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.
=>	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;
    }
```

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

Model :

```java
/*
 * 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 :

```
/*
 * 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 EmpView {
    public void displayInfo(String ename,int eid){

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


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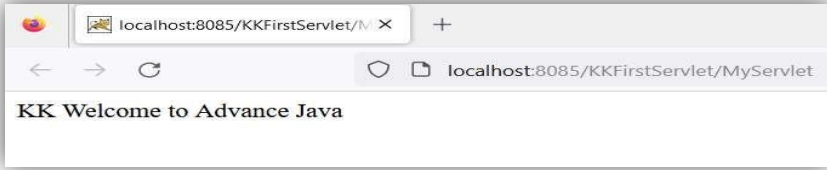
Main Class :
```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to
edit this template
 */
package mvc;

/**
 *
 * @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");
```
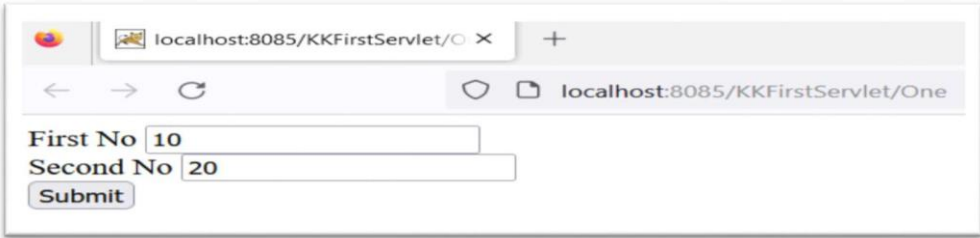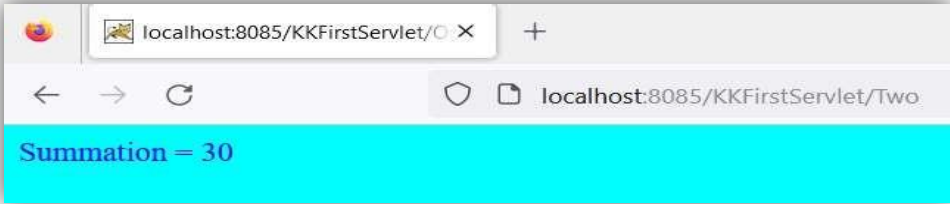

	md.setId(114);
	
	ec.updatedisplayInfo(vw, md);
	
	}
	
	}

Q2.	Installation of Tomcat 10 and its Configuration
Q3.	Write a Servlet code to create Hello World Program in Servlet. localhost:8085/KKFirstServlet/M × + ← → C ○ ▯ localhost:8085/KKFirstServlet/MyServlet KK Welcome to Advance Java
=>	/* * 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

	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\>");
	  }
	
	}

Q4.	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. First No 10 Second No 20 Submit Summation = 30
=>	Design 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;

```java
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 : =>

```java
/*
 * 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;


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>");
    }


}
```

Q5.	Write a Servlet code to demonstrate the ways of creating Servlets:
=>	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;



/**
 *
```

```
 * @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
```
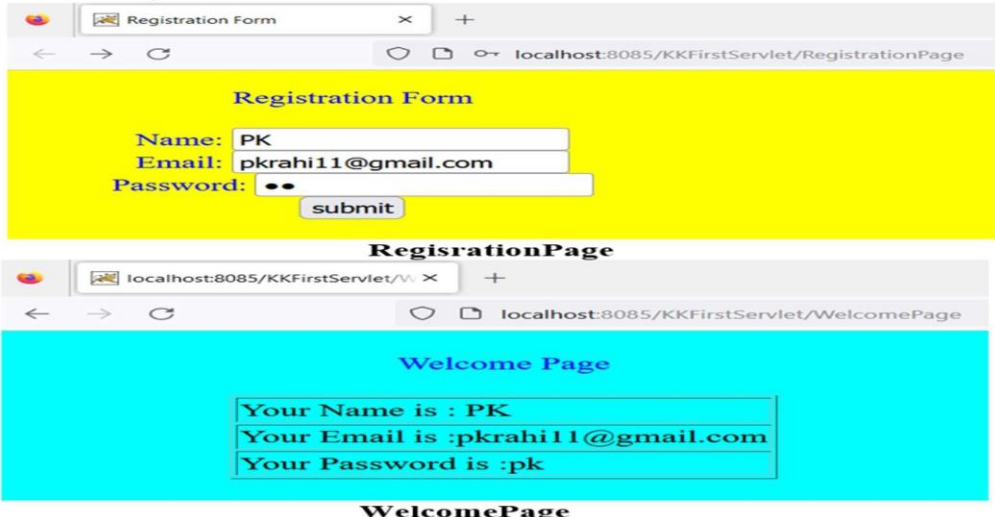
```java
 */
public class implementServlet implements Servlet {

