JAVA J2EE JDBC SETUP

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
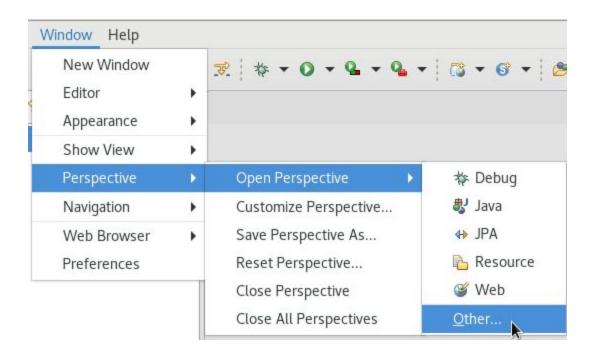
2. Download and Extract Apache Tomcat-7 Server to a proper directory in your machine
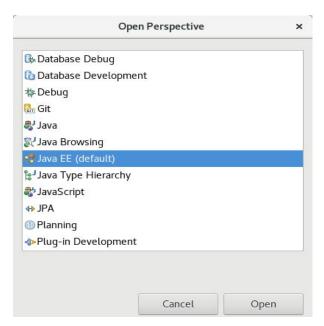
https://tomcat.apache.org/download-70.cgi
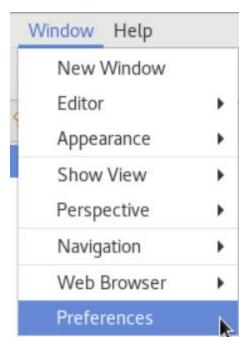
3. Download the Postgresql JDBC Driver.

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.

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

6. Launch your Eclipse IDE. Make sure that your Eclipse is set to default Java EE Perspective. From the menu bar, Window -> Perspective -> Open Perspective -> Other -> Java EE (default)
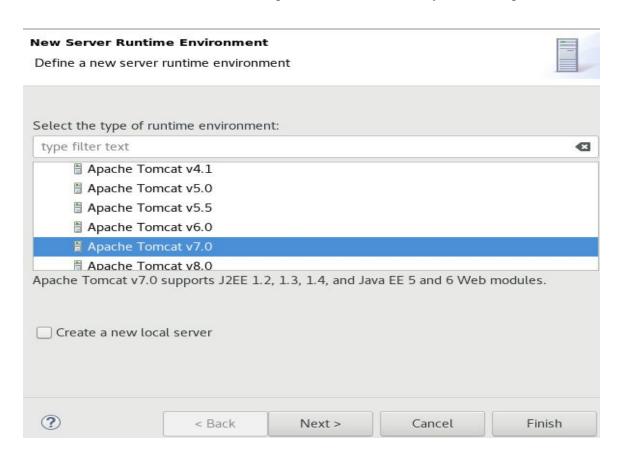
7. Add a Server to in your Eclipse IDE. From menu bar, Window -> Preferences -> Server -> Runtime Environments.

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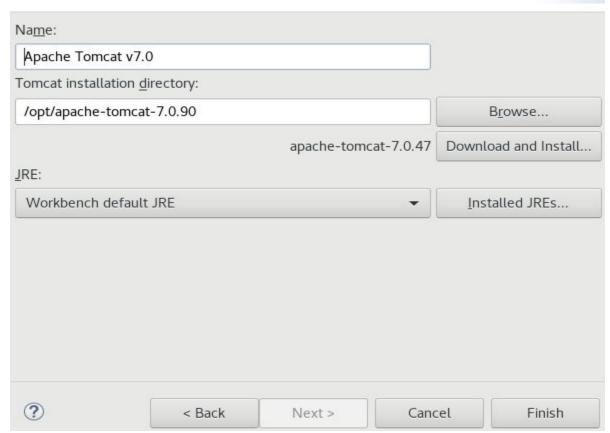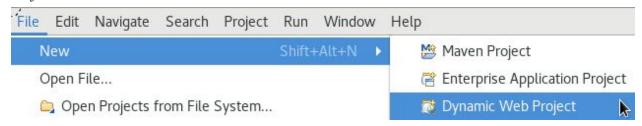

Select Apache Tomcat v7.0 and Click next

Mention the Tomcat Installation directory and hit finish.

