

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.

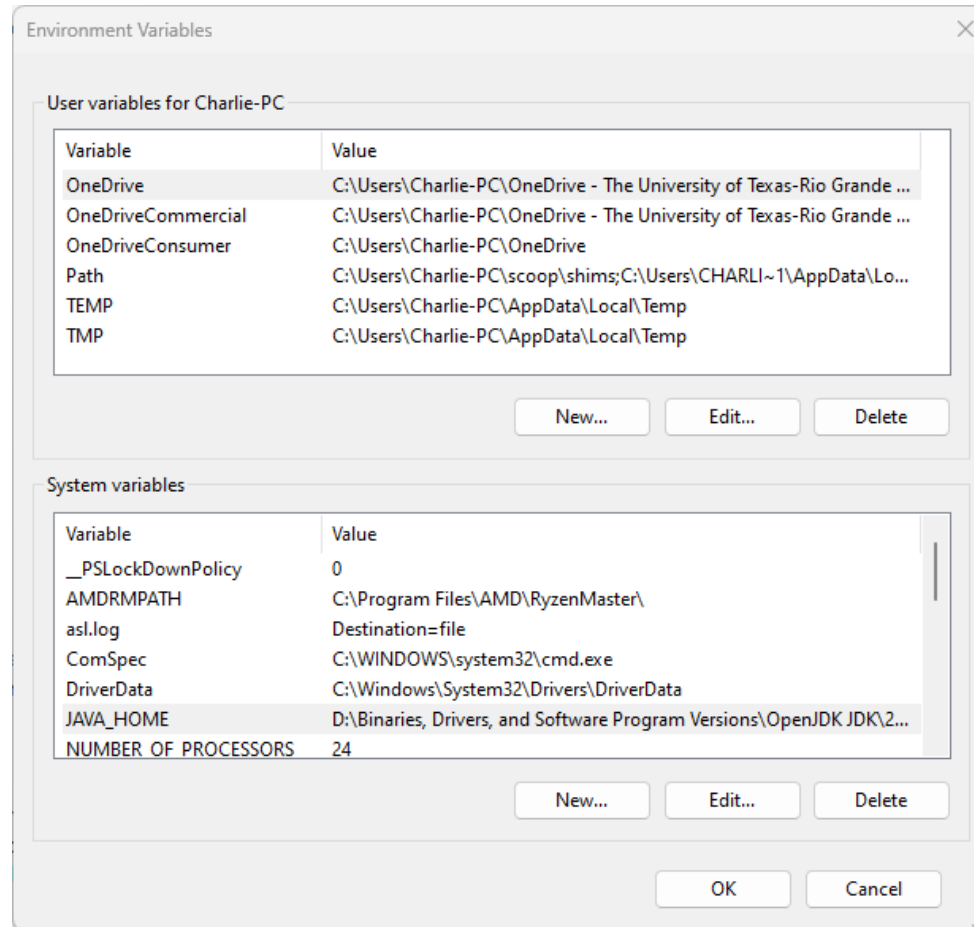
3. Setup Environmental Variables

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

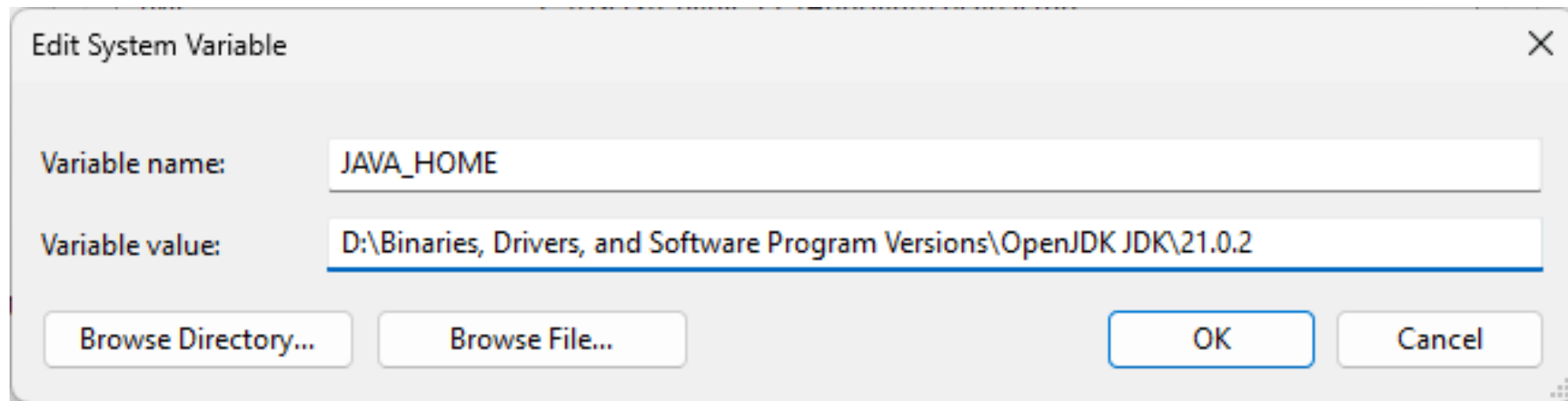


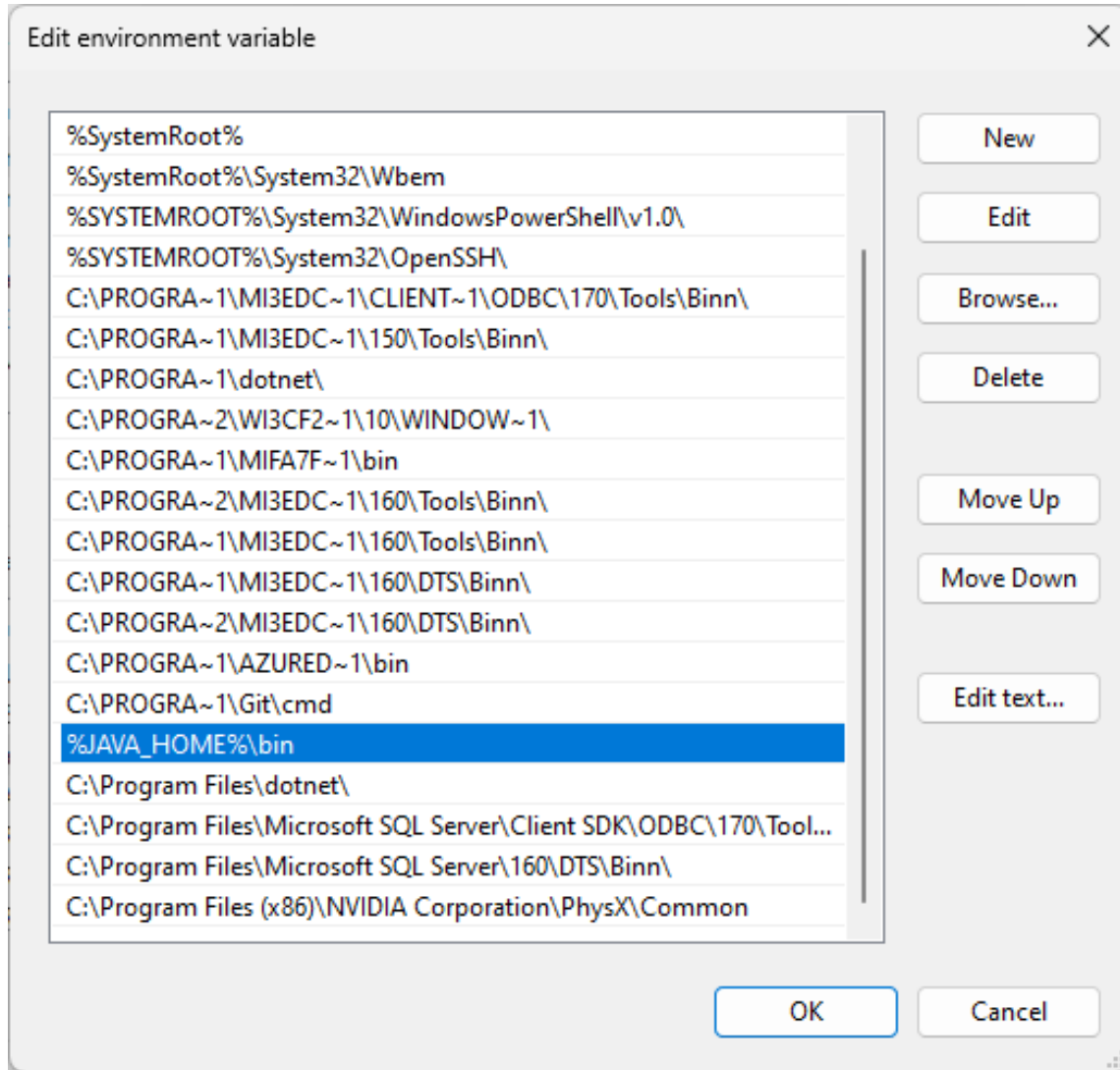
3. Setup Environmental Variables

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

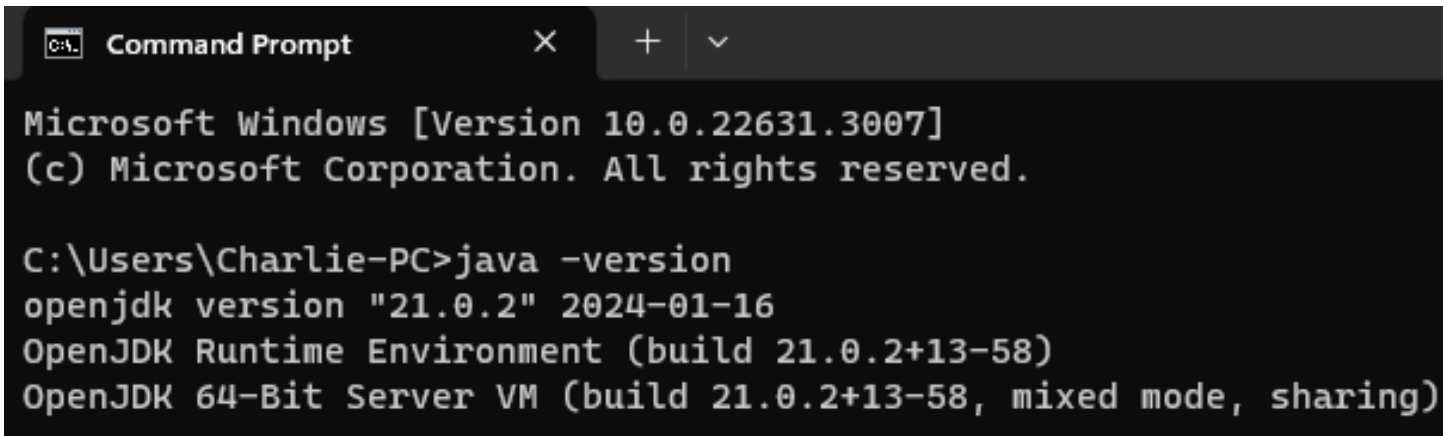
If a previous version of Java was installed, or if Java comes pre-installed