

**Smt.Chandaben Mohanbhai Patel Institute of Computer
Applications, CHARUSAT, Changa**

**Master of Computer Application(MCA)-Semester -I
(Academic Year – 2023-24)**

**CA683: Enterprise Computing Using Java
Lab Work- 1 (Servlets)**

Q1	Write a Java Code to implement MVC using Core Java concepts.
=>	<pre>Controller : /* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license- default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template */ package mvc; /** * * @author 2student83 */ public class EmpController { public EmpView view; public EmpModel modal; public EmpView getView() { return view; } public void setView(EmpView view) { this.view = view; } public EmpModel getModal() { return modal; } public void setModal(EmpModel modal) { this.modal = modal; } }</pre>

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```
public void updatedisplayInfo(EmpView view,EmpModel model)
{
    view.displayInfo(model.name,model.id);
}
}
```

Model :

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to
edit this template
 */
```

```
package mvc;
```

```
/**
```

```
*
```

```
* @author 2student83
```

```
*/
```

```
public class EmpModel {
```

```
    String name;
```

```
    int id;
```

```
    public String getName() {
```

```
        return name;
```

```
    }
```

```
    public void setName(String name) {
```

```
        this.name = name;
```

```
    }
```

```
    public int getId() {
```

```
        return id;
```

```
    }
```

```
    public void setId(int id) {
```

```
        this.id = id;
```

```
    }
```

```
}
```

View :

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```
/*
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default.txt to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to
edit this template
 */
package mvc;

/**
 *
 * @author 2student83
 */
public class EmpView {
    public void displayInfo(String ename,int eid){

        System.out.println("Employee Details : ");
        System.out.println("Name : "+ ename);
        System.out.println("ID : "+ eid);

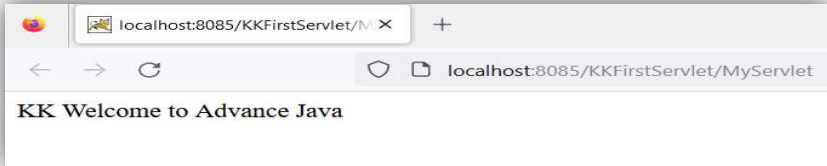
    }
}

Main Class :
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to
edit this template
 */
package mvc;

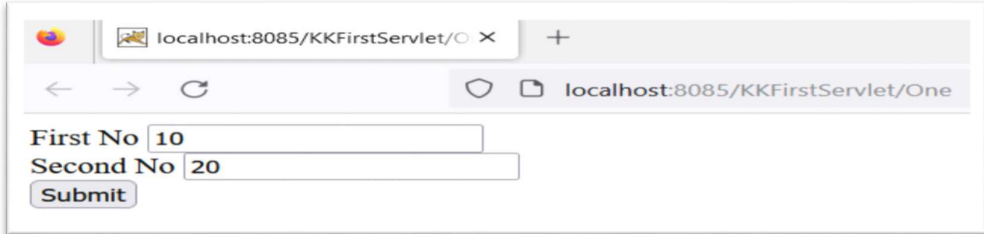
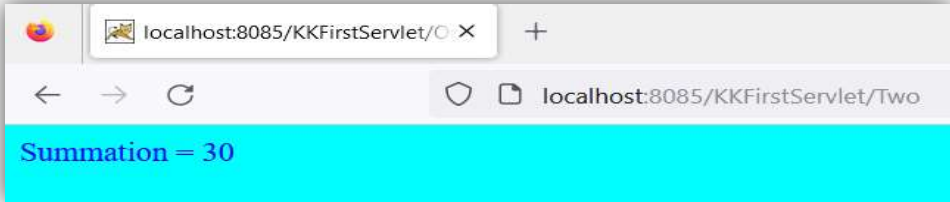
/**
 *
 * @author 2student83
 */
public class EmpMain {
    public static void main(String[] args) {
        EmpView vw = new EmpView();
        EmpModel md = new EmpModel();
        EmpController ec = new EmpController();

