

Java Programming I

Lab0

514760

Spring 2024

3/7/2024

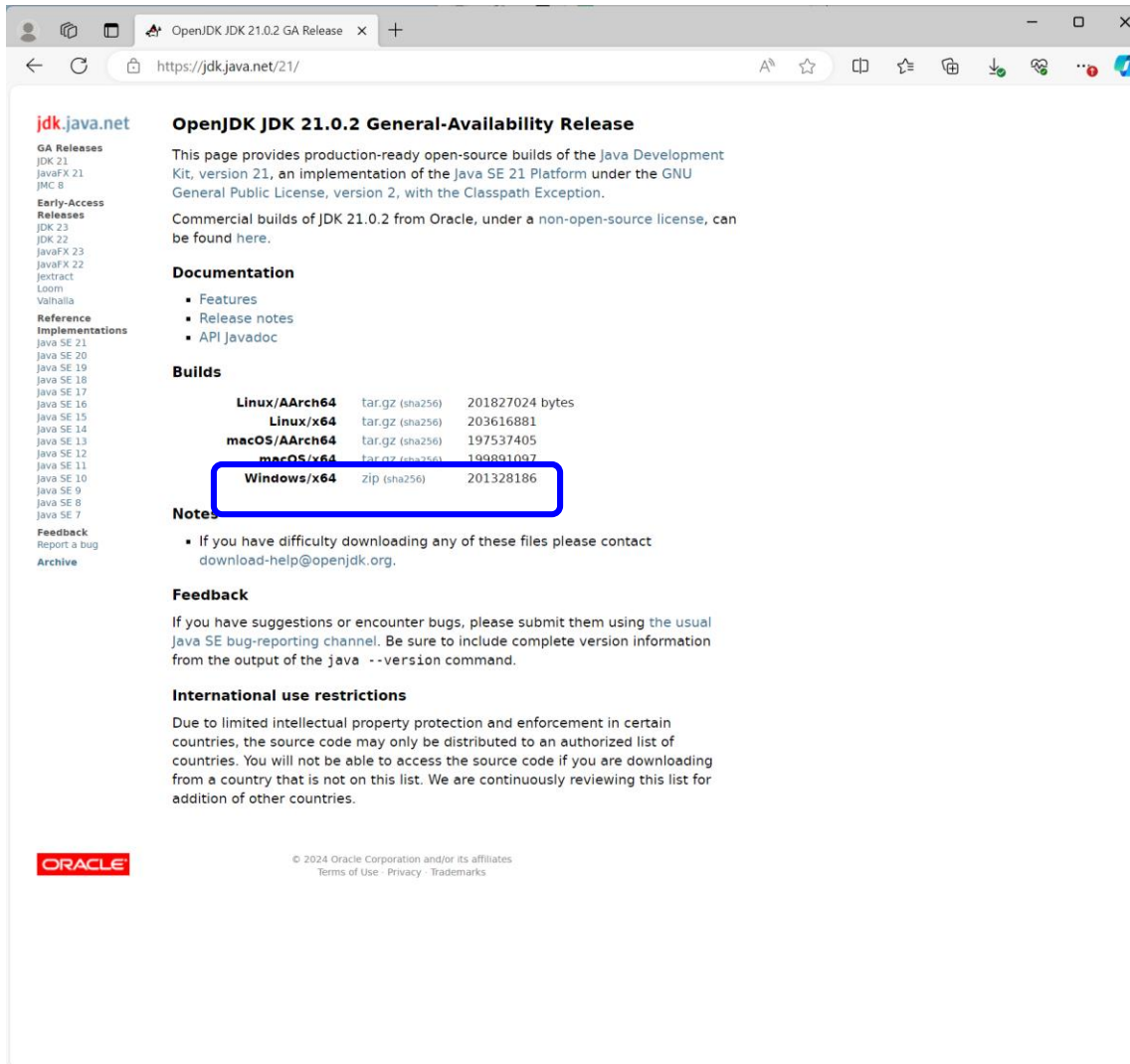
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Computer Engineering
Dankook University

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1. Install OpenJDK 21.0.2 & Set Environment Variables
<https://jdk.java.net/>
2. Download Visual Studio Code & Install
<https://code.visualstudio.com/download#>
3. Install "Extension Pack for Java" In Visual Studio Code which supports Java version 1.5 or above.
4. Run Hello.java

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Download OpenJDK 21.0.2 <https://jdk.java.net/21/>



The screenshot shows a web browser window displaying the OpenJDK 21.0.2 GA Release page. The page title is "OpenJDK JDK 21.0.2 General-Availability Release". The main content area includes a description of the release, a list of documentation links (Features, Release notes, API Javadoc), and a table of builds. The "Builds" section contains the following table:

Platform	Format	SHA-256	Bytes
Linux/AArch64	tar.gz	(sha256)	201827024
Linux/x64	tar.gz	(sha256)	203616881
macOS/AArch64	tar.gz	(sha256)	197537405
macOS/x64	tar.gz	(sha256)	199891097
Windows/x64	zip	(sha256)	201328186

The "Windows/x64" row is highlighted with a blue box. Below the table, there is a "Notes" section with a link to download-help@openjdk.org. The page also includes a "Feedback" section and an "International use restrictions" section. The Oracle logo is visible in the bottom left corner, and the copyright notice "© 2024 Oracle Corporation and/or its affiliates" is at the bottom center.

