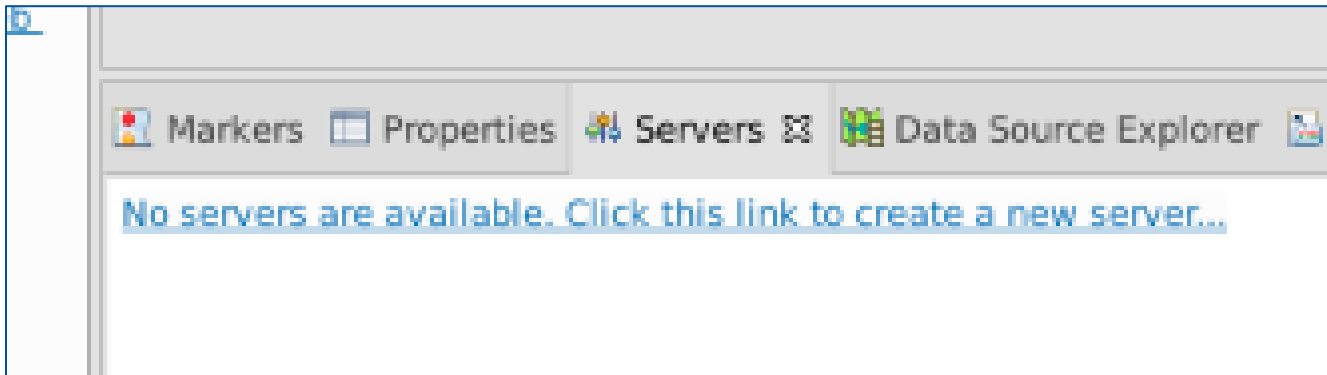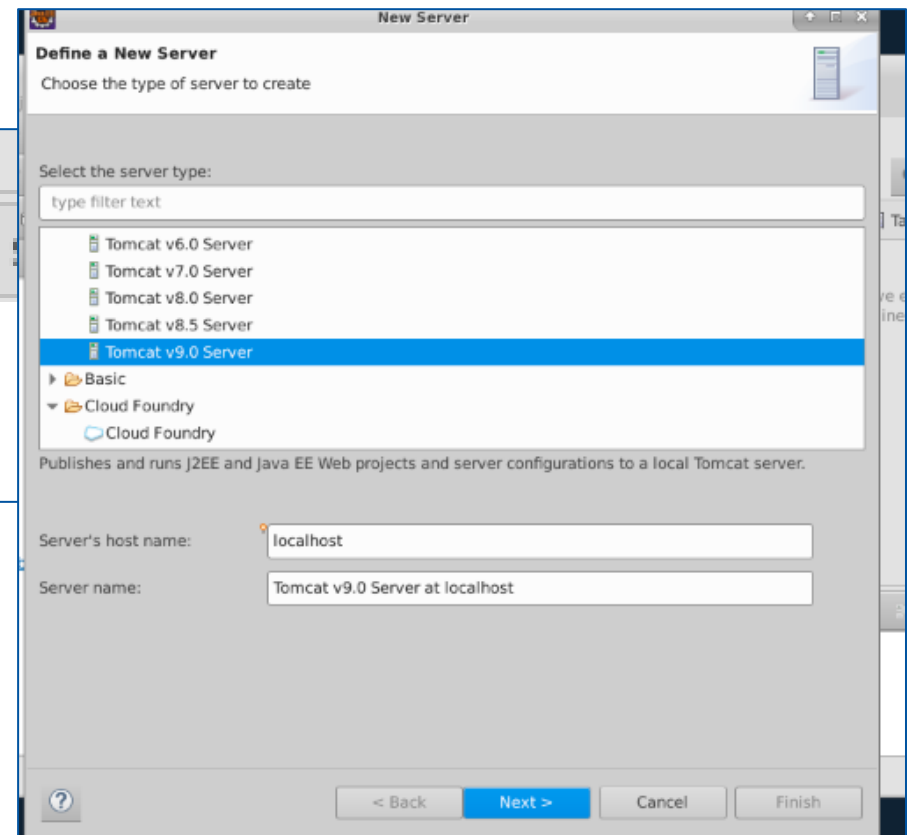# Lab 2.1 – Stateless Session Bean with Remote Interface