8. Create a new Dynamic Web Project, From the menu bar, File -> New -> Dynamic Web Project.

Give a name to your project. Click Next.

Dynamic Web Project

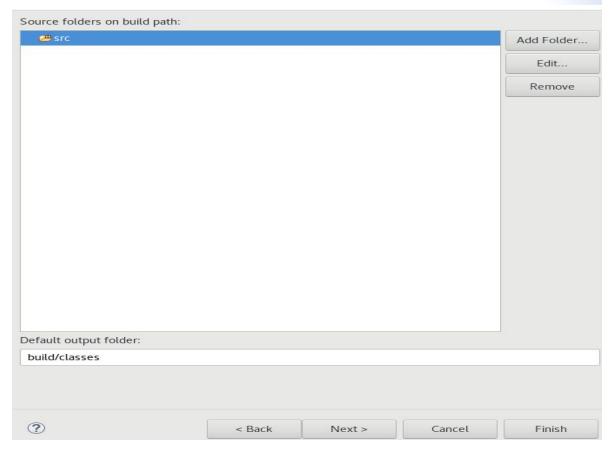Create a standalone Dynamic Web project or add it to a new or existing Enterprise Application.

Project name: MVCDemoProject

Project location
☑ Use default location
Location: /home/sysad/dbms/workspace/p2   Browse...

Target runtime
Apache Tomcat v7.0   ▼   New Runtime...

Dynamic web module version
3.0   ▼

Configuration
Default Configuration for Apache Tomcat v7.0   ▼   Modify...
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: EAR   ▼   New Project...

Working sets
☐ Add project to working sets   New...
Working sets: ▼   Select...

⑦   < Back   Next >   Cancel   Finish

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

Java

Configure project for building a Java application.

Source folders on build path:

📦 src

Add Folder...

Edit...

Remove

Default output folder:

build/classes

?   < Back   Next >   Cancel   Finish

Web Module

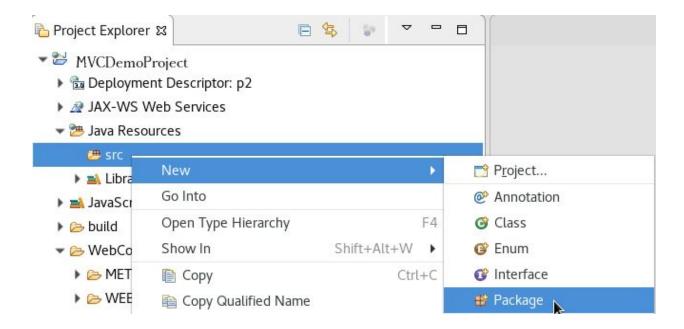Configure web module settings.

Context root: MVCDemoProject

Content directory: WebContent

☑ Generate web.xml deployment descriptor
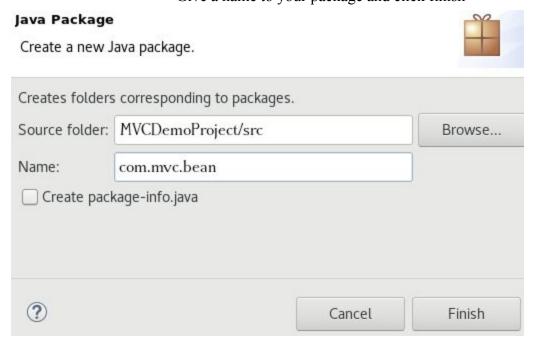
?   < Back   Next >   Cancel   Finish

Don't forget to check-mark the Generate web.xml deployment descriptor. Click finish

