

# **Java Development Environment Setup Guide**

**IntelliJ IDEA Ultimate & JDK 25 Installation**

Modern Code Course

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# 1 Development Environment Setup

This guide will walk you through setting up your Java development environment with IntelliJ IDEA Ultimate and JDK 25. Follow these steps carefully to ensure everything works correctly.

## 1.1 Account Setup & IDE Installation

### You Need This

#### Required Software & Accounts:

- ▶ **IntelliJ IDEA Ultimate 2025.2+** (via JetBrains Student License)
- ▶ **Java Development Kit (JDK) 25** (LTS version)
- ▶ **GitHub Education Account** (for free Copilot access)
- ▶ **GitHub Copilot Extension** (AI coding assistant)
- ▶ **JetBrains Student License** (free with university email)

### 1.1.1 Ultimate Account Setup

#### 1. Access JetBrains Student License

- ▶ Go to: <https://www.jetbrains.com/student/>
- ▶ Click "Apply" button (not "Apply Now")
- ▶ You'll be redirected to the application form

#### 2. Fill Out Application Form

- ▶ Select "I'm a student" (radio button - already selected)
- ▶ Choose your country/region (dropdown)
- ▶ Select level of study (Undergraduate)
- ▶ Answer YES to Computer Science/Engineering is your major
- ▶ Enter your university email address
- ▶ Enter your personal email address
- ▶ Fill in your first and last name (as on official documents)
- ▶ Accept the JetBrains Account Agreement (checkbox)
- ▶ Click "Apply for Free Products"

#### 3. Email Verification

- ▶ Check your university email for verification
- ▶ Click the verification link
- ▶ Your account will be activated within 24 hours

#### 4. Download JetBrains Toolbox App (Recommended)

- ▶ Go to <https://www.jetbrains.com/toolbox-app/>
- ▶ Download the Toolbox App for your operating system
- ▶ This is the easiest way to manage all JetBrains products
- ▶ Automatic updates and centralized license management

### Quick Reference

1. Go to [jetbrains.com/student/](https://www.jetbrains.com/student/)
2. Click "Apply" button
3. Fill out application form completely
4. Verify university email
5. Download from [account.jetbrains.com](https://account.jetbrains.com)
6. Install and activate

Students need valid university email address

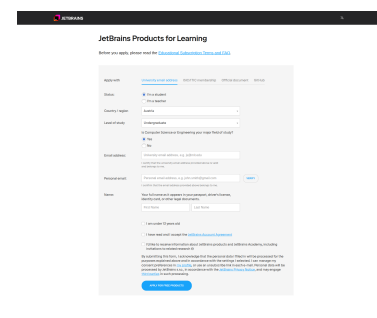


Figure 1.1: Student application form

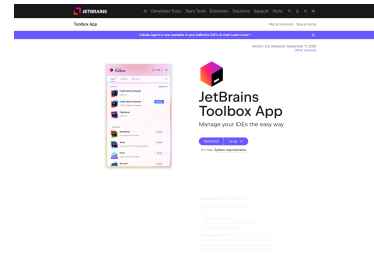
**Note:** The application process takes up to 24 hours. Students should apply before the exercise. Have Community Edition as backup for those with issues.

## 5. Install IntelliJ IDEA Ultimate via Toolbox

- ▶ Launch the Toolbox App
- ▶ Sign in with your JetBrains account
- ▶ Find "IntelliJ IDEA Ultimate" in the list
- ▶ Click "Install" - it will automatically use your student license
- ▶ The app handles all licensing and updates

## 6. Alternative: Direct Download

- ▶ Login to your JetBrains account at <https://account.jetbrains.com/>
- ▶ You'll see your Educational Pack license with all available products
- ▶ Click the "Download" button next to your license
- ▶ Select "IntelliJ IDEA Ultimate" from the dropdown list
- ▶ Choose the appropriate version for your OS (Windows/-Mac/Linux)



## 1.1.2 Configure Java SDK in IntelliJ

After installing IntelliJ IDEA Ultimate, we need to configure the Java SDK (Software Development Kit) so IntelliJ can compile and run Java programs.