    @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/GeneratedMeth
odBody
    }

    @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/GeneratedMeth
odBody
    }

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

	nbfs://nbhost/SystemFileSystem/Templates/Classes/Code/GeneratedMethodBody } }
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.	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.
=>	**Registration 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** ** */**

```java
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 :=>
```java
/*
 * 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
```
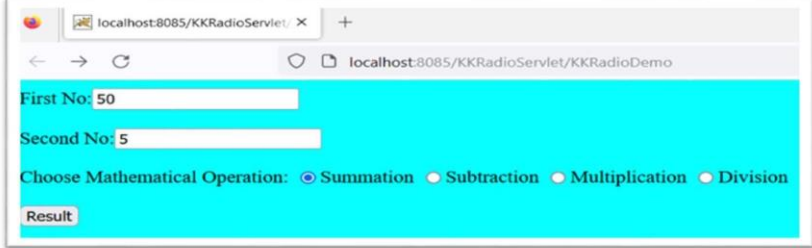
```java
    protected void doPost(HttpServletRequest req, HttpServletResponse resp)
throws ServletException, IOException {
        resp.setContentType("text/html");
    PrintWriter out = resp.getWriter();

    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>");
    }

}
```

Q2.	Write a servlet code to demonstrate use of Radio for Single Selection to perform mathematical operation.

=> **Input 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 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 :      <input type='text'
name='fno'><br><br>");
    out.println("Second Num : <input type='text' name='sno'><br>");
    out.println("Addition<input type='radio' value='add' name='opr'>");
    out.println("Substration<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'><br>");
```

```java
      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" :
```
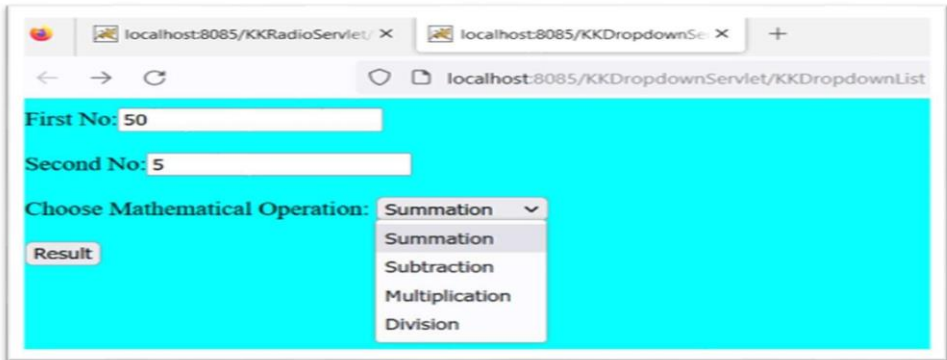
<table>
<tr><td></td><td>

```
         ans = n1*n2;
         break;

      case "div" :
         ans = n2/n1;
         break;


   }
 out.println("Answer of "+ sel + " is : " +ans);
 out.println("<center>");
 out.println("</html></body>");
}


}
```

</td></tr>
<tr><td>Q3.</td><td>

Write a Servlet application to demonstrate the use of Single Selection by dropdown list using select

</td></tr>
<tr><td>=></td><td>

Input 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;

