

# Instructions for setting up the environment for java web PRJ301 (updated)

To develop and deploy a java web application on WINDOW, you need to follow 6 below instructions:

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# 1. Installing JDK 17

<https://www.oracle.com/java/technologies/downloads/>

The screenshot shows the Oracle Java Downloads page for JDK 17. The page features a navigation bar with the Oracle logo and links for Products, Industries, Resources, Customers, Partners, Developers, and Company. Below the navigation bar, there are tabs for Java downloads, Tools and resources, and Java archive. The main content area includes a section for Java 21 and Java 17, followed by a section for JDK Development Kit 17.0.9 downloads. A table lists the download options for Windows, with the x64 Installer highlighted in red. Below the table is a button for Documentation Download.

Product/file description	File size	Download
x64 Compressed Archive	172.42 MB	<a href="https://download.oracle.com/java/17/latest/jdk-17_windows-x64_bin.zip">https://download.oracle.com/java/17/latest/jdk-17_windows-x64_bin.zip</a> ( sha256)
x64 Installer	153.51 MB	<a href="https://download.oracle.com/java/17/latest/jdk-17_windows-x64_bin.exe">https://download.oracle.com/java/17/latest/jdk-17_windows-x64_bin.exe</a> ( sha256)
x64 MSI Installer	152.30 MB	<a href="https://download.oracle.com/java/17/latest/jdk-17_windows-x64_bin.msi">https://download.oracle.com/java/17/latest/jdk-17_windows-x64_bin.msi</a> ( sha256)

After installing, let check the installation folder:

Normally it will be located at: C:\Program Files\Java. It contains 1 folder JDK-17.

If you see these folders, it is ok for now.

