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:

Contents

1. Installing JDK 17

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

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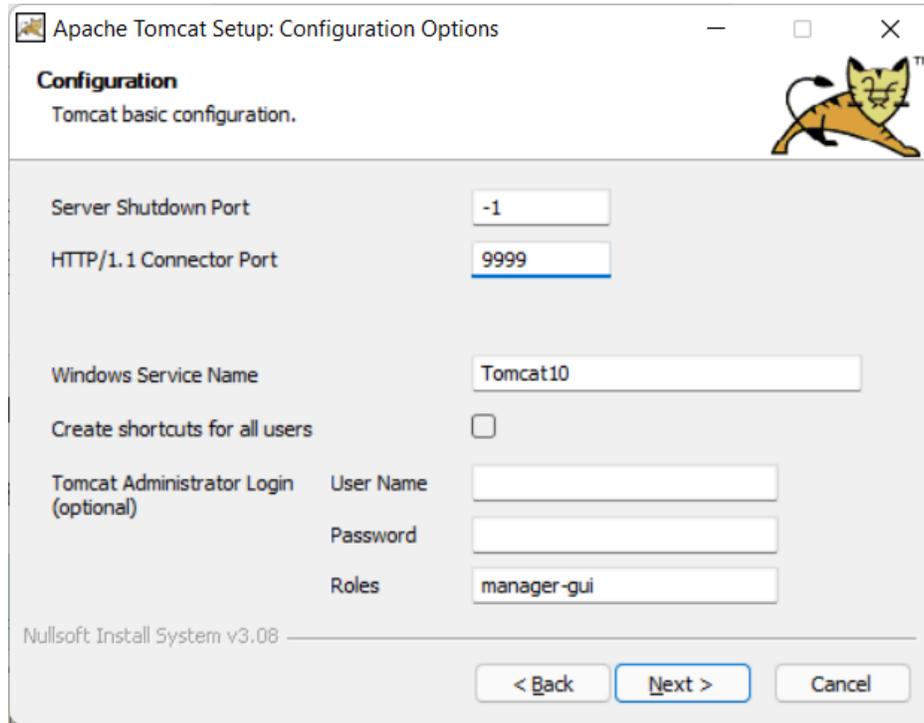
By default, the HTTP port is set as 8080, but I prefer to change it to 9999. You can keep it as 8080 or change it as you desire. Same for Window Service Name.

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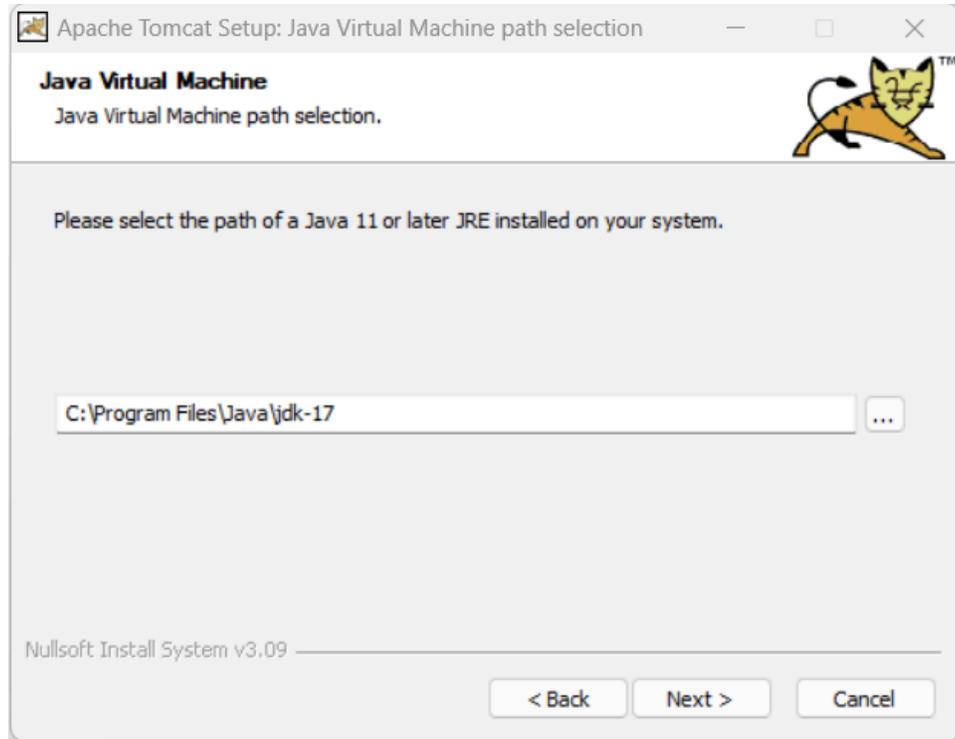
Click "Next" …. Again then "Finish".