</td></tr>
</table>

```java
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 :      <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;
```

```java
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>");
   }

}
```

Q4.	Write a Servlet application to demonstrate the use of Multiple selections using Checkbox

=>	**Input 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_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 : <br>");

      out.println("<form action='Q4_Output' method='Post'>");
```

```
    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 : ");
```

```
      for(int i=0;i<names.length;i++){
         out.println(names[i]);
       }

       out.println("</html></body>");
     }


   }
```

Q5.	Write a Servlet application to pass parameter from Web.xml to Servlet using ServletConfig Interface.

=>
Web.Xml File code :
```
<?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>
```

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;
```

```java
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 + "<br>");
    out.println("</body></html>");
  }


}
```

Q6.	Write a Servlet application to pass multiple parameter from Wb.xml to Servlet using ServletConfig Interface.

Web.Xml File Code :

```xml
<?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>
```

```
        <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>");
```

```
        out.println("<h2>Servlet Configuration Parameters:</h2>");
        out.println("Parameter 1: " + param1 + "<br>");
        out.println("Parameter 2: " + param2 + "<br>");
        out.println("</body></html>");
    }


}
```

Q7.	Write a Servlet application to pass parameter from Web.xml to Servlet using ServletContext Interface.
	
	Web.Xaml File Code :
	<?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>
	
	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.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 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>");
  }


}
```

Q8.	Write a Servlet application to pass multiple parameter from Wb.xml to Servlet using ServletContext Interface.

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.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();
```

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```
        String pra1 = servletContext.getInitParameter("pram1");
        String pra2 = servletContext.getInitParameter("pram2");
        PrintWriter out = resp.getWriter();
        resp.setContentType("text/html");



        out.println("<html><body>");
        out.println("Prameter 1 : " + pra1);
        out.println("Prameter 2 : " + pra2);
        out.println("</html></body>");
    }

}
```

Web.Xml File Code :

```xml
<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>
```

Q9.	Write a Servlet application to demonstrate RequestDispatcher for Navigation from one Servlet to another, also implement sendRedirect() method of Response.

=>
Login Page Code:

```xml
<servlet>
        <servlet-name>PKLoginForm</servlet-name>
```

```xml
        <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>
```

```java
/*
 * 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 {
```

```
        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 {
```

```java
        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;
```

```java
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("<b> Welcome User Your User Name is :" + user);
        out.println("</Center>");
        out.println("</body>");
        out.println("</html>");
    }


}
```

Q10. Write a Servlet application to demonstrate to demonstrate the use of Filters for preprocessing of request and response.

MyFilter.java =>

```java
/*
* Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/licensedefault.
txt to change this license
* Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java
to edit this template
*/
package kk;
import jakarta.servlet.Filter;
import jakarta.servlet.FilterChain;
import jakarta.servlet.FilterConfig;
import jakarta.servlet.ServletException;
import jakarta.servlet.ServletRequest;
import jakarta.servlet.ServletResponse;
import java.io.IOException;
/**
*
* @author CHARUSAT
*/
public class MyFilter implements Filter {
@Override
public void init(FilterConfig filterConfig)
throws ServletException {
}
@Override
```

```java
public void doFilter(ServletRequest request, ServletResponse
response, FilterChain fc)
throws IOException, ServletException {
System.out.println("Filter Before Servlet");
//......
//......
fc.doFilter(request, response);
System.out.println("Filter After Servlet");
//......
//......
}
@Override
public void destroy() {
}
}
```

Index.html=>

```html
<!DOCTYPE html>
<!--
Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt
to
change this license
Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Html.html to
edit this
template
-->
<html>
<head>
<title>TODO supply a title</title>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>
<body>
<div class =" container">
<h1><a href="ProfileServlet">Go to PROFILE Servlet</a></h1>
<h1><a href="OrderServlet">Go to ORDER Servlet</a></h1>
</div>
</body>
</html>
```

ProfileServlet =>

```java
/*
* Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/licensedefault.
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;
```