- Once your eclipse workspace is open the first thing we need to do is to create and launch a Tomee server instance

- But first things first, locate your tome instance. It is in the /home/developer directory. Now you know where your server is, in the eclipse JEE perspective click the server tab and the link to create a server
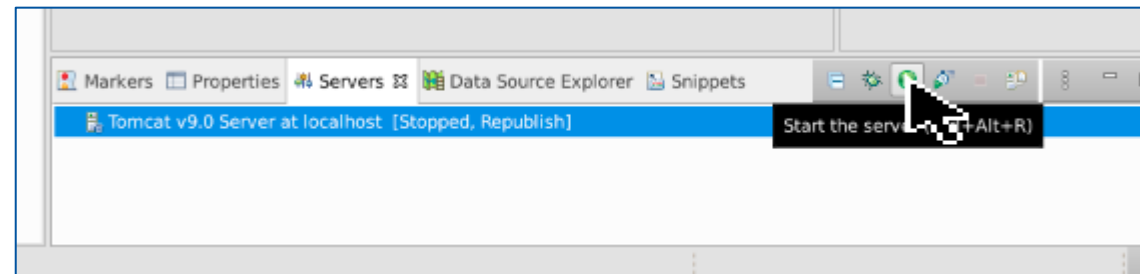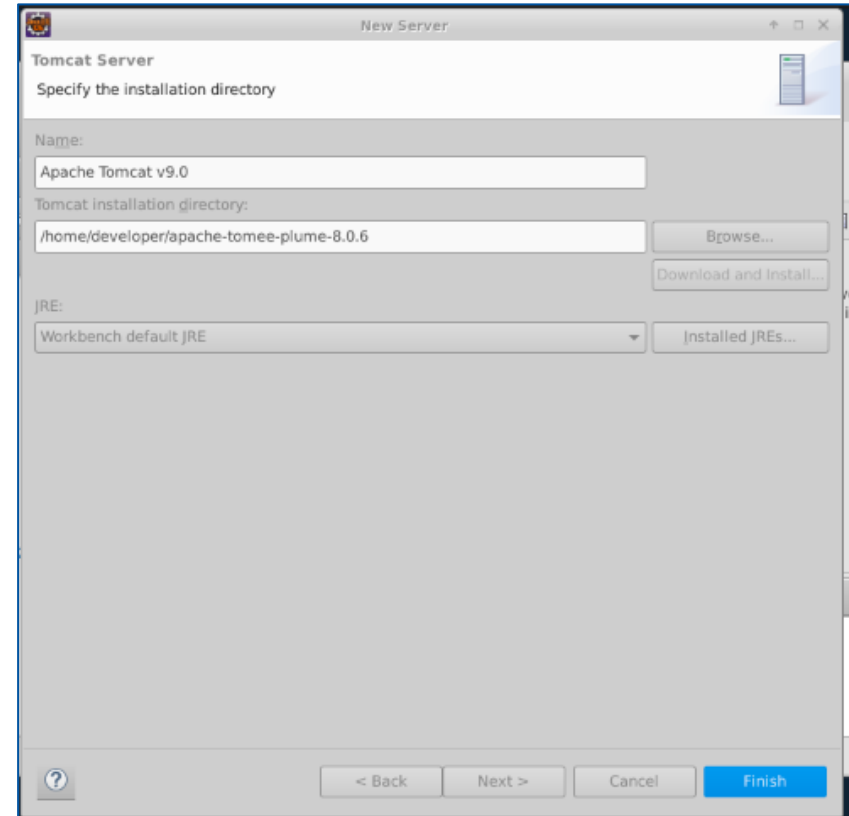