Normally, you are going to see the below window app displayed:
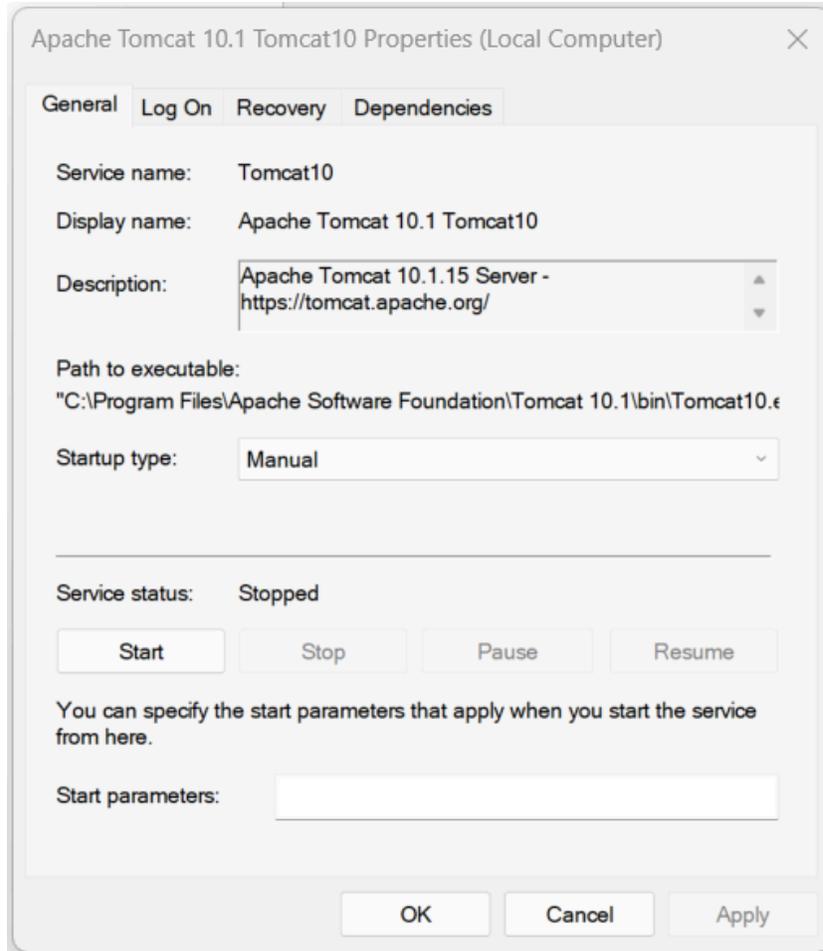
It is ok, this application used to control your TOMCAT webserver, but if you do not see it, do not worry. I recommend you follow below instructions:

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
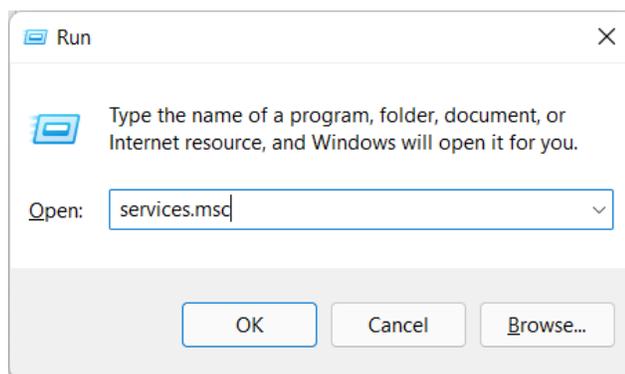
3. Find the TOMCAT service in the list:
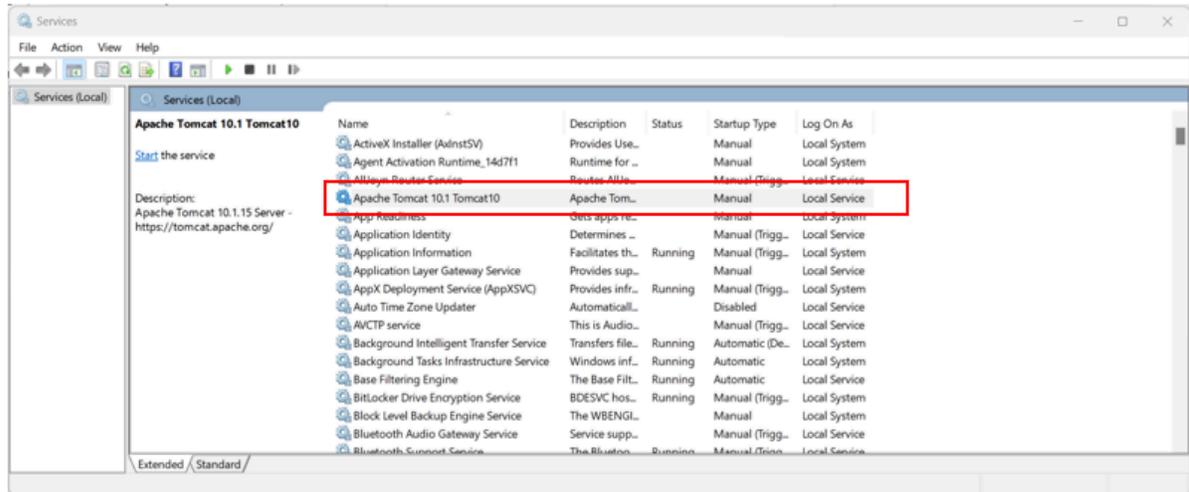
Right click -> properties ->
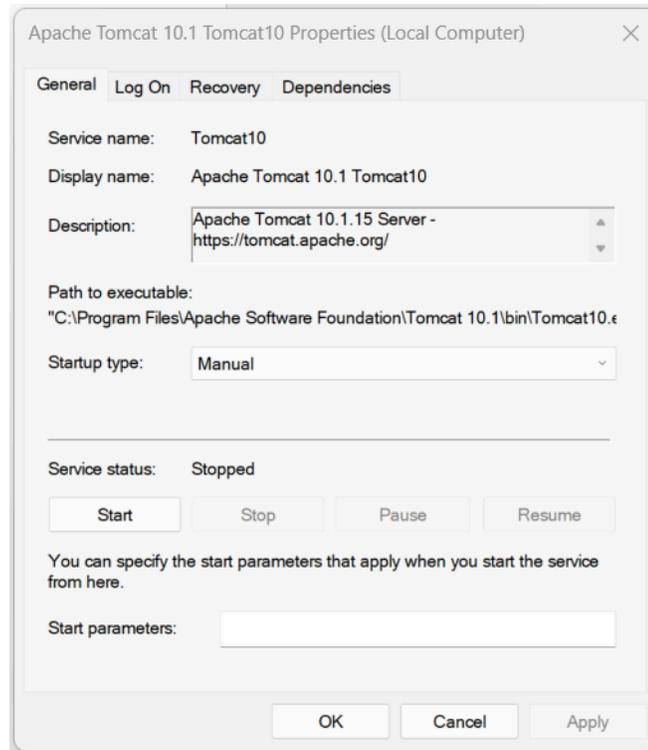
Now you can start/stop the TOMCAT service. Just make sure it is running before use.

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: [   ]   Browse...

   Password: [   ]

   Confirm password: [   ]

[OK]   [Cancel]   [Apply]