```java
import java.io.PrintWriter;
public class ProfileServlet extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request,
HttpServletResponse response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
System.out.println("Profile Servlet Executed.....");
out.println("<html>");
out.println("<head>");
out.println("<title> Servlet ProfileServlet </title>");
out.println("</head>");
out.println("<body bgcolor = 'teal'>");
out.println("<h1>Welcome to Profile Page</h1>");
out.println("<h1>This is Profile Page</h1>");
out.println("</body>");
out.println("</html>");
}
}


OrderServlet.java =>

/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/licensedefault.
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 OrderServlet extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request,
HttpServletResponse response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
System.out.println("Order Servlet Executed.....");
out.println("<html>");
out.println("<head>");
out.println("<title> Servlet OrderServlet </title>");
out.println("</head>");
out.println("<body bgcolor = 'cyan'>");
out.println("<h1> This is OrderServlet </h1>");
out.println("</body>");
out.println("</html>");
}
}
```

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 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.
	
	# DataBase Table ;
	create table Student5(
	id int primary key,
	name varchar2(20),
	age int,
	password varchar2(16)
	)
	# Login.java:
	/*
	* 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 Student;
	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 Login extends HttpServlet {
	@Override
	protected void doGet(HttpServletRequest request, HttpServletResponse response)
	throws ServletException, IOException {
	response.setContentType("text/html");
	PrintWriter out = response.getWriter();
	out.println("<html>");
	out.println("<body bgcolor = 'LightSkyBlue'>");
	out.println("<center>");
	out.println(" Login Page ");
	out.println("<form action='Validate'>");
	out.println("<table border = '1' align='center' bgcolor='yellow' >");
	out.println("<tr><td>UserName : <input type='text'

```
name='username'></td><tr>");
out.println("<tr><td>Password : <input type='password'
name='password'></td></tr>");
out.println("<tr><th colspan='2'><input type='submit'
value='Submit'></th></tr>");
out.println("</table>");
out.println("</form>");
out.println("</center></body></html>");
}
}
```

Validate.java :

```
/*
* 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 Student;
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;
import java.sql.*;
public class Validate extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse
response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body>");
String username=request.getParameter("username");
String password =request.getParameter("password");
String pass = "";
String name = "";
Connection con=null;
try
{
Class.forName("oracle.jdbc.OracleDriver");
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
//Building query
String query="select * from Student5 where name="+username;
Statement stmt = con.createStatement();
ResultSet rs = stmt.executeQuery(query);
```

```java
while (rs.next()) {
pass = rs.getString("password");
name = rs.getString("name");
}
rs.close();
stmt.close();
con.close();
}
catch(Exception e){
out.println(e);
}
if(password.equals(pass) && username.equals(name)){
response.sendRedirect("List");
}
else{
out.println("Enter Valid ID or Password");
}
out.println("</body>");
out.println("</html>");
}
}
```

List.java :

```java
/*
* 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 Student;
import java.sql.*;
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 List extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse
response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body bgcolor= 'cyan'>");
out.println("<center><h1> CRUD Operation On Student Table<h1>
<Center>");
Connection con = null;
try {
//Loading driver
```

```
Class.forName("oracle.jdbc.OracleDriver");
//Building bridge between java & database
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
//Building query
String query = "Select * from Student5";
//Firing query to database
Statement stmt = con.createStatement();
ResultSet rs = stmt.executeQuery(query);
out.println("<table border = '1' align='center'>");
out.println("<tr>");
out.println("<th> Student Sno</th>");
out.println("<th> Student Sname</th>");
out.println("<th> Student Sage</th>");
out.println("<th>Update</th>");
out.println("<th>Delete</th>");
out.println("</tr>");
while (rs.next()) {
String id = rs.getString("id");
String age = rs.getString("age");
String name = rs.getString("name");
out.println("<tr>");
out.println("<td>" + id + " </td>");
out.println("<td>" + name + "</td>");
out.println("<td>" + age + "</td>");
out.println("<td> <a href = 'Update?id=" + id + "'>Update</a></td>");
out.println("<td> <a href = 'Delete?id=" + id + "' > Delete </a> </td>");
}
out.println("</table>");
out.println("<br><Center><a href = 'Add'>Add New
Student</a></Center><br>");
rs.close();
stmt.close();
con.close();
} catch (Exception e) {
out.println(e);
}
out.println("</body>");
out.println("</html>");
}
}
```

Add.java :