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Downloads

Local Disk (C:) > Users > park > Downloads

New | Cut | Copy | Paste | Share | Delete | Sort | View | Extract all

Name	Date modified
▼ Today	
openjdk-21.0.2_windows-x64_bin.zip	2024-

openjdk-21.0.2_windows-x64

park > Downloads > openjdk-21.0.2_windows-x64_bin

New | Cut | Copy | Paste | Share | Delete | Sort | View

Name	Date modified
▼ Today	
jdk-21.0.2	2024-02-27 오후 4:48

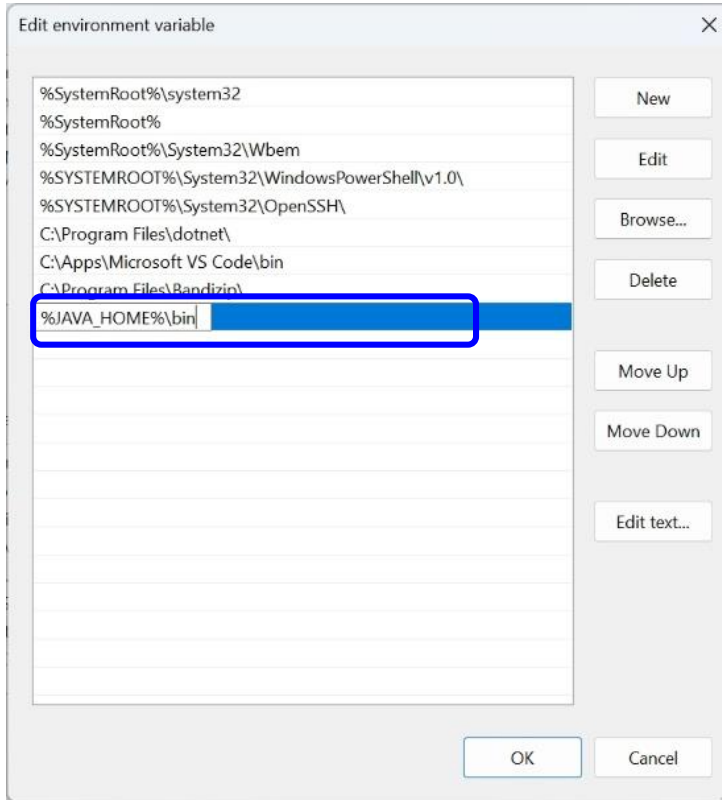
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The screenshot shows a Windows File Explorer window with the following details:

- Tab:** jdk-21.0.2
- Address Bar:** Local Disk (C:) > Program Files > Java > jdk-21.0.2
- Command Bar:** New, Cut, Copy, Paste, Share, Delete, Sort, View, and a menu icon.
- Left Pane (Navigation):** Pictures, Music, Videos, KyoungPark-JavaProgramming2024, dto, courses, KyoungPark-AdvancedJavaProgramr.
- Main Pane (Table):**

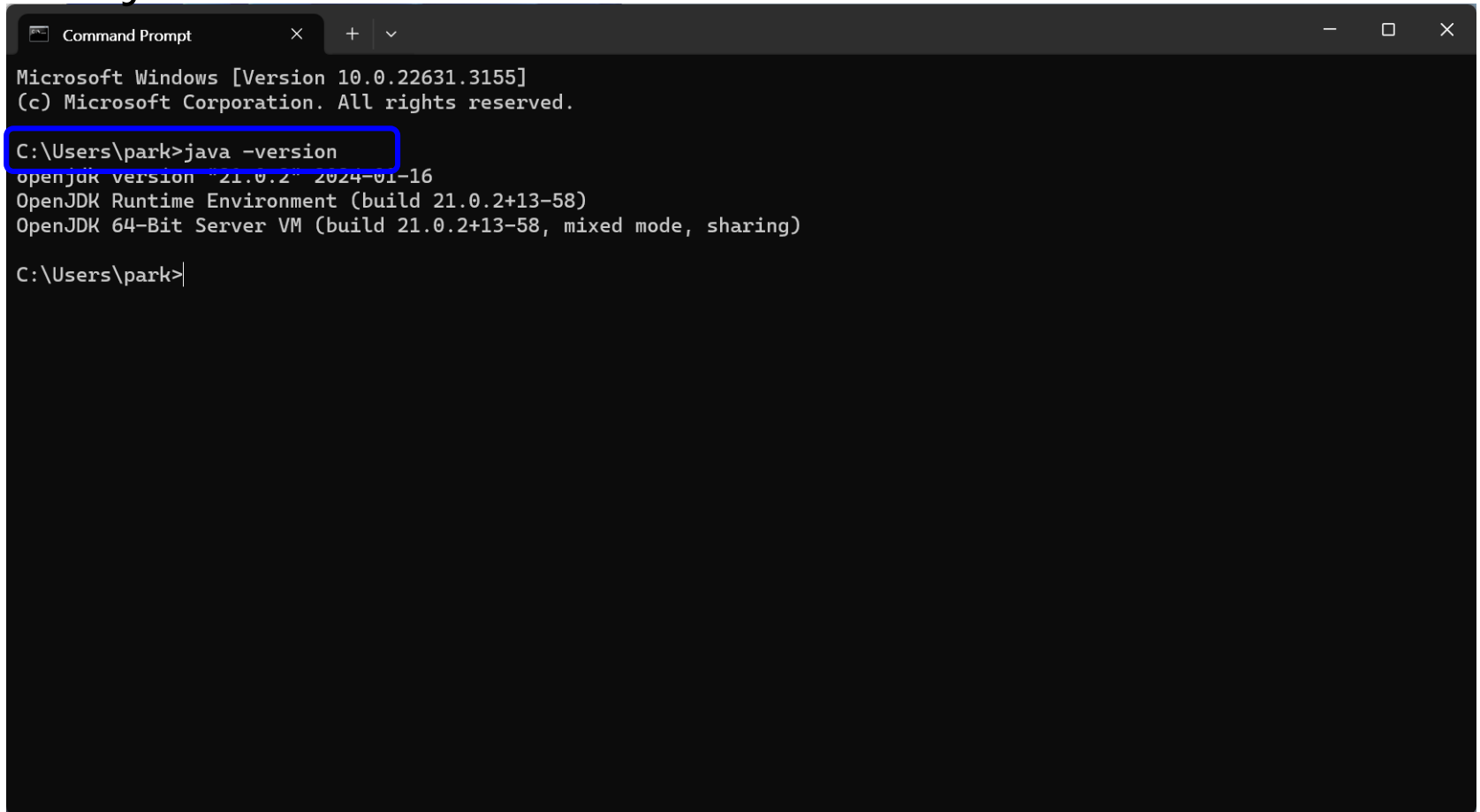
Name	Date modified
bin	2024-02-27 오후 4:53
conf	2024-02-27 오후 4:53
include	2024-02-27 오후 4:53
jmods	2024-02-27 오후 4:53
legal	2024-02-27 오후 4:53
lib	2024-02-27 오후 4:53
release	2024-02-27 오후 4:48

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□ Run java -version



```
Command Prompt
Microsoft Windows [Version 10.0.22631.3155]
(c) Microsoft Corporation. All rights reserved.
C:\Users\park>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)
C:\Users\park>
```


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Download Visual Studio Code & Install

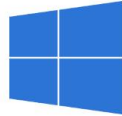
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[Version 1.86](#) is now available! Read about the new features and fixes from January.


