

1. Download *Eclipse IDE for Java EE Developers* and extract it to a proper directory in your machine. (Recommended : Eclipse Photon R).

<http://www.eclipse.org/downloads/packages/release/photon/r/eclipse-ide-java-ee-developers>

2. Download and Extract Apache Tomcat-7 Server to a proper directory in your machine

<https://tomcat.apache.org/download-70.cgi>

3. Download the Postgresql JDBC Driver.

<https://jdbc.postgresql.org/download/postgresql-42.2.5.jar>

4. Login to your Postgres either from *psql* or pgadmin. Create a new database for your project.

Create a new user and grant all privileges to it on the newly created database. Logout of the default postgres account.

```
sysad@debian:~$ psql -U postgres
psql (9.6.10)
Type "help" for help.

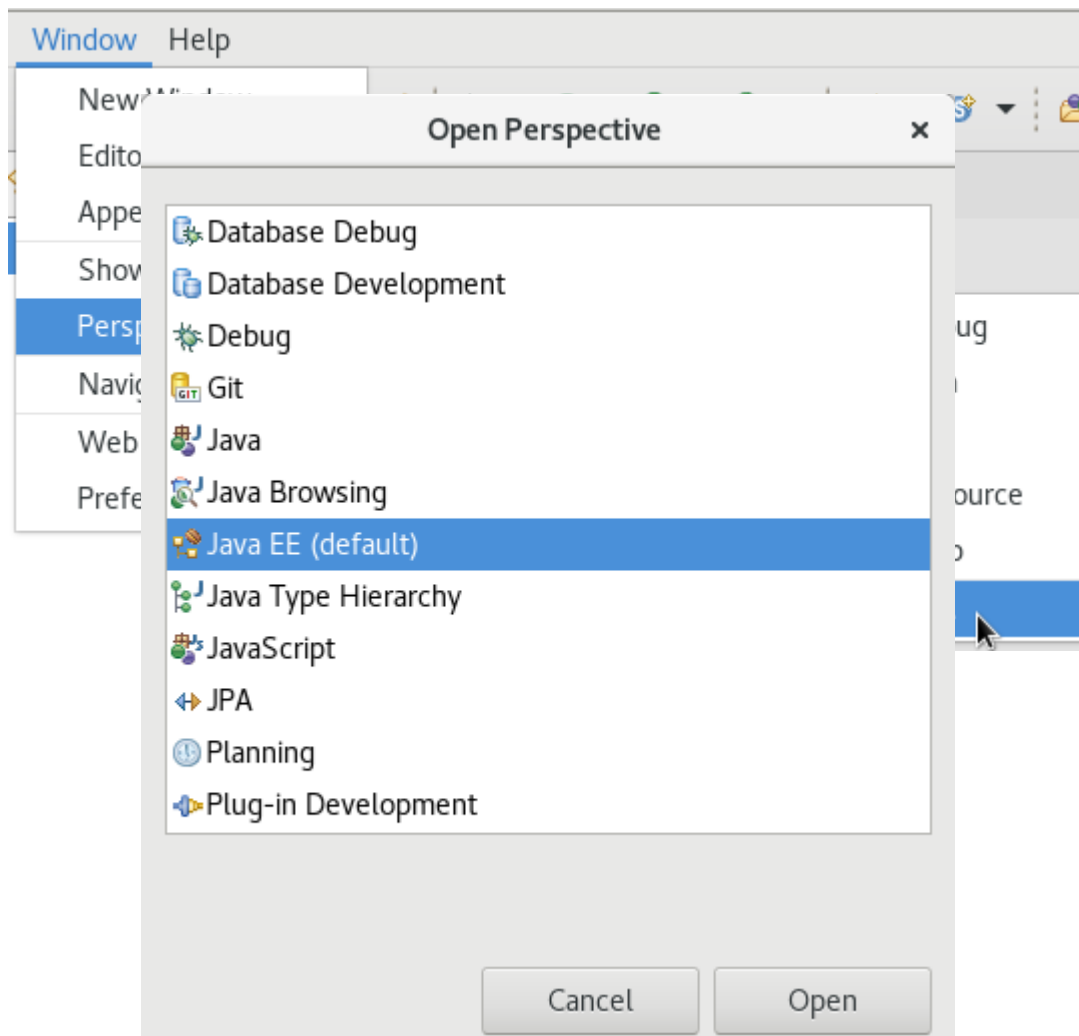
postgres=# CREATE DATABASE cs387;
CREATE DATABASE
postgres=# CREATE USER dbuser WITH LOGIN PASSWORD '123456';
CREATE ROLE
postgres=# GRANT ALL PRIVILEGES ON DATABASE cs387 TO dbuser;
GRANT
postgres=# \q
```

5. Login to postgres as a new user created earlier. Create the required tables and insert appropriate values into them. Exit your postgresql.

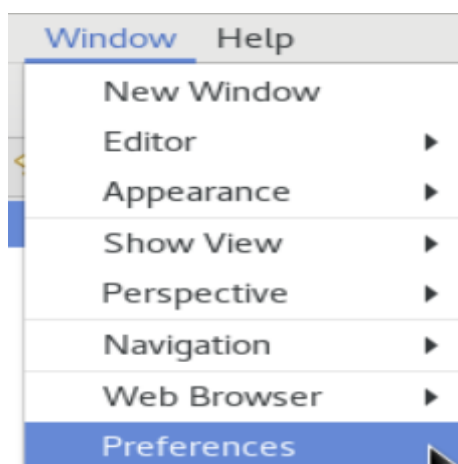
```
sysad@debian:~$ psql -U dbuser -d cs387
Password for user dbuser:
psql (9.6.10)
Type "help" for help.

cs387=> \i '/home/sysad/Public/create.sql'
CREATE TABLE
CREATE TABLE
cs387=> \i '/home/sysad/Public/create2.sql'
CREATE TABLE
CREATE TABLE
cs387=> \i '/home/sysad/Public/trigger.sql'
psql:/home/sysad/Public/trigger.sql:1: ERROR: trigger "calculate_rating" for table "reviews" does not exist
CREATE FUNCTION
CREATE TRIGGER
cs387=> \i '/home/sysad/Public/insert.sql'
DELETE 0
DELETE 0
INSERT 0 1
INSERT 0 1
INSERT 0 1
```

6. Launch your Eclipse IDE. Make sure that your Eclipse is set to default Java EE Perspective. From the menubar, Window -> Perspective -> Open Perspective -> Other -> Java EE (default).



