; import
java.sql.Statement;

/**
 * Servlet implementation class Register
 */
@WebServlet("/Register")
public class Register extends HttpServlet {
```

```

        private static final long serialVersionUID = 1L;

    /**
    * @see HttpServlet#HttpServlet()
    */
    public Register() {        super();
        // TODO Auto-generated constructor stub
    }

    /**
    * @see HttpServlet#service(HttpServletRequest request, HttpServletResponse response)
    */
    protected void service(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        // TODO Auto-generated method stub
        response.setContentType("text/html");                PrintWriter
out = response.getWriter();

        String name=request.getParameter("name");
        String num=request.getParameter("enum");
        String salary=request.getParameter("salary");
        int Enum = 0;
        try {
            Class.forName("com.mysql.jdbc.Driver");
            Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/voter", "root", "");
            Statement stmt = con.createStatement();

            if ((num == null) || (num.equals(""))) {                out.println("PROVIDE Emp
Num NUMBER...");
            } else {
                try {
                    Enum = Integer.parseInt("num");                } catch
(NumberFormatException nfe) {
                        out.println("PROVIDE int DATA IN Emp NUMBER...");
                    }
                }
            if((name == null) || (name.matches("[a-zA-Z]*$")) == true)
            {
                out.println("Name cannot be null or cannot include special char");
            }

            if((salary == null) || (salary.matches("[0-9]*\\.[0-9]{2}$ or [09]*\\.[0-9][0-9]$")) == false)
            {
                out.println("Salary cannot be Null / Enter correct salary");
            }

        }
        catch(Exception e) {out.println(e);}
    }

```

```
}  
}  
O/p –
```

Employee Name:
Employee Number:
Salary :

PROVIDE int DATA IN Emp NUMBER... Salary cannot be Null / Enter correct salary

Q.3 - Write a servlet to check username & password passed from html page. If it is “Scott” & “tiger”, display welcome message else show the same html page again. [With res.sendRedirect (“http://localhost:8080/login.html”)]

Ans –

- login.html

```
<!DOCTYPE html>  
<html>  
<head>  
<meta charset="ISO-8859-1">  
<title>Insert title here</title>  
</head>  
<body>  
  
    <form action=Register>  
        Enter User Name:<input type="text" name="username" required> <br>  
        password:<input type="text" name="password" required> <br>  
        <input type="submit" value="Check">  
    </form>  
  
</body>  
</html>
```

- Register.java

```

import java.io.IOException; import java.io.PrintWriter;
import javax.servlet.ServletException; import
javax.servlet.annotation.WebServlet; import
javax.servlet.http.HttpServlet; import
javax.servlet.http.HttpServletRequest; import
javax.servlet.http.HttpServletResponse;
import java.sql.Connection; import
java.sql.DriverManager; import
java.sql.SQLException; import
java.sql.Statement;

/**
 * Servlet implementation class Register
 */
@WebServlet("/Register")
public class Register extends HttpServlet {
    private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public Register() { super();
        // TODO Auto-generated constructor stub
    }

    /**
     * @see HttpServlet#service(HttpServletRequest request, HttpServletResponse response)
     */
    protected void service(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        // TODO Auto-generated method stub
        response.setContentType("text/html");           PrintWriter
out = response.getWriter();

        String name=request.getParameter("username");
        String pass=request.getParameter("password");

        if(name.equals("scott") && pass.equals("tiger"))
        {
            out.println("<h1>Welcome</>");
        }
        else
        {

            response.sendRedirect("http://localhost:8080/proj/RegisterForm.html");
        }

    }
}

```

O/p –

Welcome

Enter User Name:
password:

Q.4 - Create a menu driven program for Bank account(acc_no, Name, amt) (Hint: use vector)

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

Ans –

```
import java.io.*; import
java.util.Vector; import
java.util.*; class Vector1
{
    public static void main(String args[])
    {
        int choice=0;
        DataInputStream in=new DataInputStream(System.in);
        Vector v = new Vector(); String
        s,name, acc_no, amt; try {    do
        {
            System.out.println("Select your choice:");
            System.out.println("1 - Add");
            System.out.println("2 - Delete");
            System.out.println("3 - Display");
            System.out.println("4 - Exit");
            choice=Integer.parseInt(in.readLine());    switch(choice)
```



```

{
    case 1:
        System.out.println("Enter Account number:");
        acc_no=in.readLine();
        System.out.println("Enter Name:");          name =
in.readLine();
        System.out.println("Enter Amount:");        amt =
in.readLine();
        v.addElement(acc_no);
        v.addElement(name);
        v.addElement(amt);
        System.out.println(name+" "+amt+" Added");    break;

    case 2 : if(v.isEmpty())
        System.out.println("list is empty");          else
        {
            System.out.println("Enter account :");
            acc_no=in.readLine();          if(v.contains(acc_no))
            {
                v.removeElement(acc_no);
                System.out.println("Account name removed");
            }          else
            System.out.println("Account does not exist");
        }          break;

    case 3 : if(v.isEmpty())
        System.out.println("list is empty");          else
        System.out.println("Vector : "+v.toString());    break;          case 4 :
        System.exit(0);          break;

