COMP 3820SEF/S380F Web Applications: Design and Development
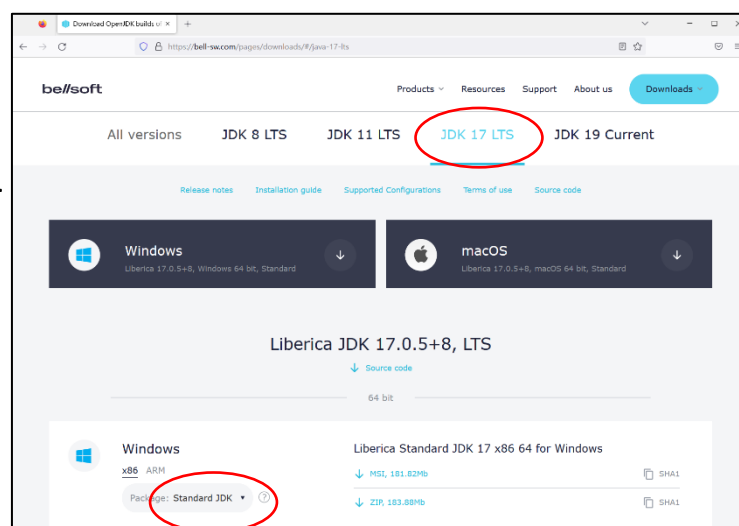**Software Installation Guide**

This is an installation guide for BellSoft Liberica JDK 17, Apache Tomcat 10.1, and IntelliJ IDEA Ultimate, which will be used to run the web applications developed in this course.

1. Liberica JDK 17

Oracle JDK is now not commercially free, as stated in its terms: "*You may not: use the Programs for any data processing or any commercial, production, or internal business purposes other than developing, testing, prototyping, and demonstrating your Application;* ", so developers are liable to pay Oracle for using Oracle JDK in production.

Liberica JDK is an alternative produced by BellSoft, which is open-source licensed and available free. To use Jakarta EE 10, you need to install Liberica JDK 17:

1. Browse https://bell-sw.com/pages/downloads/
2. Select the version "JDK 17 LTS".
3. Download the latest Standard JDK 17,
   e.g., bellsoft-jdk17.0.13+12-windows-amd64.msi .

4. *During* installation, make sure you will install "**Setup JAVA_HOME**" (selected by default).

5. To check that it is installed successfully, typing "`java -version`" in the command prompt will show:


```
(base) C:\Windows\System32>java -version
openjdk version "17.0.13" 2024-10-15 LTS
OpenJDK Runtime Environment (build 17.0.13+12-LTS)
OpenJDK 64-Bit Server VM (build 17.0.13+12-LTS, mixed mode, sharing)
```

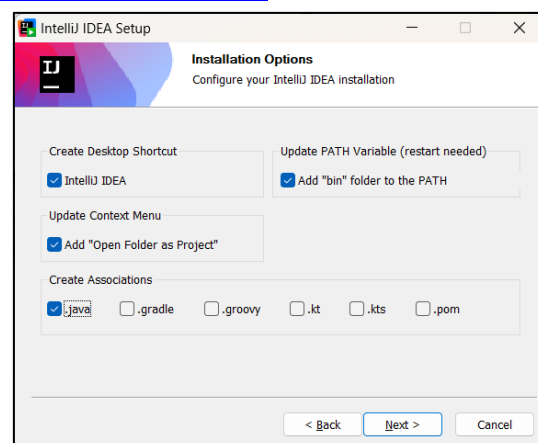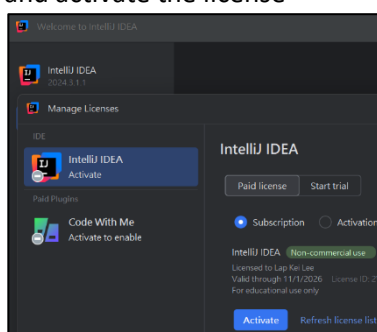## 2. Apache Tomcat 10.1 *(not 10.0 or 11)*

