

Getting Started with IntelliJ

COMSM0086

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Overview

- Downloading and installing IntelliJ IDE
- Dealing with User Agreement and Licensing
- Opening an existing template project
- Installing the Java Development Kit (JDK)
(including compiler, runtime and libraries)
- Running your first Java program !

Note: We will skim through these slides quite quickly now
Work through them at your own pace in practical session

Do you need to install ?

You don't HAVE to install IntelliJ on your laptop
The lab machines are fully installed and set up:

`/opt/idea/2024/bin/idea.sh`

License Server: <http://ls-jetbrains.bris.ac.uk:8080>

HOWEVER

Many people choose to work on their own machines
Just so they can work from home (and at any time)

If you do decide to install, here are a few tips...

Download from JetBrains

Make sure you get the download for your platform !
(Website **should** autodetect to the right version)

Windows macOS Linux



IntelliJ IDEA Ultimate

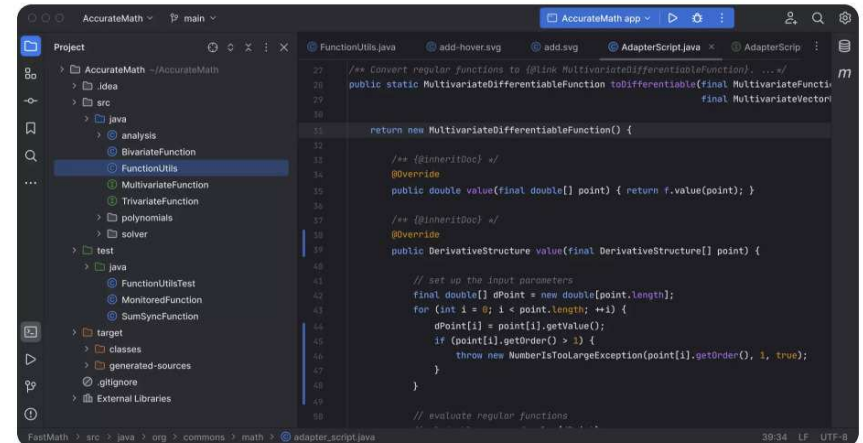
The Leading Java and Kotlin IDE

Download

.dmg ▼

Free 30-day trial

Select an installer for Intel or Apple Silicon



Version: 2023.3.2
Build: 233.13135.103
20 December 2023

[System requirements](#)

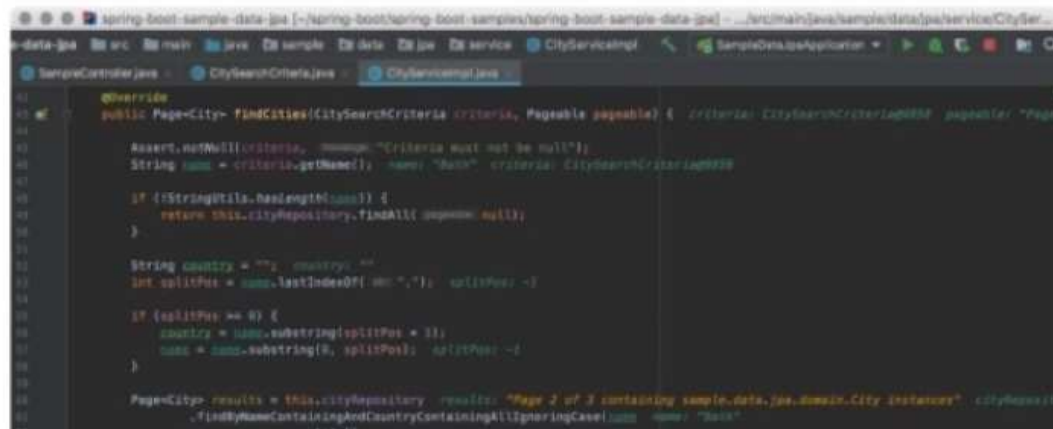
[Installation instructions](#)

[Other versions](#)

[Third-party software](#)

Alternative Approach

IntelliJ might be available through your platform's Package Manager (if it has one !)



Install as normal (for your platform) !

User Agreement

First time you run IntelliJ, you'll see User Agreement

Tick the box and click continue if you are happy !