        md.setName("abc");
```

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	<pre>md.setId(114); ec.updatedisplayInfo(vw, md); } }</pre>
Q2 .	Installation of Tomcat 10 and its Configuration
Q3 .	<p>Write a Servlet code to create Hello World Program in Servlet.</p> 
=>	<pre>/* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license- default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ package dev; import jakarta.servlet.ServletException; import jakarta.servlet.http.HttpServlet; import jakarta.servlet.http.HttpServletRequest; import jakarta.servlet.http.HttpServletResponse; import java.io.IOException; import java.io.PrintWriter; /** * * @author 2student83 */ public class MyServlet extends HttpServlet { @Override</pre>

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	<pre>protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException { PrintWriter out = response.getWriter(); out.println("<html>"); out.println("<body>"); out.println("<h1>Welcome to Hello World</h1>"); out.println("</body>"); out.println("</html>"); } }</pre>
Q4 ·	<p>Write a Servlet code to take input from the Form and perform addition of two numbers and display the result on the next page of the application.</p>  
=>	<p>Design Code :</p> <pre>/* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license- default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ package dev; import jakarta.servlet.ServletException;</pre>

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```
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;

public class FirstServlet extends HttpServlet {

    @Override
    protected void doGet(HttpServletRequest req, HttpServletResponse
resp) throws ServletException, IOException {
        resp.setContentType("text/html");
        PrintWriter out = resp.getWriter();
        out.println("<html><body>");
        out.println("<form action= 'SecondServlet' method = 'Post'>");
        out.println("First Num : <input type='text' name='fno'><br>");
        out.println("Second Num : <input type='text' name='sno'><br>");
        out.println("<input type='submit'><br>");
        out.println("</form>");
        out.println("</html></body>");
    }

}

Calculation Code : =>

/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to change this license
 * Click
nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to
edit this template
 */
package dev;

import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
```

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	<pre>import java.io.PrintWriter; public class SecondServlet extends HttpServlet { @Override protected void doPost(HttpServletRequest req, HttpServletResponse resp) throws ServletException, IOException { resp.setContentType("text/html"); PrintWriter out = resp.getWriter(); out.println("<html><body bgColor='yellow'>"); int n1 = Integer.parseInt(req.getParameter("fno")); int n2 = Integer.parseInt(req.getParameter("sno")); int ans = n1+n2; out.println("Summation : "+ans); out.println("</body></html>"); } }</pre>
Q5 .	Write a Servlet code to demonstrate the ways of creating Servlets:
=>	<pre>Using HttpServlet /* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license- default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ package dev; import jakarta.servlet.ServletException; import jakarta.servlet.http.HttpServlet; import jakarta.servlet.http.HttpServletRequest; import jakarta.servlet.http.HttpServletResponse; import java.io.IOException; import java.io.PrintWriter; /** *</pre>

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```
* @author 2student83
*/
public class MyServlet extends HttpServlet {

    @Override
    protected void doGet(HttpServletRequest request,
        HttpServletResponse response) throws ServletException, IOException {
        PrintWriter out = response.getWriter();

        out.println("<html>");
        out.println("<body>");
        out.println("<h1>Welcome to Hello World</h1>");
        out.println("</body>");
        out.println("</html>");
    }

}
```

Using Servlet Interface :

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to change this license
 * Click
nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to
edit this template
*/
package dev;

import jakarta.servlet.Servlet;
import jakarta.servlet.ServletConfig;
import jakarta.servlet.ServletException;
import jakarta.servlet.ServletRequest;
import jakarta.servlet.ServletResponse;
import java.io.*;

/**
 *
 * @author 2student83
 */
```


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```
*/
public class implementServlet implements Servlet {

    @Override
    public void init(ServletConfig sc) throws ServletException {

    }

    @Override
    public ServletConfig getServletConfig() {
        throw new UnsupportedOperationException("Not supported yet.");
    }
    // Generated from
    nbfs://nbhost/SystemFileSystem/Templates/Classes/Code/GeneratedMethodBody
    }

    @Override
    public void service(ServletRequest sr, ServletResponse response)
    throws ServletException, IOException {
        PrintWriter out = response.getWriter();

        out.println("<html>");
        out.println("<body>");
        out.println("<h1>Welcome to Hello World using
Implement</h1>");
        out.println("</body>");
        out.println("</html>");
    }

    @Override
    public String getServletInfo() {
        throw new UnsupportedOperationException("Not supported yet.");
    }
    // Generated from
    nbfs://nbhost/SystemFileSystem/Templates/Classes/Code/GeneratedMethodBody
    }