Download Visual Studio Code

Free and built on open source. Integrated Git, debugging and extensions.




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Windows 10, 11

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System Installer [x64](#) [Arm64](#)
.zip [x64](#) [Arm64](#)
CLI [x64](#) [Arm64](#)



[↓ .deb](#) Debian, Ubuntu [↓ .rpm](#) Red Hat, Fedora, SUSE

.deb [x64](#) [Arm32](#) [Arm64](#)
.rpm [x64](#) [Arm32](#) [Arm64](#)
.tar.gz [x64](#) [Arm32](#) [Arm64](#)
Snap [Snap Store](#)
CLI [x64](#) [Arm32](#) [Arm64](#)



[↓ Mac](#)
macOS 10.15+

.zip [Intel chip](#) [Apple silicon](#) [Universal](#)
CLI [Intel chip](#) [Apple silicon](#)

By downloading and using Visual Studio Code, you agree to the [license terms](#) and [privacy statement](#).

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□ Install "Extension Pack for Java"

The screenshot displays the Visual Studio Code interface with the Extensions Marketplace open. The 'Extension Pack for Java' by Microsoft is highlighted in the 'POPULAR' section of the left sidebar. The main panel shows the details for this extension, including its version (v0.25.13), a rating of 4 stars, and a description: 'Popular extensions for Java development that provides Java I...'. The 'Install' button is highlighted with a blue box. Below the main extension, a list of 'Extensions Included' is shown, including IntelliCode, Language Support for Java(TM) by Red Hat, and others. The right sidebar shows categories like Programming, Languages, Snippets, Linters, Debuggers, Formatters, and Extension Packs. The bottom right corner shows the extension's publication date (9/27/2017) and the last update date (8/2/2023).

Visual Studio Code interface showing the 'Extension Pack for Java' by Microsoft. The extension is highlighted in the 'POPULAR' section of the left sidebar. The main panel displays the extension details, including the version (v0.25.13), a rating of 4 stars, and a description: 'Popular extensions for Java development that provides Java I...'. The 'Install' button is highlighted with a blue box. Below the main extension, a list of 'Extensions Included' is shown, including IntelliCode, Language Support for Java(TM) by Red Hat, and others. The right sidebar shows categories like Programming, Languages, Snippets, Linters, Debuggers, Formatters, and Extension Packs. The bottom right corner shows the extension's publication date (9/27/2017) and the last update date (8/2/2023).

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The screenshot displays the Visual Studio Code interface with the 'Extension Pack for Java' extension installed. The left sidebar shows the 'EXTENSIONS' view with a search bar and a list of installed extensions. The main editor area shows the details for the 'Extension Pack for Java' extension, including its version (v0.25.13), publisher (Microsoft), and a list of included extensions.

EXTENSIONS

Search Extensions in Marketplace

INSTALLED (8)

- Debugger for Java** (Microsoft)
- Extension Pack for Java** (Microsoft)
- IntelliCode** (Microsoft)
- IntelliCode API Usage Examples** (Microsoft)
- Language Support for Java** (Red Hat)
- Maven for Java** (Microsoft)
- Project Manager for Java** (Microsoft)
- Test Runner for Java** (Microsoft)

RECOMMENDED (0)

Extension: Extension Pack for Java

Extension Pack for Java

v0.25.13

Microsoft | 20,961,919 | 5 stars (63)

Popular extensions for Java development that provides Java IntelliSense, debugging, testing, Maven/Gra...

[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** (Red Hat)
- Debugger for Java** (Microsoft)

Categories

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

Extension Resources

- Marketplace
- Repository
- License
- Microsoft

More Info

Published: 9/27/2017, 18:38:52
Last released: 8/2/2023, 17:19:38
Identifier: vsc.java.vscod...
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.