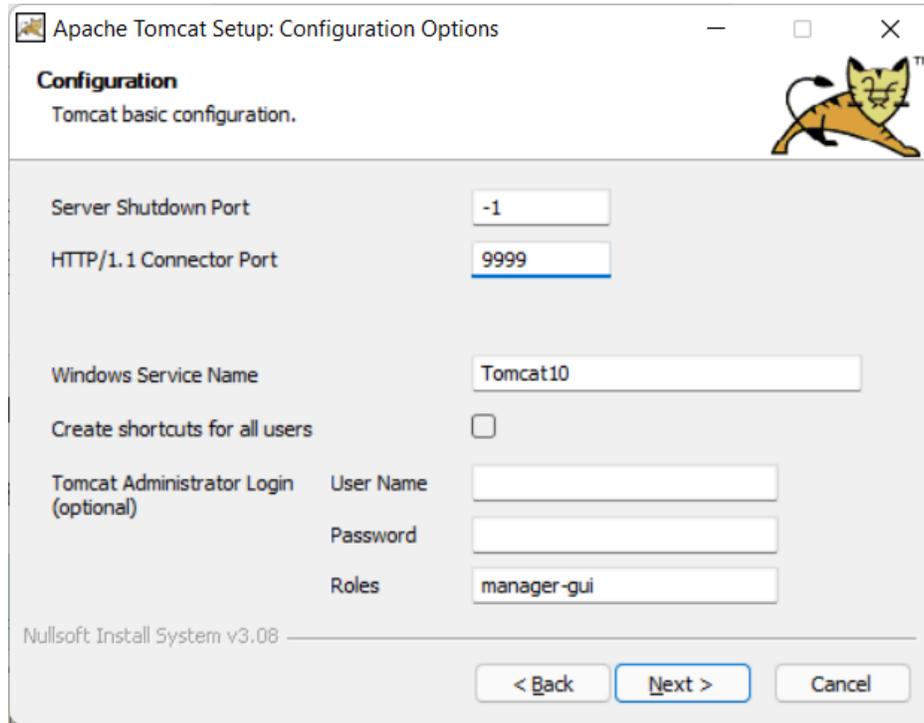
For more details, you can read

<https://www.oracle.com/java/technologies/javase-jdk8-doc-downloads.html>

## 2. Installing Apache Tomcat 10.1.x

Link: <https://tomcat.apache.org/download-10.cgi>

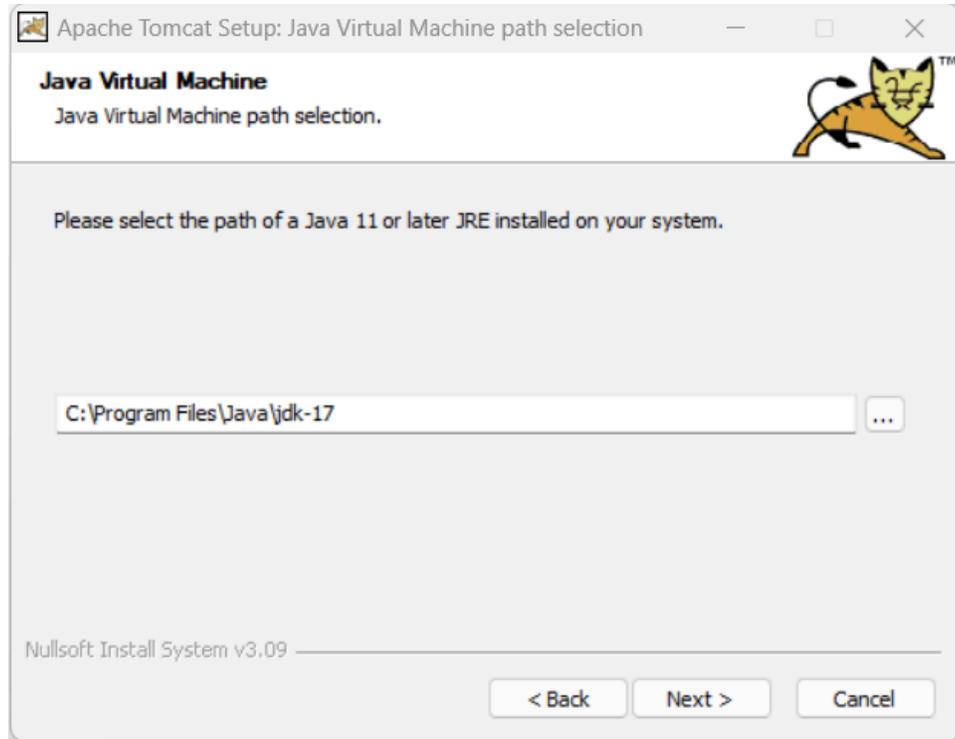
Open the installer file then click “Next” button, until you see the below screen:



By default, the HTTP port is set as 8080, but I prefer to change it to 9999. You can keep it as 8080 or change it as you desire. Same for Window Service Name.

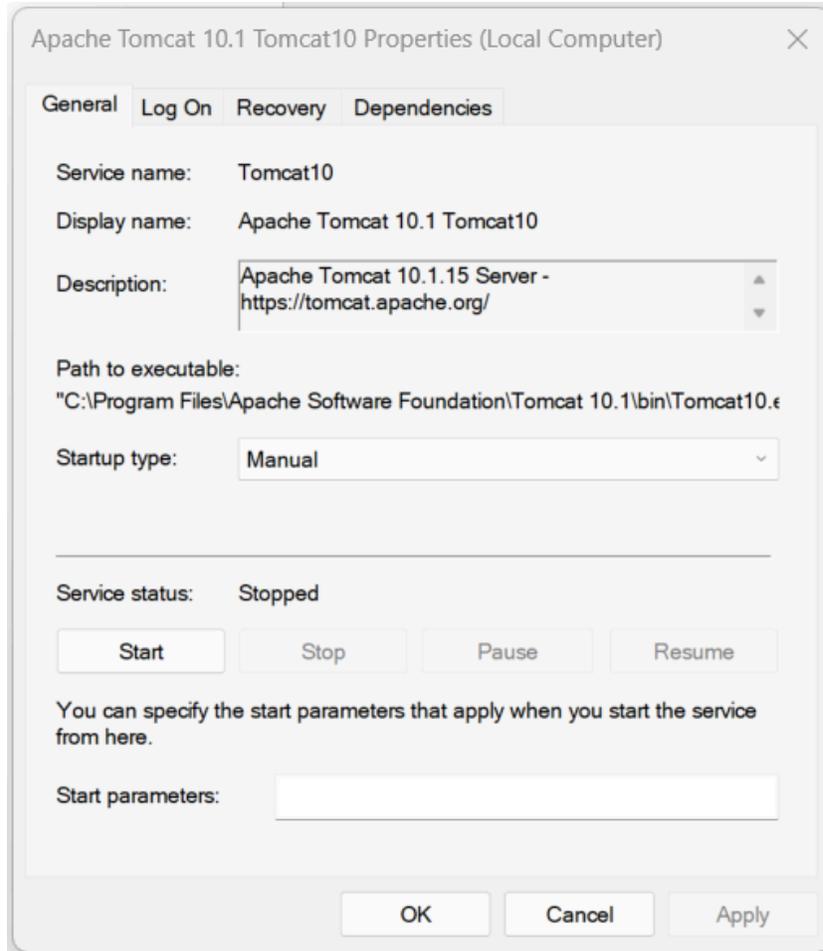
You can also set username and password at this step, but it is an optional and you can do it later.