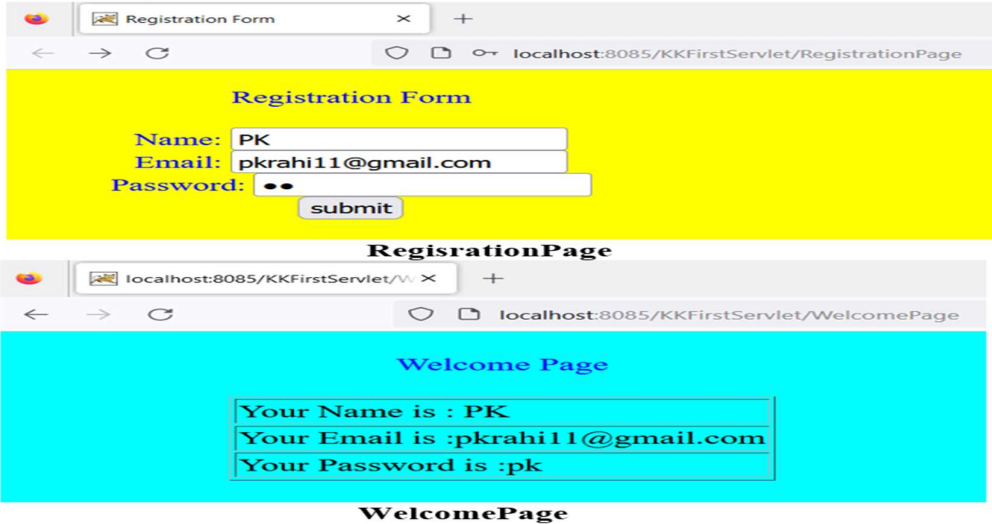
    @Override
    public void destroy() {
        throw new UnsupportedOperationException("Not supported yet.");
    }
    // Generated from
```

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	<pre> nbfs://nbhost/SystemFileSystem/Templates/Classes/Code/GeneratedMethodBody } } </pre>
Q6	Write a Servlet code to implement Servlet Life Cycle.

**Master of Computer Application(MCA)-Semester -I
(Academic Year – 2023-24)**

**CA683: Enterprise Computing Using Java
Lab Work- 2 (Servlets)**

Q1.	<p>Write a Servlet code to create Registration Page having a form which will accept Name, Email and Password of the user and a submit button. Once We click on Submit button, the form will redirect to Welcome Page and carry the values of the Registration Page. The user information will be displayed in tabular format in the Welcome Page.</p> 
=>	<p>Registration Page :</p> <pre> /* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ </pre>

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```
package Ass2;

import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;

public class q6_Input_Details extends HttpServlet {

    @Override
    protected void doGet(HttpServletRequest req, HttpServletResponse resp)
    throws ServletException, IOException {
        resp.setContentType("text/html");
        PrintWriter out = resp.getWriter();
        out.println("<html><body bgColor='red'>");
        out.println("<center>");
        out.println("<form action= 'q6_Output' method = 'Post'>");
        out.println("Name : <input type='text' name='name'><br>");
        out.println("Email : <input type='text' name='email'><br>");
        out.println("Password : <input type='password' name='password'><br>");
        out.println("<input type='submit'><br>");
        out.println("</form>");
        out.println("</center>");
        out.println("</html></body>");
    }
}

Welcome Page :=>
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt
to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to
edit this template
 */
package Ass2;

import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;

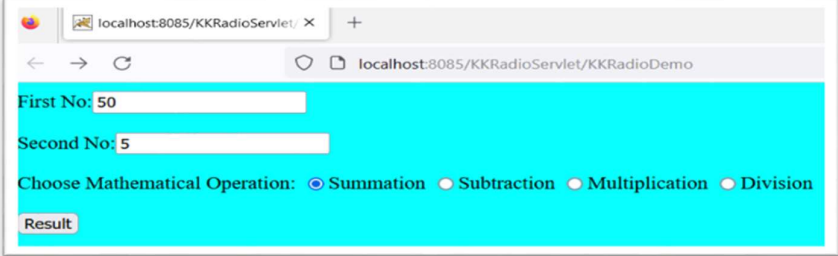

public class q6_Output extends HttpServlet {

    @Override
```

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	<pre>protected void doPost(HttpServletRequest req, HttpServletResponse resp) throws ServletException, IOException { resp.setContentType("text/html"); PrintWriter out = resp.getWriter(); out.println("<html><body bgColor='lightgreen'>"); String name = req.getParameter("name"); String email = req.getParameter("email"); String password = req.getParameter("password"); out.println("<center>"); out.println("<table border=1>"); out.println("<tr><td>"); out.println("Name is "+name); out.println("</tr></td>"); out.println("<tr><td>"); out.println("Email is "+email); out.println("</tr></td>"); out.println("<tr><td>"); out.println("Password is "+password); out.println("</tr></td>"); out.println("</table>"); out.println("</center>"); out.println("</html></body>"); } }</pre>
Q2.	Write a servlet code to demonstrate use of Radio for Single Selection to perform mathematical operation.