JETBRAINS USER AGREEMENT

Version 1.4, effective as of September 22, 2021

IMPORTANT! READ CAREFULLY:

THIS IS A LEGAL AGREEMENT. BY CLICKING ON THE "I AGREE" (OR SIMILAR) BUTTON THAT IS PRESENTED TO YOU AT THE TIME OF YOUR FIRST USE OF THE JETBRAINS SOFTWARE, SUPPORT, OR PRODUCTS, YOU BECOME A PARTY TO THIS AGREEMENT, YOU DECLARE YOU HAVE THE LEGAL CAPACITY TO ENTER INTO SUCH AGREEMENT, AND YOU CONSENT TO BE BOUND BY ALL THE TERMS AND CONDITIONS SET FORTH BELOW.

1. PARTIES

1.1. "JetBrains" or "we" means JetBrains s.r.o., having its principal place of business at Na Hrebenech II 1718/10, Prague, 14000, Czech Republic, registered in the Commercial Register maintained by the Municipal Court of Prague, Section C, File 86211, ID No. 265 02 275.

☒ I confirm that I have read and accept the terms of this User Agreement

Exit

Continue

Register for an Educational License

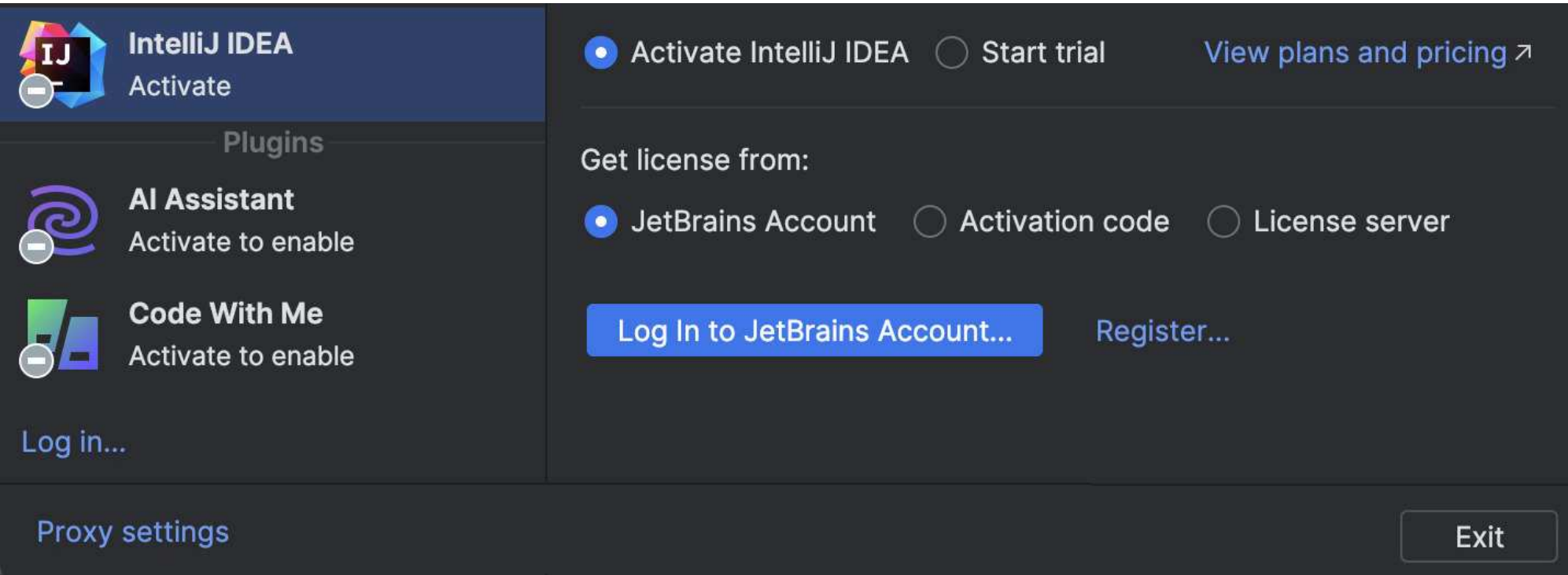
<https://jetbrains.com/community/education/#students>

Apply with	<u>University email address</u>	ISIC/ITIC membership	Official document
Status:	<input checked="" type="radio"/> I'm a student <input type="radio"/> I'm a teacher		
Level of study	<div>Undergraduate ▼</div>		
	Is Computer Science or Engineering your major field of study? <input checked="" type="radio"/> Yes <input type="radio"/> No		
Email address:	<div>University email address, e.g. js@mit.edu</div>		
I certify that the university email address provided above is valid and belongs to me.			