### 1. Launch IntelliJ IDEA Ultimate

- ▶ Open IntelliJ IDEA Ultimate
- ▶ If this is your first time, you'll see the Welcome screen
- ▶ Click "New Project" to start

### 2. Check Java SDK Configuration

- ▶ In the "New Project" dialog, look for "Project SDK" dropdown
- ▶ If you see "No SDK" or an error, we need to configure Java
- ▶ Click the "Add SDK" button or the gear icon next to the dropdown

### 3. Add Java SDK

- ▶ Select "Download JDK" from the dropdown
- ▶ Choose JDK 25 (the newest LTS version)
- ▶ Select Oracle OpenJDK
- ▶ Click "Download" and wait for installation

### 4. Verify SDK Installation

- ▶ The SDK should now appear in the "Project SDK" dropdown
- ▶ Select it and click "Next"
- ▶ Choose "Java" as the project type
- ▶ Click "Next" and then "Finish"

### 5. Find Your JDK Path

- ▶ In IntelliJ, go to File → Project Structure → Project Settings → Project
- ▶ Look at the "Project SDK" field - it shows the full path to your JDK
- ▶ Copy this path and use it as the JAVA\_HOME value
- ▶ Common locations:
  - **Linux/Mac:** /home/username/.jdk/openjdk-25 or /Library/Java/JavaVirtualMachines/jdk-25.jdk/Contents/Home

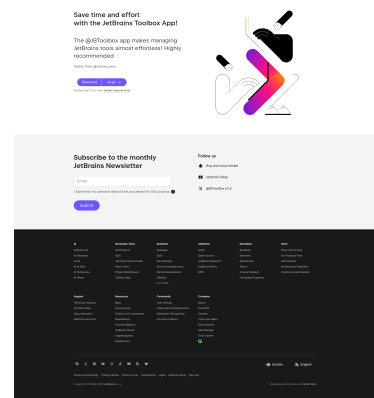


Figure 1.2: JetBrains Toolbox App home-page

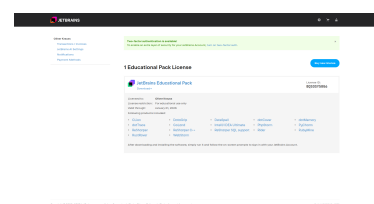


Figure 1.3: My Products page with download options

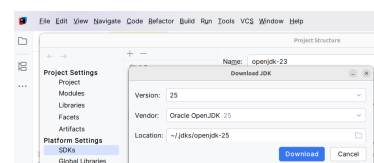


Figure 1.4: Download JDK dialog in IntelliJ IDEA

- **Windows:** C:\Users\username\.jdk\openjdk-25

## 6. Configure System Environment Variables

### ► Windows:

- Open System Properties → Advanced → Environment Variables
- Add new system variable: JAVA\_HOME = [your JDK path from above]
- Edit PATH variable and add: %JAVA\_HOME%\bin

### ► Linux/Mac:

- Add to your shell profile (~/.bashrc, ~/.zshrc, etc.):
- export JAVA\_HOME=[your JDK path from above]
- export PATH=\$JAVA\_HOME/bin:\$PATH
- Run source ~/.bashrc (or your shell profile) to apply changes

### ► This ensures the terminal always uses the correct JDK version

### ► **Note:** Both JAVA\_HOME and PATH are needed:

- JAVA\_HOME tells Java applications where to find the JDK
- PATH tells the system where to find the java and javac commands

## 1.1.3 Verify Java Installation in Terminal

Let's verify that Java is properly installed and accessible from the command line.

### 1. Open Terminal/Command Prompt

- Windows: Press Win+R, type "cmd", press Enter
- Mac: Press Cmd+Space, type "Terminal", press Enter
- Linux: Press Ctrl+Alt+T or search for "Terminal"

### 2. Check Java Version

- Type: java -version
- Press Enter
- You should see output like: "openjdk version 25" or similar

### 3. Check Java Compiler

- Type: javac -version
- Press Enter
- You should see output like: "javac 25" or similar

### 4. Expected Output Example

```
$ java -version
openjdk version "25" 2025-09-16
OpenJDK Runtime Environment (build 25+36-3489)
OpenJDK 64-Bit Server VM (build 25+36-3489, mixed mode, sharing)

$ javac -version
javac 25
```

**Note:** If you get "command not found" errors, you need to install Java or add it to their PATH. Common issues: Java not installed, PATH not set, or using wrong terminal.