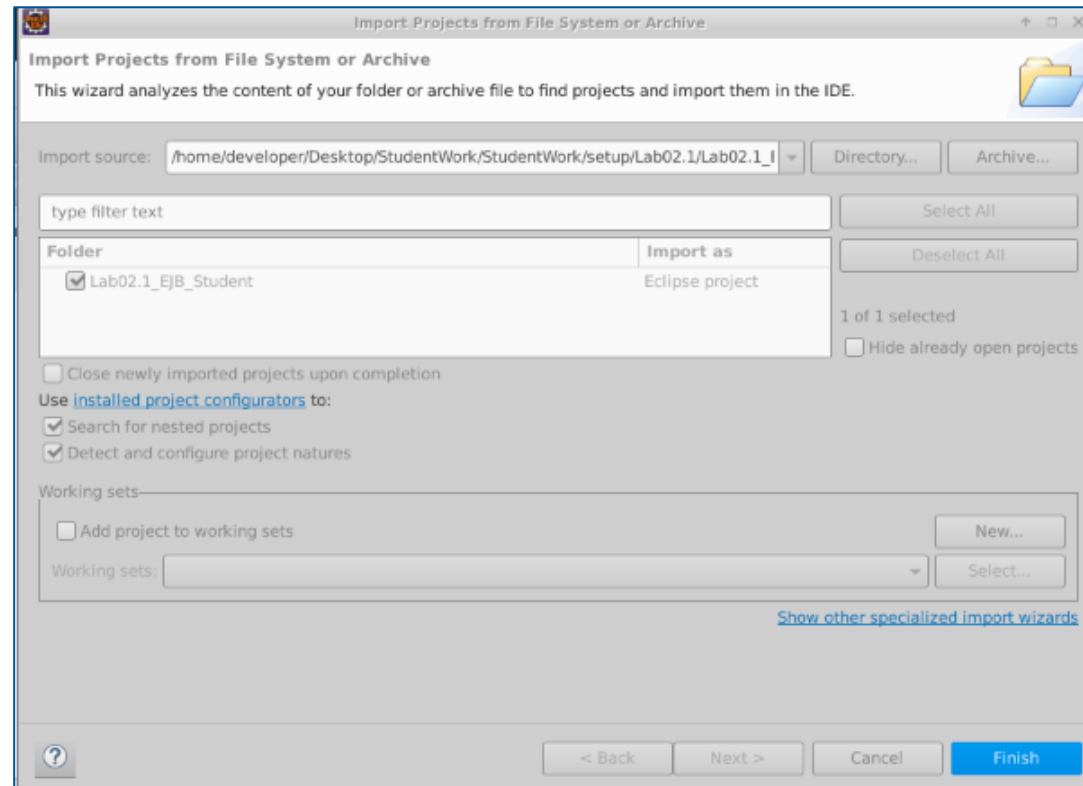- Select Apache->Tomcat v9.0 Server→Next

Start your Server

- Did you remember the location of your Tomee server? If you did browse to it using the provided button

- And Finish

- Now select your server instance and start it by clicking the green button with a white arrow head on it.

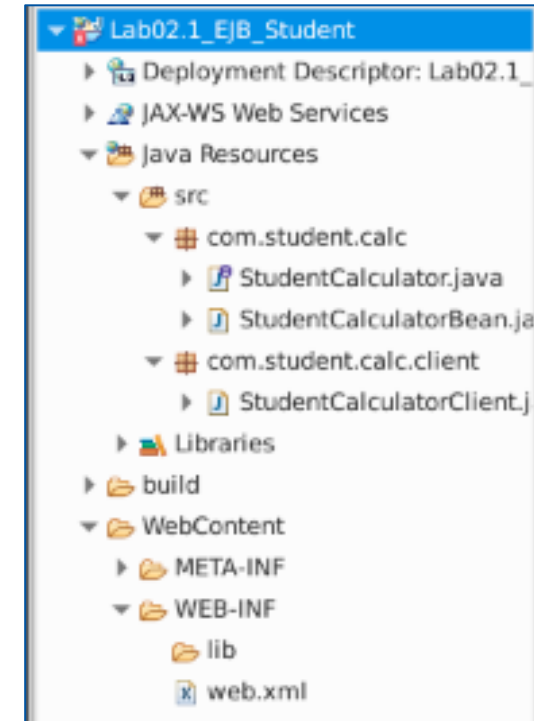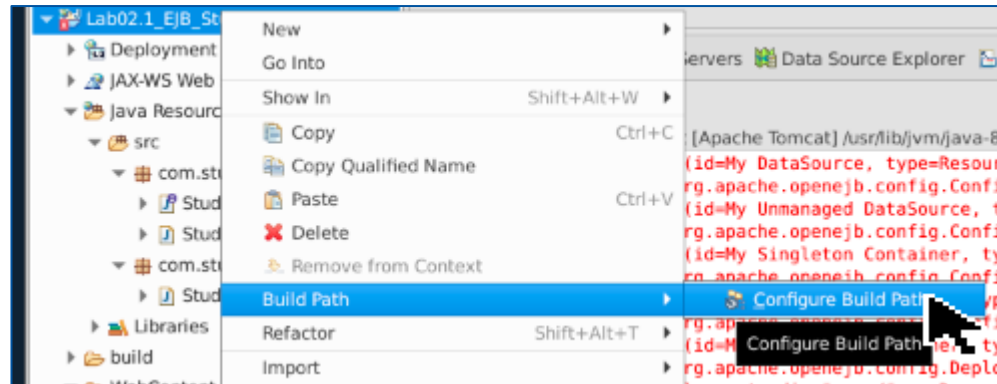- Your server will start so check the console for the server log