7. Add a Server to in your Eclipse IDE. From menubar, Window -> Preferences -> Server -> Runtime Environments.



Click on *Add* button to add a new Apache Tomcat Server to your Development Environment.

New Server Runtime Environment
Define a new server runtime environment

Select the type of runtime environment:

type filter text

- Apache Tomcat v4.1
- Apache Tomcat v5.0
- Apache Tomcat v5.5
- Apache Tomcat v6.0
- Apache Tomcat v7.0**
- Apache Tomcat v8.0

Apache Tomcat v7.0 supports J2EE 1.2, 1.3, 1.4, and Java EE 5 and 6 Web modules.

☐ Create a new local server

? < Back Next > Cancel Finish

Select *Apache Tomcat v7.0* and Click next

Tomcat Server
Specify the installation directory

Name:
Apache Tomcat v7.0

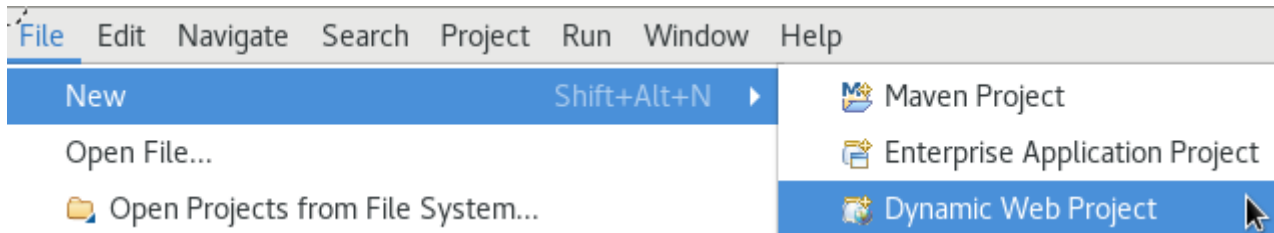
Tomcat installation directory:
/opt/apache-tomcat-7.0.90 Browse...
apache-tomcat-7.0.47 Download and Install...

JRE:
Workbench default JRE Installed JREs...

? < Back Next > Cancel Finish

Mention the Tomcat Installation directory and hit finish.

8. Create a new *Dynamic Web Project*, From menubar, File -> New -> Dynamic Web Project



Give a name to your project. Click Next.

Dynamic Web Project

Create a standalone Dynamic Web project or add it to a new or existing Enterprise Application.



Project name:

Project location

☒ Use default location

Location:

Target runtime

Dynamic web module version

Configuration

A good starting point for working with Apache Tomcat v7.0 runtime. Additional facets can later be installed to add new functionality to the project.

EAR membership

☐ Add project to an EAR

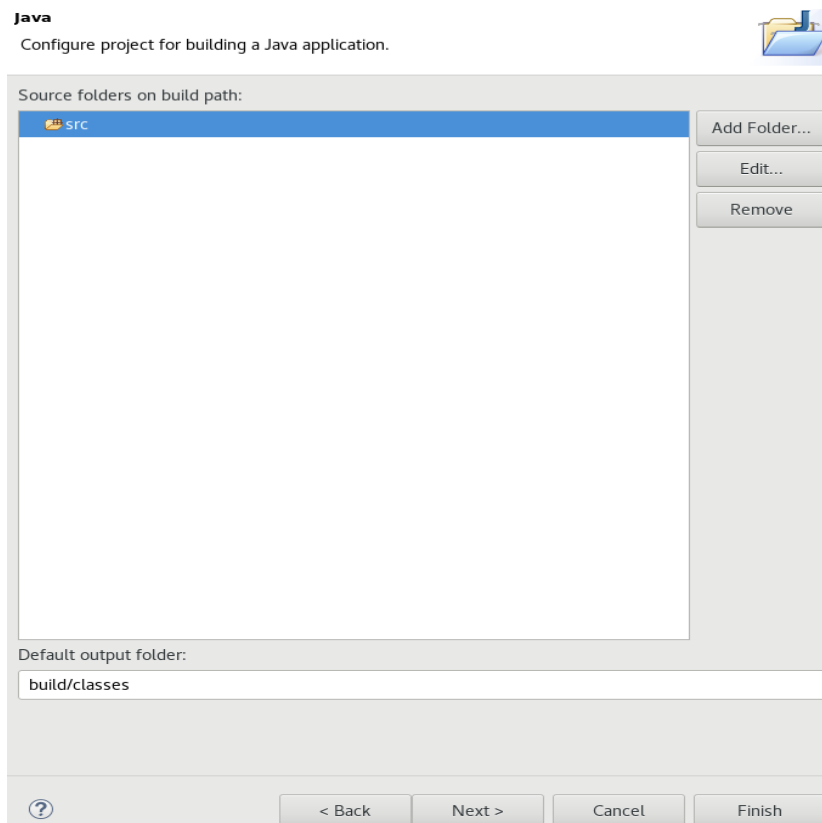
EAR project name:

Working sets

☐ Add project to working sets

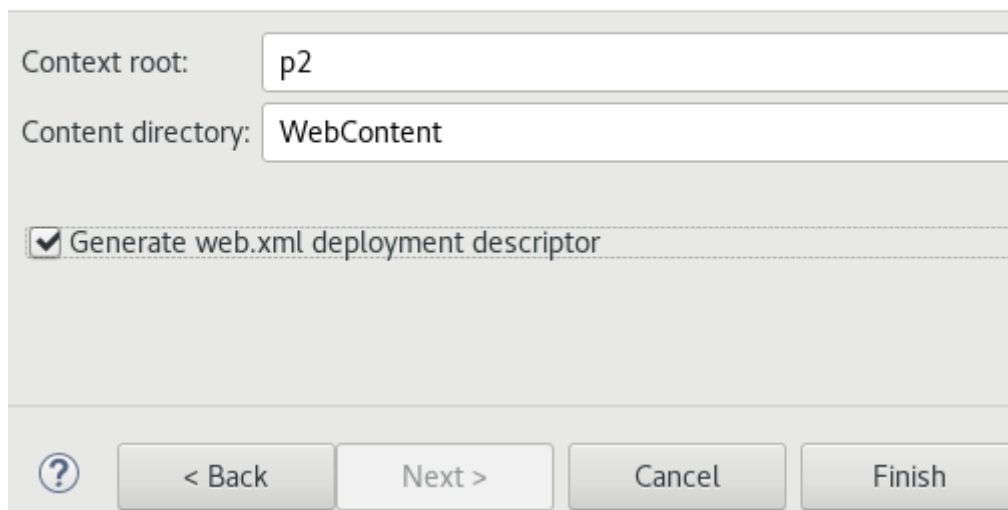
Working sets:

Set a *src* as a source folder on build path and click next



Web Module

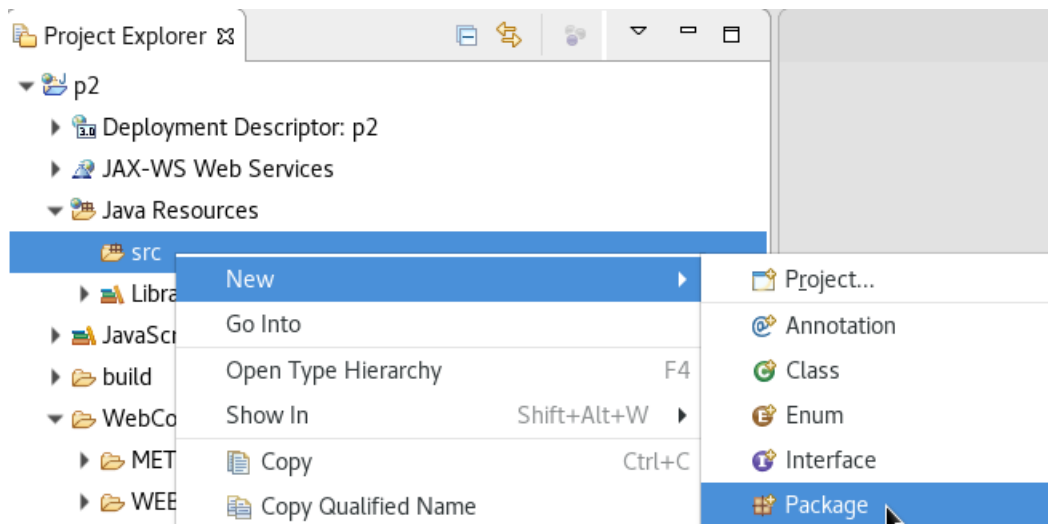
Configure web module settings.



Don' forget to check-mark the *Generate web.xml deployment descriptor*. Click finish

9. Your project will be shown in *Project Explorer* on left side of Eclipse window. Expand your project folder and your *src* folder. Add packages in this directory.

Right-click on your project -> New -> Package



Give a name to your package and click finish

Java Package

Create a new Java package.



Creates folders corresponding to packages.