Apache Tomcat is a web container. You need different Tomcat version for different Jakarta EE version. We will use the latest version, Apache Tomcat 10.1, that supports Jakarta EE 10:

1. Browse https://tomcat.apache.org/download-10.cgi
2. Browse the 10.1.X section, download the *Core* binary distribution, e.g., 64-bit Windows zip
3. Extract the archive to your local drive for execution later, e.g., "C:\apache-tomcat-10.1.34"
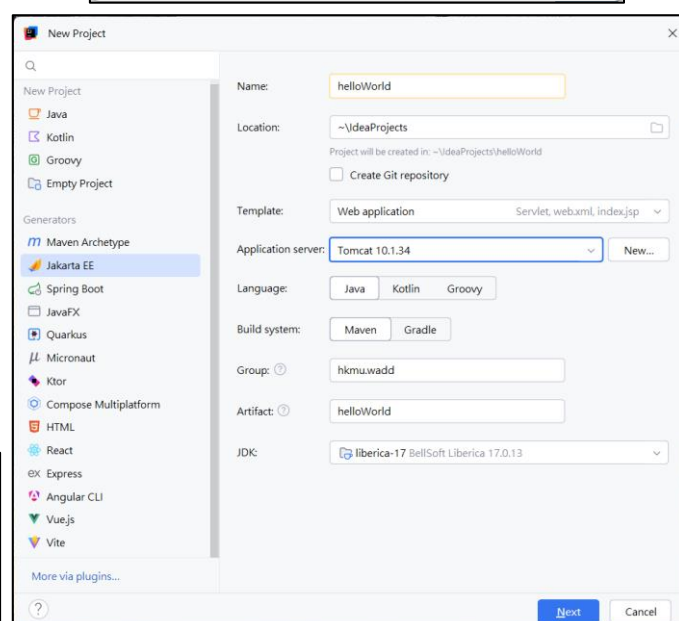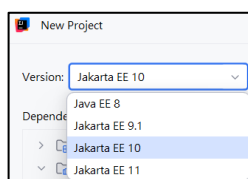
3. IntelliJ IDEA Ultimate

IntelliJ IDEA Ultimate is the Java IDE to be used. This is a powerful Java IDE developed by JetBrains, but is not free; a free alternative is Apache NetBeans. As a university student, you can register a free Education license with the HKMU email address (It has to be renewed every year, and will expire when you graduate):
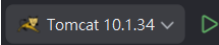
1. Register a student account for an Education license at https://www.jetbrains.com/shop/eform/students
2. Follow the instructions in the email from JetBrains to proceed.
3. Download the *IntelliJ IDEA (Ultimate)* for your OS at https://www.jetbrains.com/idea
4. *During* installation, select the options as shown on the right:
5. Launch *IntelliJ IDEA Ultimate*, and activate the license using your student account:

<u>Creating a Maven Web Application project for testing</u>

6. On the welcome page, select "Projects" and click the "New Project" button.
7. Set up the new project as follows:
   - Category (on the left): Jakarta EE
   - Name: helloWorld
   - Template: Web application
   - Application server:
     Click "New" > "**Tomcat Server**" and set Tomcat Home to the extracted Tomcat 10.1 folder
   - Language: Java
   - Build system: Maven
   - Group: hkmu.wadd
   - JDK: BellSoft Liberica 17.0.xx
8. Press "Next" and select "**Jakarta EE 10**" as the Version on the top.

9. On the top-right menu bar, click the triangle icon [Tomcat 10.1.34] (Shift + F10) to run the web app (this builds and deploys the web app to Tomcat).
10. Check that the following "Hello World" web page can be shown on your web browser. By default, port 8080 will be used. If it is occupied by other programs, you can change the port by "**Edit Configurations**" for Tomcat.

Hello World!

Hello Servlet