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=>	<p>Input Page :</p> <pre> /* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ package Ass2; import jakarta.servlet.ServletException; import jakarta.servlet.http.HttpServlet; import jakarta.servlet.http.HttpServletRequest; import jakarta.servlet.http.HttpServletResponse; import java.io.IOException; import java.io.PrintWriter; public class Q2Cal_Input extends HttpServlet { @Override protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws ServletException, IOException { resp.setContentType("text/html"); PrintWriter out = resp.getWriter(); out.println("<html><body bgColor='pink'>"); out.println("<center>"); out.println("<form action='Q2_Output' method='Post'>"); out.println("Choose the Mathematical Operation : "); out.println("First Num :&nbsp; &nbsp; &nbsp; <input type='text' name='fno'>

"); out.println("Second Num : <input type='text' name='sno'>
"); out.println("Addition<input type='radio' value='add' name='opr'>"); out.println("Substraction<input type='radio' value='sub' name='opr'>"); out.println("Multiplication<input type='radio' value='mul' name='opr'>"); out.println("Division<input type='radio' value='div' name='opr'>
"); </pre>

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```
out.println("<input type='submit'><br>");
out.println("</form>");
out.println("<center>");
out.println("</html></body>");
}
```

```
}
```

Output Page :

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt
to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to
edit this template
*/
```

```
package Ass2;
```

```
import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;
```

```
public class Q2_Output extends HttpServlet {
```

```
    @Override
```

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

```
        PrintWriter out = resp.getWriter();
        out.println("<html><body bgColor='lightblue'>");
        out.println("<center>");
        int n1 = Integer.parseInt(req.getParameter("fno"));
        int n2 = Integer.parseInt(req.getParameter("sno"));
```

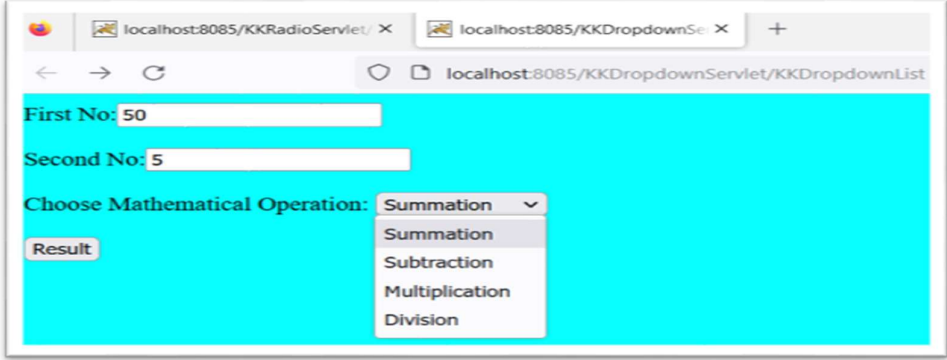
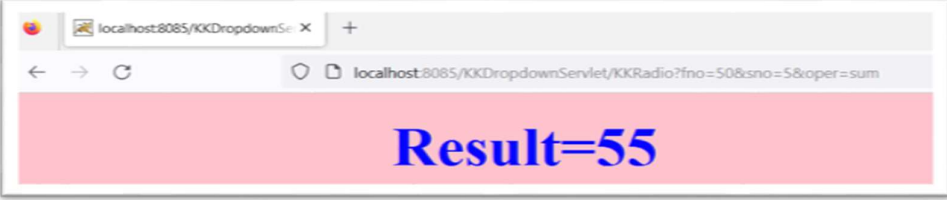
```
        String sel = req.getParameter("opr");
        int ans = 0;
        switch(sel){
```

```
            case "add" :
                ans = n1+n2;
                break;
```

```
            case "sub" :
                ans = n1-n2;
                break;
```

```
            case "mul" :
```

