How to Install Java

CSCI 3326 OBJECT ORIENTED PROGRAMMING IN JAVA

Topics

- Installing Java on **Windows**
- Installing Java on **Mac**
- Installing Java on **Linux**
- Configuring **Visual Studio Code**

Why install Java when there's GitHub Codespaces?

Installing Java in your local computer is optional for this course, but it is **STRONGLY** recommended.

Codespaces is good for conserving resources on your local machine and working cross-platform but is subject to poor network connection and doesn't support GUI applications.

Installing Java on Windows

Steps

1. **Download & Extract Java JDK**
2. **Relocate Files**
3. **Setup Environmental Variables**
4. **Verify Installation**

1. Download & Extract Java

For Windows users, download the latest build from https://jdk.java.net/23/ by clicking on "zip" next to "Windows/x64."

When the Java JDK file finishes downloading, find the .zip file in File Explorer and extract it. On Windows 11, select the .zip file then click the "Extract All" button at the top. On Windows 10, right-click the .zip file then click "Extract All."

2. Relocate Files

Go inside the extracted directory to find one directory named jdk-<version>, which will be referred to as the JDK directory. You may move the JDK directory anywhere on your computer, such as **C:\Program Files**, or leave it where it is at.

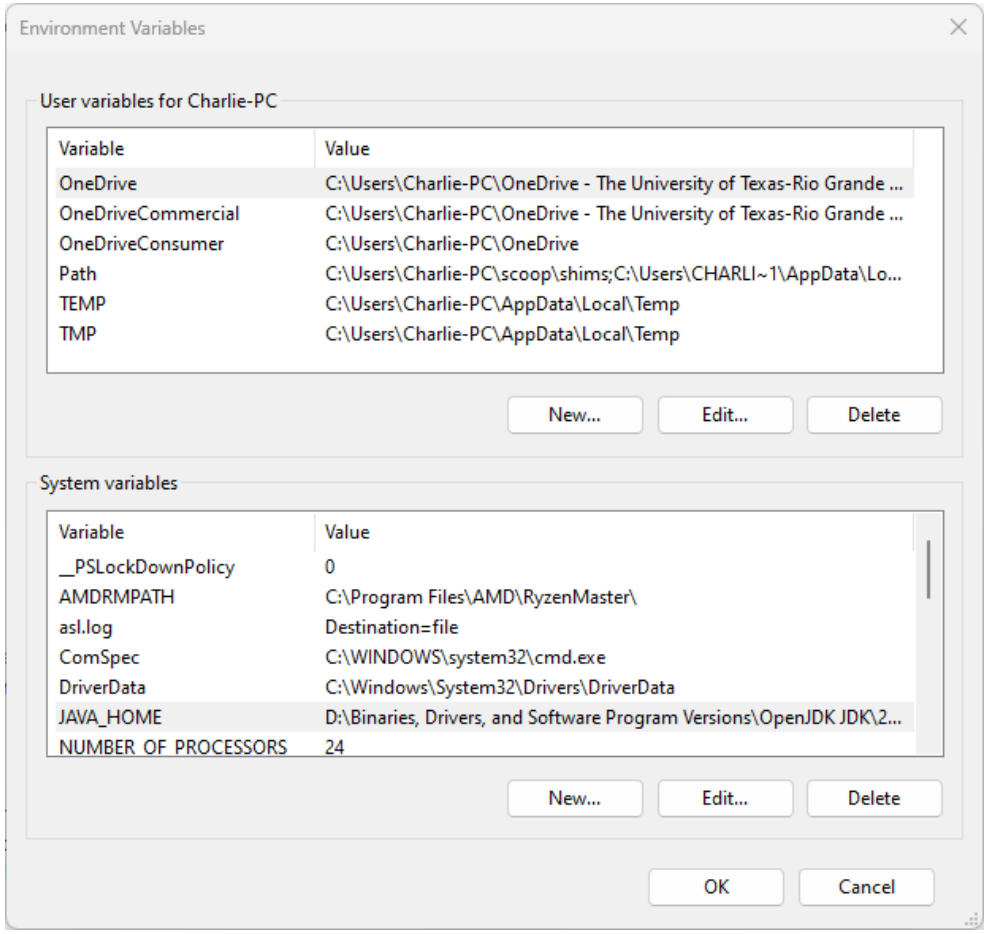
3. Setup Environmental Variables

Environment variables allow the operating system to use directories anywhere in command prompt or terminal commands.