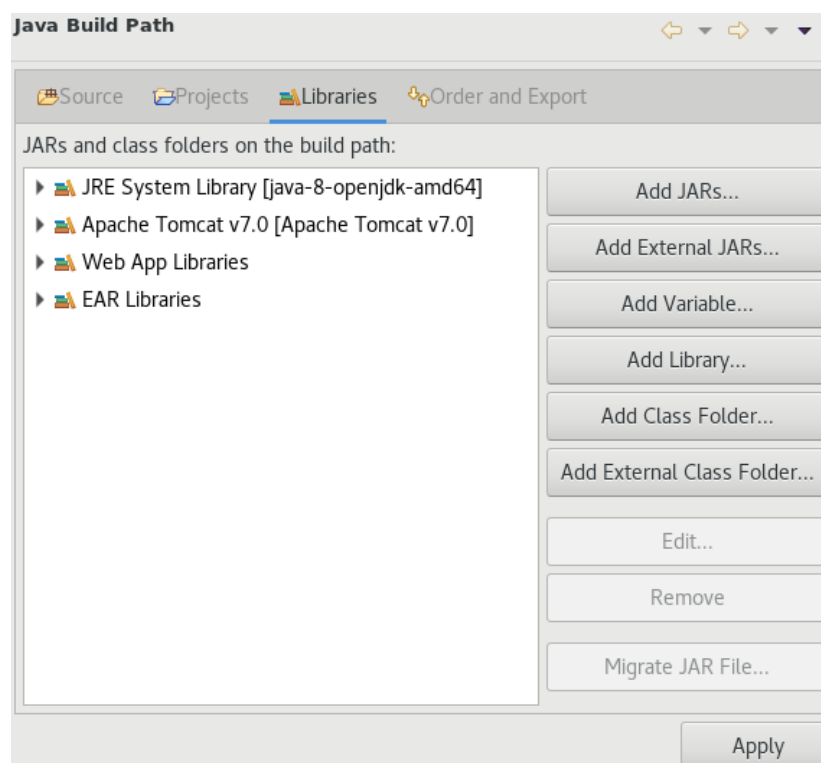
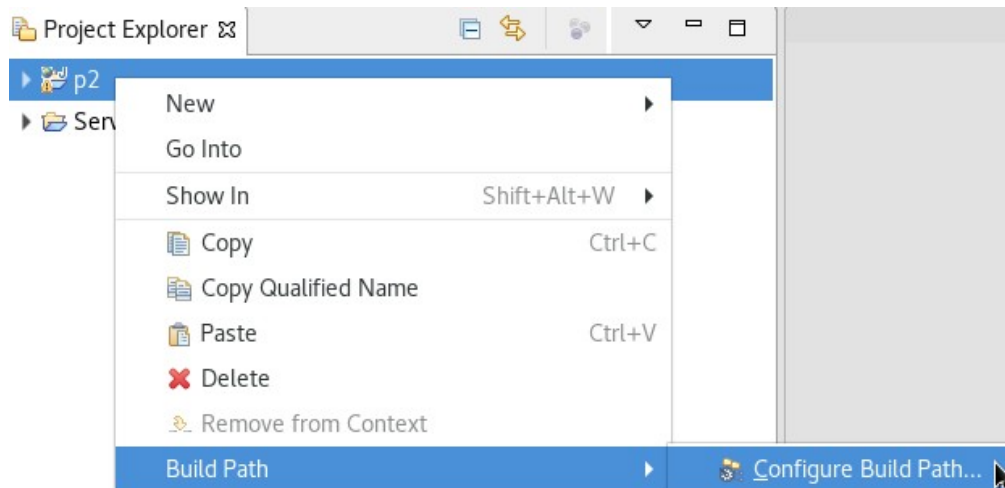
Source folder:

Name:

☐ Create package-info.java

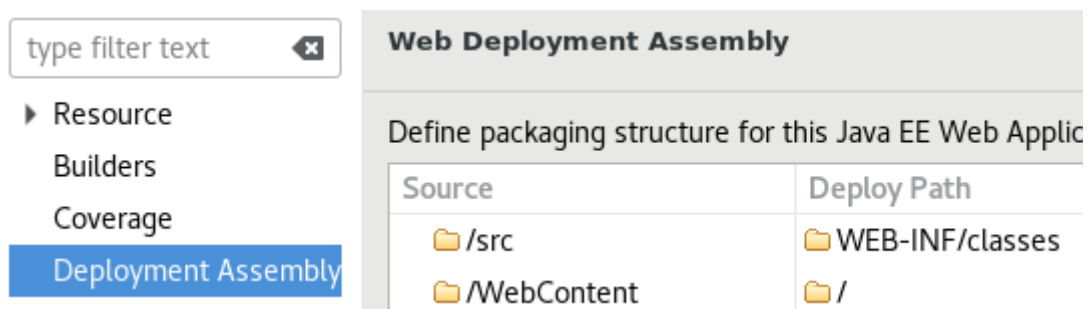
Put all your Servlet files (Java Source files) in these Packages. If you already have Java files you can simply copy those files inside these packages (like copying files to a directory).