Click “Next”, then the installer will ask you for JDK-17 folder. Basically, the installer can automatically detect JDK-17 folder, but in the case it cannot, you can add it manually.



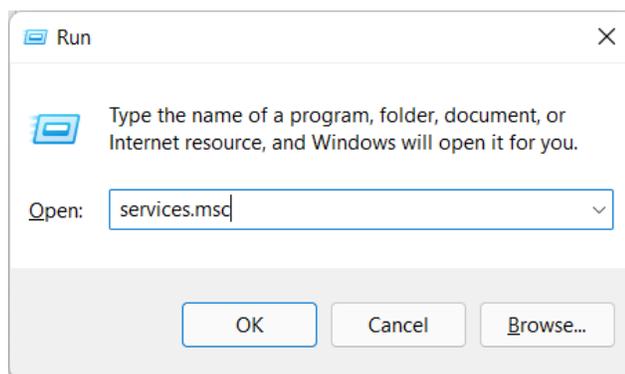
Click "Next" .... Again then "Finish".

Normally, you are going to see the below window app displayed:

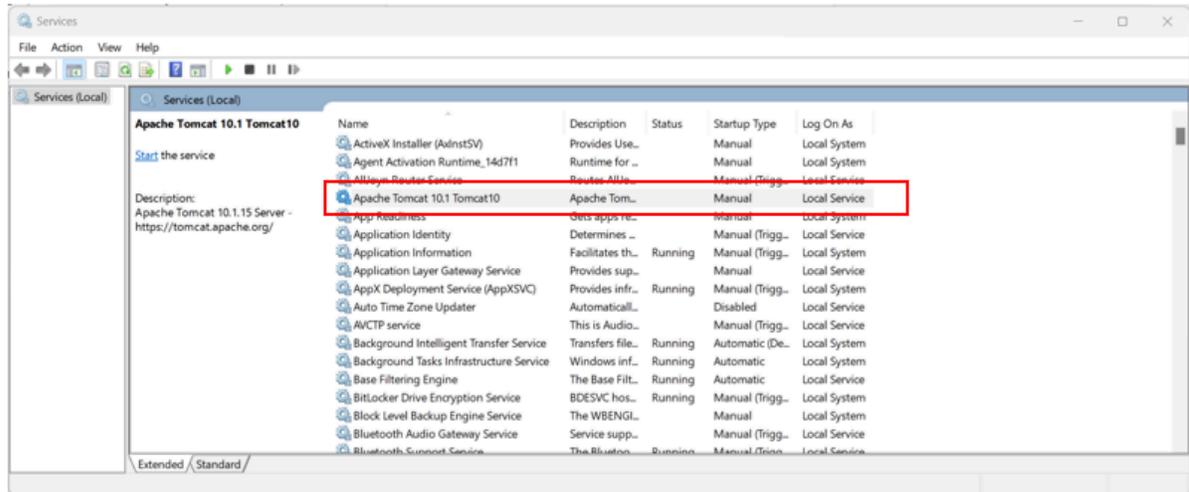


It is ok, this application used to control your TOMCAT webserver, but if you do not see it, do not worry. I recommend you follow below instructions:

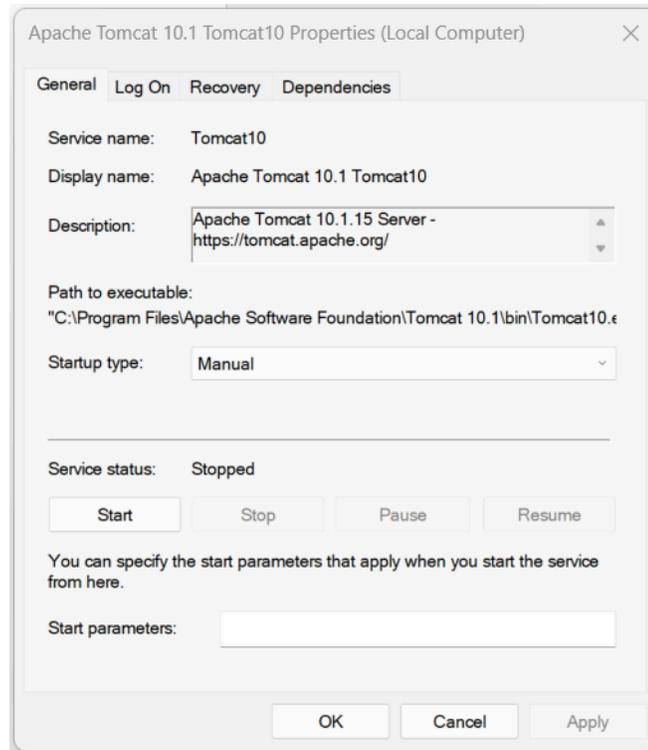
1. TOMCAT now is installed as a Window Service (It is a software, but it does not have a graphic user interface).
2. To work with Window Service, press window+R, fill service.msc



3. Find the TOMCAT service in the list:



Right click -> properties ->



Now you can start/stop the TOMCAT service. Just make sure it is running before use.