3. Installing Apache NetBeans IDE 17
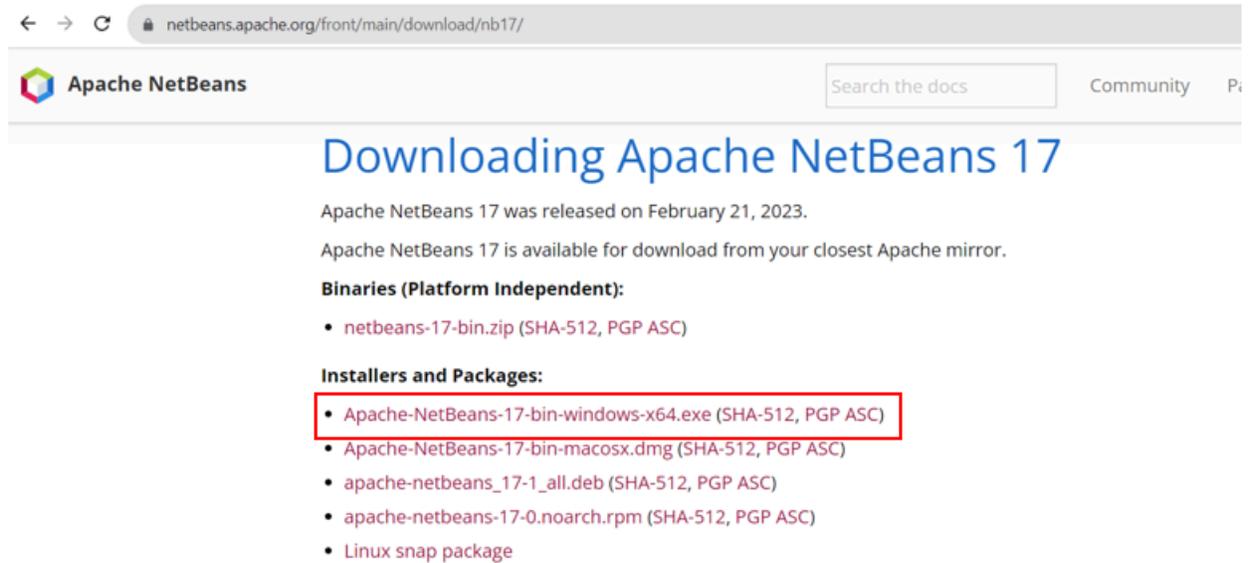
Download: https://netbeans.apache.org/front/main/download/nb17/

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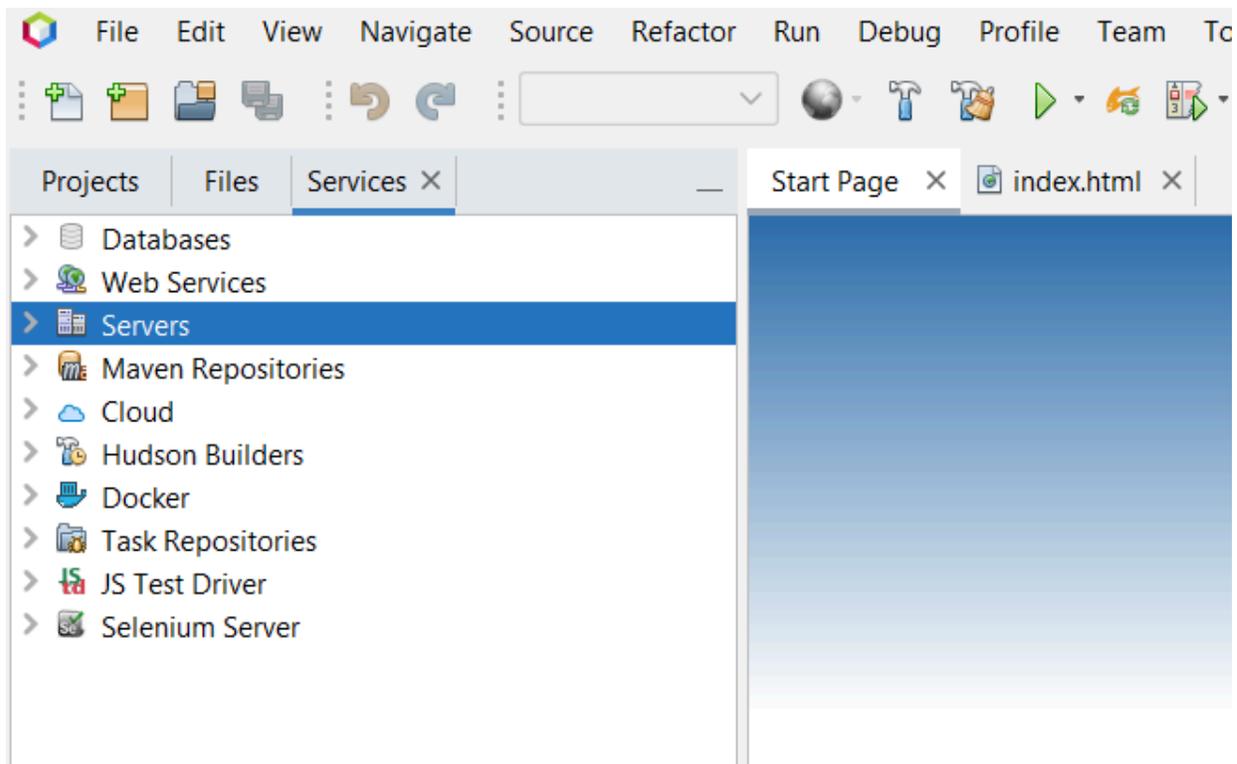
Server > Right click > Add Server > Apache Tomcat and TomEE >