10. Add JDBC driver. Right-click on project, Build Path -> Configure Build Path

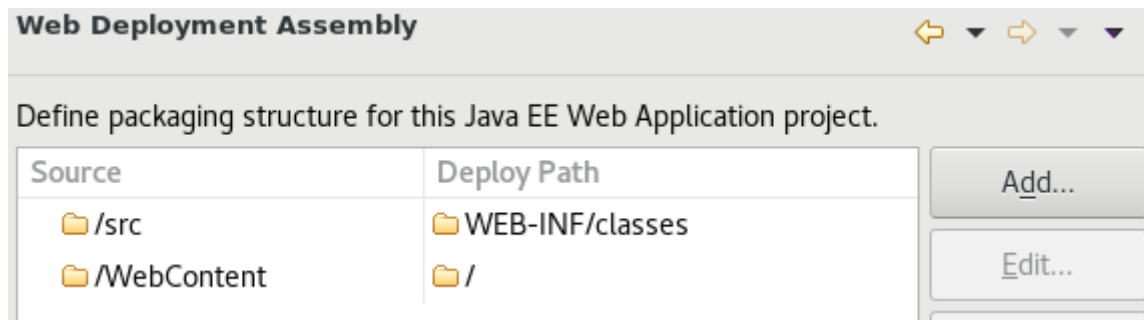


Click on *Add External JARs*, Select your Postgresql JDBC driver

On the same Window, Select *Deployment Assembly*

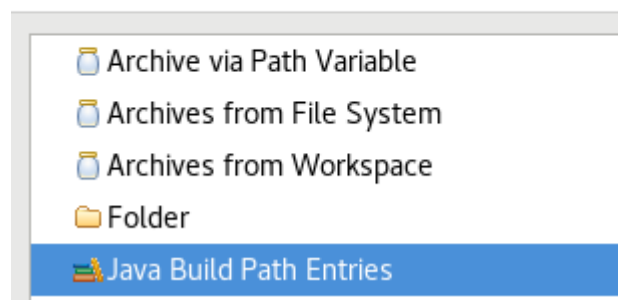


11. In the *Deployment Assembly*, Click Add.



Select Directive Type

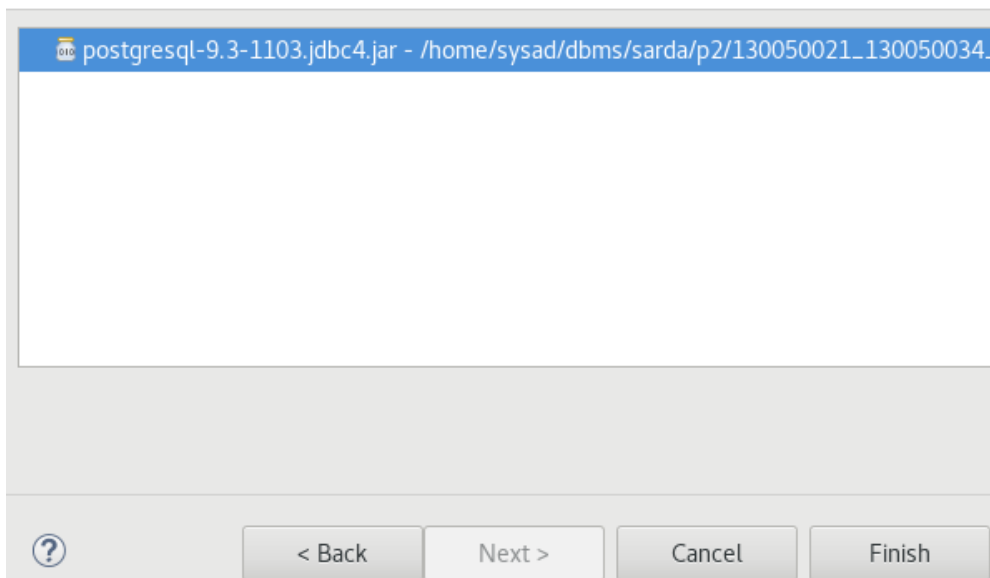
Add a new assembly directive.



Click Next

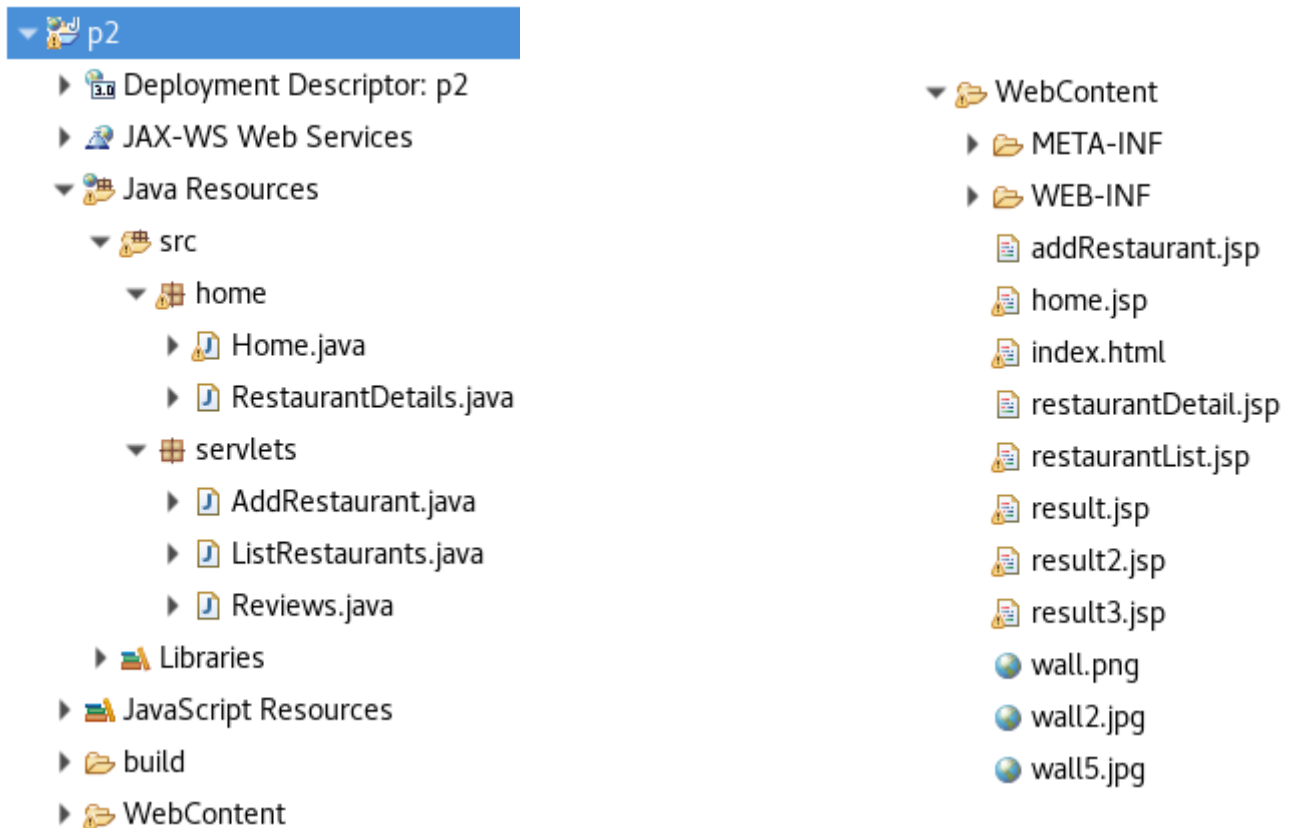
Java Build Path Entries

Select build path entries to include in the deployment assembly.