The Starter Project

- In eclipse select File->Open Projects From File System->Use the Directory button to navigate to the starter project for this course

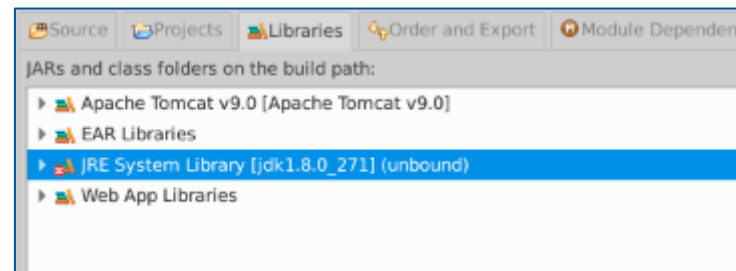- i.e. /home/developer/StudentWork/setup/Lab02.1/Lab02.1_EJB_Student

- Finish

Is my JDK right?

- If you have a red error, no problem, select the projects build pat i.e. Select Projects root node->right click->Build Path->Configure Build Path
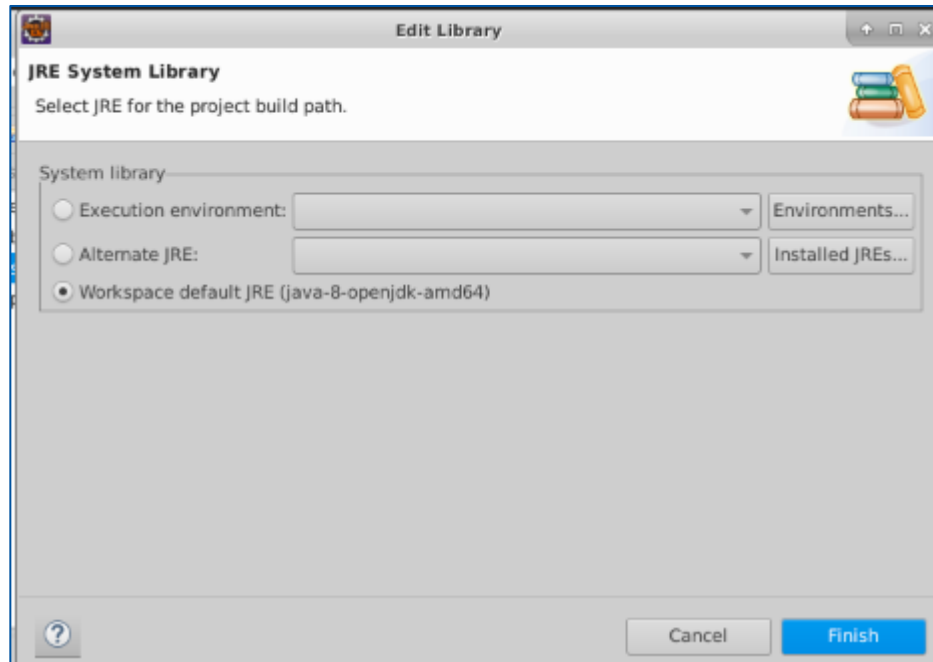