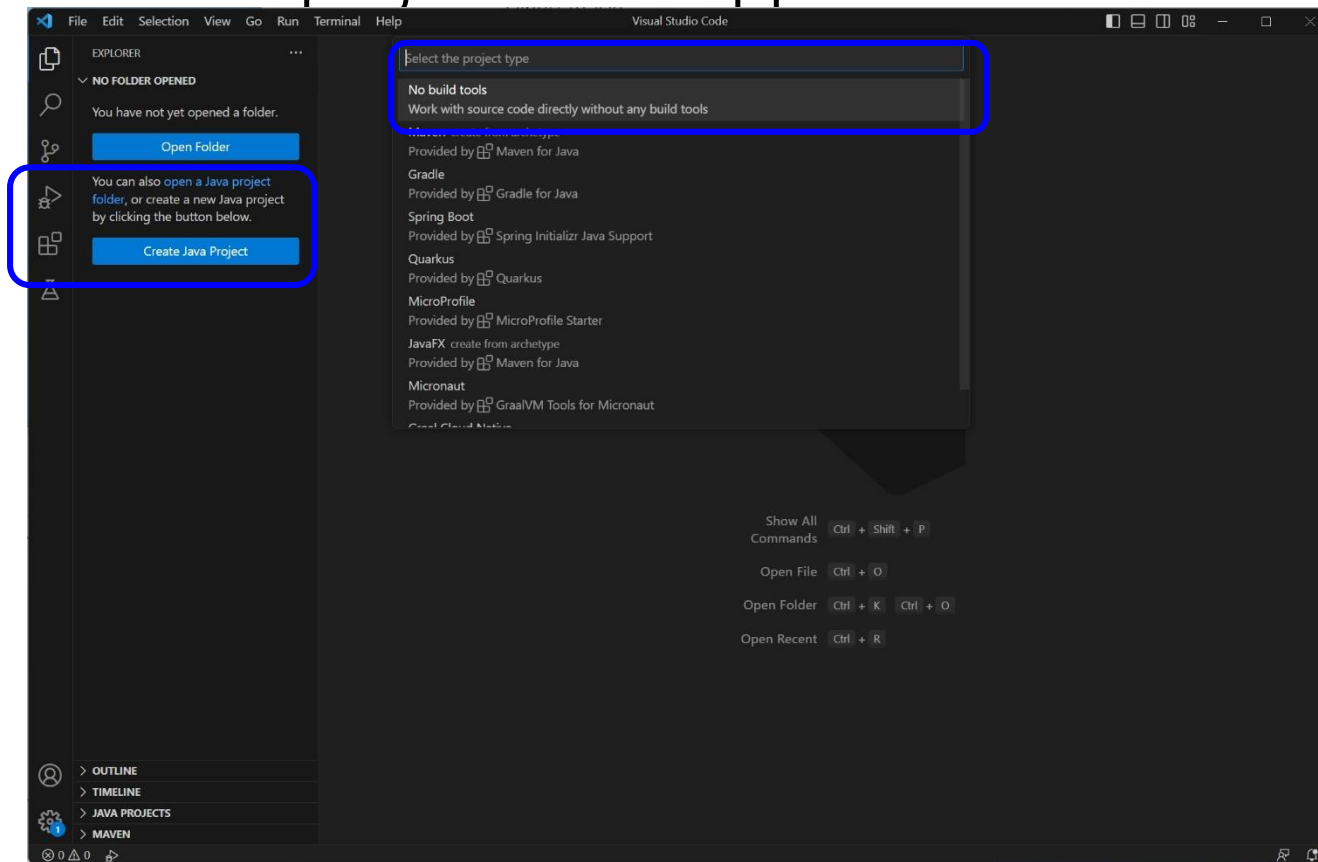
Extensions Included

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

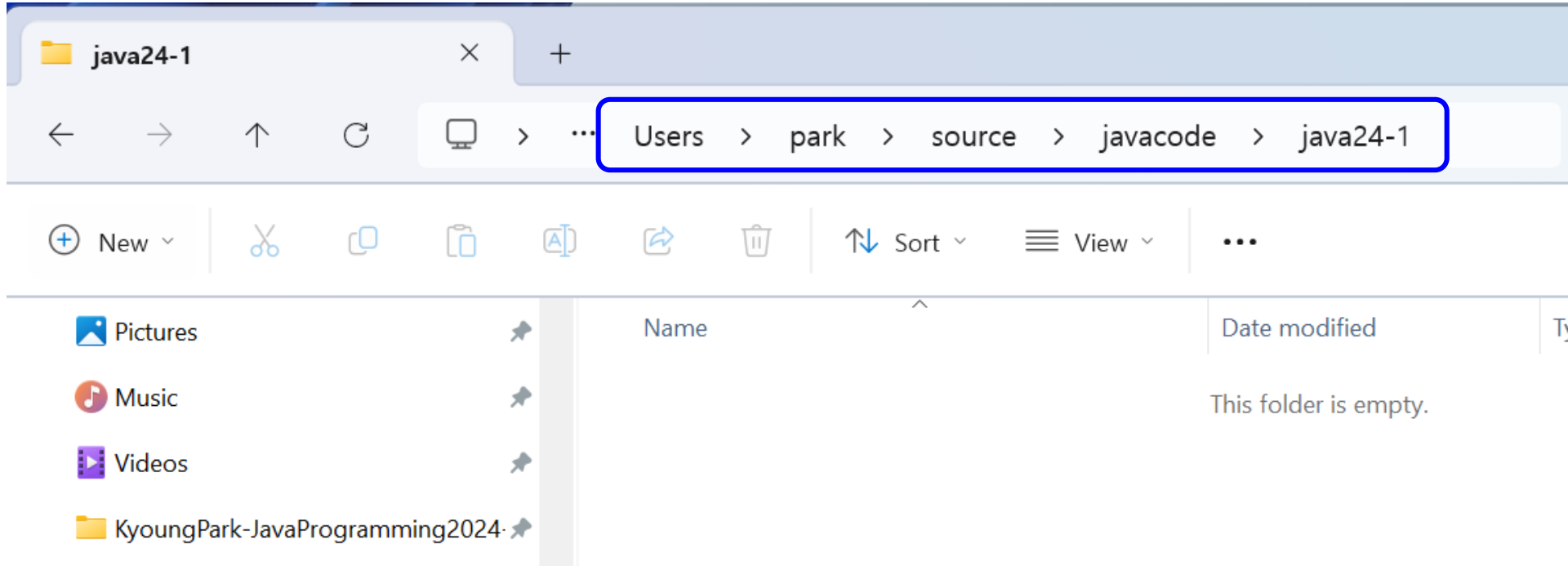
- Language Support for Java™ by Red Hat
 - Code Navigation
 - Auto Completion
 - Refactoring
 - Code Snippets
- Debugger for Java

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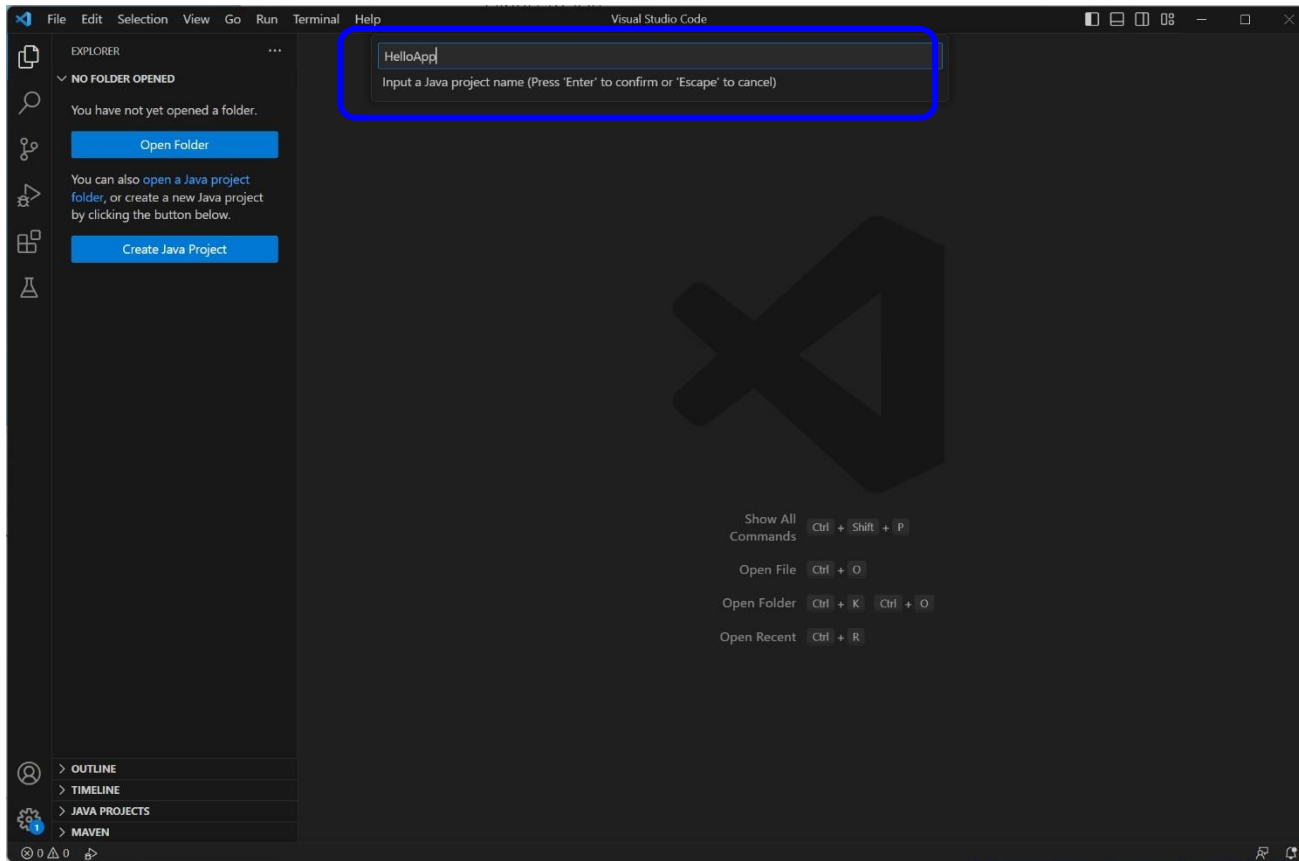
□ Create a Java project: HelloApp



