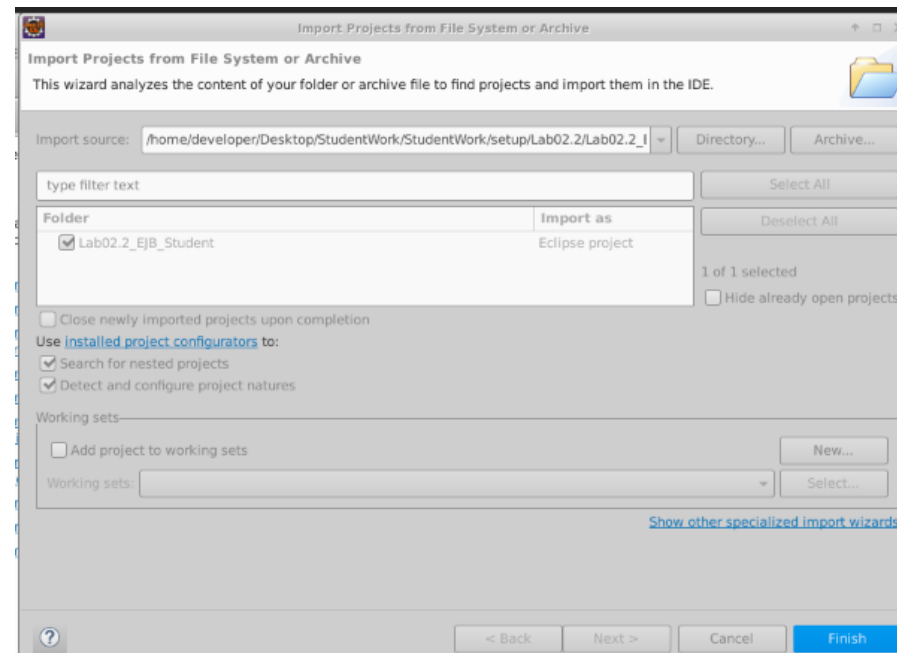


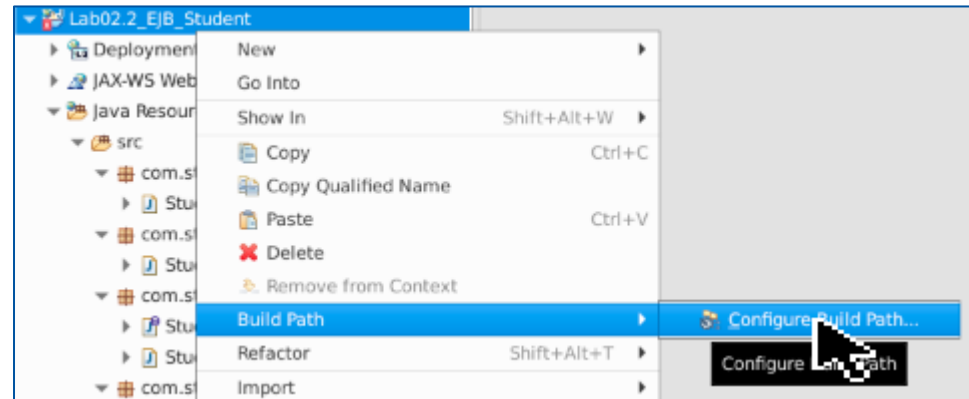
Lab 2.2 – Stateless Session Bean with Local Interface with CDI

- Remove your last project from your Tomee server
- 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/Lab02.2/Lab02.2_EJB_Student
- Click Finish

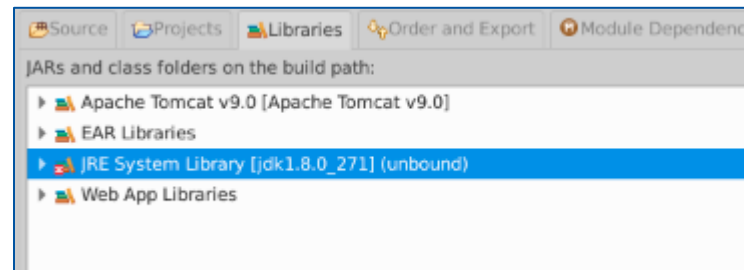


Is my JDK right?