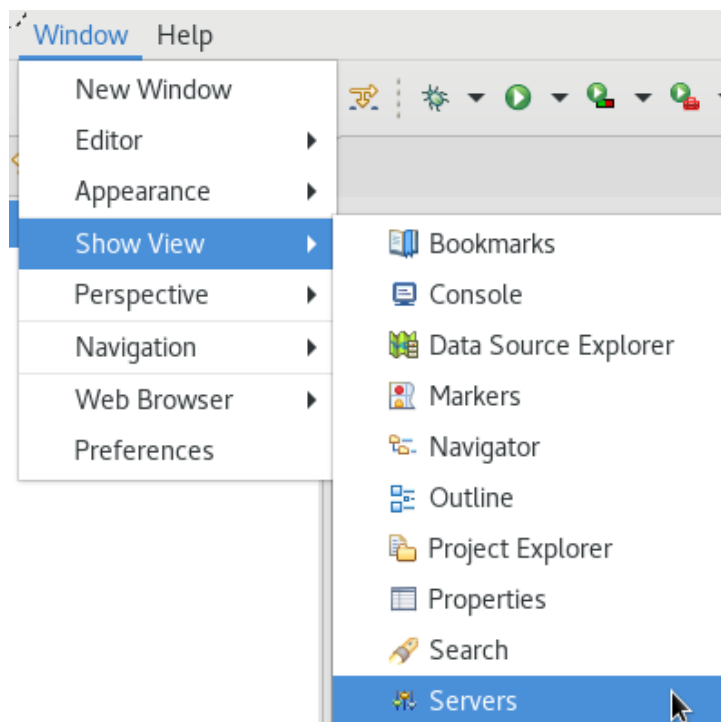
Select JDBC driver, Click Finish. Apply and Close.

12. Put your Web contents (HTML, JSP and/or Image files) inside the WebContent folder.

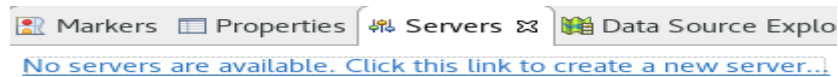


13. Resolve the errors if they are present.

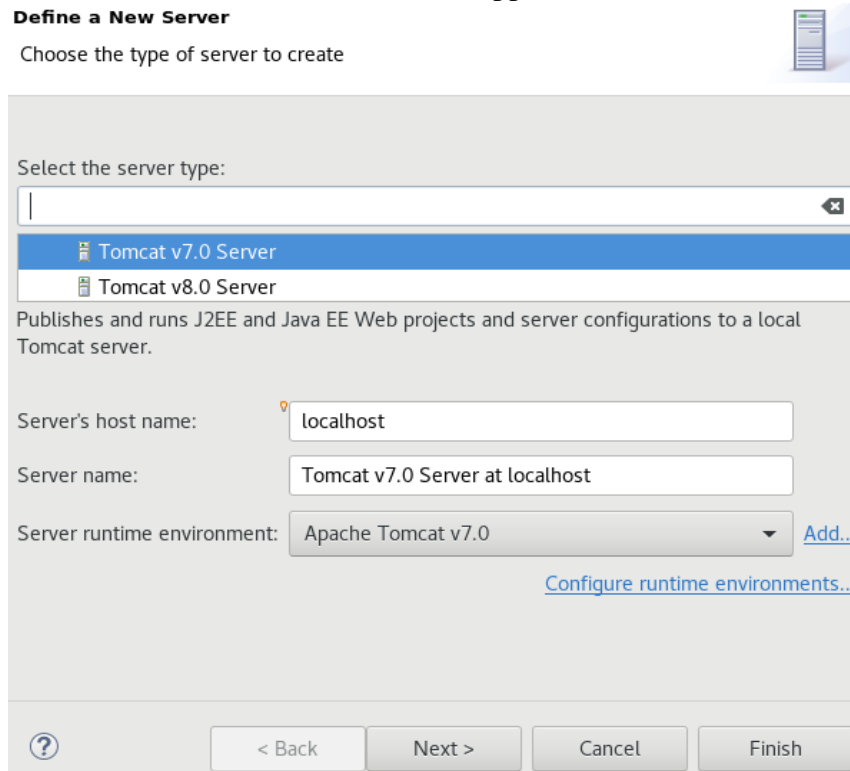
14. Make sure the *Server* View is available. From menubar, Window -> Show View -> Servers.



15. Create a server from previously added Apache Tomcat server. Select the *Servers* tab located at the bottom part of your Eclipse Window. Click on the link provided in *Server* tab.



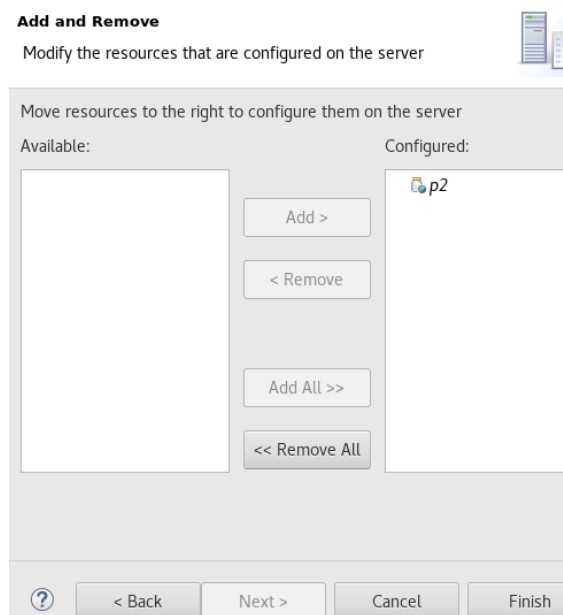
The window shown below appears, Click next.



