

Practice 12

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In this practice, we'll be creating a simple web application using Tomcat.

Preparation

Download & Install IntelliJ Ultimate

We need **IntelliJ Ultimate** for this practice. Please download and install **IntelliJ Ultimate**. To use it, you need to apply for a free student licence [here](#) using your Sustech email account.

Download & Install Tomcat

Download Tomcat [here](#). Install/unzip the downloaded file. Note that you might want to use Tomcat version 9 instead of version 10, which has some known [compatibility issues](#).

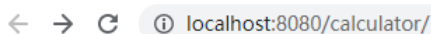
Create a new Tomcat application

In IntelliJ Ultimate, "New Project" -> "Java Enterprise":

- For "Template", choose "Web application"
- For "Application server", choose "New" -> "Tomcat server"
- In the popup, specify the installation path for Tomcat
- Click "Next" -> "Create".

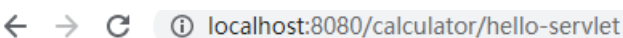
If you want to change the URL to more meaningful ones, click "Run/Edit Configuration" -> "Tomcat server" -> "Deployment", and change the "Application context" at the bottom.

At this point, you could start the server by clicking "Run" (the green triangle button). If everything works fine, tomcat will open your browser automatically and show you the content that is specified in **index.jsp**. By clicking the "hello servlet" link, you should be directed to a new URL with a new content, all of which are defined in the **HelloServlet** class.

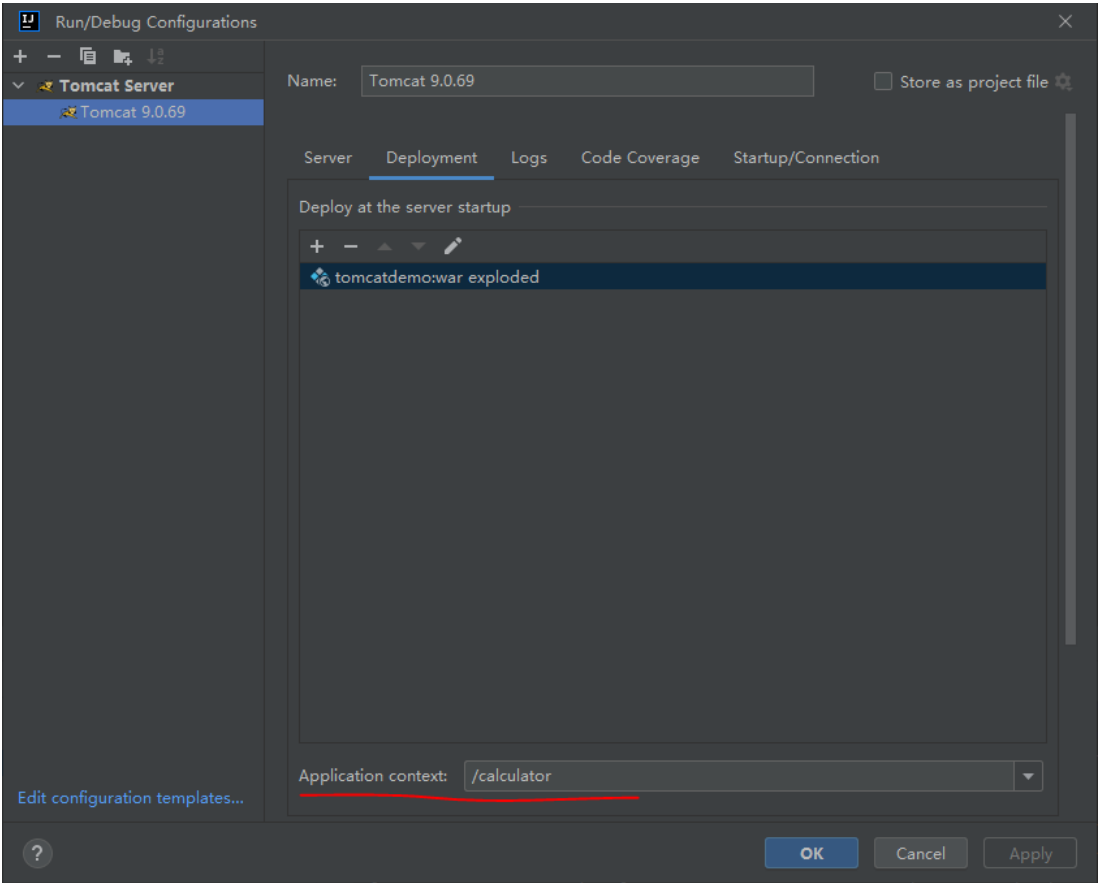
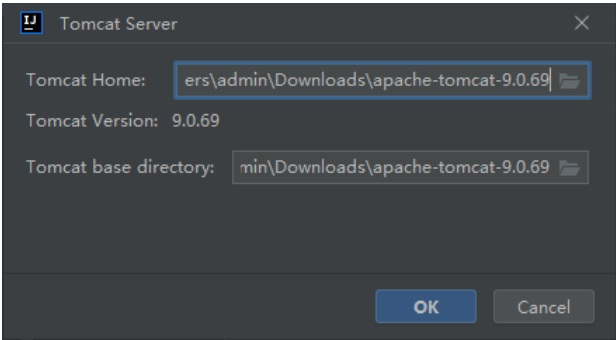
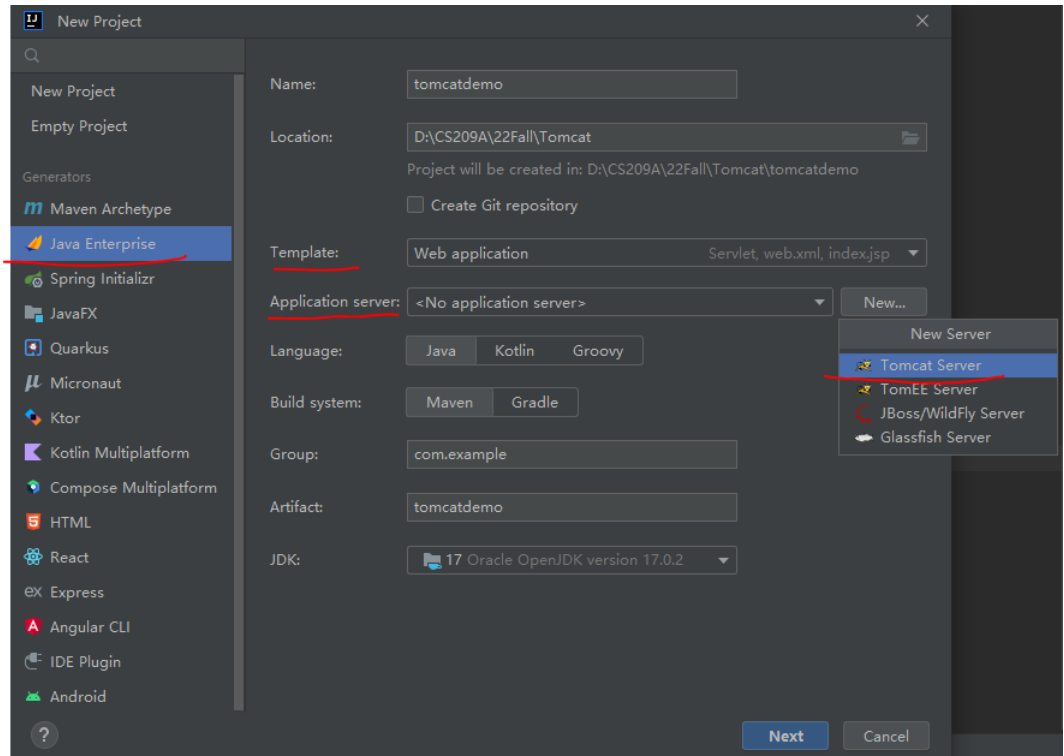