- If you have a red error, no problem,
- Select Project top node->right click->Build Path->Configure Build Path

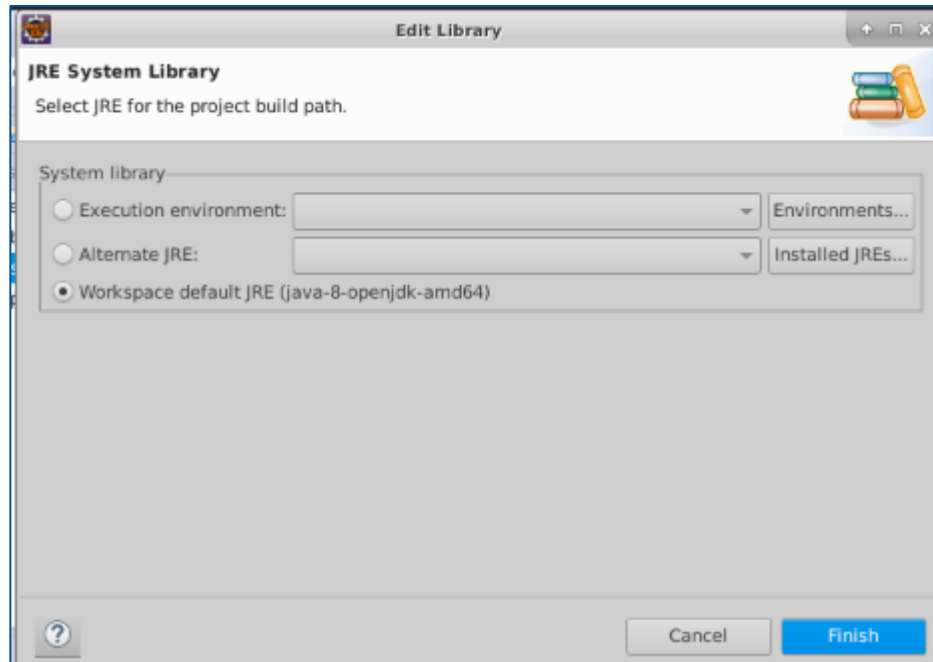


- Click Libraries tab – and there is our problem, we need to change the jdk

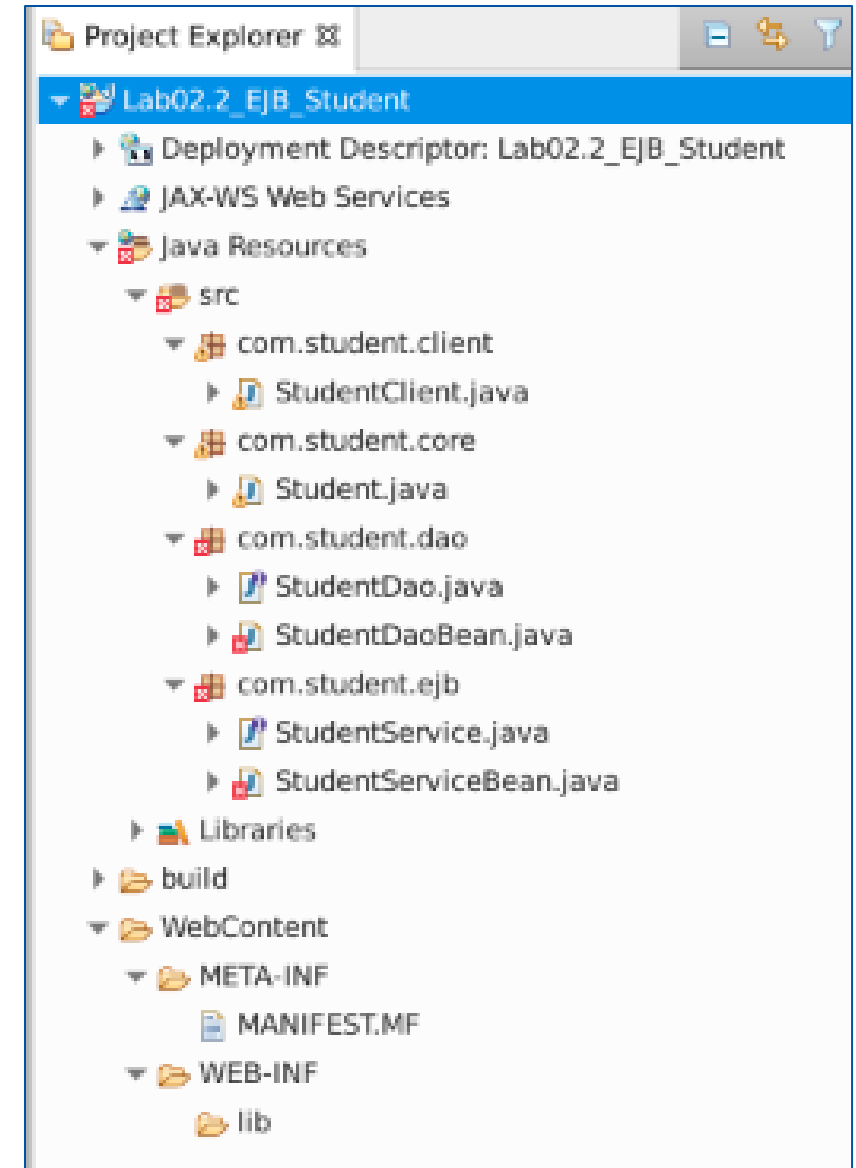