You can grant permission for TOMCAT to run with Local System account on the same dialog.

Apache Tomcat 10.1 Tomcat10 Properties (Local Computer) ✕

General Log On Recovery Dependencies

Log on as:

Local System account

Allow service to interact with desktop

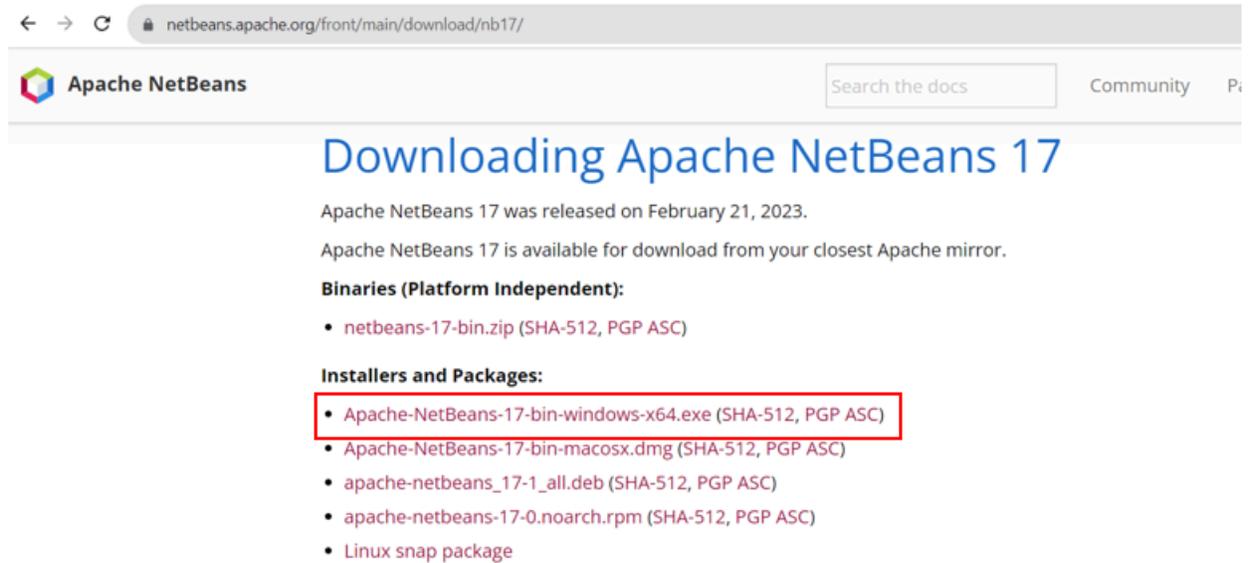
This account:  

Password:

Confirm password:

### 3. Installing Apache NetBeans IDE 17

Download: <https://netbeans.apache.org/front/main/download/nb17/>



← → ↻ netbeans.apache.org/front/main/download/nb17/

Apache NetBeans Search the docs Community Pr

## Downloading Apache NetBeans 17

Apache NetBeans 17 was released on February 21, 2023.

Apache NetBeans 17 is available for download from your closest Apache mirror.

**Binaries (Platform Independent):**

- [netbeans-17-bin.zip \(SHA-512, PGP ASC\)](#)

**Installers and Packages:**

- [Apache-NetBeans-17-bin-windows-x64.exe \(SHA-512, PGP ASC\)](#)
- [Apache-NetBeans-17-bin-macosx.dmg \(SHA-512, PGP ASC\)](#)
- [apache-netbeans\\_17-1\\_all.deb \(SHA-512, PGP ASC\)](#)
- [apache-netbeans-17-0.noarch.rpm \(SHA-512, PGP ASC\)](#)
- [Linux snap package](#)

During your installation, remember to select JDK 17 (just in case, you have more than one version of Java).

After installation, run Netbeans 17, File > New Project > Java with Ant > Select Web Application (It is disabled by default, just select it, netbeans will automatically enable the project template).