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	<pre> ans = n1*n2; break; case "div" : ans = n2/n1; break; } out.println("Answer of "+ sel + " is : " +ans); out.println("<center>"); out.println("</html></body>"); } } </pre>
Q3.	<p>Write a Servlet application to demonstrate the use of Single Selection by dropdown list using select</p>  
=>	<p>Input Page :</p> <pre> /* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ package Ass2; import jakarta.servlet.ServletException; import jakarta.servlet.http.HttpServlet; import jakarta.servlet.http.HttpServletRequest; import jakarta.servlet.http.HttpServletResponse; </pre>

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

public class Q3_Input extends HttpServlet {

    @Override
    protected void doGet(HttpServletRequest req, HttpServletResponse resp)
    throws ServletException, IOException {

        PrintWriter out = resp.getWriter();
        out.println("<html><body bgColor='pink'>");
        out.println("<center>");
        out.println("<form action='Q3_Output' method='Post'>");
        out.println("First Num :&nbsp; &nbsp; &nbsp; <input type='text'
name='fno'><br><br>");
        out.println("Second Num : <input type='text' name='sno'><br>");

        out.println("Choose the Mathematical Operation : ");

        out.println("<select name='opr'>");

        out.println("<option value='add'>Addition</option>");
        out.println("<option value='sub'>Substraion</option>");
        out.println("<option value='mul'>Multiplication</option>");
        out.println("<option value='div'>Division</option>");

        out.println("</select>");

        out.println("<input type='submit'><br>");
        out.println("</form>");
        out.println("<center>");
        out.println("</html></body>");
    }
}
```

Output Page :


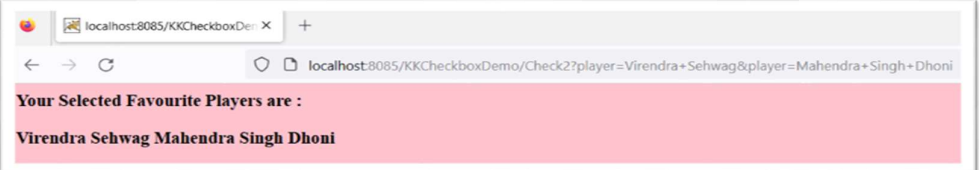
```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt
to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to
edit this template
 */
package Ass2;

import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
```


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	<pre>import jakarta.servlet.http.HttpServletRequest; import jakarta.servlet.http.HttpServletResponse; import java.io.IOException; import java.io.PrintWriter; public class Q3_Output extends HttpServlet { @Override protected void doPost(HttpServletRequest req, HttpServletResponse resp) throws ServletException, IOException { PrintWriter out = resp.getWriter(); out.println("<html><body bgColor='lightblue'>"); out.println("<center>"); int n1 = Integer.parseInt(req.getParameter("fno")); int n2 = Integer.parseInt(req.getParameter("sno")); String sel = req.getParameter("opr"); int ans = 0; switch(sel){ case "add" : ans = n1+n2; break; case "sub" : ans = n1-n2; break; case "mul" : ans = n1*n2; break; case "div" : ans = n2/n1; break; } out.println("Answer of "+ sel + " is : " +ans); out.println("<center>"); out.println("</html></body>"); } }</pre>
Q4.	Write a Servlet application to demonstrate the use of Multiple selections using Checkbox

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=>	<p>Input Page :</p> <pre>/* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ package Ass2; import jakarta.servlet.ServletException; import jakarta.servlet.http.HttpServlet; import jakarta.servlet.http.HttpServletRequest; import jakarta.servlet.http.HttpServletResponse; import java.io.IOException; import java.io.PrintWriter; public class Q4_Input extends HttpServlet { @Override protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws ServletException, IOException { resp.setContentType("text/html"); PrintWriter out = resp.getWriter(); out.println("<html><body bgColor='lightyellow'>"); out.println("Choose your Favorite Character :
"); out.println("<form action='Q4_Output' method='Post'>");</pre>

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```
        out.println("<input type='checkbox' value='MS Dhoni' name='ckt'>MS  
Dhoni<br>");  
        out.println("<input type='checkbox' value='Virat Kholi'  
name='ckt'>Virat Kholi<br>");  
        out.println("<input type='checkbox' value='Devang Patel'  
name='ckt'>Devang Patel<br>");  
        out.println("<input type='checkbox' value='Dev Patel' name='ckt'>Dev  
Patel<br>");  
  
        out.println("<input type='submit'>");  
  
        out.println("</form>");  
  
        out.println("</html></body>");  
  
    }  
  
}
```