Open system environment variables by searching for "**environment**" in the taskbar or **Control Panel → System → Advanced System Settings**. Click the "**Environment Variables...**" button.

When adding environment variables, add them under system variables.

3. Setup Environmental Variables

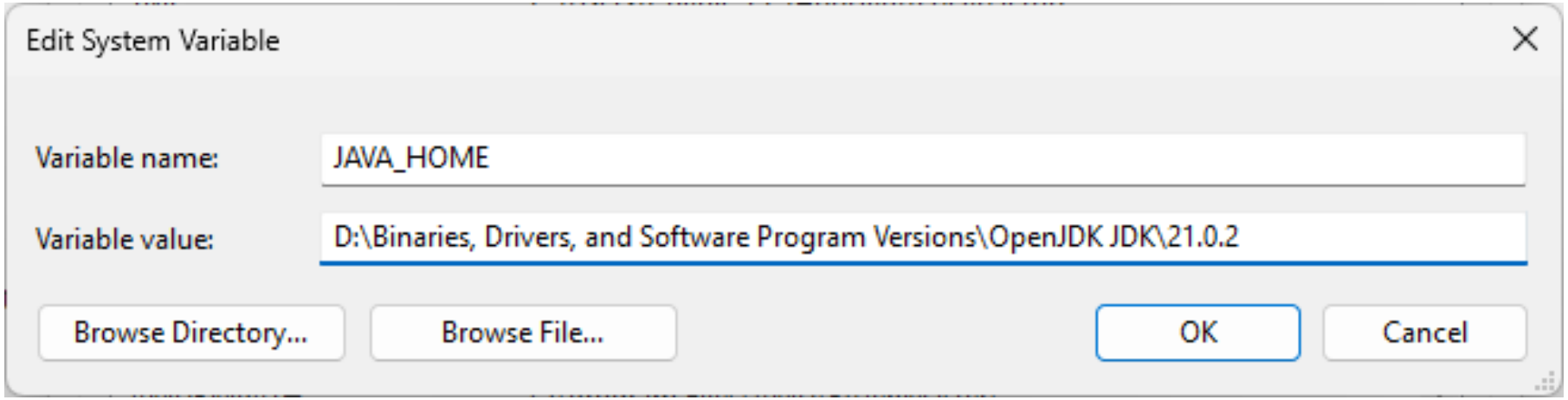


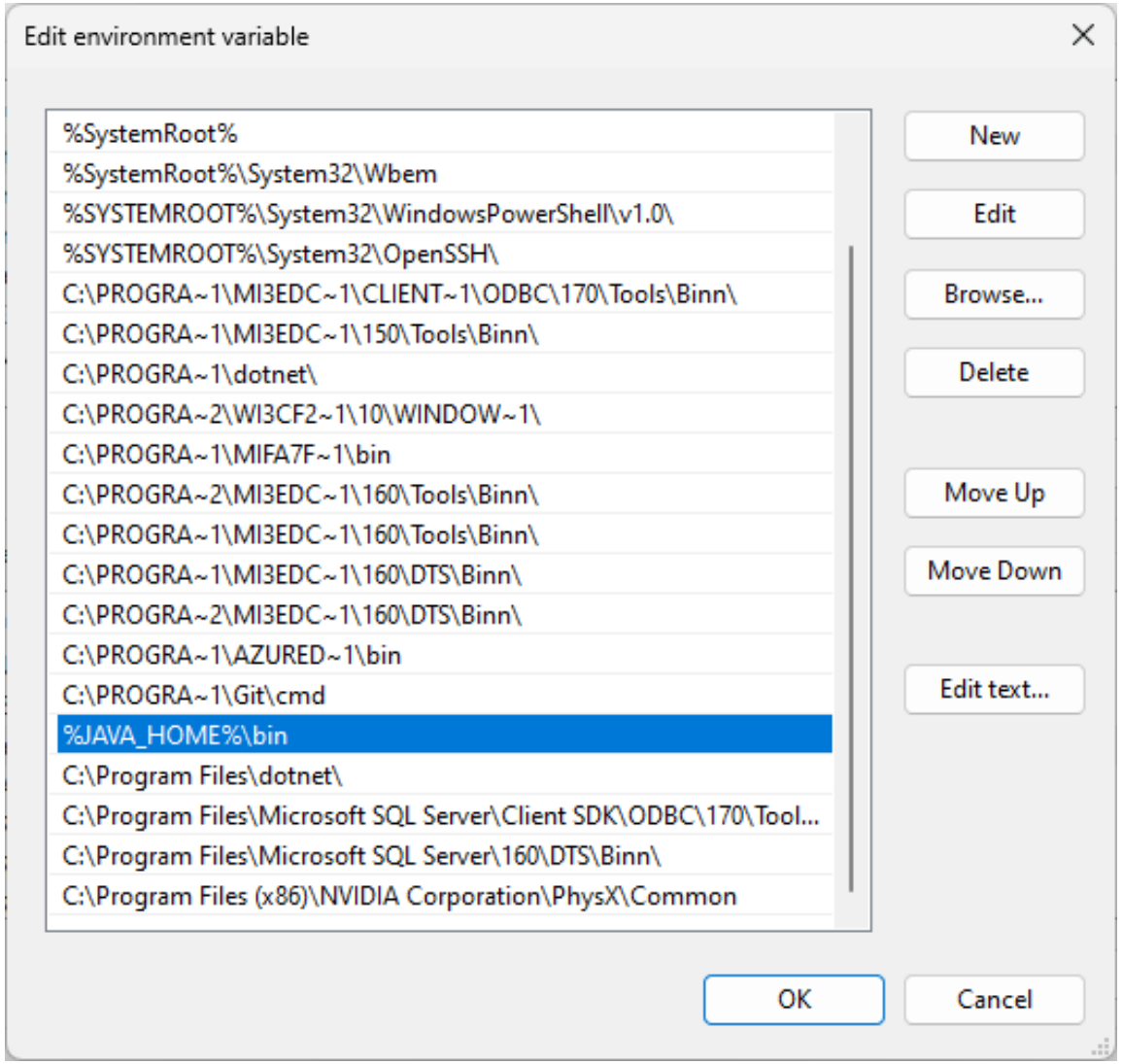
3. Setup Environmental Variables

Click the "New" button under system variables from the previous slide.