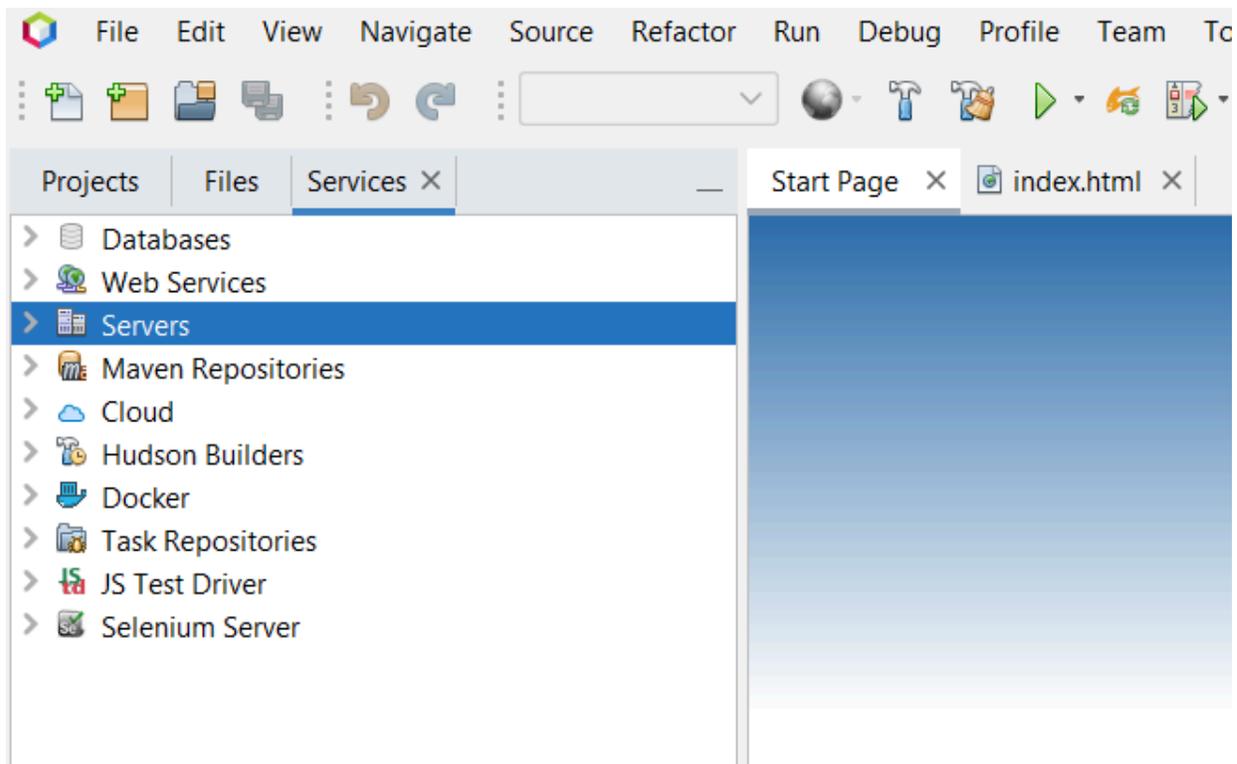
## 4. Integrating Apache NetBeans IDE 17 with Apache Tomcat.

+ First, open the Apache Tomcat folder:

By default, it is located at: **C:\Program Files\Apache Software Foundation\Tomcat 10.1**

The system may ask you to grant permission, just click “Yes” button. This step aims to allow your account to access the Apache Tomcat folder for further tasks.

+ Open Netbeans, on the menu bar, Window > Service (Ctrl + 5) > select Service panel as following:



Server > Right click > Add Server > Apache Tomcat and TomEE >

**Add Server Instance**

**Steps**

1. Choose Server
- 2. Installation and Login Details**

**Installation and Login Details**

Specify the Server Location (Catalina Home) and login details

Server Location:

Use Private Configuration Folder (Catalina Base)

Catalina Base:

Enter the credentials of an existing user in the manager or manager-script role

Username:

Password:

Create user if it does not exist

< Back   Next >   Finish   Cancel   Help

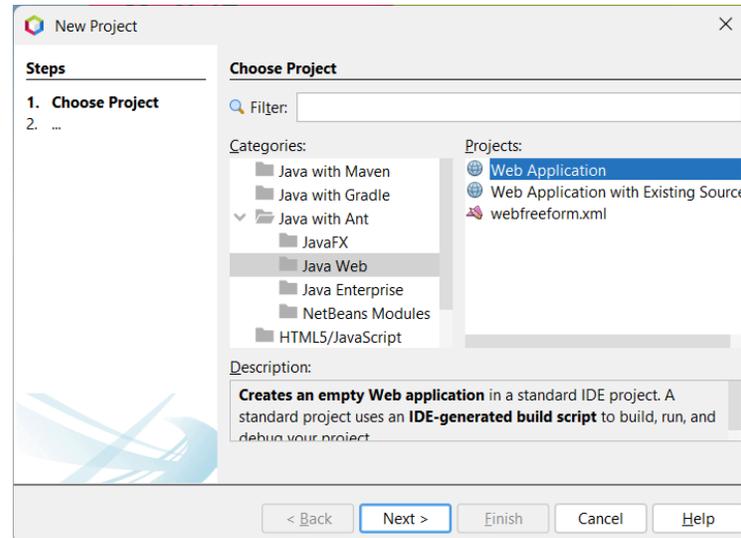
Here you can create your username and password, then finish. Now you can work with Java Web project in netbeans 17.