    }
    System.out.println("Do you want to continue? Press y for Yes or Press N for No");
    s=in.readLine();

    }while(s.equals("y"));
}
catch(Exception e)
{
    System.out.println("Exception caught:"+e);
}
}
}

```

O/P –

```
Picked up _JAVA_OPTIONS: -Xmx1024M
Select your choice:
1 - Add
2 - Delete
3 - Display
4 - Exit
1
Enter Account number:
99
Enter Name:
Sushant
Enter Amount:
500
Sushant 500 Added
Do you want to continue? Press y for Yes or Press N for No
y
Select your choice:
1 - Add
2 - Delete
3 - Display
4 - Exit
3
Vector : [99, Sushant, 500]
Do you want to continue? Press y for Yes or Press N for No
y
Select your choice:
1 - Add
2 - Delete
3 - Display
4 - Exit
```

Q.5 - Accept Student names and marks as key-value of a treeMap and display them in ascending order of marks

Ans –

```
import java.util.*;
class Student implements Comparable<Student>
{
    public Student(String name, double grade)
    {
        this.name = name;    this.grade =
grade;
    }

    String name;
    double grade;
    @Override
    public int compareTo(Student o)
    {
        if (o == null)
        {
            return -1;
        }
        int c = Double.valueOf(grade).compareTo(o.grade);
```

```

    if (c != 0)
    {
        return c;
    }
    return name.compareTo(o.name);
}

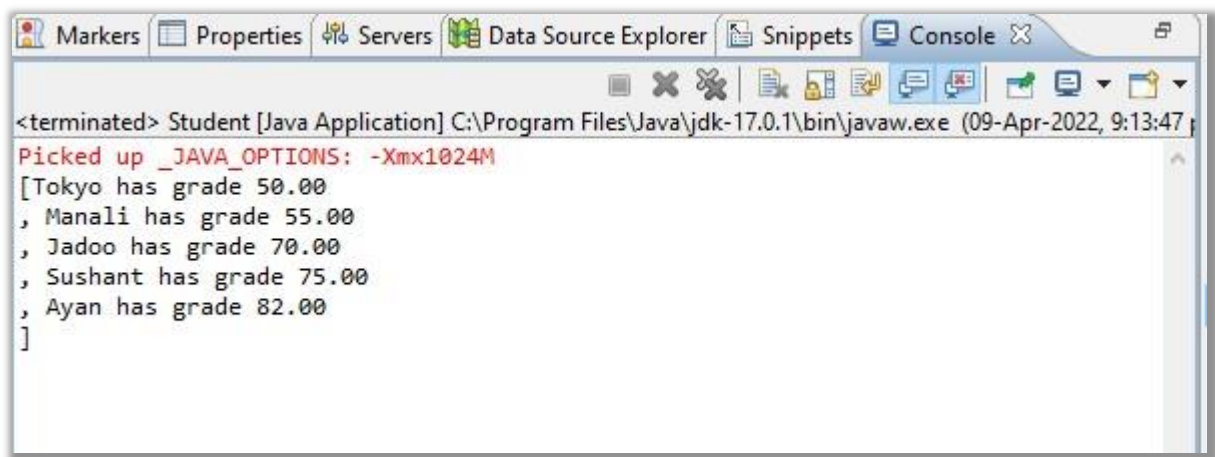
@Override
public String toString()
{
    return String.format("%s has grade %.2f \n", name, grade);
}

public static void main(String[] args)
{
    List<Student> al = new ArrayList<>();
    al.add(new Student("Jadoo", 70));
    al.add(new Student("Tokyo", 50));
    al.add(new Student("Ayan", 82));
    al.add(new Student("Ashutosh", 75));
    al.add(new Student("Manali", 55));

    Collections.sort(al);
    System.out.println(al);
}
}

```

O/P -



```

<terminated> Student [Java Application] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (09-Apr-2022, 9:13:47)
Picked up _JAVA_OPTIONS: -Xmx1024M
[Tokyo has grade 50.00
, Manali has grade 55.00
, Jadoo has grade 70.00
, Sushant has grade 75.00
, Ayan has grade 82.00
]

```

Q.7 - Write a threaded application to display pyramid of stars. Accept number of stars from user

Ans –