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□ Create HelloApp.java

The screenshot shows the Visual Studio Code interface with a Java project named 'HelloApp'. The file explorer on the left shows the project structure, including the 'src' directory where 'HelloApp.java' is located. The main editor displays the following code:

```
src > J HelloApp.java
1  public class HelloApp {
    Run | Debug
2      public static void main(String[] args) throws Exception {
3          System.out.println(x:"Hello, World!");
4      }
5  }
6
```

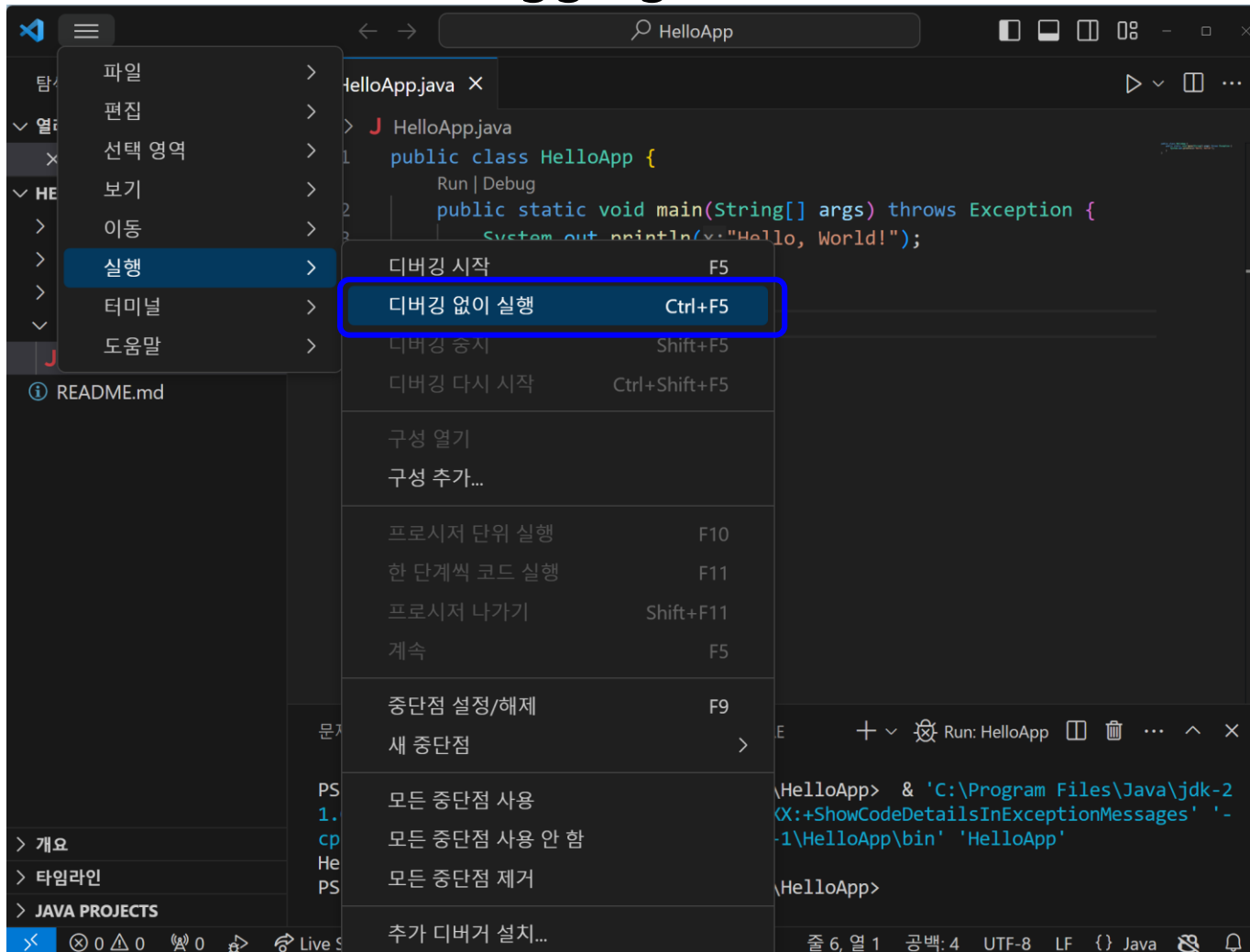
The terminal at the bottom shows the command used to run the application:

```
문제 출력 디버그 콘솔 터미널 포트 AZURE + Run: HelloApp
PS C:\Users\park\source\javacode\java24-1\HelloApp> & 'C:\Program Files\Java\jdk-21.0.2\bin\java.exe' '--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\park\source\javacode\java24-1\HelloApp\bin' 'HelloApp'
Hello, World!
PS C:\Users\park\source\javacode\java24-1\HelloApp>
```

The status bar at the bottom indicates the current file is 'Java' and the Java runtime is 'Ready'.