Hello World!

[Hello Servlet](#)

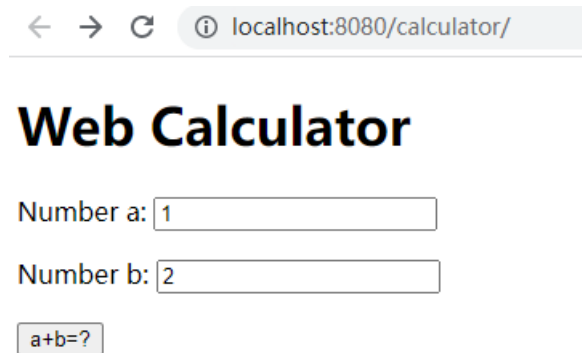


Hello!



Task: Build a simple web calculator

First, replace `index.jsp` with the one we uploaded to Sakai. Then, restart the server, and you should see page like below.

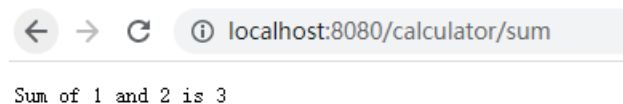


The screenshot shows a web browser window with the address bar displaying `localhost:8080/calculator/`. The page title is "Web Calculator". Below the title, there are two input fields: "Number a:" with the value "1" and "Number b:" with the value "2". At the bottom, there is a button labeled "a+b=?".

When we click "a+b=?", a new page with URL "`http://localhost:8080/calculator/sum`" opened, but with the 404 error. This URL opens because we set `action="sum"` for form submission in `index.jsp`. This page cannot be found because we haven't declared the corresponding servlet. To do that, you could right-click the package and select "New" -> "Servlet" to create a new servlet. Then, you should:

- Properly configure the URL-servlet mapping.
- Note that the form method is "post" (`method="post"`). So, you should implement the proper method in the servlet to get the number a and b, add them, and return the response.

You should demonstrate that by clicking the button, a new page "`http://localhost:8080/calculator/sum`" opens with the following content:



The screenshot shows a web browser window with the address bar displaying `localhost:8080/calculator/sum`. The page content is "Sum of 1 and 2 is 3".

Evaluation

The practice will be checked before Dec.14 by teachers or SAs. What will be tested:

1. That you understand every line of your own code, not just copy from somewhere
2. That your program compiles correctly (javac)
3. Correctness of the program logic
4. That the result is obtained in a reasonable time

Late submissions after Dec.14 will incur a 20% penalty, meaning that you can only get 80% of this practice's score.