```

import java.util.Scanner;
public class ThreadEg
extends Thread{

```

```

public static int amount = 0; int num =
0;
public static void main(String[] args) {
    ThreadEg thread = new ThreadEg();
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter Number");    int num =
    sc.nextInt();
        thread.run(num);
    }
    public void run(int num) {        for(int i=0;
i<num; i++)
    {
        for(int j=0; j<=i; j++)
        {
            System.out.print("* ");
        }
        System.out.println();
    }
}
}

```

O/P –

```

<terminated> ThreadEg [Java Application] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (09-Apr-2022, 7:48:08)
Picked up _JAVA_OPTIONS: -Xmx1024M
Enter Number
6
|
*
* *
* * *
* * * *
* * * * *
* * * * *

```

```

import java.awt.event.*; import
javax.swing.*; import java.awt.*;
class calculator extends JFrame implements ActionListener { static
    JFrame f; static JTextField t; String s0, s1, s2; calculator()
    {
        s0 = s1 = s2 = "";
    }
    public static void main(String args[])
    {
        f = new JFrame("calculator");
        try {

            UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());

```

```

    }
    catch (Exception e) {
        System.err.println(e.getMessage());
    }

    calculator c = new calculator();
    = new JTextField(16);
    JButton b0, b1, b2, b3, b4, b5, b6, b7, b8, b9, ba, bs, bd, bm, be, beq, beq1;
    b0 = new JButton("0");
    b1 = new JButton("1");
    b2 = new JButton("2");
    b3 = new JButton("3");
    b4 = new JButton("4");
    b5 = new JButton("5");
    b6 = new JButton("6");
    b7 = new JButton("7");
    b8 = new JButton("8");
    b9 = new JButton("9");
    beq1 = new JButton("=");
    ba = new JButton("+");
    bs = new JButton("-");
    bd = new JButton("/");
    bm = new JButton("*");
    beq = new JButton("C");

    be = new JButton(".");
    JPanel p = new JPanel();

    bm.addActionListener(c);
    bd.addActionListener(c);
    ba.addActionListener(c);
    b9.addActionListener(c);
    b7.addActionListener(c);
    b6.addActionListener(c);
    b4.addActionListener(c);
    b3.addActionListener(c);
    b1.addActionListener(c);
    b0.addActionListener(c);
    beq.addActionListener(c);
    bs.addActionListener(c);
    b8.addActionListener(c);
    b5.addActionListener(c);
    b2.addActionListener(c);
    be.addActionListener(c);
    beq1.addActionListener(c);

    p.add(l);
    p.add(ba);
    p.add(b1);
    p.add(b2);
    p.add(b3);
    p.add(bs);
    p.add(b4);
    p.add(b5);
    p.add(b6);
    p.add(bm);
    p.add(b7);
    p.add(b8);
    p.add(b9);
    p.add(bd);

```

```

        p.add(be);
        p.add(b0);
        p.add(beq);
        p.add(beq1);

        p.setBackground(Color.blue);

        f.add(p);

        f.setSize(200, 220);
        f.show();
    }
    public void actionPerformed(ActionEvent e)
    {
        String s = e.getActionCommand();

        if ((s.charAt(0) >= '0' && s.charAt(0) <= '9') || s.charAt(0) ==
'.') {

            if (!s1.equals(""))
                s2 = s2 + s;

            else
                s0 = s0 + s;

            l.setText(s0 + s1 + s2);
        }
        else if (s.charAt(0) == 'C') {
s0 = s1 = s2 = "";

            l.setText(s0 + s1 + s2);
        }
        else if (s.charAt(0) == '=') {

            double te;

            if (s1.equals("+"))
                te = (Double.parseDouble(s0) + Double.parseDouble(s2));
            else if (s1.equals("-"))
                te = (Double.parseDouble(s0) - Double.parseDouble(s2));
            else if (s1.equals("/"))
te = (Double.parseDouble(s0) / Double.parseDouble(s2));
            else
te = (Double.parseDouble(s0) * Double.parseDouble(s2));
            l.setText(s0 + s1 + s2 + "=" + te);
            s0 = Double.toString(te);
            s1 = s2 = "";
        }
        else {
            if (s1.equals("") || s2.equals(""))
                s1 = s;

            else {
                double te;

```

```

        if (s1.equals("+"))
            te = (Double.parseDouble(s0) +
Double.parseDouble(s2));
        else if (s1.equals("-"))
            te = (Double.parseDouble(s0) -
Double.parseDouble(s2));
        else if (s1.equals("/"))
            te = (Double.parseDouble(s0) /
Double.parseDouble(s2));
        else
            te = (Double.parseDouble(s0) *
Double.parseDouble(s2));

        s0 = Double.toString(te);

        s1 = s;

        s2 = "";
    }

    /.setText(s0 + s1 + s2);
}
}
}

```

O/P –