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□ Run Without Debugging



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The image shows a screenshot of the Visual Studio Code IDE. The main editor window displays the code for `HelloApp.java`:

```
src > J HelloApp.java
1 public class HelloApp {
    Run | Debug
2     public static void main(String[] args) throws Exception {
3         System.out.println(x:"Hello, World!");
4     }
5 }
6
```

The terminal window at the bottom shows the command used to run the application and its output:

```
문제 출력 디버그 콘솔 터미널 포트 AZURE + Run: HelloApp
PS C:\Users\park\source\javacode\java24-1\HelloApp> & 'C:\Program Files\Java\jdk-21.0.2\bin\java.exe' '--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\park\source\javacode\java24-1\HelloApp\bin' 'HelloApp'
Hello, World!
PS C:\Users\park\source\javacode\java24-1\HelloApp>
```

The status bar at the bottom indicates the current file is `Java`, the encoding is `UTF-8`, and the line length is `줄 6, 열 1`.

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□ Configure Runtime for Projects

■ Java: Configure Java Runtime in Command Palette (Ctrl+Shift+P)

검색기 ... HelloApp.java Configure Java Runtime ×

열려 있는 편집기
HelloApp.java src
Configure Java Run...

HELLOAPP
> .vscode
> bin
> lib
src
HelloApp.java
README.md

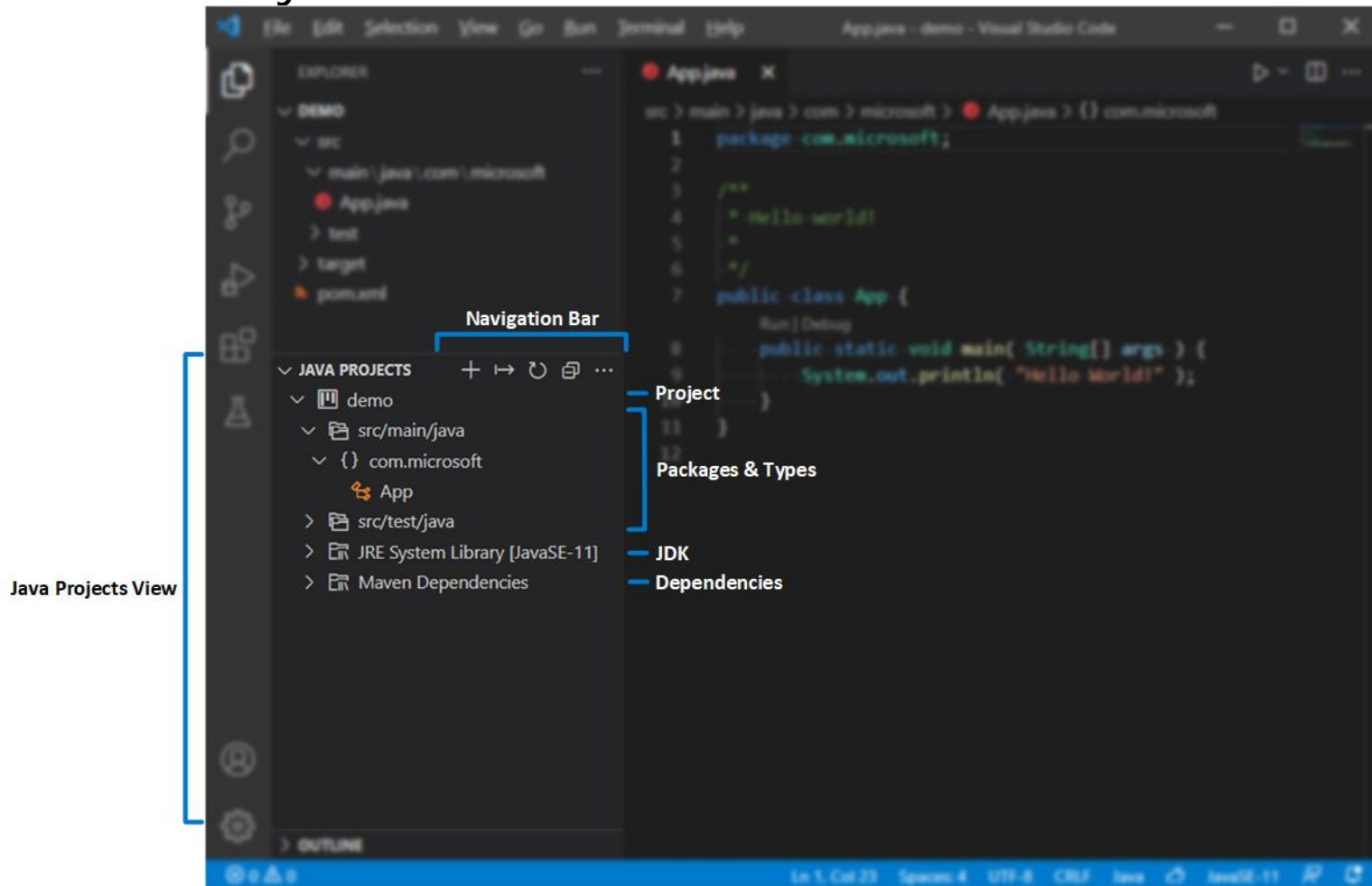
Configure Runtime for Projects

Manage Java runtime for your projects. If you don't have a valid Java runtime, you can [download](#) one.