Fill in the following fields then click the "OK" button:

- Variable name: **JAVA_HOME**
- Variable value: The JDK directory from Step 2.





3. Setup Environmental Variables

Look for "Path" under the Variable column, select it, and click the "Edit" button under system variables from slide 9.

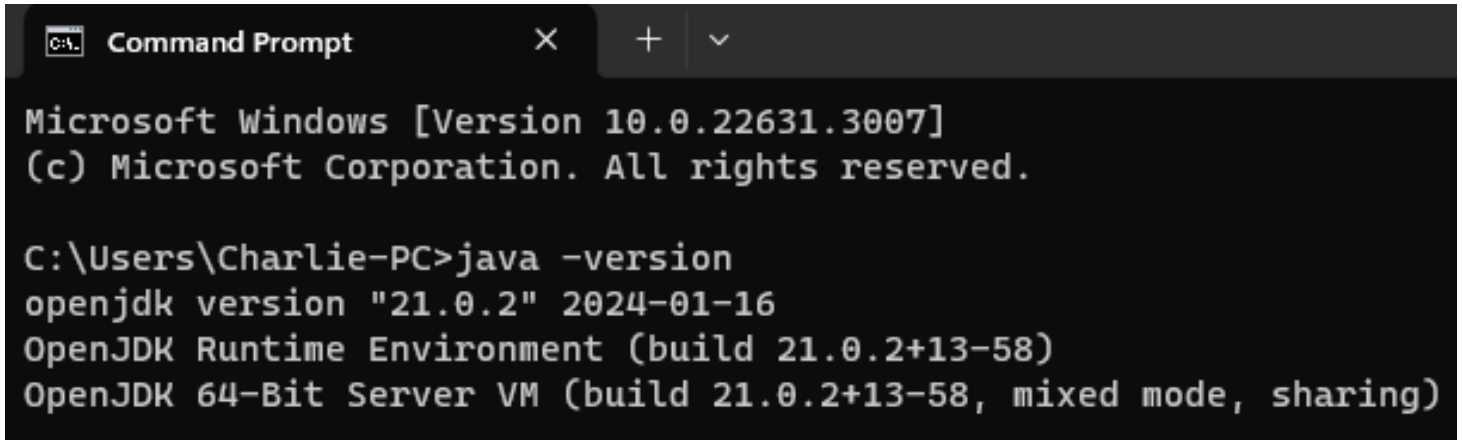
Click the "New" button and add **%JAVA_HOME%\bin** to the list of environment variables.