```
/*
 * 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
 */
```

```java
package Student;
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;
import java.sql.*;
public class Add extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body bgcolor = 'LightSkyBlue'>");
out.println("<center><h1>Insert Student <h1> <Center>");
Connection con=null;
int id=0;
try
{
Class.forName("oracle.jdbc.OracleDriver");
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
String query="Select max(id) maxnum from Student5";
//Firing query to database
Statement stmt=con.createStatement();
ResultSet rs=stmt.executeQuery(query);
while(rs.next())
{
id=rs.getInt("maxnum");
}
rs.close();
stmt.close();
con.close();
}
catch(Exception e)
{
System.out.println(e);
}
id++;
out.println("<form action = 'Insert'>");
out.println("<table border = '1' align='center' bgcolor='yellow' >");
out.println("<tr><td>Student No:</td> <td>" + id + "<input type ='hidden'
name = 'id' value ='"+id+"'></td> </tr>");
out.println("<tr><td>Student Name:</td><td> <input type='text'
name='name'></td><tr>");
out.println("<tr><td>Student Age:</td><td> <input type='text'
name='age'></td></tr>");
```

```
out.println("<tr><td>Password:</td><td> <input type='text'
name='password'></td></tr>");
out.println("<tr><th colspan='2'><input type='submit'
value='Submit'></th></tr>");
out.println("</table>");
out.println("</form>");
}
}
```

Insert.java :

```java
/*
* 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 Student;
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;
import java.sql.*;
public class Insert extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse
response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body>");
out.println("<center><h1>Insert Student <h1> <Center>");
String id=request.getParameter("id");
String name=request.getParameter("name");
String age=request.getParameter("age");
String password =request.getParameter("password");
Connection con=null;
try
{
Class.forName("oracle.jdbc.OracleDriver");
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
//Building query
String query="Insert into Student5 values(" + id + ",'" + name + "'," + age +
",'"+password+"')";
Statement stmt=con.createStatement();
stmt.executeUpdate(query);
```

```
stmt.close();
con.close();
}
catch(Exception e){
out.println(e);
}
response.sendRedirect("List");
out.println("</body>");
out.println("</html>");
}
}
```

Update.java :

```
/*
* 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 Student;
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;
import java.sql.*;
public class Update extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse
response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
String id = request.getParameter("id");
String name = "";
String age = "";
Connection con;
try
{
Class.forName("oracle.jdbc.OracleDriver");
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
String query="Select * from Student5 where id=" + id;
Statement stmt=con.createStatement();
ResultSet rs=stmt.executeQuery(query);
if(rs.next())
{
name = rs.getString("name");
```

```
age = rs.getString("age");
}
rs.close();
stmt.close();
con.close();
}
catch(Exception e)
{
System.out.println(e);
}
out.println("<html>");
out.println("<body bgcolor = 'LightSkyBlue'>");
out.println("<center><h1>Update Student <h1> <Center>");
out.println("<form action='Edit'>");
out.println("<table border = '1' align='center' bgcolor='cyan' >");
out.println("<tr>");
out.println("<td>Student No:</td>");
out.println("<td> " + id + "<input type ='hidden' name='id'
value='"+id+"'></td>");
out.println("</tr>");
out.println("<tr>");
out.println("<td>Student Name:</td>");
out.println("<td><input type='text' name='name' value='" + name + "'></td>");
out.println("</tr>");
out.println("<tr>");
out.println("<td>Student Age:</td>");
out.println("<td><input type='text' name='age' value='" + age + "'></td>");
out.println("</tr>");
out.println("<tr>");
out.println("<th colspan='2'><input type='submit' value='Submit'></th>");
out.println("</tr>");
out.println("</table>");
out.println("</form>");
out.println("</body>");
out.println("</html>");
}
}
```

Edit.java :