Project Name	Type	Java Version
HelloApp	Unmanaged folder ⓘ	21 ✎

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Java Project View



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The screenshot shows the Visual Studio Code interface. The left sidebar contains the Explorer view with a tree structure:

- 탐색기
- 열려 있는 편집기
 - HelloApp.java src
 - Configure Java Runtime
- HELLOAPP
 - .vscode
 - bin
 - lib
 - src
 - HelloApp.java
 - README.md
- 개요
- 타임라인
- JAVA PROJECTS** (highlighted with a blue box)
 - HelloApp
 - src
 - HelloApp +
 - JRE System Library [JavaSE-21]
 - Referenced Libraries

The main editor area displays the 'Configure Runtime for Projects' dialog. It includes a title, a description, and a table of project runtimes:

Project Name	Type	Java Version
HelloApp	Unmanaged folder ⓘ	21 ✎

At the bottom, the terminal window shows the following command and output:

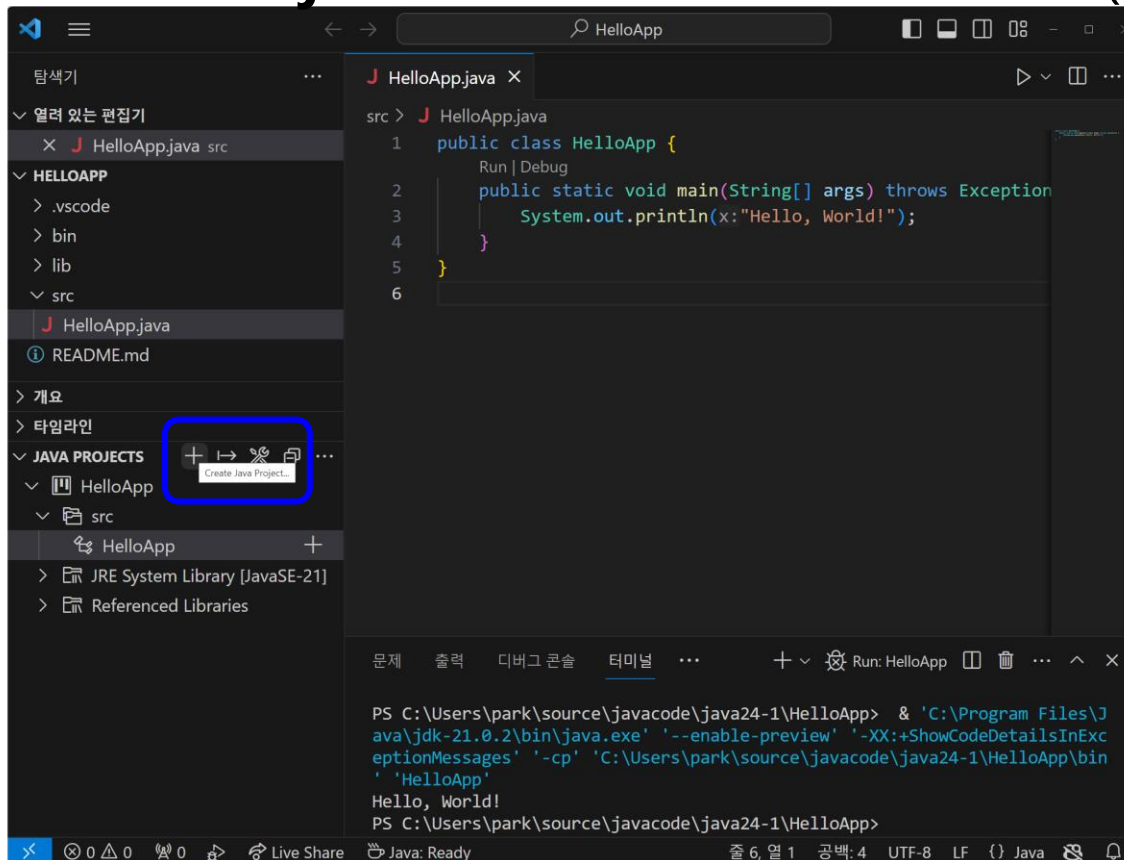
```
PS C:\Users\park\source\javacode\java24-1\HelloApp> & 'C:\Program Files\Java\jdk-21.0.2\bin\java.exe' '--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\park\source\javacode\java24-1\HelloApp\bin\HelloApp'
```

```
Hello, World!
```

```
PS C:\Users\park\source\javacode\java24-1\HelloApp>
```

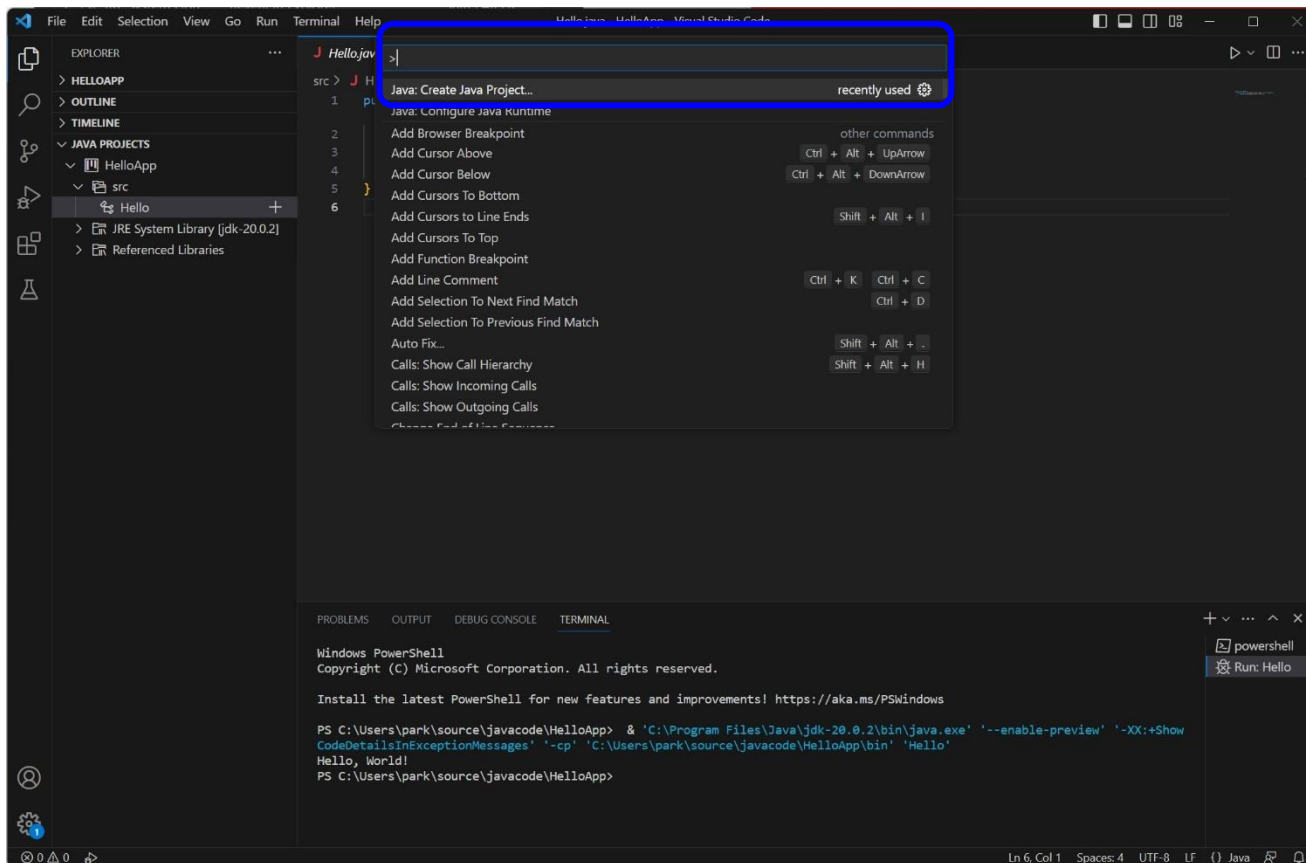
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- ❑ Create a New Java project by clicking the **+** button in the navigation bar, or through the command: **Java: Create Java Project...** in Command Palette (Ctrl+Shift+P).