Click the "OK" button on all system environment windows opened.

Note About Pre-Installed Java Versions

If a previous version of Java was installed, or if Java comes pre-installed depending on the manufacturer, the system may detect that version. Check the environment variable values in the Path variable name from the previous slide for any values that mention "Oracle", "classpath", or "jdk-hotspot" and remove them.

4. Verify Installation



Open a new terminal and enter the following command.

- java –version

The image is an example, you may have a different version.

Installing Java on Mac

Steps

1. **Install Homebrew** (*If already installed you can skip this step*)
2. **Install Java JDK**
3. **Verify Installation**

1. Install Homebrew

For macOS, open a terminal. Enter the following command:

- /bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"

Note: When entering the command above, you will be asked to enter your laptop password (which you will not see the actual password being typed) if one was set.

Press return/enter twice after typing the laptop password. This will install Homebrew and may take a few minutes.

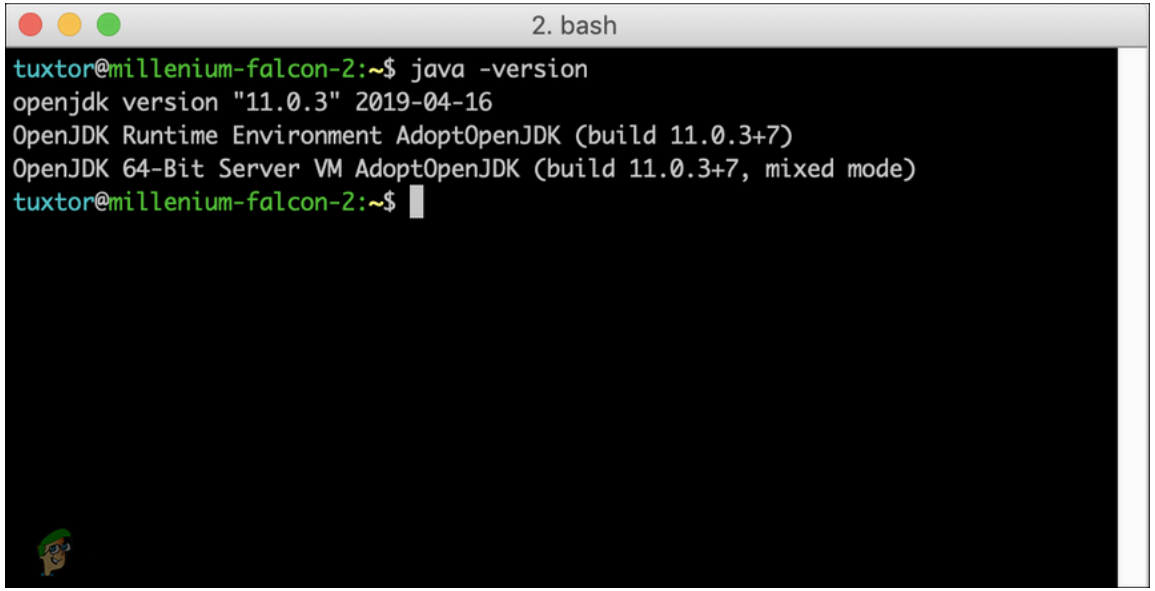
Once Homebrew has been installed, there will be a message that says **Add Homebrew to your PATH in /Users/user-profile/.bash_profile:** with two commands to enter. Enter both commands at the same time by copying and pasting then press return/enter.