Output Page :

```
/*  
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt  
to change this license  
 * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to  
edit this template  
 */  
package Ass2;
```

```
import jakarta.servlet.ServletException;  
import jakarta.servlet.http.HttpServlet;  
import jakarta.servlet.http.HttpServletRequest;  
import jakarta.servlet.http.HttpServletResponse;  
import java.io.IOException;  
import java.io.PrintWriter;
```

```
public class Q4_Output extends HttpServlet {
```

```
    @Override  
    protected void doPost(HttpServletRequest req, HttpServletResponse resp)  
throws ServletException, IOException {  
        PrintWriter out = resp.getWriter();  
  
        out.println("<html><body bgColor='pink'>");  
  
        String names[] = req.getParameterValues("ckt");  
  
        out.println("Your Favroite Crickter are : ");
```

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	<pre> for(int i=0;i<names.length;i++){ out.println(names[i]); } out.println("</html></body>"); } } </pre>
Q5.	<p>Write a Servlet application to pass parameter from Web.xml to Servlet using ServletConfig Interface.</p> <p>=></p> <p>Web.Xml File code :</p> <pre> <?xml version="1.0" encoding="UTF-8"?> <web-app version="6.0" xmlns="https://jakarta.ee/xml/ns/jakartaee" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="https://jakarta.ee/xml/ns/jakartaee https://jakarta.ee/xml/ns/jakartaee/web-app_6_0.xsd"> <servlet> <servlet-name>Q5</servlet-name> <servlet-class>servlet_programs.Q5</servlet-class> <init-param> <param-name>param</param-name> <param-value>Hello Servlet</param-value> </init-param> </servlet> <servlet-mapping> <servlet-name>Q5</servlet-name> <url-pattern>/Q5</url-pattern> </servlet-mapping> </web-app> </pre> <p>Servlet Code :</p> <pre> /* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ package servlet_programs; import jakarta.servlet.ServletConfig; import jakarta.servlet.ServletException; import jakarta.servlet.http.HttpServlet; import jakarta.servlet.http.HttpServletRequest; </pre>

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	<pre>import jakarta.servlet.http.HttpServletResponse; import java.io.IOException; import java.io.PrintWriter; public class Q5 extends HttpServlet { private ServletConfig servletConfig; @Override public void init(ServletConfig config) throws ServletException { super.init(config); this.servletConfig = config; } @Override protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws ServletException, IOException { PrintWriter out = resp.getWriter(); String param = servletConfig.getInitParameter("param"); resp.setContentType("text/html"); out.println("<html><body>"); out.println("<h2>Servlet Configuration Parameters:</h2>"); out.println("Parameter : " + param + "
"); out.println("</body></html>"); } }</pre>
Q6.	<p>Write a Servlet application to pass multiple parameter from Wb.xml to Servlet using ServletConfig Interface.</p> <p>Web.Xml File Code :</p> <pre><?xml version="1.0" encoding="UTF-8"?> <web-app version="6.0" xmlns="https://jakarta.ee/xml/ns/jakartaee" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="https://jakarta.ee/xml/ns/jakartaee https://jakarta.ee/xml/ns/jakartaee/web-app_6_0.xsd"> <servlet> <servlet-name>Q5</servlet-name> <servlet-class>servlet_programs.Q5</servlet-class> <init-param> <param-name>param1</param-name> <param-value>Hello Servlet</param-value> </init-param></pre>

**Smt.Chandaben Mohanbhai Patel Institute of Computer
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```
<init-param>
  <param-name>param2</param-name>
  <param-value>Bye Servlet</param-value>
</init-param>
</servlet>
<servlet-mapping>
  <servlet-name>Q5</servlet-name>
  <url-pattern>/Q5</url-pattern>
</servlet-mapping>
</web-app>
```

Servlet Code :

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to
change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit
this template
 */
package servlet_programs;

import jakarta.servlet.ServletConfig;
import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;

public class Q5 extends HttpServlet {

    private ServletConfig servletConfig;

    @Override
    public void init(ServletConfig config) throws ServletException {
        super.init(config);
        this.servletConfig = config;
    }

    @Override
    protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws
ServletException, IOException {

        PrintWriter out = resp.getWriter();
        String param1 = servletConfig.getInitParameter("param1");
        String param2 = servletConfig.getInitParameter("param2");

        resp.setContentType("text/html");
        out.println("<html><body>");
```