9. Your project will be shown in Project Explorer on the 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

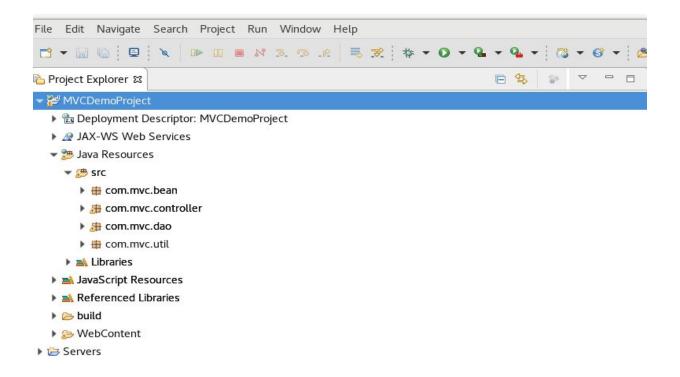Give a name to your package and click finish
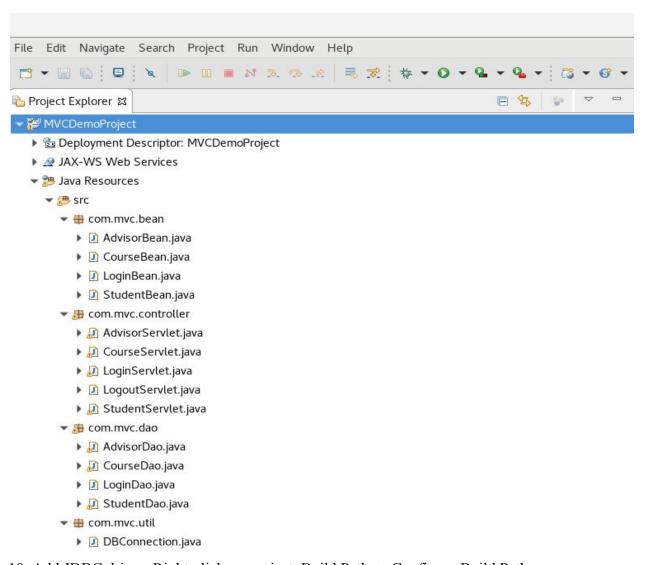
For naming conventions of packages , you can refer the following links:

1. https://www.geeksforgeeks.org/java-naming-conventions/
2. https://docs.oracle.com/javase/tutorial/java/package/namingpkgs.html

- Put all your java beans in com.mvc.bean package.
- Put all your servlet code files in com.mvc.controller package.
- Put all your data access object code files in com.mvc.dao package.
- Put your database connection code file in com.mvc.util package.

For model view controller architecture design pattern, you can refer following links:
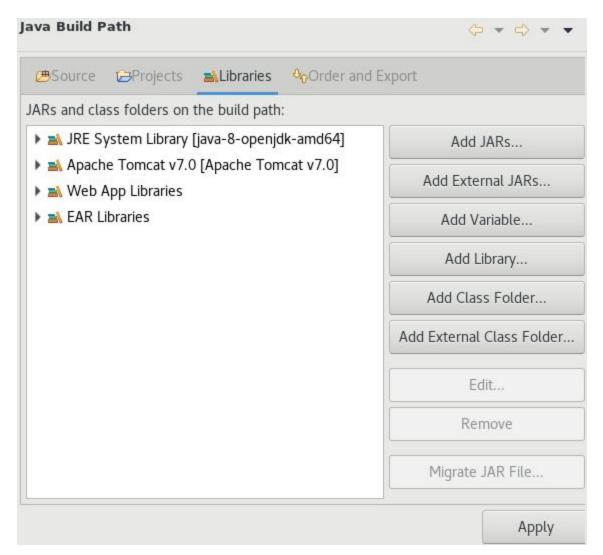
1. https://www.javatpoint.com/MVC-in-jsp