If you get an error related to “CATALINA\_base is Invalid”, check the first step.

Errors related to Tomcat will be logged to “C:\Program Files\Apache Software Foundation\Tomcat 10.1\logs”, check the catalina\*\*\*\* file for the detail logs.

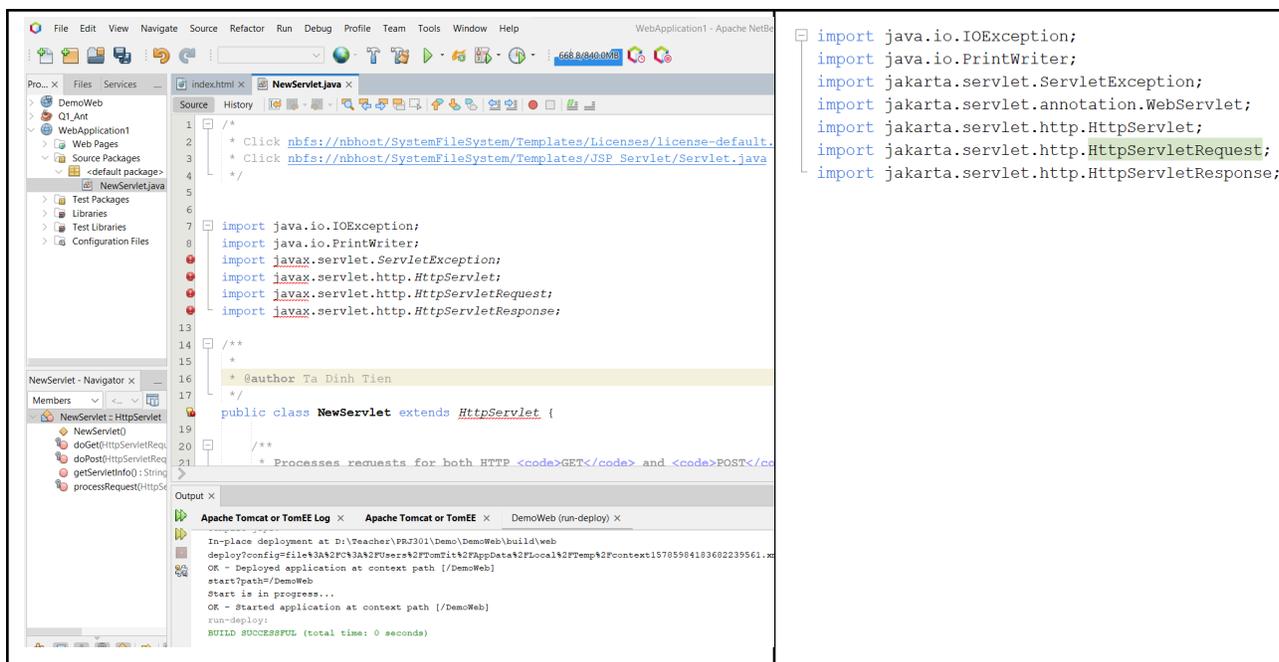
## 5. Create Java Web project, Servlet and Debug.

To create a new java web project: File > New Project > Java with Ant > Java Web > Web Application (See the below figure)