**Smt.Chandaben Mohanbhai Patel Institute of Computer
Applications, CHARUSAT, Changa**

	<pre> out.println("<h2>Servlet Configuration Parameters:</h2>"); out.println("Parameter 1: " + param1 + "
"); out.println("Parameter 2: " + param2 + "
"); out.println("</body></html>"); } } </pre>
Q7.	<p>Write a Servlet application to pass parameter from Web.xml to Servlet using ServletContext Interface.</p> <p>Web.Xaml File Code :</p> <pre> <?xml version="1.0" encoding="UTF-8"?> <web-app version="6.0" xmlns="https://jakarta.ee/xml/ns/jakartaee" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="https://jakarta.ee/xml/ns/jakartaee https://jakarta.ee/xml/ns/jakartaee/web-app_6_0.xsd"> <context-param> <param-name>praName</param-name> <param-value>The World</param-value> </context-param> <servlet> <servlet-name>Q7</servlet-name> <servlet-class>servlet_programs.Q7</servlet-class> </servlet> <servlet-mapping> <servlet-name>Q7</servlet-name> <url-pattern>/Q7</url-pattern> </servlet-mapping> </web-app> </pre> <p>Servlet Code :</p> <pre> /* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ package servlet_programs; import jakarta.servlet.ServletContext; import jakarta.servlet.ServletException; import jakarta.servlet.http.HttpServlet; import jakarta.servlet.http.HttpServletRequest; </pre>

**Smt.Chandaben Mohanbhai Patel Institute of Computer
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	<pre>import jakarta.servlet.http.HttpServletResponse; import java.io.IOException; import java.io.PrintWriter; public class Q7 extends HttpServlet { @Override protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws ServletException, IOException { ServletContext context = getServletContext(); resp.setContentType("text/html"); PrintWriter out = resp.getWriter(); String paramValue = context.getInitParameter("praName"); out.println("<html><body>"); out.println("Parameter Value: " + paramValue); out.println("</html></body>"); } }</pre>
Q8.	<p>Write a Servlet application to pass multiple parameter from Wb.xml to Servlet using ServletContext Interface.</p> <p>Servlet Code :</p> <pre>/* * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license * Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to edit this template */ package servlet_programs; import jakarta.servlet.ServletContext; import jakarta.servlet.ServletException; import jakarta.servlet.http.HttpServlet; import jakarta.servlet.http.HttpServletRequest; import jakarta.servlet.http.HttpServletResponse; import java.io.IOException; import java.io.PrintWriter; public class Q8 extends HttpServlet { @Override protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws ServletException, IOException { ServletContext servletContext = getServletContext();</pre>

**Smt.Chandaben Mohanbhai Patel Institute of Computer
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	<pre>String pram1 = servletContext.getInitParameter("pram1"); String pram2 = servletContext.getInitParameter("pram2"); PrintWriter out = resp.getWriter(); resp.setContentType("text/html"); out.println("<html><body>"); out.println("Prameter 1 : " + pram1); out.println("Prameter 2 : " + pram2); out.println("</html></body>"); } }</pre> <p>Web.Xml File Code :</p> <pre><web-app version="6.0" xmlns="https://jakarta.ee/xml/ns/jakartaee" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="https://jakarta.ee/xml/ns/jakartaee https://jakarta.ee/xml/ns/jakartaee/web-app_6_0.xsd"> <servlet> <servlet-name>Q8</servlet-name> <servlet-class>servlet_programs.Q8</servlet-class> </servlet> <context-param> <param-name>pram1</param-name> <param-value>World</param-value> </context-param> <context-param> <param-name>pram2</param-name> <param-value>Space</param-value> </context-param> <servlet-mapping> <servlet-name>Q8</servlet-name> <url-pattern>/Q8</url-pattern> </servlet-mapping> </web-app></pre>
Q9.	<p>Write a Servlet application to demonstrate RequestDispatcher for Navigation from one Servlet to another, also implement sendRedirect() method of Response.</p> <p>=></p> <p>Login Page Code:</p> <pre><servlet> <servlet-name>PKLoginForm</servlet-name></pre>