2. https://www.tutorialspoint.com/design_pattern/mvc_pattern

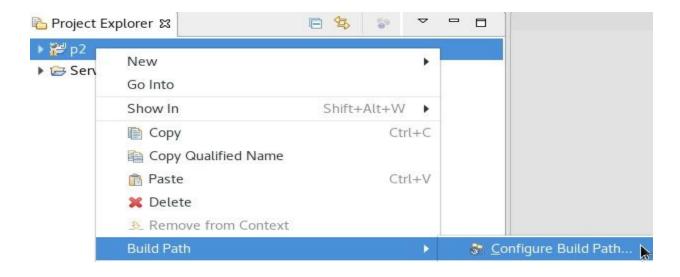10. Add JDBC driver. Right-click on project, Build Path -> Configure Build Path.

Java Build Path

Source **Projects** **Libraries** **Order and Export**

JARs and class folders on the build path:

- ▶ JRE System Library [java-8-openjdk-amd64]
- ▶ Apache Tomcat v7.0 [Apache Tomcat v7.0]
- ▶ Web App Libraries
- ▶ EAR Libraries

Add JARs...

Add External JARs...

Add Variable...

Add Library...

Add Class Folder...

Add External Class Folder...

Edit...

Remove

Migrate JAR File...

Apply

Click on the Add External JARs, Select your Postgresql JDBC driver
On the same Window, Select Deployment Assembly

type filter text

Web Deployment Assembly

- ▶ Resource
- Builders
- Coverage
- Deployment Assembly

Define packaging structure for this Java EE Web Applic

Source	Deploy Path
/src	WEB-INF/classes
/WebContent	/
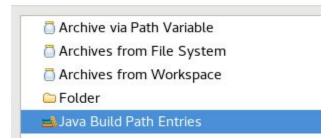
11. In the Deployment Assembly, Click Add.
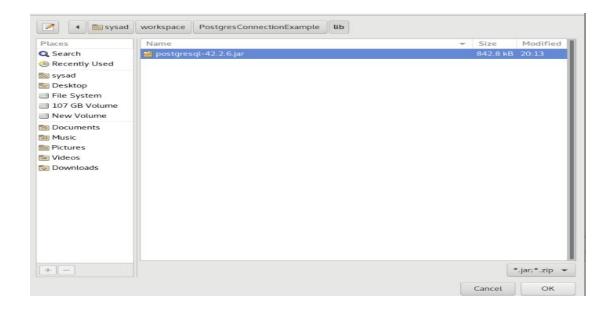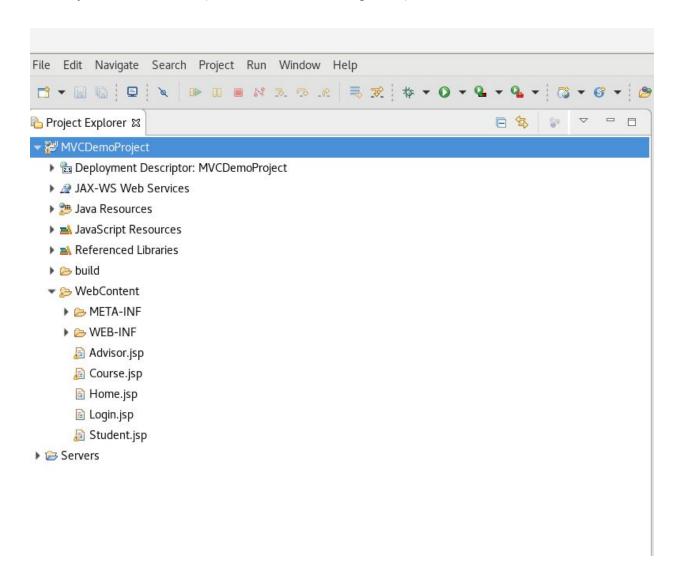
Click Next
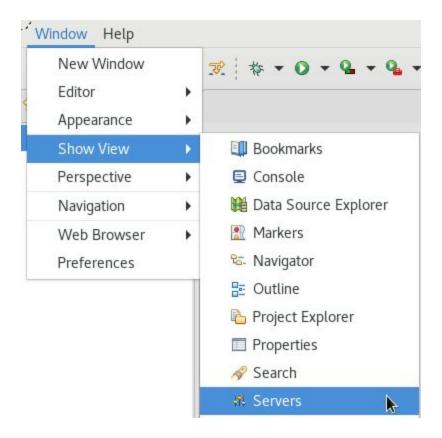
Select JDBC driver, Click Finish. Apply and Close.