2. Install Java SDK

Enter the following commands one at a time.

- brew install java
- sudo ln -sfn /opt/homebrew/opt/openjdk/libexec/openjdk.jdk /Library/Java/JavaVirtualMachines/openjdk.jdk

See the following Stack Overflow link for more information:
https://stackoverflow.com/questions/65601196/how-to-brew-install-java



3. Verify Installation

Open a new terminal and enter the following command.

- java –version

The image is an example, you may have a different version.

Installing Java on Linux

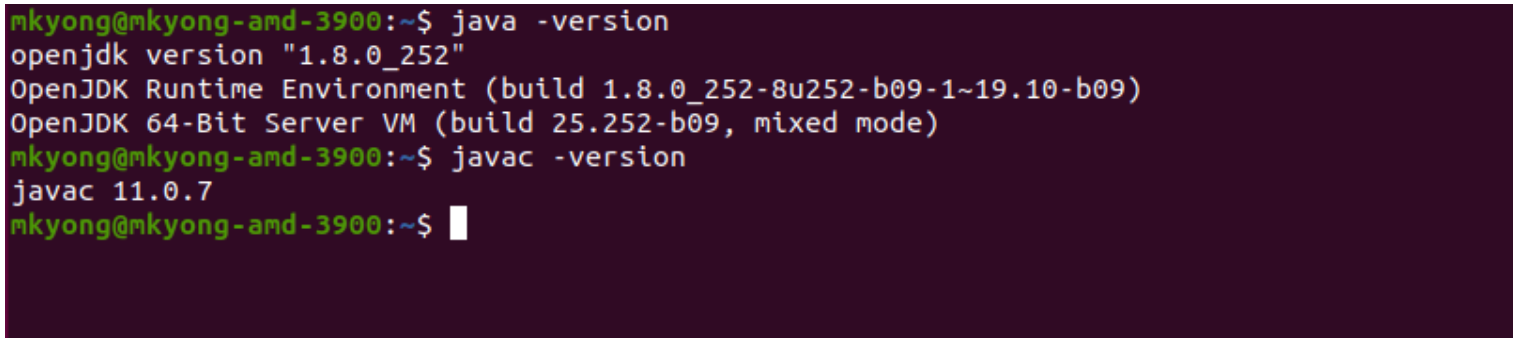
Installing Java using the Terminal

For Linux (Ubuntu), open a terminal. Enter the following command:

- sudo apt-get install default-jre
- sudo apt-get install default-jdk

Open a new terminal and enter the following commands.