```
/*
* Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to
change this license
* Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java
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this template
*/
package Student;
import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import java.io.IOException;
```

```java
import java.io.PrintWriter;
import java.sql.*;
public class Edit extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body>");
String sno=request.getParameter("id");
String sname=request.getParameter("name");
String sage=request.getParameter("age");
Connection con;
try
{
Class.forName("oracle.jdbc.OracleDriver");
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
String query="Update Student5 set name='" + sname + "', age=" + sage + "
where id=" + sno;
Statement stmt=con.createStatement();
stmt.executeUpdate(query);
stmt.close();
con.close();
}
catch(Exception e)
{
out.println(e);
}
response.sendRedirect("List");
out.println("</body>");
out.println("</html>");
}
}
```

Delete.java :

```java
/*
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change this license
* Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java
to edit
this template
*/
package Student;
import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
```

```java
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.*;
public class Delete extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body>");
String sno=request.getParameter("id");
Connection con=null;
try
{
Class.forName("oracle.jdbc.OracleDriver");
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
String query="Delete from Student5 where id=" + sno;
Statement stmt=con.createStatement();
stmt.executeUpdate(query);
stmt.close();
con.close();
}
catch(Exception e)
{
System.out.println(e);
}
response.sendRedirect("List");
out.println("</body>");
out.println("</html>");
}
 }
```

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.

Database Table :

```
create table Book(
id int,
name varchar2(100),
price int
)
```

List_Books.java :

```java
/*
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* Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java
to edit
this template
*/
package Book;
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;
import java.sql.*;
public class List_Books extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse
response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body bgcolor= 'cyan'>");
out.println("<center><h1> CRUD Operation On Student Table<h1>
<Center>");
Connection con = null;
try {
//Loading driver
Class.forName("oracle.jdbc.OracleDriver");
//Building bridge between java & database
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
//Building query
String query = "Select * from Book";
//Firing query to database
```

```
Statement stmt = con.createStatement();
ResultSet rs = stmt.executeQuery(query);
out.println("<table border = '1' align='center'>");
out.println("<tr>");
out.println("<th> Book Name</th>");
out.println("<th> Book Price</th>");
out.println("<th>Purchase</th>");
out.println("</tr>");
while (rs.next()) {
String id = rs.getString("id");
String book_name = rs.getString("name");
String book_price = rs.getString("price");
out.println("<tr>");
out.println("<td>" + book_name + " </td>");
out.println("<td>" + book_price + "</td>");
out.println("<td> <a href = 'Purchase?id=" + id + "'>Buy</a></td>");
out.println("</tr>");
}
out.println("</table>");
out.println("<br><Center><a href = 'Add_Book'>Add New
Book</a></Center><br>");
rs.close();
stmt.close();
con.close();
} catch (Exception e) {
out.println(e);
}
out.println("</body>");
out.println("</html>");
}
}
```

Add_Books.java :

```
/*
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change this license
* Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java
to edit
this template
*/
package Book;
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;
import java.sql.*;
public class Add_Book extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse
response)
```

```java
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body bgcolor = 'pink'>");
out.println("<center><h1>Insert Book <h1> <Center>");
Connection con=null;
int id=0;
try
{
Class.forName("oracle.jdbc.OracleDriver");
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
String query="Select max(id) maxnum from Book";
//Firing query to database
Statement stmt=con.createStatement();
ResultSet rs=stmt.executeQuery(query);
while(rs.next())
{
id=rs.getInt("maxnum");
}
rs.close();
stmt.close();
con.close();
}
catch(Exception e)
{
System.out.println(e);
}
id++;
out.println("<form action = 'Insert_Book'>");
out.println("<table border = '1' align='center' bgcolor='yellow' >");
out.println("<tr><td>Student No:</td> <td>" + id + "<input type ='hidden'
name = 'id' value ='"+id+"'></td> </tr>");
out.println("<tr><td>Book Name:</td><td> <input type='text'
name='book_name'></td><tr>");
out.println("<tr><td>Book Price:</td><td> <input type='text'
name='book_price'></td></tr>");
out.println("<tr><th colspan='2'><input type='submit'
value='Submit'></th></tr>");
out.println("</table>");
out.println("</form>");
}
}
```

Insert_Book :

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