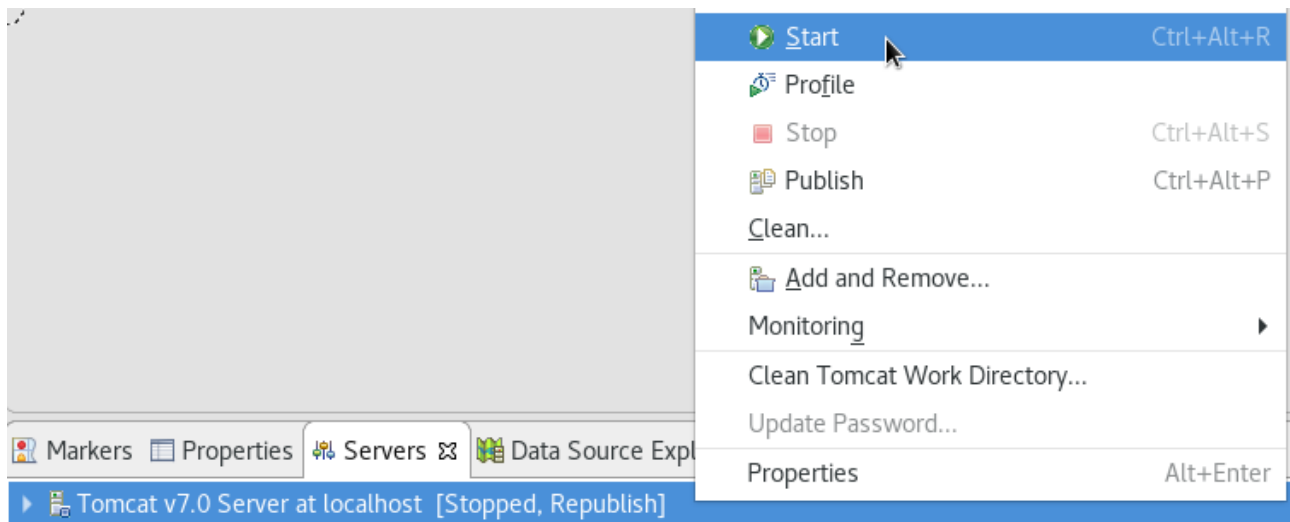
Click Next

16. Configure your project on the server.

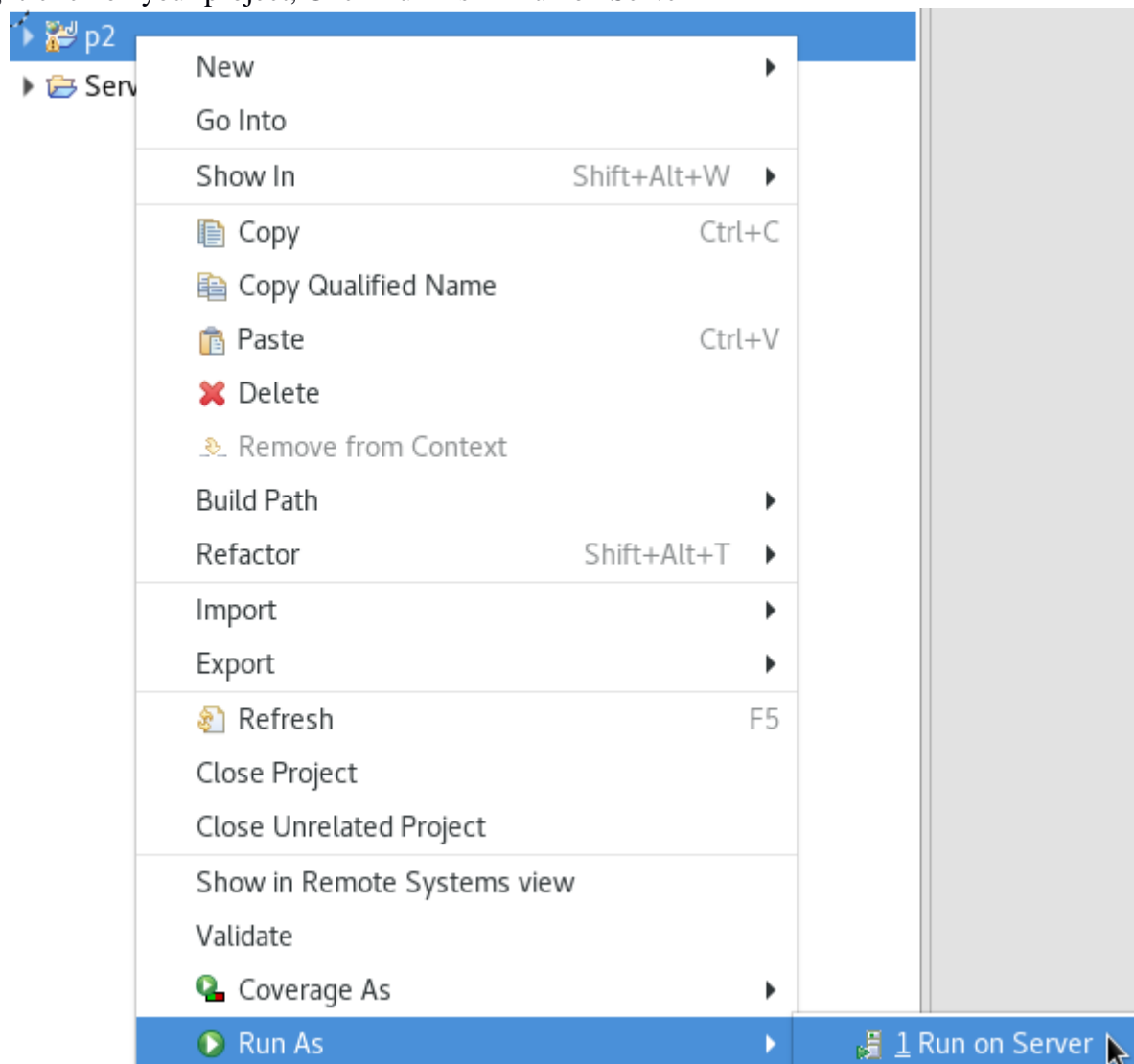
Move your project from *Available* to *Configured* using the *Add* button. Hit finish.



