

# Lab 1

## Part 1: Servlets

Given is the file **lab1ServletCalculator.zip**.

Unzip this file.

In IntelliJ select **File->Open** and select the folder **Lab1a**.

The project contains the following servlet:

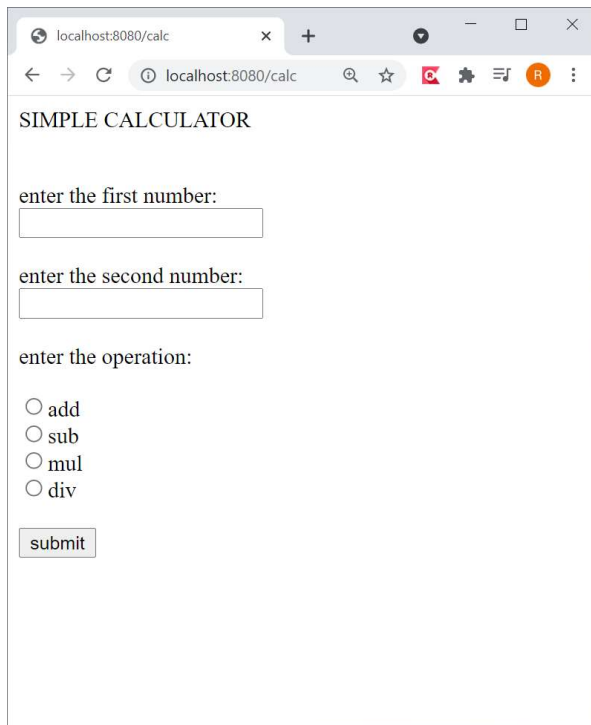
```
@WebServlet("/calc")
public class CalculatorServlet extends HttpServlet {

    protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        //show calculator page
        PrintWriter out = response.getWriter();
        out.println("<html>");
        out.println("<head>SIMPLE CALCULATOR<br><br><br></head>");
        out.println("<body>");
        out.println("<form method = 'post' action = 'calc'>");
        out.println("enter the first number:<br>");
        out.println("<input type = 'text' name='number1'><br><br>");
        out.println("enter the second number:<br>");
        out.println("<input type = 'text' name='number2'><br><br>");
        out.println("enter the operation:<br><br>");
        out.println("<input type = 'radio' name = 'op' value = '+'>add<br>");
        out.println("<input type = 'radio' name = 'op' value = '-'>sub<br>");
        out.println("<input type = 'radio' name = 'op' value = '*'>mul<br>");
        out.println("<input type = 'radio' name = 'op' value =
'/'>div<br><br>");
        out.println("<input type = 'submit' name = 'result' value =
'submit'><br>");
        out.println("</body>");
        out.println("</html>");
        out.flush();
    }

    protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        //show result page
        PrintWriter out = response.getWriter();
        out.println("doPost is called");
        out.flush();
    }
}
```

Now run the file `SpringBootWebApplication.java`

Then open your browser with the url: **`http://localhost:8080/calc`**



A screenshot of a web browser window with the address bar showing 'localhost:8080/calc'. The page title is 'SIMPLE CALCULATOR'. The form contains three input fields: 'enter the first number:', 'enter the second number:', and 'enter the operation:'. The operation field has four radio buttons labeled 'add', 'sub', 'mul', and 'div'. Below the operation field is a 'submit' button.

localhost:8080/calc

SIMPLE CALCULATOR

enter the first number:

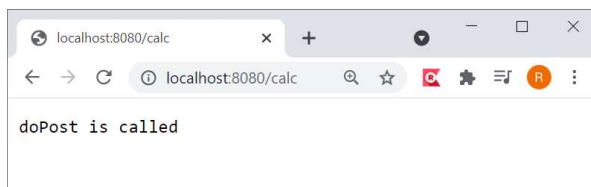
enter the second number:

enter the operation:

☐ add  
☐ sub  
☐ mul  
☐ div

submit

When you click the submit button, the following page is shown:

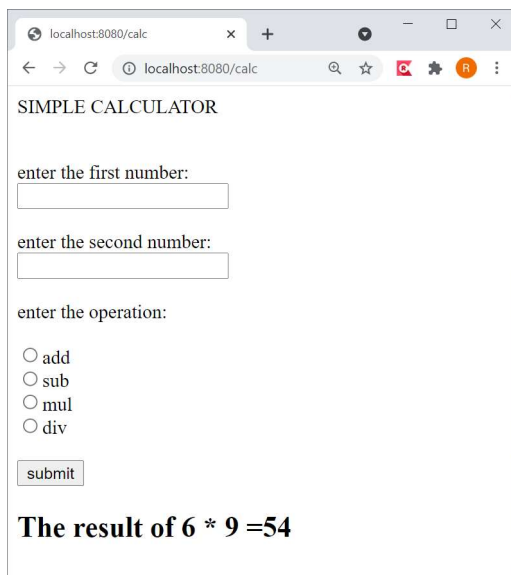


A screenshot of a web browser window with the address bar showing 'localhost:8080/calc'. The page content is 'doPost is called'.

localhost:8080/calc

doPost is called

Modify the calculator so that it shows the result of the calculation after clicking the submit button.  
For this exercise only use servlets.



A screenshot of a web browser window with the address bar showing 'localhost:8080/calc'. The page title is 'SIMPLE CALCULATOR'. The form contains three input fields: 'enter the first number:', 'enter the second number:', and 'enter the operation:'. The operation field has four radio buttons labeled 'add', 'sub', 'mul', and 'div'. Below the operation field is a 'submit' button. Below the form, the text 'The result of 6 \* 9 =54' is displayed.

localhost:8080/calc

SIMPLE CALCULATOR

enter the first number:

enter the second number:

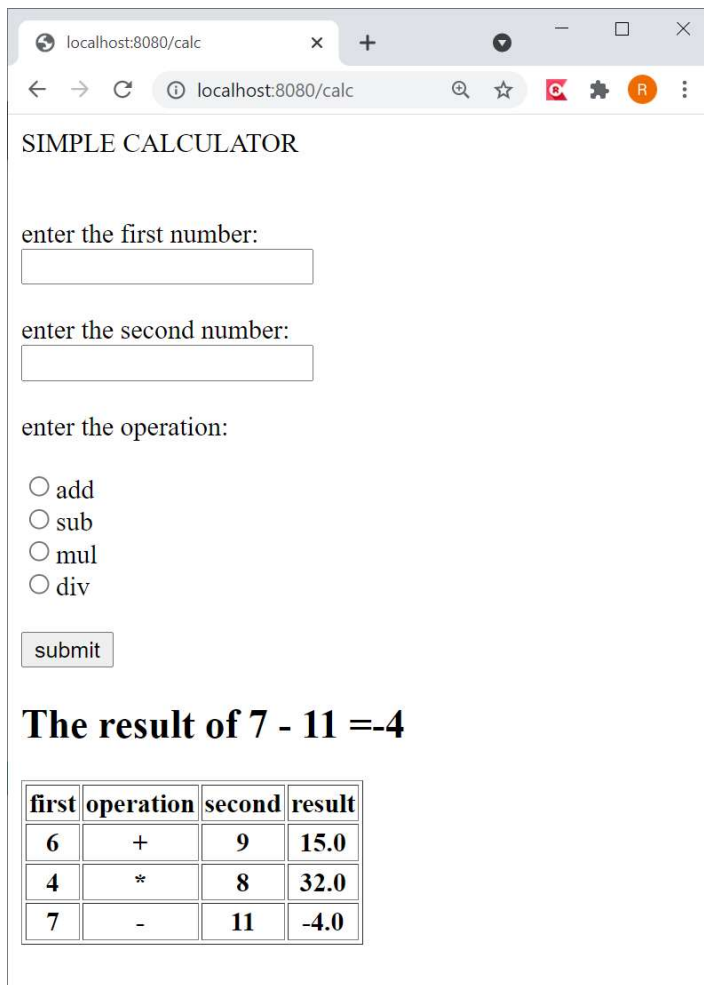
enter the operation:

☐ add  
☐ sub  
☐ mul  
☐ div

submit

**The result of 6 \* 9 =54**

When this works, modify the servlet so that also all previous calculations are shown:



localhost:8080/calc

localhost:8080/calc

### SIMPLE CALCULATOR

enter the first number:

enter the second number:

enter the operation:

☐ add  
☐ sub  
☐ mul  
☐ div

**The result of 7 - 11 =-4**

first	operation	second	result
6	+	9	15.0
4	*	8	32.0
7	-	11	-4.0

## Part 2: SpringMVC

Given is the project **Lab1SpringMVC.zip**

Open this project in IntelliJ.