**Smt.Chandaben Mohanbhai Patel Institute of Computer
Applications, CHARUSAT, Changa**

```
<servlet-class>kk.PKLoginForm</servlet-class>
</servlet>
<servlet>
    <servlet-name>PKValidate</servlet-name>
    <servlet-class>kk.PKValidate</servlet-class>
</servlet>
<servlet>
    <servlet-name>WelcomePage</servlet-name>
    <servlet-class>kk.WelcomePage</servlet-class>
</servlet>

<servlet-mapping>
    <servlet-name>PKLoginForm</servlet-name>
    <url-pattern>/PKLoginForm</url-pattern>
</servlet-mapping>
<servlet-mapping>
    <servlet-name>PKValidate</servlet-name>
    <url-pattern>/PKValidate</url-pattern>
</servlet-mapping>
<servlet-mapping>
    <servlet-name>WelcomePage</servlet-name>
    <url-pattern>/WelcomePage</url-pattern>
</servlet-mapping>

/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to change this license
 * Click
nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to
edit this template
 */
package kk;

import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;

public class PKLoginForm extends HttpServlet {

    @Override
    protected void doGet(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException {
```

**Smt.Chandaben Mohanbhai Patel Institute of Computer
Applications, CHARUSAT, Changa**

```
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.println("<html>");
        out.println("<body bgcolor = 'cyan'>");
        out.println("<Center>");
        out.println("<B> Registration Form ");
        out.println("<Form action = 'PKValidate' method = 'Post'><br>");
        out.println("User Name: <Input type = 'text' name = 'uname'><br><br>");
        out.println("Password : <Input type = 'text' name = 'upwd'><br><br>");
        out.println("<Input type = 'Submit' value = 'Login'>");
        out.println("</Center>");
        out.println("</body>");
        out.println("</html>");
    }
}

Validate Code :
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to change this license
 * Click
nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to
edit this template
 */
package kk;

import jakarta.servlet.RequestDispatcher;
import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
import java.io.PrintWriter;

public class PKValidate extends HttpServlet {

    @Override
    protected void doPost(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException {
```

**Smt.Chandaben Mohanbhai Patel Institute of Computer
Applications, CHARUSAT, Changa**

```
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.println("<html>");
        out.println("<html>");
        out.println("<body bgcolor='pink'>");
        String user = request.getParameter("uname");
        String pwd = request.getParameter("upwd");
        out.println(" <b>Hello " + user);
        if (user.equals("PK") && pwd.equals("PK"))
        {
            RequestDispatcher rd =
request.getRequestDispatcher("WelcomePage");
            rd.forward(request, response);
        }
        else
        {
            out.println("<b> Sorry, Your UserName or Password is
Incorrect!!!");
            RequestDispatcher rd =
request.getRequestDispatcher("PKLoginForm");
            rd.include(request, response);
            //response.sendRedirect("PKLoginForm");
        }
        out.println("</Center>");
        out.println("</body>");
        out.println("</html>");
    }
}
```

}

Welcome Page Code :

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to change this license
 * Click
nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java to
edit this template
 */
package kk;

import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
```

**Smt.Chandaben Mohanbhai Patel Institute of Computer
Applications, CHARUSAT, Changa**

	<pre> import java.io.IOException; import java.io.PrintWriter; public class WelcomePage extends HttpServlet { @Override protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException { response.setContentType("text/html"); PrintWriter out = response.getWriter(); out.println("<html>"); out.println("<body bgcolor = 'teal'>"); out.println("<Center>"); String user= request.getParameter("upwd"); out.println(" Welcome User Your User Name is :"+ user); out.println("</Center>"); out.println("</body>"); out.println("</html>"); } } </pre>
Q10.	Write a Servlet application to demonstrate the use of Filters for preprocessing of request and response.
Q11.	Write a Servlet application to demonstrate Authentication Using Filters through FilterConfig Interface.
Q12.	Write a servlet application to Handle session using Session Tracking Techniques <ol style="list-style-type: none"> 1. Hidden Form Fields 2. URLRewriting 3. Session 4. Cookoies
Q13.	Write a CRUD application to create Login page which accept username & password from the user then compare the credentials of user from Database, if the credentials are valid then redirect to List page otherwise control should be on the Login Page. On the List page handle create, insert, update and delete operation on Student Table and display the details on List page using Servlet.
Q14.	Create Table Book(id,name,price). Write a Servlet application to insert data of Book i.e. is, name, price and display in tabular form. Create a hyperlink to purchase book asking quantity of book and display proper bill based on quantity entered by the user.

**Smt.Chandaben Mohanbhai Patel Institute of Computer
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15	Create Table Student(Id, Name, Marks1, Marks2, Marks 3). Write Servlet/JSP application to insert data and display all data. Also, in display each record contains link to calculate total and percentage of particular student.
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