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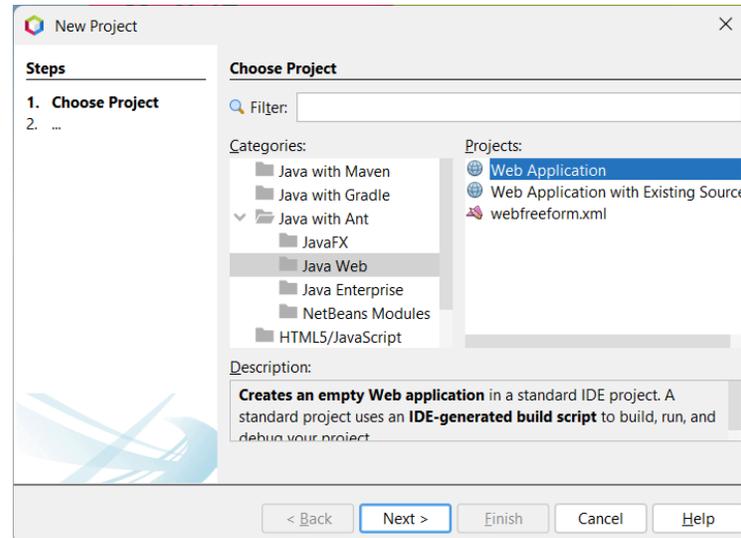
/// LET DO IT, IN THE SESSION OF SERVLET

Once you create new Servlet via Netbeans template file. By default, netbeans using javax, which is not included in Jarkata EE platform equipped by Tomcat 10. Just need to replace all javax by Jakarta package, then everything will be compiled.
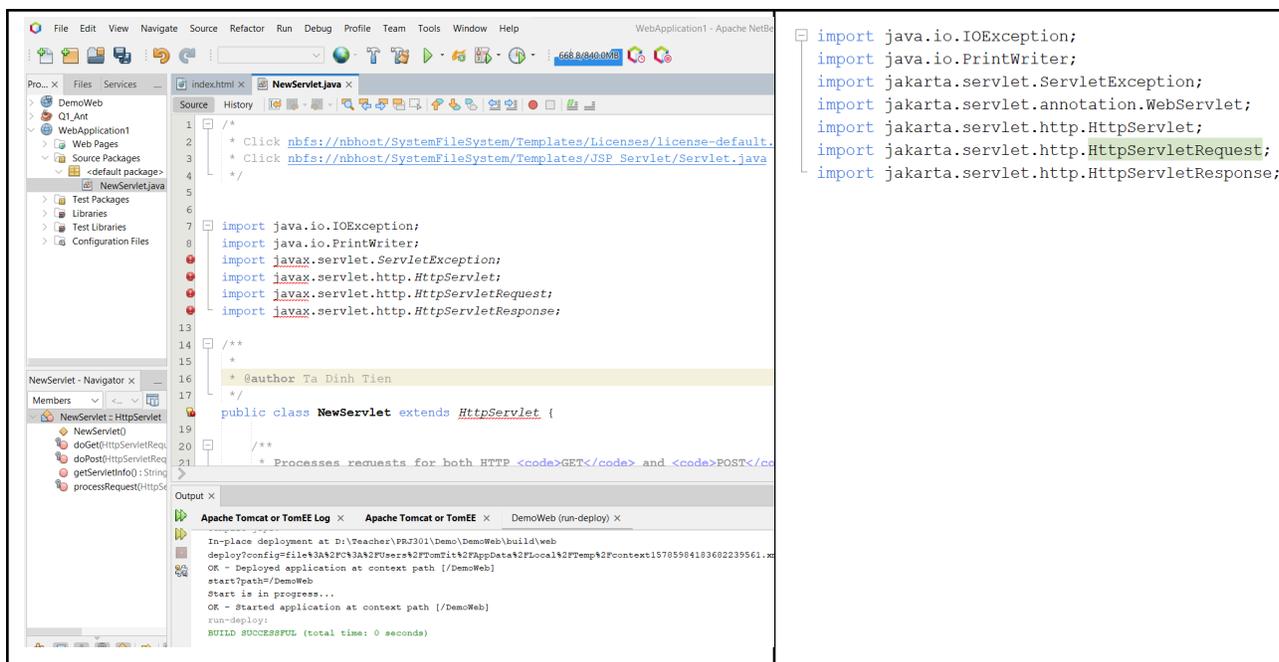
Refer to https://tomcat.apache.org/ for more detail