Change the JDK

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

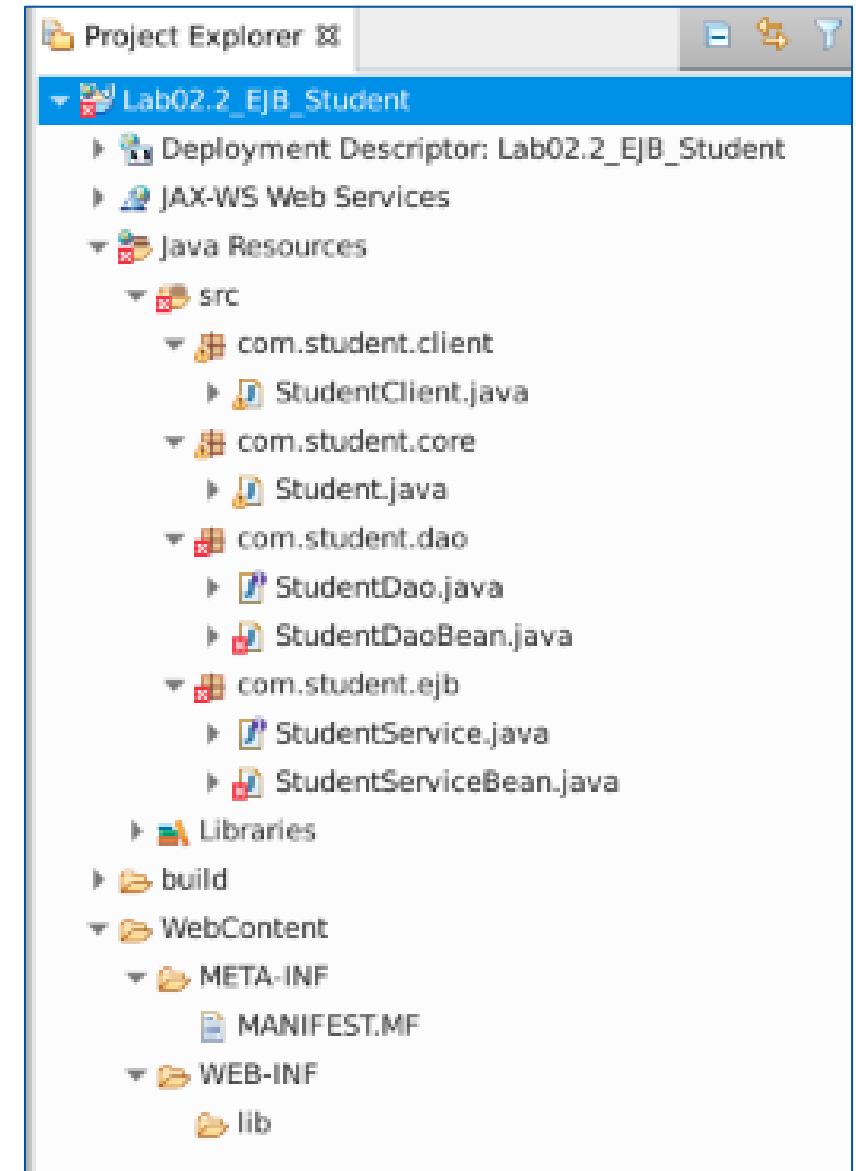


- Click Finish
- Apply and Close and you almost have a clean project, just a few compile errors that we will sort out