When you run the class `SpringBootMVCApplication.java` it will start Tomcat and deploy the project into Tomcat.

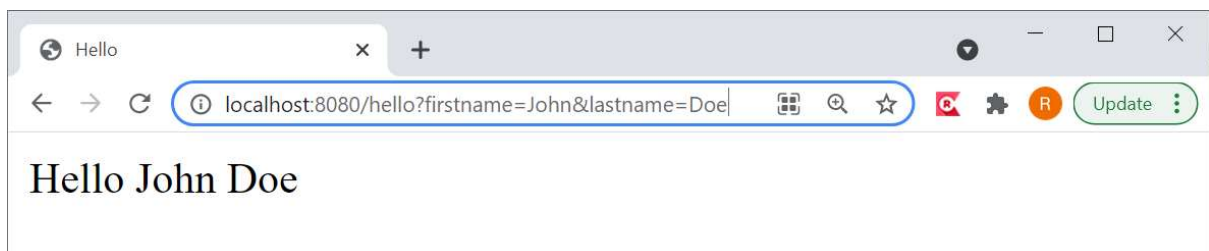
You can now call the application in the browser with the URL

<http://localhost:8080/hello?firstname=Frank&lastname=Brown>



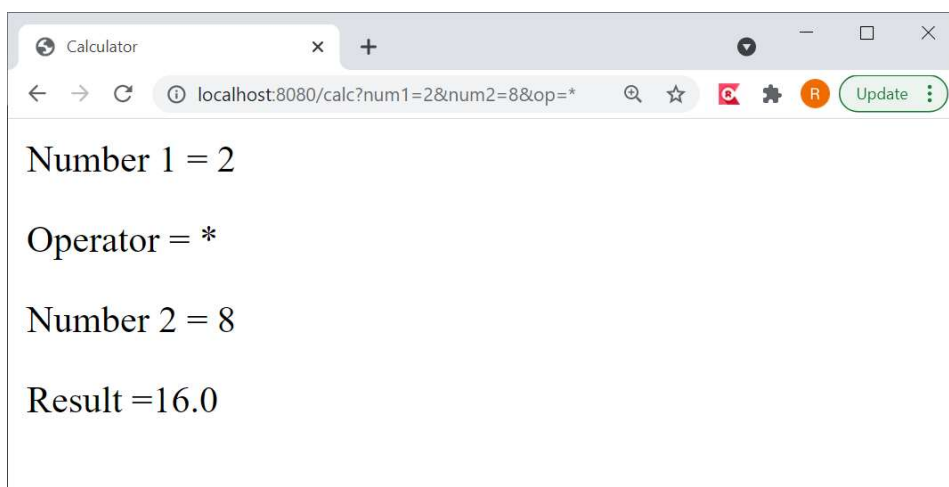
And the URL <http://localhost:8080/hello?firstname=John&lastname=Doe>

Will result in the following page:

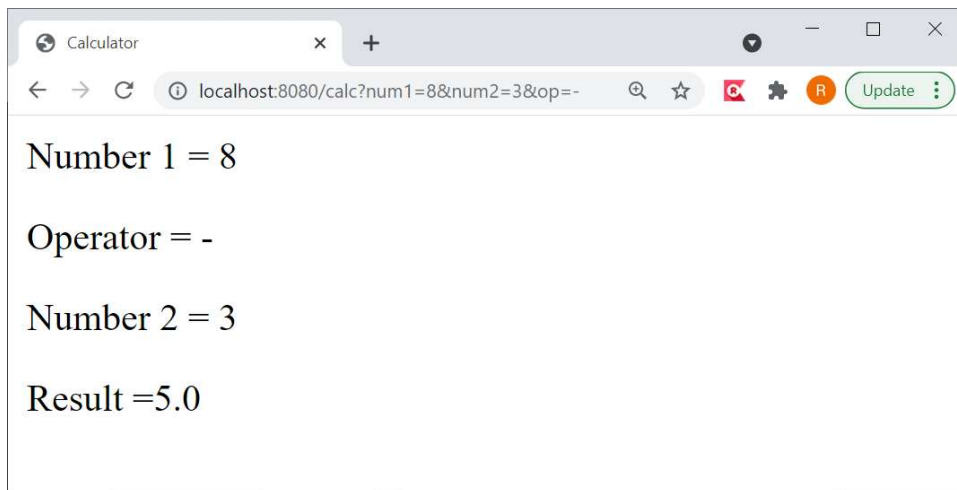


Modify the project so that you can make computations. The 2 numbers and the operation is given in the parameters on the URL:

[http://localhost:8080/calc?num1=2&num2=8&op=\\*](http://localhost:8080/calc?num1=2&num2=8&op=*)



And the URL <http://localhost:8080/calc?num1=8&num2=3&op=-> should show the following page:



For this project, only use Spring MVC.

### **What to hand in?**

1. Zip the project of part 1 into one zip file
2. Zip the project of part 2 into one zip file
3. Write a readme.txt file with the following content:
  - a) Status of the lab. Describe here if you finished all parts of the lab or not. If you did not finish the lab, describe which parts are finished, and which parts not. Describe clearly why some parts are not finished.
  - b) Write the following statement and sign with your name:

***I hereby declare that this submission is my own original work and to the best of my knowledge it contains no materials previously published or written by another person. I am aware that submitting solutions that are not my own work will result in an NC of the course.***

***I am aware that I am not allowed to share solutions with other students.***

***I am aware that if I submit only parts of this lab that points will be subtracted.***

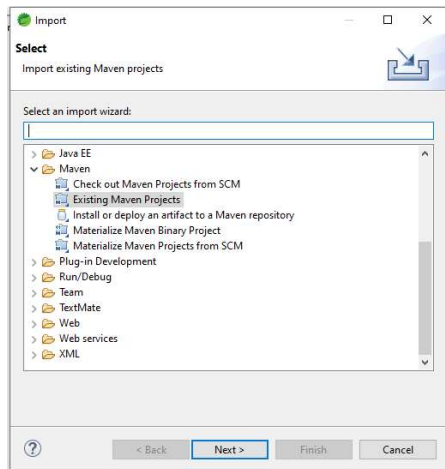
***I am aware that if my lab submission does not contain this readme.txt file that I do not get points for this lab.***

***[your name as signature]***

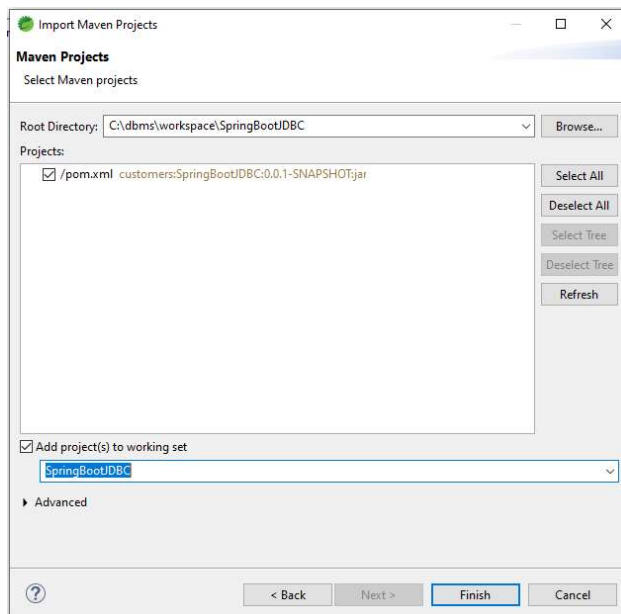
Submit these 3 files in sakai as your solution of the lab.

If you want to use Eclipse instead of IntelliJ, do the following:

In Eclipse select **File-> Import**



Choose **Maven-> Existing Maven Project** and click **Next**



Select the location of your project and check the **Add project to working set** checkbox.

Then click **Finish** and you are done.