you can also edit the template file for further tasks.
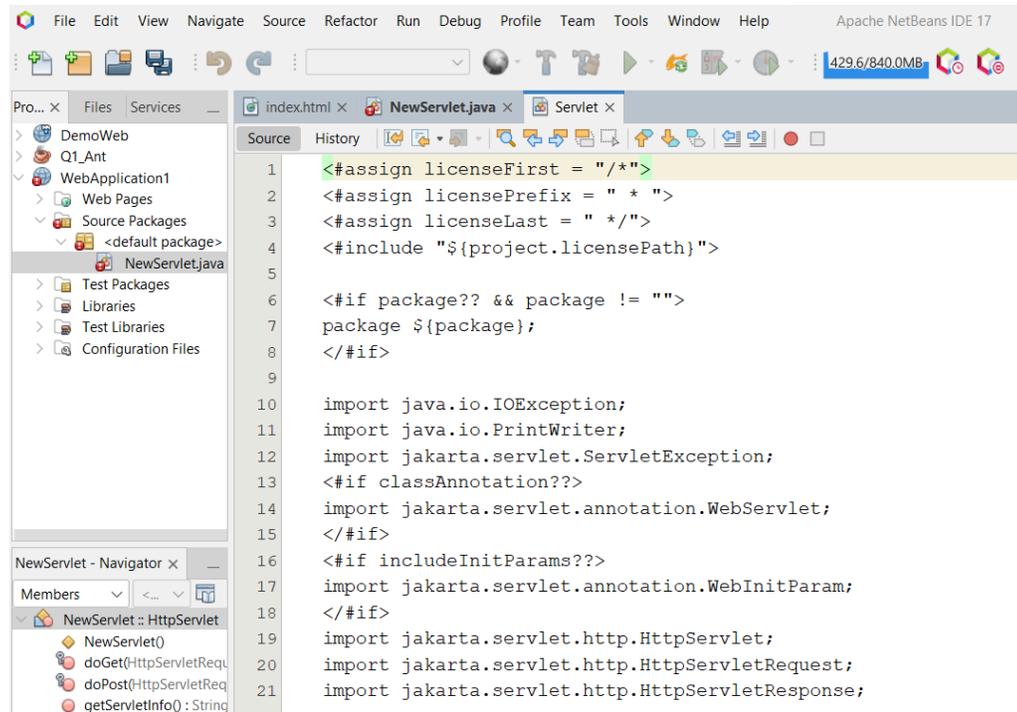
// For one who cannot start debugging mode with apache tomcat 10. Open task manager window then kill the process of Java SE.

Check the video: https://youtu.be/9Zcy7yWNAm4

OR

Open window PowerShell, type command:

get-process

```
 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 conhost
  82      7      5280      7120             7368    0 conhost
 269     15      6596     20016      1.94   8912    1 conhost
 107      8      5444      1192      0.05  10656    1 conhost
 108      8      5440     10568      0.00  12192    1 conhost
 155     11      1852      8028      0.06  14836    1 CrashpadHandlerWindows
 910     36      2996      6156             1020    0 csrss
 871     32      3056      6352             1056    1 csrss
 490     17      4920     21964      2.70   9364    1 ctfmon
 178     10      1936     10064            19212    0 DDVCollectorSvcApi
 450     25     30512     31836            15628    0 DDVDataCollector
 376     19     18872     17232            22644    0 DDVRulesProcessor
 757    108    127732    157404            22584    0 Dell.D3.WinSvc
1044     69     65088     88120            23636    0 DellSupportAssistRemediationService
 136      9      1984     13240      0.05   5472    1 dllhost
 275     37      9524     18812      0.17   9684    1 dllhost
 202     18      3328     11500            19188    0 dllhost
  97      8      1488      5552      6.19   8896    1 dptf_helper
 957     60     95536    114992            10700    0 Dsap1
1702     77    136172    160620             1704    1 dwm
 133      8      2116      6500             5008    0 esif_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 FileCoAuth
  33      6      1720      2848             1296    0 fontdrvhost
  33     10      7872     10176             1636    1 fontdrvhost
 167     12      1692      8592             4856    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            14308    0 GoogleCrashHandler
 162      9      1696      1044            14320    0 GoogleCrashHandler64
 376     36     10164     18768             3152    0 gxxsvc
1068     50     74912      2024      0.88  21152    1 HxOutlook
 680     33     28172     13744      1.06  21896    1 HxTsr
   0      0        60         8                0    0 Idle
 210     12      2444     10848             3940    0 igfxCUIServiceN
 289     15      3628     13016      0.28   9564    1 igfxEMN
 128      8      1280      5792             2300    0 IntelCpHDCPSvc
 631     36    737292    266456      7.48  15760    1 java
 139      9      1320      6864             6024    0 jhi_service
 152     11      1432      8308      0.03  19472    1 jusched
 431     22     93992     22220             7016    0 Launchpad
 217     12      2908      9860             4976    0 LMS
 577     27     23144     54260      0.56  13068    1 LockApp
2268     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
```

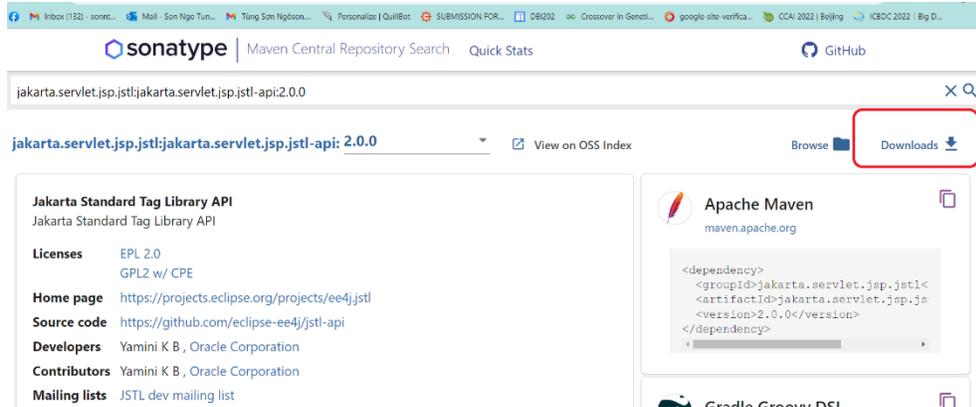Find java-se process id, then type command:

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:
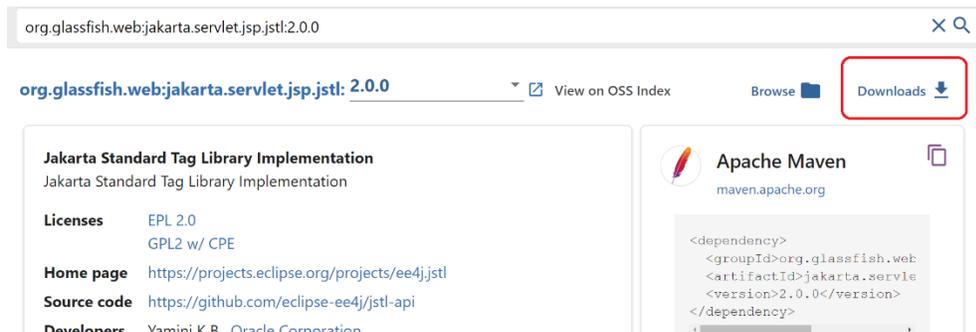
Download: Jakarta Standard Tag Library API

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