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- ❑ Create a New Java project by clicking the **+** button in the navigation bar, or through the command: **Java: Create Java Project...** in Command Palette (Ctrl+Shift+P).

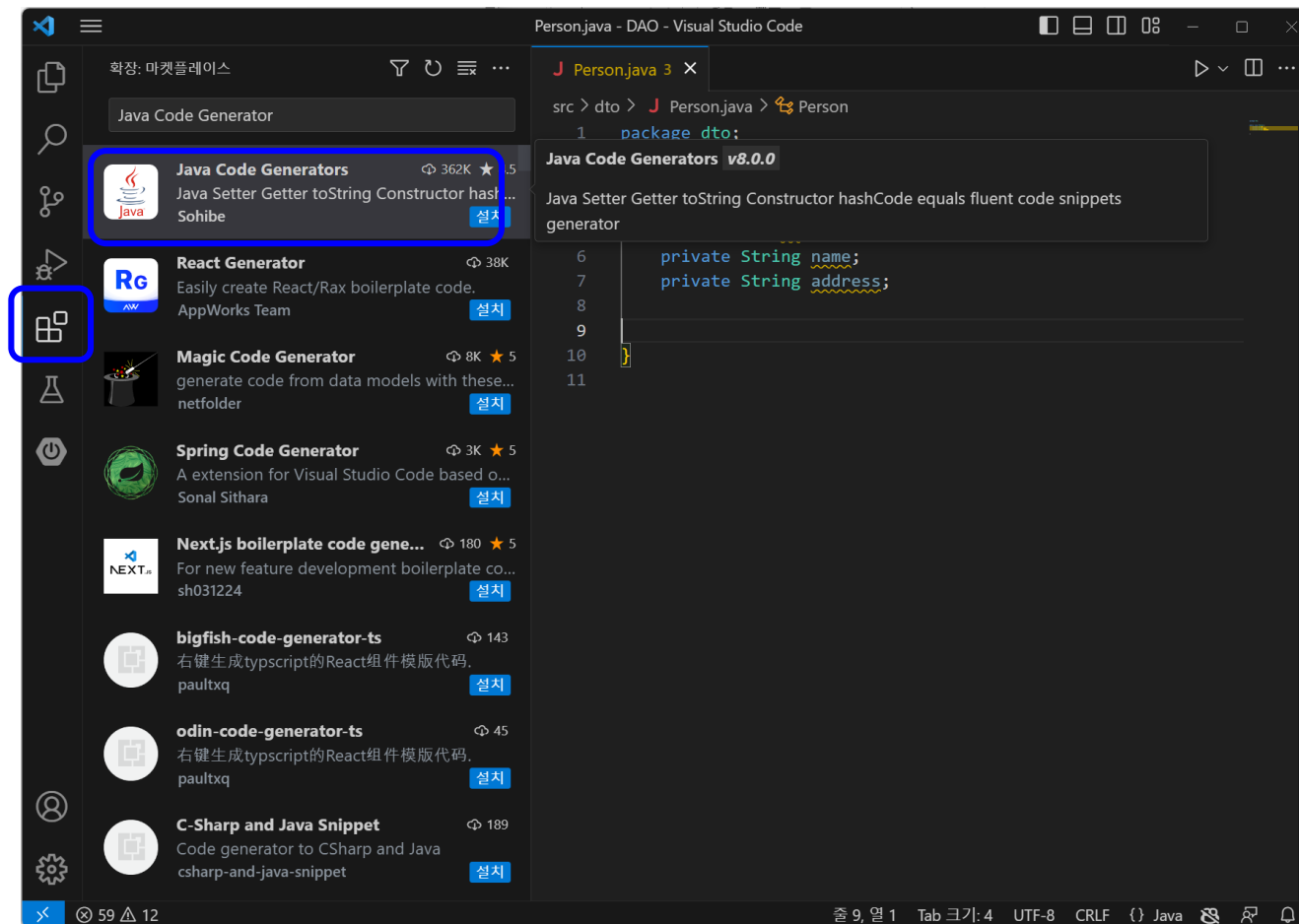


Submit to e-learning

- ❑ Submit the Lab0 assignment (including the 1-page report) to e-learning **(due by 3/14)**.
- ❑ https://code.visualstudio.com/docs/java/java-project#_configure-runtime-for-projects

VS Code Generator

- ❑ **Ctrl + Shift + X (Extensions)**
- ❑ **Install Getter and Setter Generator**



VS Code Getter/Setter

- Drag the member field to create Getter/Setter

```
3
4 public class Person {
5     private int id;
6     private String name;
7     private String address;
8
9     public Person(int id, String name, String address) {
10         this.id = id;
11         this.name = name;
12         this.address = address;
13     }
14
15
16     @Override
17     public String toString() {
18         return "Person [id=" + id + ", name=" + name + ", address=" + address + "]";
19     }
20 }
21
```

VS Code Getter/Setter

- ❑ Ctrl + Shift + P (or F1) prompt command
- ❑ Generate constructor, getter & setter, hashCode & equal, toString