depending on the manufacturer, the system may detect that version. Check the environment variable values in the Path variable name from the previous slide for any values that mention "Oracle", "classpath", or "jdk-hotspot" and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



```
Command Prompt
Microsoft Windows [Version 10.0.22631.3007]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Charlie-PC>java -version
openjdk version "21.0.2" 2024-01-16
OpenJDK Runtime Environment (build 21.0.2+13-58)
OpenJDK 64-Bit Server VM (build 21.0.2+13-58, mixed mode, sharing)
```

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 -sf /opt/homebrew/opt/openjdk/libexec/openjdk.jdk
/Library/Java/JavaVirtualMachines/openjdk.jdk`

See the following Stack Overflow link for more information:

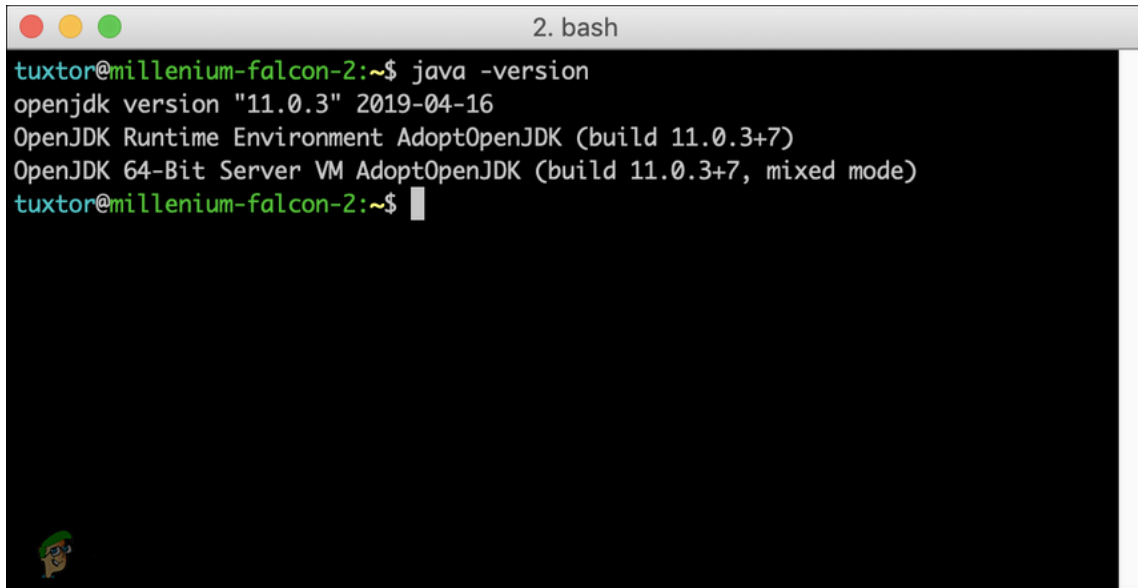
<https://stackoverflow.com/questions/65601196/how-to-brew-install-java>

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.