```java
to edit
this template
*/
package Book;
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;
import java.sql.*;
public class Insert_Book extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException {
response.setContentType("text/html");
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body>");
out.println("<center><h1>Insert Book <h1> <Center>");
String id=request.getParameter("id");
String name=request.getParameter("book_name");
String price=request.getParameter("book_price");
Connection con=null;
try
{
Class.forName("oracle.jdbc.OracleDriver");
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
//Building query
String query="Insert into Book values(" + id + ",'" + name + "'," + price +
")";
Statement stmt=con.createStatement();
stmt.executeUpdate(query);
stmt.close();
con.close();
}
catch(Exception e){
out.println(e);
}
response.sendRedirect("List_Books");
out.println("</body>");
out.println("</html>");
}
}
```

Purchase.java :
```java
/*
* Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-
default.txt to
```

```java
change this license
* Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Servlet.java
to edit
this template
*/
package Book;
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;
import java.sql.*;
public class Purchase extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse
response)
throws ServletException, IOException {
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body bgcolor = 'LightSkyBlue'>");
out.println("<center><h1>Purchase Book <h1> <Center>");
Connection con = null;
String book_name = "";
String book_price = "";
String book_id = "";
try {
Class.forName("oracle.jdbc.OracleDriver");
con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:XE",
"system",
"system");
String id = request.getParameter("id");
String query = "Select * from Book where id=" + id;
Statement stmt = con.createStatement();
ResultSet rs = stmt.executeQuery(query);
out.println("<table>");
while (rs.next()) {
book_id = rs.getString("id");
book_name = rs.getString("name");
book_price = rs.getString("price");
}
rs.close();
stmt.close();
con.close();
} catch (Exception e) {
System.out.println(e);
}
out.println("<form action = 'Order'>");
out.println("<table border = '1' align='center' bgcolor='yellow' >");
out.println("<tr><td>Book Name</td> <td>" + book_name + "<input type
='hidden' name = 'book_name' value ='"+book_name+"'></td></tr>");
```

```java
out.println("<tr><td>Book Price</td> <td>" + book_price + "<input type
='hidden' name = 'book_price' value ='"+book_price+"'></td></tr>");
out.println("<tr><td>Quantity</td> <td><input type='text'
name='quantity'></td></tr>");
out.println("<tr><th colspan='2'><input type='submit'
value='Submit'></th></tr>");
out.println("</table>");
out.println("</form>");
}
}
```

Order.java:

```java
/*
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to edit
this template
*/
package Book;
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;
import java.sql.*;
public class Order extends HttpServlet {
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse
response)
throws ServletException, IOException {
PrintWriter out = response.getWriter();
out.println("<html>");
out.println("<body bgcolor = 'LightSkyBlue'>");
out.println("<center><h1>Your Bill<h1> ");
String book_nm = request.getParameter("book_name");
int book_pr = Integer.parseInt(request.getParameter("book_price"));
int qty = Integer.parseInt(request.getParameter("quantity"));
int total = book_pr * qty;
out.println("<table border = '1' align='center' bgcolor='yellow' >");
out.println("<tr><th colspan='2'>Bill</th></tr>");
out.println("<tr><td>Book Name</td> <td>" + book_nm + "</td></tr>");
out.println("<tr><td>Book Price</td> <td>" + book_pr + "</td></tr>");
out.println("<tr><td>Quantity</td> <td>" + qty + "</td></tr>");
out.println("<tr><td>Total Amount</td> <td>"+total+"</td></tr>");
out.println("</table>");
out.println("<h2>Thanks for Placing the Order <a
href='List_Books'>List</a></h2>");
out.println("</center></body></html>");
```

```
}
  }
```

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.