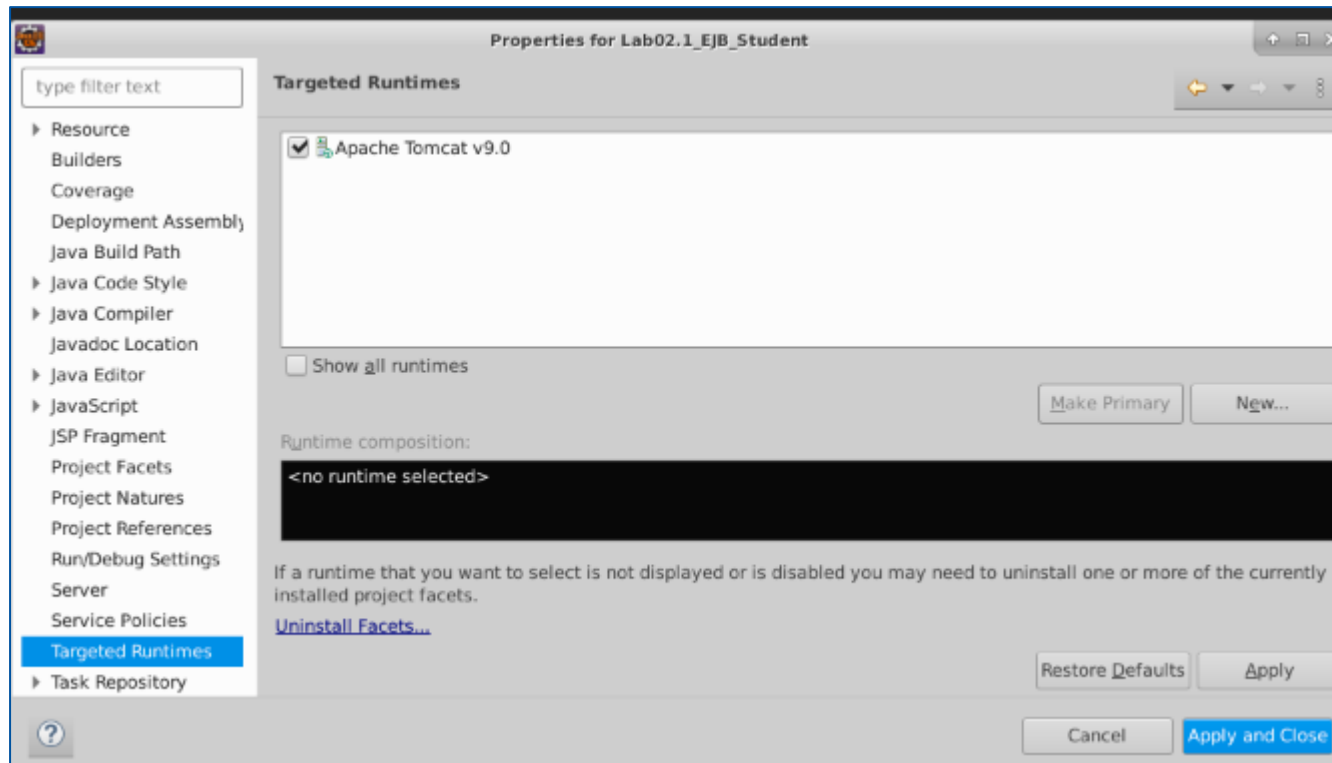
The Project

- Let us take a look at the project
- It has a StudentDaoBean (DAO) that currently contains a Map of Students that we will try to retrieve
- Then a StudentServiceBean (Service) that will delegate Remote Client requests and in turn it will delegate to the (DAO)
- We have an Entity (Well a simple Student class for now)
- Finally, we have a Java Client class that will Remotely connect to the StudentService
- This is a Web project and in labs to come you will be told to add Web Components under to the WebContent and WEB-INF directories respectively



Target Runtimes

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



Annotate your Simple Java Class

To be a Stateless Session bean

- In your project you have a StudentDaoBean implementing the Interface StudentDao. This is to be a Stateless Session bean to be accessed Locally, so annotate accordingly and the compile errors will go away

```
import javax.ejb.Local;  
import javax.ejb.Stateless;  
  
import com.student.core.Student;  
//TODO Annotations  
@Stateless  
//TODO This is a Local bean only  
@Local(StudentDao.class)  
public class StudentDaoBean implements StudentDao {
```

Annotate your Simple Java Class

Another Stateless Session bean

- We will also have a Remote Bean as well
- StudentServiceBean implements the Interface StudentService. This is to be a Stateless Session bean called “studentService”, to be accessed Remotely, so annotate accordingly.

```
@Stateless(name="studentService")  
//TODO Remote is studentService  
@Remote(StudentService.class)  
public class StudentServiceBean implements StudentService {
```

- Now inject the StudentDaoBean into the StudentServiceBean (Use the Interface type)

```
@Inject  
private StudentDao studentDao;
```