License Settings

"Log In to JetBrains" if you have an educational license

"Start Trial" if you haven't yet registered with JetBrains



The screenshot shows the 'License Settings' window in IntelliJ IDEA. On the left is a sidebar with a dark blue header containing the IntelliJ IDEA logo and the text 'IntelliJ IDEA' and 'Activate'. Below this is a 'Plugins' section with two items: 'AI Assistant' and 'Code With Me', each with a minus icon and the text 'Activate to enable'. At the bottom of the sidebar is a 'Log in...' link. The main area on the right has a dark background. At the top, there are two radio buttons: 'Activate IntelliJ IDEA' (selected) and 'Start trial'. To the right of these is a link 'View plans and pricing' with an external link icon. Below this is the text 'Get license from:' followed by three radio buttons: 'JetBrains Account' (selected), 'Activation code', and 'License server'. At the bottom of the main area, there is a blue button labeled 'Log In to JetBrains Account...' and a link 'Register...'. At the very bottom of the window, there is a dark bar with a link 'Proxy settings' on the left and an 'Exit' button on the right.

IntelliJ IDEA
Activate

Plugins

AI Assistant
Activate to enable

Code With Me
Activate to enable

Log in...

Proxy settings

☒ Activate IntelliJ IDEA ☐ Start trial [View plans and pricing ↗](#)

Get license from:

☒ JetBrains Account ☐ Activation code ☐ License server

[Log In to JetBrains Account...](#) [Register...](#)

Exit

Final Step for Educational License

Make sure you click the "Activate" button !

IntelliJ IDEA
Active until October 1, 2024

Plugins

- AI Assistant**
Activate to enable
- Code With Me**
Active until October 1, 2024

Simon Lock

☒ **Activate IntelliJ IDEA** ☐ Start trial [View plans and pricing ↗](#)

Get license from:

☒ **JetBrains Account** ☐ Activation code ☐ License server

Active license: Licensed to Simon Lock, For educational use only
Subscription is active until 01/10/2024

Activate Cancel [Refresh license list](#)

[Proxy settings](#) Activate plugin to enable paid functions [Continue](#)

And that should provide you with
the same software as on the lab machines

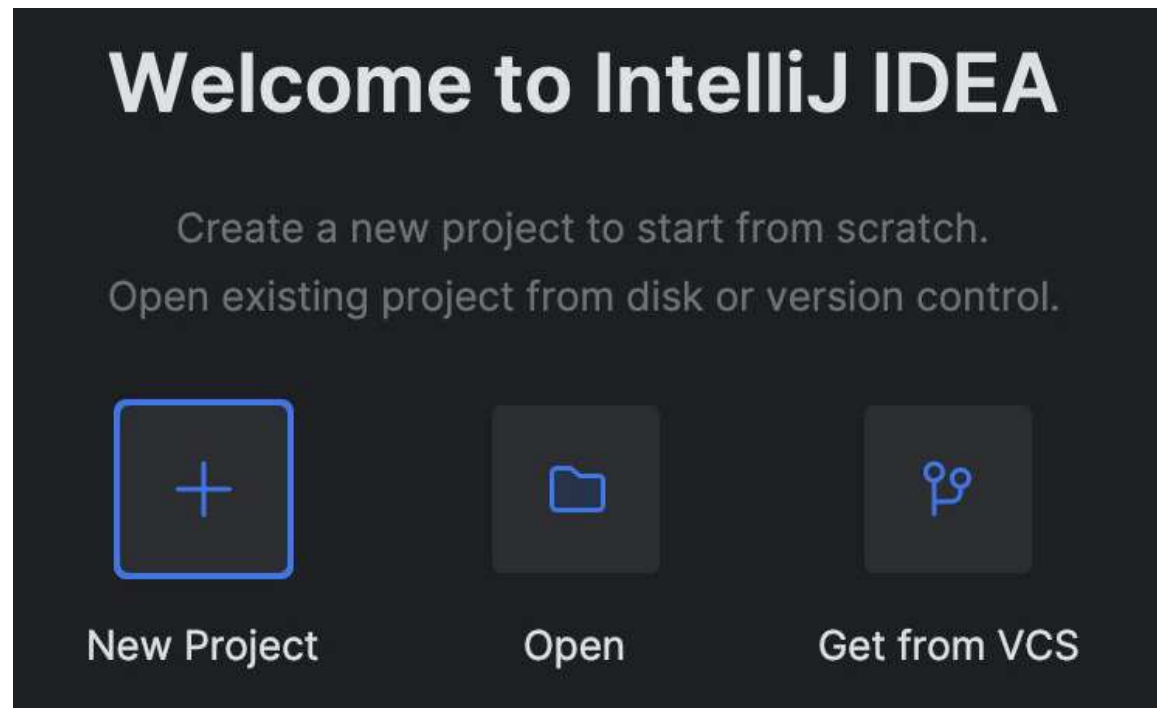
Once you have the IDE installed...