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 menu bar, 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.

Define a New Server

Choose the type of server to create

Select the server type:

Tomcat v7.0 Server
Tomcat v8.0 Server

Publishes and runs J2EE and Java EE Web projects and server configurations to a local Tomcat server.

Server's host name: localhost

Server name: Tomcat v7.0 Server at localhost

Server runtime environment: Apache Tomcat v7.0   ▼   Add...

Configure runtime environments...

| < Back | Next > | Cancel | Finish |
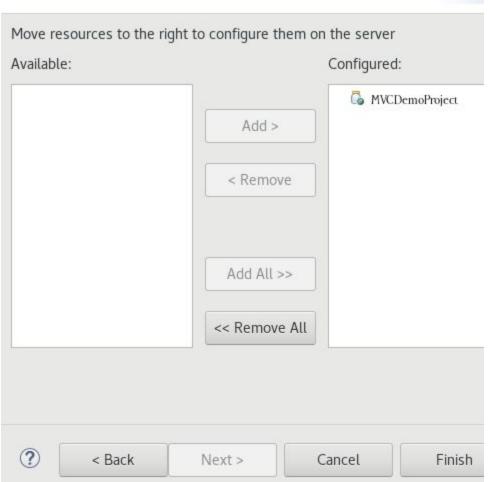
Click Next

16. Configure your project on the server.Move your project from Available to Configured using the Add button. Hit finish.

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:

MVCDemoProject

Add >

< Remove

Add All >>

<< Remove All

? | < Back | Next > | Cancel | Finish
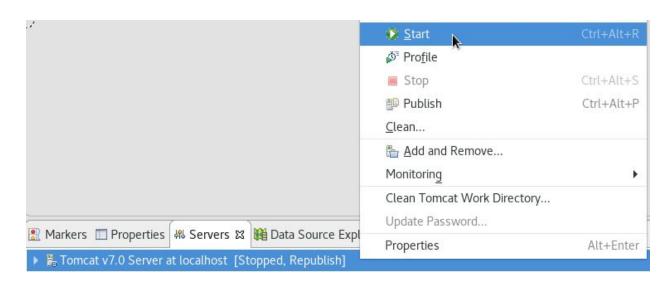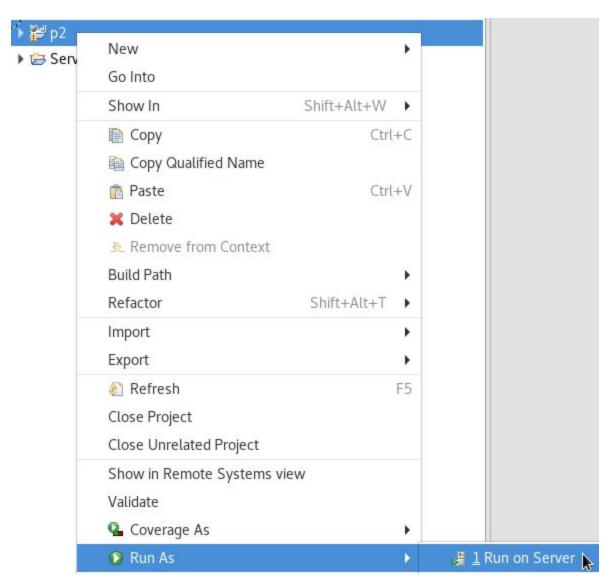
17. Start your Tomcat Server from Server View. Right-click on Server and hit Start.