A terminal window titled "2. bash" with a standard macOS-style title bar (red, yellow, green buttons). The terminal shows the command `java -version` being executed. The output is: `openjdk version "11.0.3" 2019-04-16`, `OpenJDK Runtime Environment AdoptOpenJDK (build 11.0.3+7)`, and `OpenJDK 64-Bit Server VM AdoptOpenJDK (build 11.0.3+7, mixed mode)`. The prompt `tuxtor@millenium-falcon-2:~$` is visible at the end of each line. A small cartoon character is in the bottom-left corner of the terminal window.

```
tuxtor@millenium-falcon-2:~$ java -version
openjdk version "11.0.3" 2019-04-16
OpenJDK Runtime Environment AdoptOpenJDK (build 11.0.3+7)
OpenJDK 64-Bit Server VM AdoptOpenJDK (build 11.0.3+7, mixed mode)
tuxtor@millenium-falcon-2:~$
```

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`

```
mkyong@mkyong-amd-3900:~$ java -version
openjdk version "1.8.0_252"
OpenJDK Runtime Environment (build 1.8.0_252-8u252-b09-1~19.10-b09)
OpenJDK 64-Bit Server VM (build 25.252-b09, mixed mode)
mkyong@mkyong-amd-3900:~$ javac -version
javac 11.0.7
mkyong@mkyong-amd-3900:~$ █
```

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

The screenshot displays the Visual Studio Code interface with the 'EXTENSIONS: MARKETPLACE' sidebar on the left and the 'Extension: Extension Pack for Java' details panel on the right.

EXTENSIONS: MARKETPLACE

Search: Extension Pack for Java

- Extension Pack for Java** (v0.25.15) by Microsoft. Popular extensions for Java development that provides Java IntelliSense, debugging, testing, Maven/Gradle support, project management and more. **Install**
- Spring Boot Extension Pack** by VMware. A collection of extensions for developing Spring Boot applications. **Install**
- Node.js Extension Pack** by Wade Anderson. Popular VS Code extensions for Node.js development. **Install**
- OpenShift Extension Pack for Java** by Red Hat. Collection of extensions curated for Java development on OpenShift. **Install**
- Java extension pack** by walkme. The most common extensions for Java in one place. **Install**
- Java Extension Pack Auto Config** by Pleiades. JDK Auto-configuration + Extension Pack for Java. **Install**
- React Extension Pack** by Rajbir Jawanda. Popular VS Code extensions for React development. **Install**
- Vue.js Extension Pack** by Muhammad Ubaid Raza. Popular VS Code extensions for Vue.js development. **Install**
- VS Code for Node.js - Develop...** by NodeSource. A starter pack of extensions for VS Code + Node.js. **Install**
- Java IDE Pack** by Paul Verest. All awesome VS Code extensions for Java development. **Install**
- Angular Extension Pack** by Will 侯司. Popular Visual Studio Code extensions for Angular. **Install**
- Extension Pack for MicroProfile** by MicroProfile Community. A collection of extensions to develop Java microservices. **Install**

Extension: Extension Pack for Java (v0.25.15)

Microsoft | microsoft.com | 24,082,800 | 5 stars (69)

Popular extensions for Java development that provides Java IntelliSense, debugging, testing, Maven/Gradle support, project management and more

Disable | **Uninstall** | **Switch to Pre-Release Version**

This extension is enabled globally.

DETAILS | **FEATURE CONTRIBUTIONS** | **CHANGELOG** | **RUNTIME STATUS**

Extension Pack (6)

- Language Support for Java(TM) by Red Hat** (484ms) | **Debugger for Java** (72ms) | **Test Runner for Java** (117ms) | **Maven for Java**

Categories

- Programming Languages
- Linters
- Debuggers
- Formatters
- Snippets
- Extension Packs

Extension Resources

- Marketplace
- Repository
- License
- Microsoft

More Info

Published	2017-09-27, 04:38:52
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Identifier	vscjava.vscode-java-pack

Extension Pack for Java

Extension Pack for Java is a collection of popular extensions that can help write, test and debug Java applications in Visual Studio Code. Check out [Java in VS Code](#) to get started.

Extensions Included

By installing Extension Pack for Java, the following extensions are installed:

- Language Support for Java™ by Red Hat**
 - Code Navigation
 - Auto Completion
 - Refactoring
 - Code Snippets
- Debugger for Java**
 - Debugging
- Test Runner for Java**
 - Run & Debug JUnit/TestNG Test Cases
- Maven for Java**
 - Project Scaffolding

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