How do we go about compiling and running code ?

Welcome Screen

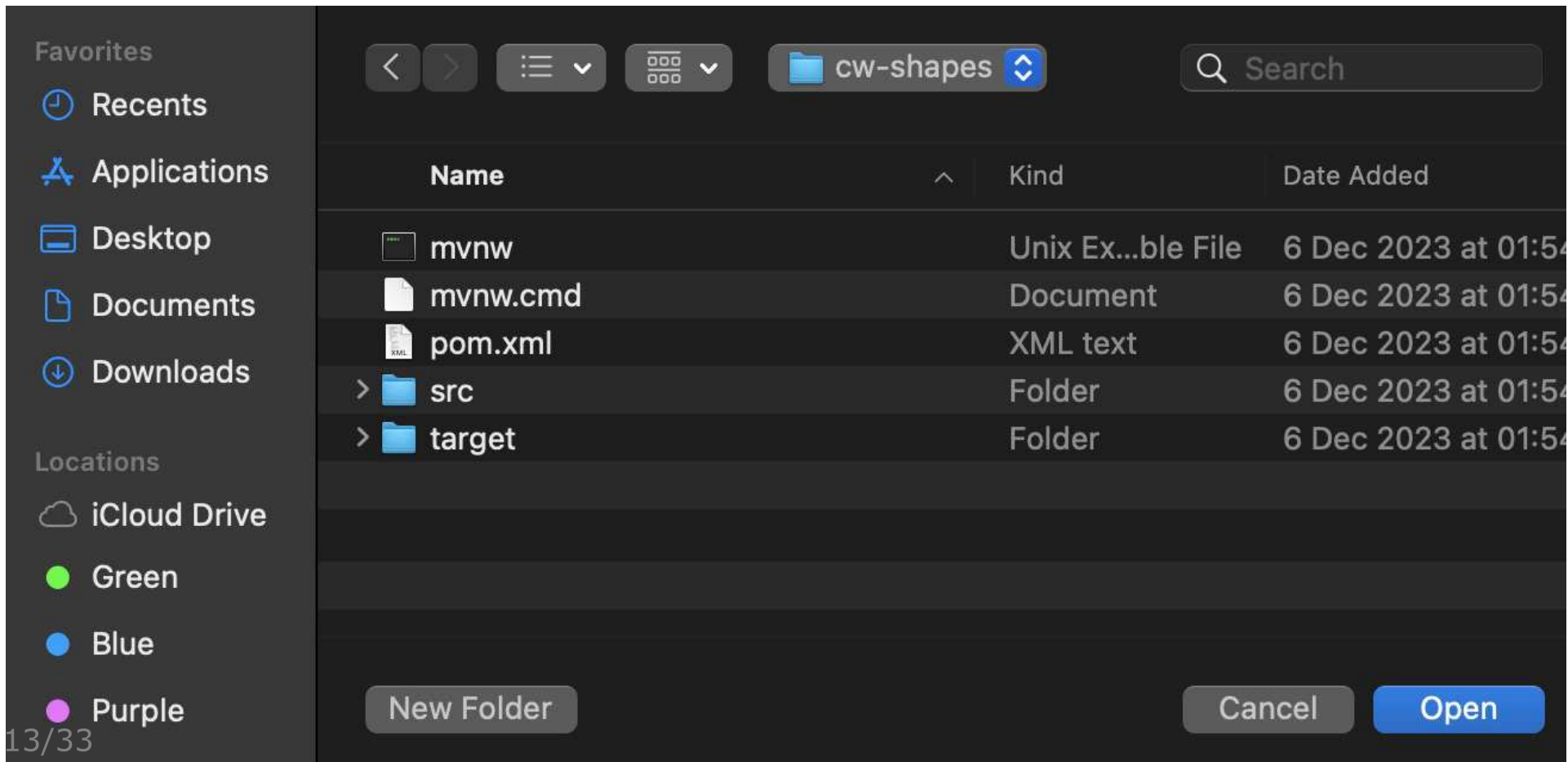
Most of the time on this unit you'll need "Open"

This is because we provide blank template projects
(Although you do get to practice creating a new project)



Typical Project Template

Find and open the FOLDER containing the pom.xml file



Do You Trust Us ?