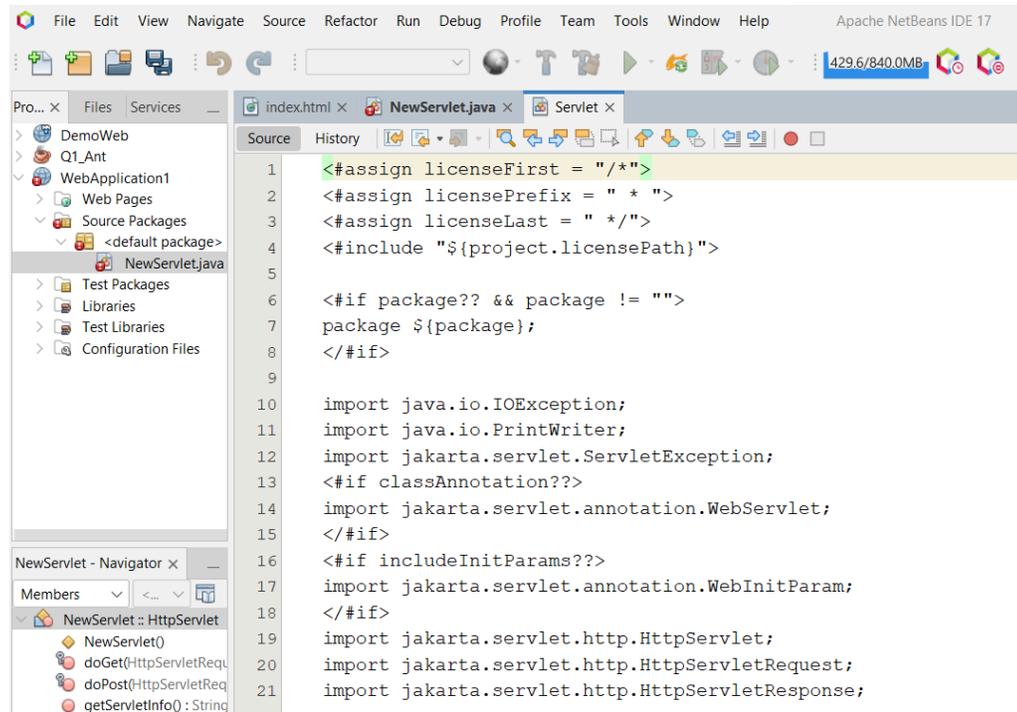
/// LET DO IT, IN THE SESSION OF SERVLET

Once you create new Servlet via Netbeans template file. By default, netbeans using javax, which is not included in Jakarta EE platform equipped by Tomcat 10. Just need to replace all javax by Jakarta package, then everything will be compiled.



Refer to <https://tomcat.apache.org/> for more detail

you can also edit the template file for further tasks.



// For one who cannot start debugging mode with apache tomcat 10. Open task manager window then kill the process of Java SE.

Check the video: <https://youtu.be/9Zcy7yWNA4>

OR

Open window PowerShell, type command:

get-process

```
Select Windows PowerShell
300 17 22232 58596 0.34 18304 1 chrome
332 18 48220 95204 0.98 20284 1 chrome
513 22 159868 193628 39.88 20600 1 chrome
221 15 12896 28260 0.03 20616 1 chrome
255 16 20808 46952 0.92 23208 1 chrome
74 6 2484 4960 0.05 13332 1 cmd
82 7 5276 6724 4588 0 comhost
82 7 5308 7120 7268 0 comhost
269 15 6596 20016 1.94 8912 1 comhost
107 8 5444 1192 0.05 10656 1 comhost
108 8 5440 10568 0.00 12192 1 comhost
155 11 1852 8098 0.06 10836 1 CrashpadHandlerWindows
910 36 2996 6156 1020 0 csrss
871 32 3856 6352 1056 1 csrss
400 17 4920 21664 2.70 9364 1 etfmon
178 10 1936 10064 19212 0 DDWCollectorSvcApi
450 25 30512 31836 15628 0 DDWDataCollector
376 19 18872 17232 22644 0 DDWulesProcessor
757 808 12772 157404 22504 0 Dell.D9.klmsvc
1044 69 65088 88120 23636 0 DellSupportAssistRemediationService
136 9 1984 13240 0.05 5472 1 dlhhost
275 37 9524 18812 0.17 9684 1 dlhhost
202 18 3328 11500 19188 0 dlhhost
97 8 1488 5552 6.19 8896 1 dptf_helper
957 60 95536 114992 10700 0 Dsapi
1702 77 136172 186620 1704 1 dm
133 8 2116 6500 5000 0 esff_uf
3493 120 188232 226636 20.23 9612 1 explorer
200 13 2032 6756 6132 0 fdhost
66 6 840 4528 8072 0 fdlauncher
421 20 5528 26228 0.05 16220 1 FileCohAuth
33 6 1720 2848 1296 0 fontdrvhost
33 10 7872 10176 1636 1 fontdrvhost
107 12 1892 8592 4036 0 FoxitPDFReaderUpdateService
861 46 43856 61996 3320 0 FusionService
318 22 32864 40300 0.27 19604 1 GameLibraryAppService
561 380 16540 43992 0.47 21004 1 Garena
180 11 1756 1540 14300 0 GoogleCrashHandler
162 9 1696 1044 14320 0 GoogleCrashHandler64
376 36 10164 18768 3152 0 gxasvc
1068 50 74912 2024 0.00 21192 1 HubOutlook
680 33 28172 13744 1.00 21896 1 hcxr
0 0 60 8 0 0 Idle
210 12 2444 10848 3940 0 IgfxCUIServiceN
289 15 3628 13016 0.28 9564 1 IgfxDM
128 8 1280 5792 2300 0 IntelCpHDPSvc
631 36 737292 266456 7.48 15760 1 java
139 9 1320 6864 6024 0 jhl_service
152 11 1432 8300 0.03 19472 1 juxched
431 22 93992 22220 7016 0 Launchpad
217 12 2908 9860 4976 0 LMS
577 27 21144 54260 0.56 13068 1 LockApp
2208 30 11324 26624 1140 0 lsass
767 54 39480 32196 0.33 4628 1 mcafee-security
265 14 3360 19944 0.05 18864 1 mcafee-security-ft
```

