**Step-by-Step: Calculator Web App in Eclipse Enterprise Edition**

✅ **Tech stack:**

* Eclipse IDE for Enterprise Java
* Apache Tomcat server
* JSP/Servlet
* Java

**Step 1️⃣ — Set Up Eclipse IDE & Server**

1. **Install Eclipse IDE for Enterprise Java**  
   If not installed, download from eclipse.org (select *Enterprise Java and Web Developers* package).
2. **Install Apache Tomcat**  
   Download Tomcat (e.g., version 9) from [tomcat.apache.org](https://tomcat.apache.org).  
   Unzip it and remember the path.
3. **Configure Tomcat in Eclipse**
   * In Eclipse: *Window → Preferences → Server → Runtime Environments → Add → Apache Tomcat*
   * Point it to the Tomcat folder you extracted.

**Step 2️⃣ — Create a Dynamic Web Project**

1. Go to **File → New → Dynamic Web Project**
2. Give it a name: CalculatorApp
3. Select the Tomcat runtime you configured
4. Finish.

Eclipse will generate the project structure, including:

lua

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CalculatorApp

|-- WebContent

|-- WEB-INF

|-- src

**Step 3️⃣ — Design the Calculator Form (JSP)**

In WebContent, create a file:

* **File name**: index.jsp

Add basic HTML with a calculator form, for example:

jsp

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<!DOCTYPE html>

<html>

<head>

<title>Calculator</title>

</head>

<body>

<h2>Simple Calculator</h2>

<form action="CalculateServlet" method="post">

First Number: <input type="text" name="num1"><br><br>

Second Number: <input type="text" name="num2"><br><br>

Operation:

<select name="operation">

<option value="add">Add</option>

<option value="sub">Subtract</option>

<option value="mul">Multiply</option>

<option value="div">Divide</option>

</select><br><br>

<input type="submit" value="Calculate">

</form>

</body>

</html>

**Step 4️⃣ — Create the Servlet**

1. Right-click on src → *New → Servlet*
2. Name it: CalculateServlet
3. Map the URL pattern to /CalculateServlet

Eclipse will generate the skeleton for you.

Replace the doPost() with this logic:

java

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package com.calculator;

import java.io.\*;

import jakarta.servlet.\*;

import jakarta.servlet.http.\*;

public class CalculateServlet extends HttpServlet {

protected void doPost(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException {

int num1 = Integer.parseInt(request.getParameter("num1"));

int num2 = Integer.parseInt(request.getParameter("num2"));

String operation = request.getParameter("operation");

int result = 0;

switch (operation) {

case "add":

result = num1 + num2;

break;

case "sub":

result = num1 - num2;

break;

case "mul":

result = num1 \* num2;

break;

case "div":

result = num2 != 0 ? num1 / num2 : 0;

break;

}

response.setContentType("text/html");

PrintWriter out = response.getWriter();

out.println("<h2>Result is: " + result + "</h2>");

}

}

**Step 5️⃣ — Configure web.xml (Optional)**

Eclipse usually handles the servlet mapping automatically, but if you want a traditional web.xml, you can edit it under WEB-INF:

xml

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<web-app>

<servlet>

<servlet-name>CalculateServlet</servlet-name>

<servlet-class>com.calculator.CalculateServlet</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>CalculateServlet</servlet-name>

<url-pattern>/CalculateServlet</url-pattern>

</servlet-mapping>

</web-app>

**Step 6️⃣ — Run the Application**

1. Right-click on your project → *Run on Server*
2. Choose Tomcat
3. It will deploy, and open:

bash

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http://localhost:8080/CalculatorApp/index.jsp

1. Enter numbers and select operation → you will get the result displayed.

**✅ Done!**

That’s the **end-to-end** workflow:

* **index.jsp** → takes inputs
* **CalculateServlet.java** → processes calculation
* Tomcat serves the app

**2️⃣ Confirm Servlet URL Pattern**

* In your servlet, you need to check the annotation or web.xml:

**If using annotation**:

@WebServlet("/CalculateServlet")

public class CalculateServlet extends HttpServlet {

//...

}

If you are not mapping servlet in web xml