▶ Start		Ctrl+Alt+R
𝄐 Profile		
■ Stop		Ctrl+Alt+S
🔢 Publish		Ctrl+Alt+P
Clean...		
📇 Add and Remove...		
Monitoring		▶
Clean Tomcat Work Directory...		
Update Password...		
Properties		Alt+Enter

🗷 Markers 🔲 Properties ⚙ Servers ⌗ 🗺 Data Source Expl

▶ 🖳 Tomcat v7.0 Server at localhost [Stopped, Republish]

▶ 🐱 p2
▶ 📂 Serv

New		▶
Go Into		
Show In	Shift+Alt+W	▶
📋 Copy		Ctrl+C
📋 Copy Qualified Name		
📋 Paste		Ctrl+V
✖ Delete		
⚓ Remove from Context		
Build Path		▶
Refactor	Shift+Alt+T	▶
Import		▶
Export		▶
🔄 Refresh		F5
Close Project		
Close Unrelated Project		
Show in Remote Systems view		
Validate		
🟢 Coverage As		▶
▶ Run As		▶	🔢 1 Run on Server

18. Select the server to use.
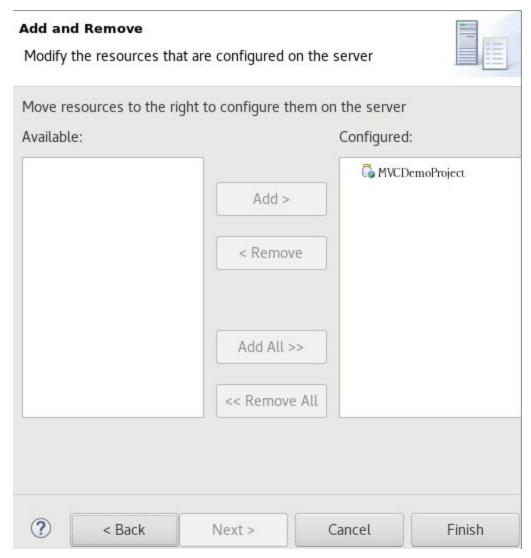
Run On Server

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:

MVCDemoProject

Add >

< Remove

Add All >>

<< Remove All

?   < 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.

20. To run the application, right click the project -> Run as -> Run on server.
Once the server is up, access the following URL
http://localhost:8080/projectName/index.jsp

Example:

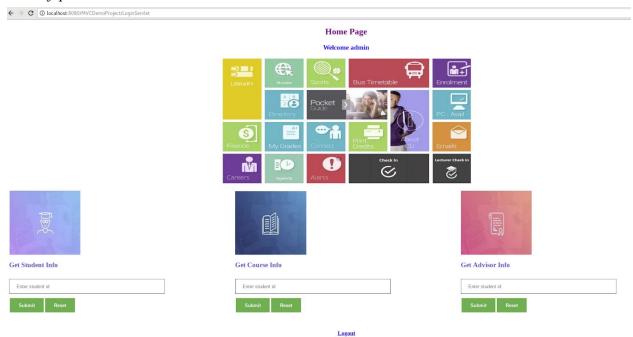http://localhost:8080/MVCDemoProject/Login.jsp.

Screenshots of JSP pages.

1. Login.jsp

Login application in Java using MVC and Postgres

Username [   ]
Password [   ]

[Login] [Reset]

2. Home.jsp

Home Page

Welcome admin

Get Student Info

[Enter student id]

[Submit] [Reset]

Get Course Info

[Enter student id]

[Submit] [Reset]

Get Advisor Info

[Enter student id]

[Submit] [Reset]

Logout

3. Student.jsp

Student id	Student Name	Dept Name
1890	Robert	Civil Eng.