17. Start your Tomcat Server from Server View. Right-click on *Server* and hit *Start*.



Right-click on your project, Click Run As -> Run on Server



18. Select the server to use.

Run On Server

Select which server to use



How do you want to select the server?

- ☒ Choose an existing server
☐ Manually define a new server

Select the server that you want to use:

type filter text

Server	State
▼ localhost	
Tomcat v7.0 Server at localhost	Started

Apache Tomcat v7.0 supports J2EE 1.2, 1.3, 1.4, and Java EE 5 and 6 Web modules.

Columns...

☐ Always use this server when running this project



< Back

Next >

Cancel

Finish

Click Next

Add and Remove

Modify the resources that are configured on the server



Move resources to the right to configure them on the server

Available:

Configured:

Empty box for available resources.

Add >

< Remove

Add All >>

<< Remove All

p2



< Back

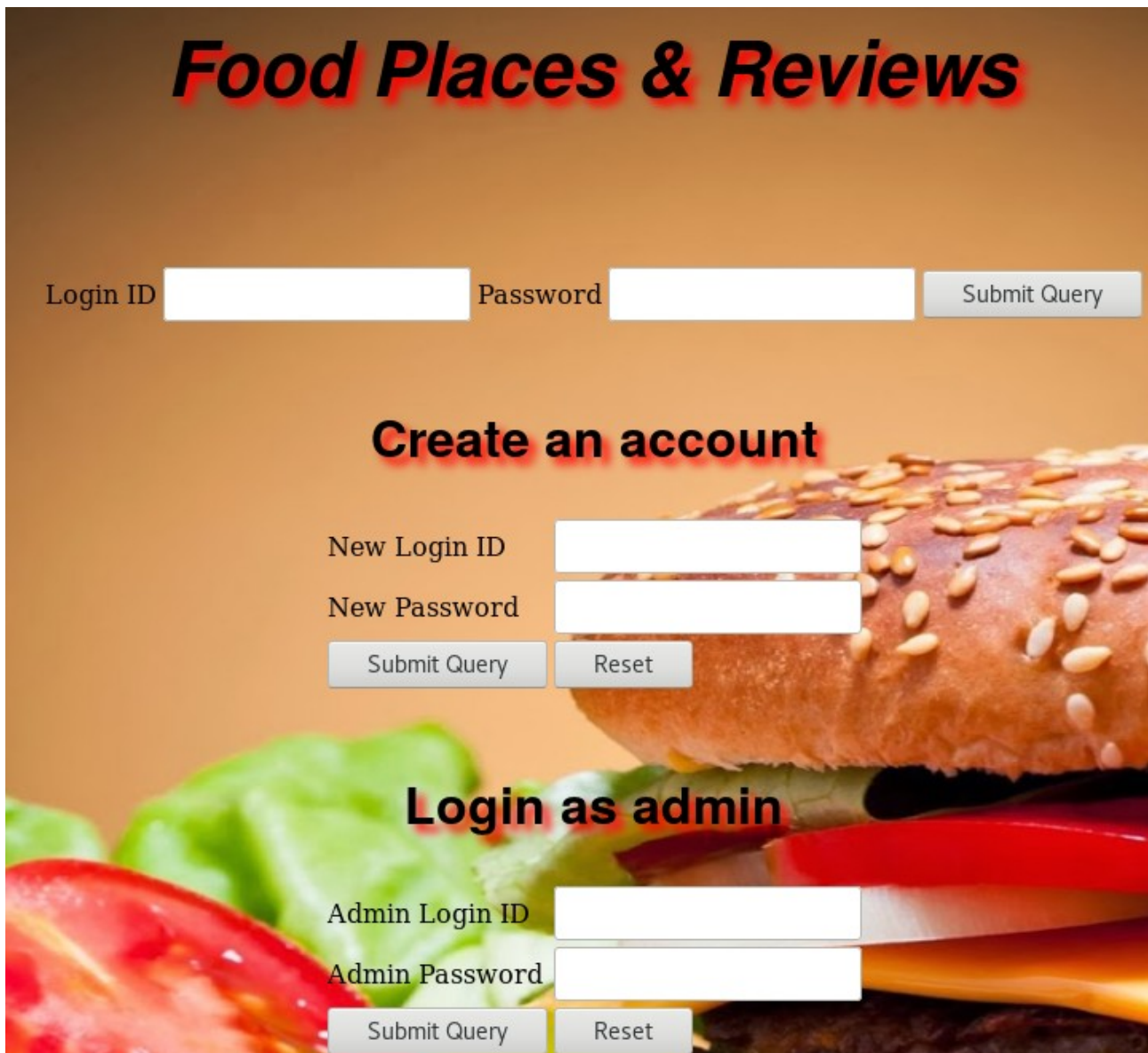
Next >

Cancel

Finish

Click Finish

19. In newer versions of Eclipse, you can observe your work inside the built-in browser. If built-in browser is not present, you can use other web browser in your machine.

The image shows a web application interface for "Food Places & Reviews". The background features a close-up of a sesame seed bun, lettuce, tomato, and a slice of pepperoni. The title "Food Places & Reviews" is at the top in a large, bold, black font with a red shadow. Below the title is a login section with labels "Login ID" and "Password" next to white input fields, and a "Submit Query" button. The "Create an account" section follows, with labels "New Login ID" and "New Password" next to white input fields, and "Submit Query" and "Reset" buttons. The "Login as admin" section is at the bottom, with labels "Admin Login ID" and "Admin Password" next to white input fields, and "Submit Query" and "Reset" buttons.

Food Places & Reviews

Login ID Password

Create an account

New Login ID
New Password

Login as admin

Admin Login ID
Admin Password