## 1.1.4 GitHub Education Account Setup

Before setting up GitHub Copilot, you'll need a GitHub Education account which provides free access to GitHub Copilot and other educational tools.

### 1. Create GitHub Account

- ▶ Go to <https://github.com/join>
- ▶ Create a free GitHub account if you don't have one
- ▶ Use your university email address for verification

### 2. Apply for GitHub Student Developer Pack

- ▶ Go to <https://education.github.com/pack>
- ▶ Click "Get your pack" button
- ▶ Select "Student" as your status
- ▶ Upload proof of enrollment (student ID, enrollment letter, etc.)
- ▶ Wait for approval (usually within 24-48 hours)

### 3. Benefits of GitHub Education Pack

- ▶ Free GitHub Copilot access
- ▶ Free private repositories
- ▶ Access to various developer tools and services
- ▶ GitHub Actions minutes

## 1.1.5 Install GitHub Copilot in IntelliJ IDEA

GitHub Copilot provides AI-powered code suggestions and completions directly in your IDE.

### 1. Open IntelliJ IDEA Ultimate

- ▶ Launch IntelliJ IDEA Ultimate
- ▶ Open any project or create a new one

### 2. Install GitHub Copilot Extension

- ▶ Go to File → Settings (Windows/Linux) or IntelliJ IDEA → Preferences (macOS)
- ▶ Navigate to Plugins
- ▶ Search for "GitHub Copilot" in the Marketplace
- ▶ Click "Install" on the GitHub Copilot plugin
- ▶ Restart IntelliJ IDEA when prompted

### 3. Sign in to GitHub Copilot

- ▶ After restart, go to File → Settings → Tools → GitHub Copilot
- ▶ Click "Sign in to GitHub"
- ▶ A browser window will open for GitHub authentication
- ▶ Authorize the GitHub Copilot plugin
- ▶ Return to IntelliJ IDEA and confirm the connection

### 4. Verify Copilot is Working

- ▶ Open a Java file in IntelliJ IDEA
- ▶ Look for the "Copilot" tab in the right panel or go to View → Tool Windows → GitHub Copilot
- ▶ Click on the "Chat" tab within the Copilot panel

- ▶ Type a question like "How do I create a simple Java class with a main method?"
- ▶ You should see AI-generated responses and code examples

**Note:** GitHub Copilot requires an active internet connection and works best with clear, descriptive comments. It learns from your coding patterns over time.

### 1.1.6 Additional Resources

For more detailed information and troubleshooting:

- ▶ **Official IntelliJ Installation Guide:** <https://www.jetbrains.com/help/idea/installation-guide.html#toolbox>
- ▶ **Java Home and PATH Configuration:** <https://www.baeldung.com/java-home-on-windows-mac-os-x-linux>
- ▶ **GitHub Copilot for JetBrains:** <https://docs.github.com/en/copilot/how-tos/set-up/install-copilot-extension?tool=jetbrains>
- ▶ **GitHub Education Pack:** <https://education.github.com/pack>

These guides provide comprehensive instructions for different operating systems and troubleshooting common installation issues.

## 2 Troubleshooting

### 2.1 Common Issues

- ▶ **Java not found in terminal:** Check that JAVA\_HOME and PATH are set correctly
- ▶ **IntelliJ can't find JDK:** Make sure you downloaded JDK 25 through IntelliJ's download dialog
- ▶ **License issues:** Verify your student email and check spam folder for verification
- ▶ **Installation fails:** Try running as administrator (Windows) or with sudo (Linux/Mac)

### 2.2 Getting Help

If you encounter issues not covered in this guide:

- ▶ Check the JetBrains documentation: <https://www.jetbrains.com/help/idea/>
- ▶ Use the moodle discussion forum, so others may benefit from the solution