- Click Libraries tab – and there is our problem, we need to change the jdk
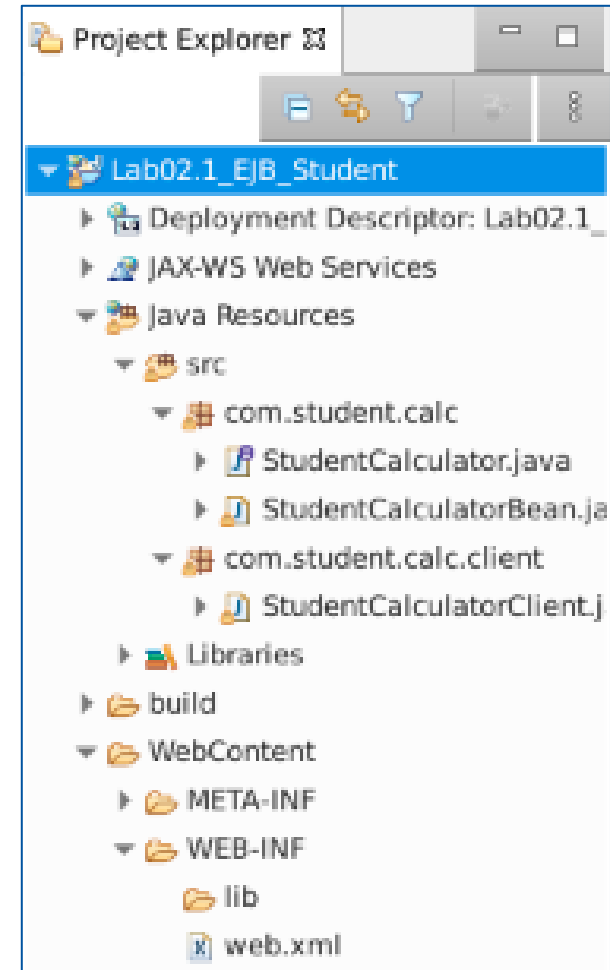
Change the JDK

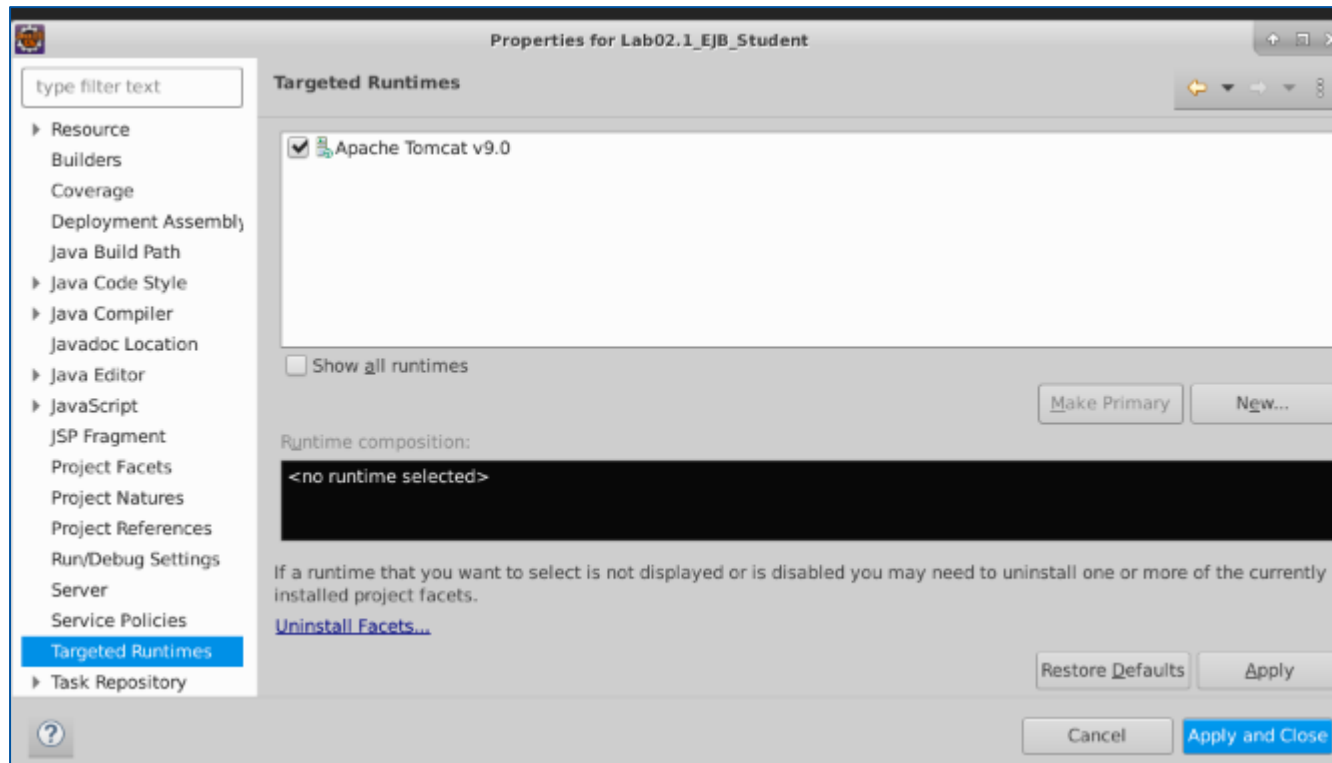- Select the jdk->Edit-> Select radio for Workspace default