- So, we have one EJB delegating to another locally via CDI

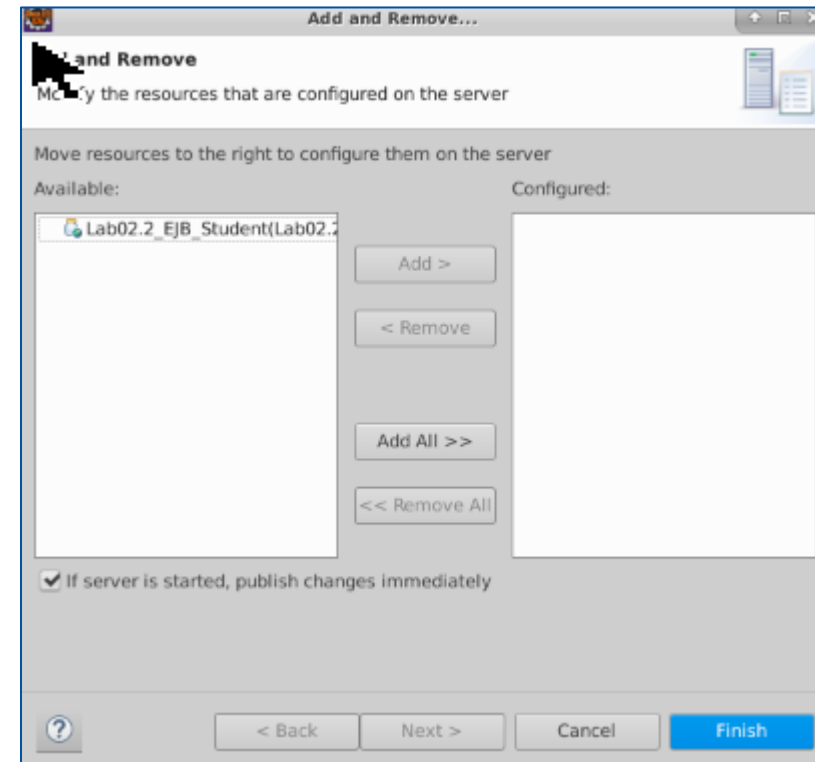
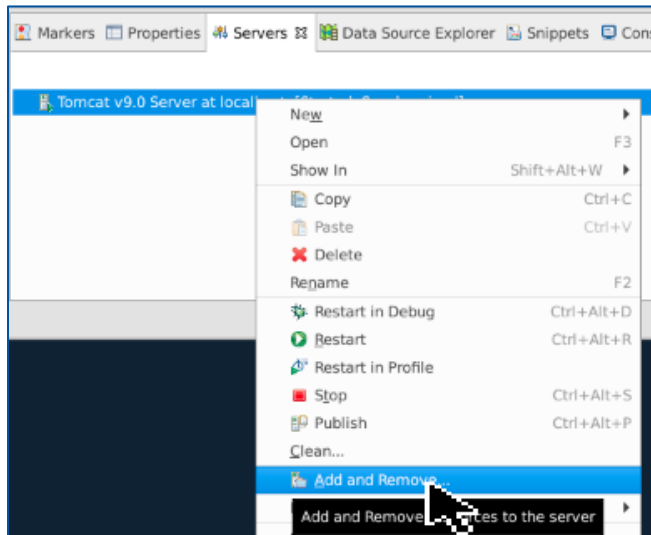
A Java Client

We will now write a Java client to access our Serviv4 EJB Remotely

- In the class StudentClient;
 - LookUp your StudentService bean from JNDI i.e.
 - ❑ `StudentService Student Client = (StudentService) ctx.lookup("studentServiceRemote");` Do not forget the Remote suffix
 - On the StudentService instance, execute the
 - ❑ `Student student = studentService.getStudent(1L);`
 - ❑ `System.out.println(student);`
- Make sure you save your work and have no compile errors

Deploy your Project to TomEE

- Make sure no projects are on your server (Remove your project from the prior lab)
- Select the server->right click->Add and Remove->Select your project->Add->Finish



- Now restart the server

Moment of Truth

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

```
<terminated> StudentClient [Java Application] /usr/lib/jvm/java-8-openjdk-amd64/bin/java (Nov 17, 2021 12:07:50 AM -  
INFO: Started Ejb(deployment-id=studentService, ejb-name=studentService, container=Default Statele  
Nov 17, 2021 12:07:52 AM org.apache.openejb.util.LogStreamAsync run  
INFO: Started Ejb(deployment-id=StudentDaoBean, ejb-name=StudentDaoBean, container=Default Statele  
Nov 17, 2021 12:07:52 AM org.apache.openejb.util.LogStreamAsync run  
INFO: Deployed Application(path=/home/developer/Desktop/StudentWork/StudentWork/setup/Lab02.2/Lab0  
Student [id=1, firstName=Eric, surname=Colbert, dept=English Literature, fees=145.0]  
END EJB3 Client
```

- Remote access of a Stateless Session Bean achieved
- CDI achieved
- Delegation to another EJB achieved