Find java-se process id, then type command:

```
taskkill /pid 15760 /F
```

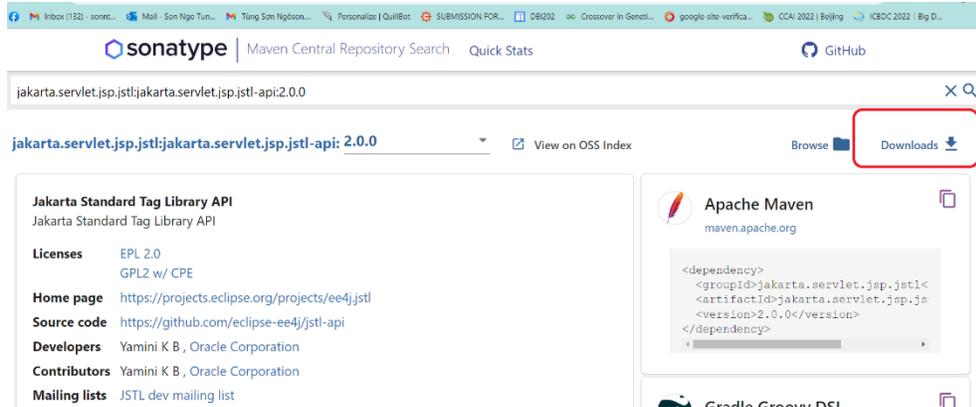
Now you can try debugging again with NetBeans and tomcat.

## 6. Working with JSTL.

Latest version of JSTL build on J2EE was 1.2x. Since the Tomcat 10 is using Jakartified version (with jakarta.\* package instead of javax.\* package), use JSTL 2.0 to solve this dependency:

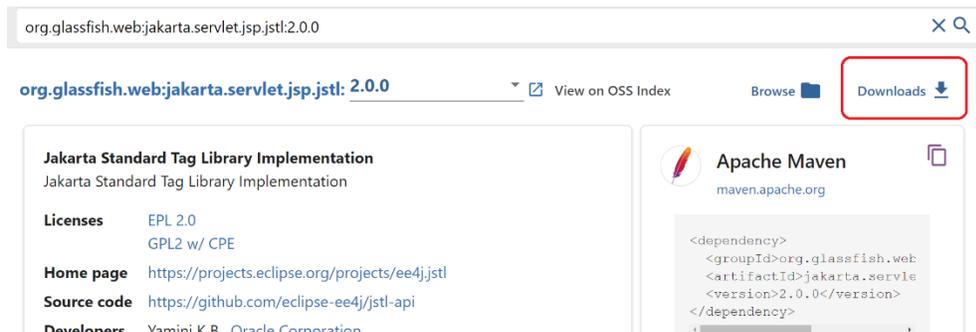
Download: Jakarta Standard Tag Library API

Link: <https://search.maven.org/artifact/jakarta.servlet.jsp.jstl/jakarta.servlet.jsp.jstl-api/2.0.0/jar>



Download: Jakarta Standard Tag Library Implementation

Link: <https://search.maven.org/artifact/org.glassfish.web/jakarta.servlet.jsp.jstl/2.0.0/jar>



Check the document here:

<https://jakarta.ee/specifications/tags/2.0/jakarta-tags-spec-2.0.html>

## 7. Working with JDBC.

Add library sqljdbc42.jar and jaxb-api-2.1.jar to be able to perform jdbc related operations in java.  
Download sqljdbc42.jar và jaxb-api-2.1.jar in internet.

Or: [setups](#)

Sau khi add thư viện thì trong project sẽ như sau:



Chúng ta có thể tham khảo given project with jdbc theo link sau:  
<https://drive.google.com/drive/folders/1uaHyJLw9LfcFbn-5jVQF7nPYyXf81H2Y?usp=sharing>