- Finish

- Apply and Close and you have a clean project

Target Runtimes

- One more check, Project root node->right click->properties (scroll down) ->Targeting Runtimes. It should be your Tomcat 9 Runtime->Apply and Close

Annotate your Simple Java Class
A Stateless Session bean

- In your project you have a StudentCalculatorBean implementing the Interface StudentCalculator. This is to be a Stateless session bean, so annotate the StudentCalculatorBean class accordingly to be a bean named "myCalculator";

```
import java.util.logging.Logger;
import javax.ejb.Remote;
import javax.ejb.Stateless;
@Stateless(name="myCalculator")
@Remote(value=StudentCalculator.class)
public class StudentCalculatorBean implements StudentCalculator {
```
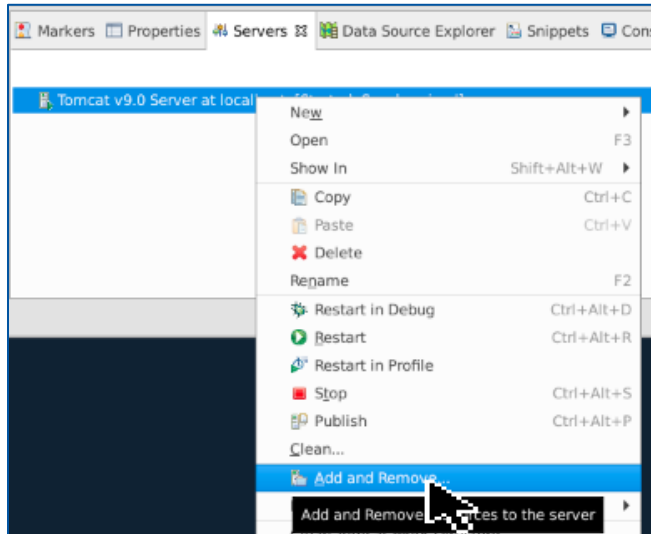
A Java Client
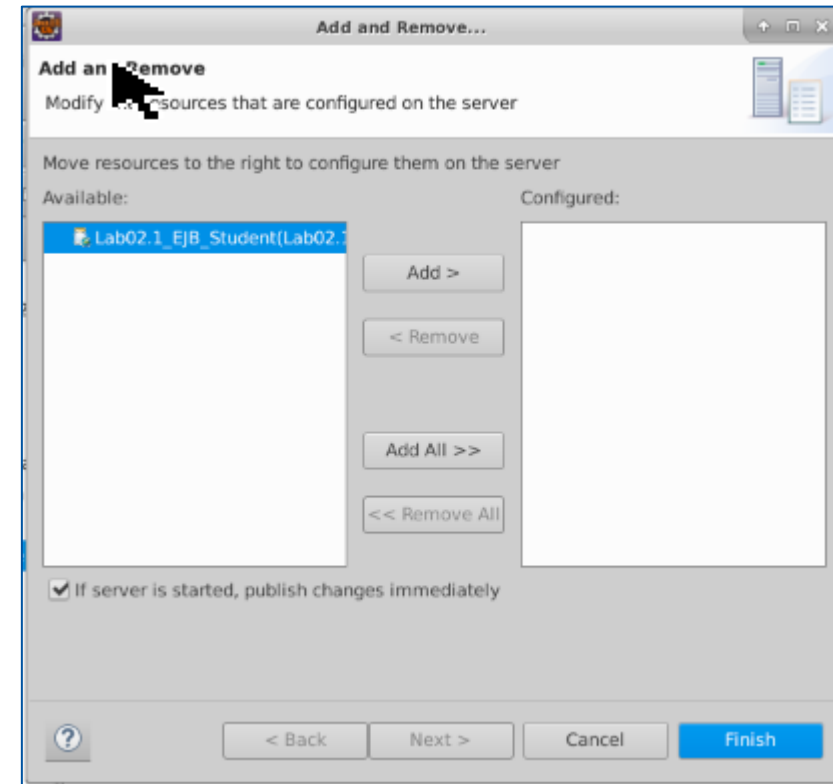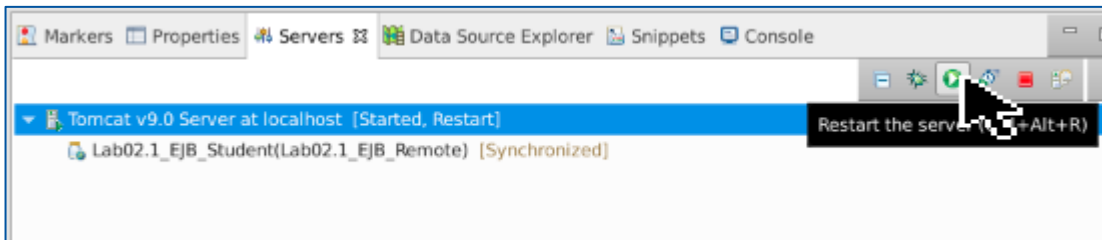We will now write a Java client to access our EJB Remotely

- In the class StudentCalculatorClient;
  - LookUp your bean from JNDI i.e.
    - ❑ StudentCalculator studentCalculator = (StudentCalculator) ctx.lookup("myCalculatorRemote");
    - ❑ Do not forget the Remote suffix
  - On the StudentCalculator instance, execute the methods add and subtract i.e.
    - ❑ int result = studentCalculator.add(4,5);
    - ❑ System.out.println("result);
    - ❑ result = studentCalculator.subtract(4,5);
    - ❑ System.out.println(result);

- Make sure you save your work and have no compile errors

Deploy your Project to Tomee

- Select the server->right click->Add and Remove->Select your project->Add->Finish

- Now restart the server

Moment of Truth

- Now run your StudentCalculatorCLient class as a Java Application and watch the console


```
<terminated> StudentCalculatorClient [Java Application] /usr/lib/jvm/java-8-openjdk-amd64/bin/java  (Nov 16, 2021 2:13:20 AM
INFO: Deployed Application(path=/home/developer/Desktop/StudentWork/StudentWork/setup/Lab02.1/Lab02.1_EJ
Nov 16, 2021 2:13:21 AM com.student.calc.StudentCalculatorBean add
INFO: In add method 4, 8
12
Nov 16, 2021 2:13:21 AM com.student.calc.StudentCalculatorBean subtract
INFO: In subtract method 5, 8
-3
END EJB3 Client
```

- Remote access of a Stateless Session Bean achieved