- java -version
- javac -version



Installing & Configuring Visual Studio Code

Installing Visual Studio Code

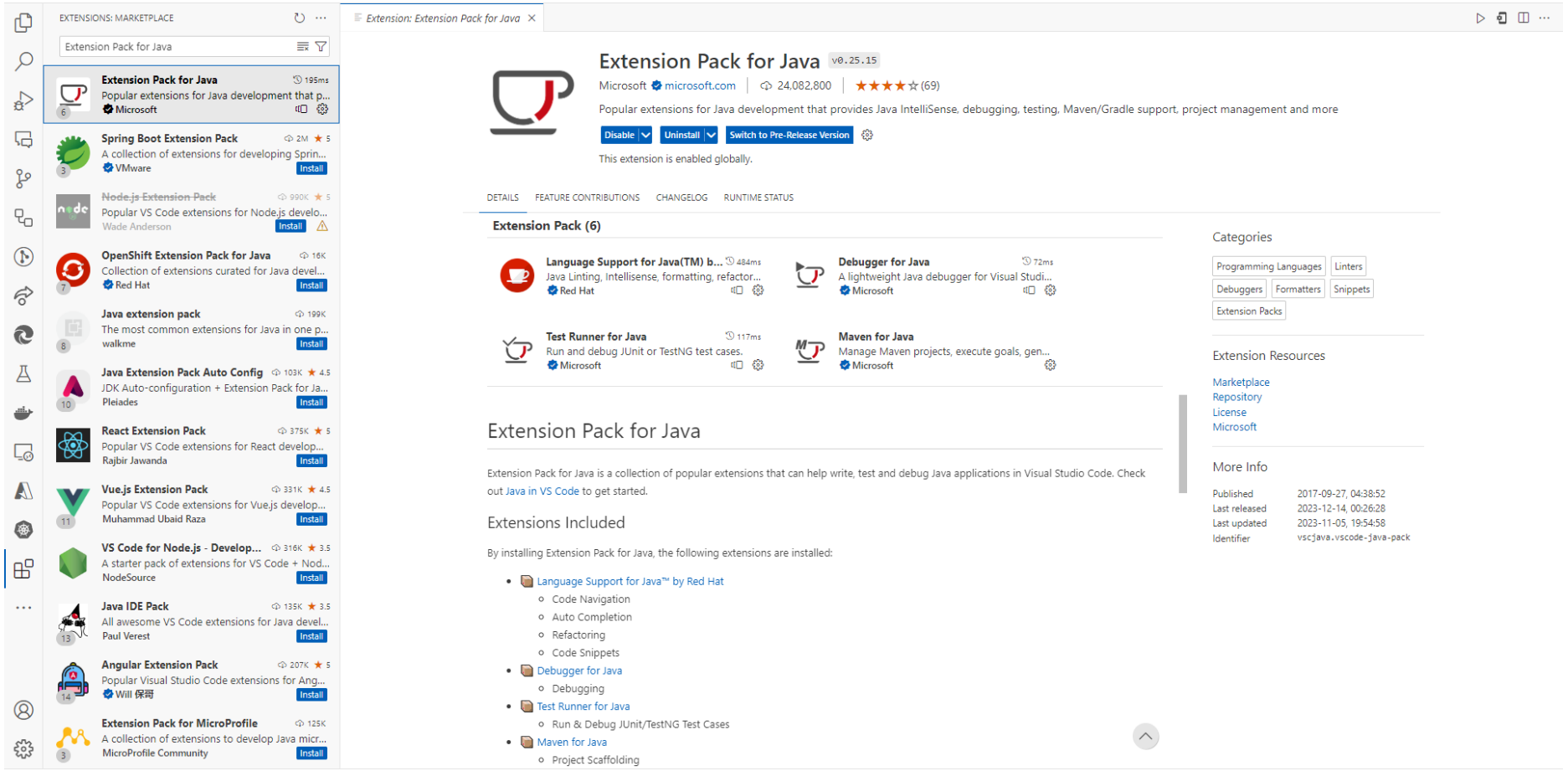
Download the latest build for the operating system you wish to install Visual Studio Code from https://code.visualstudio.com/Download.

Accept all default options for any prompts.

Installing VS Code Extensions

After installing Visual Studio Code, install the "**Extension Pack for Java**" extension. Click the Extensions icon then search for "**Java**" and click the Install button. If prompted, restart Visual Studio Code after installing the extension.

Install Java Extension Pack



VS Code Features

Visual Studio Code comes with features you may want to enable or disable.

When editing Java code, any changes can be saved automatically. This can be enabled via **File → Auto Save**.

When editing Java code, a parameter hint is shown that is not necessary to have. This can be disabled by going to **File → Preferences → Settings** then search for "**editor.inlay**" and selecting "**off**" under "**Editor → Inlay Hints**".

Creating a New Java Project

Create a Java project via **View → Command Palette** and search for "**Java: Create Java Project**" then click on "**No build tools**". Save the project folder anywhere on your computer then enter a name for the Java project.

This will create a folder with the name of the Java project and additional folders and files inside the folder. All Java files will reside inside the **src** folder, which Visual Studio Code already creates a Java file named App.java.

Once the Java project has been created, run the App.java example via **Run → Run Without Debugging**. Remember the way this example is written. How the main function is written in Java will be discussed in detail later in the semester.

New Java Project