Be careful with projects from other sources !



Trust and Open Project 'cw-shapes'?

IntelliJ IDEA provides features that may execute potentially malicious code from this folder.

If you don't trust the source, preview the project in the safe mode to only browse its code.

☐ Trust projects in ~/Development/Weekly Workbooks/01 Introduction to OOP/IntelliJ Template



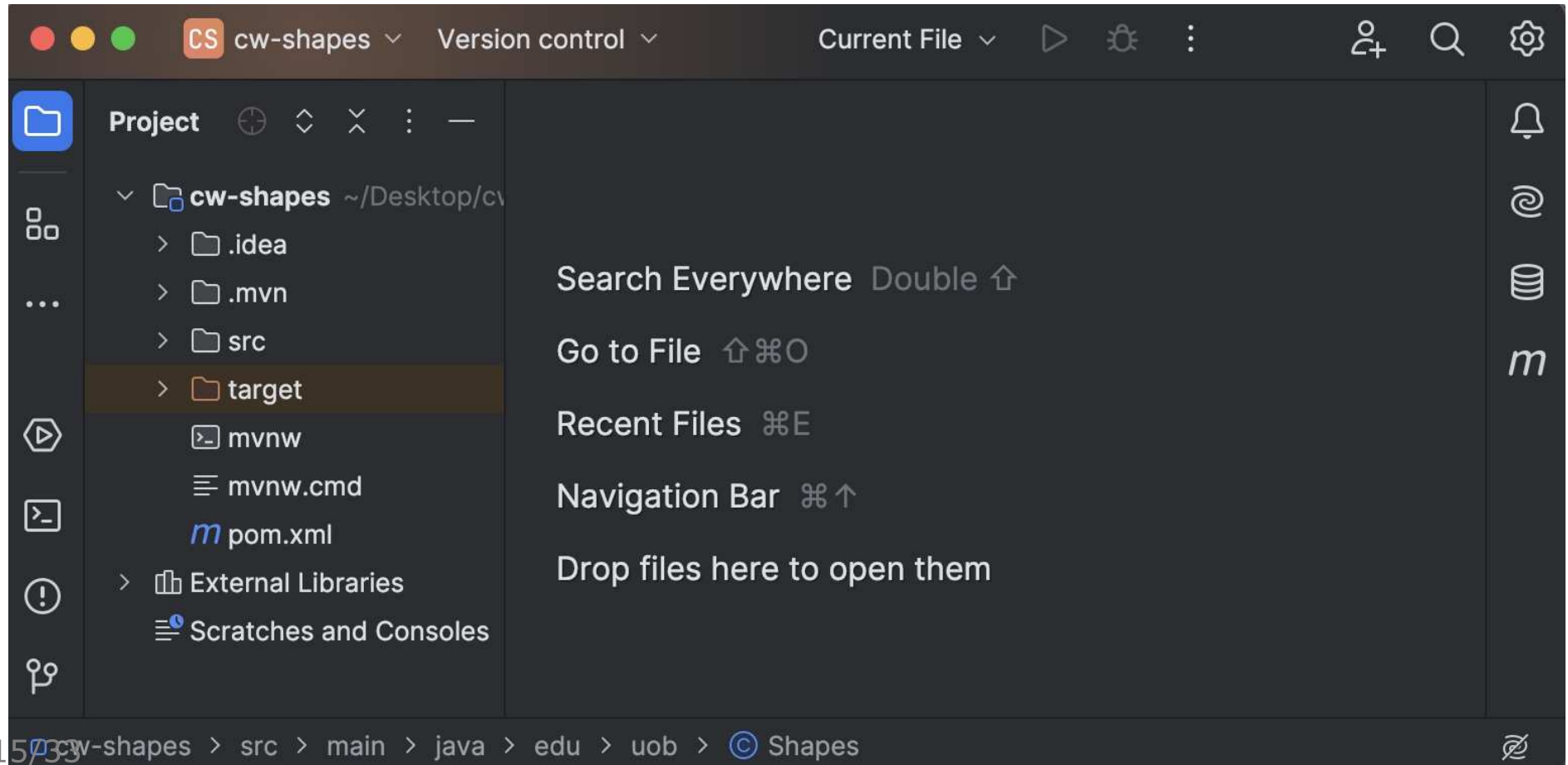
Don't Open

Preview in Safe Mode

Trust Project

Project Structure

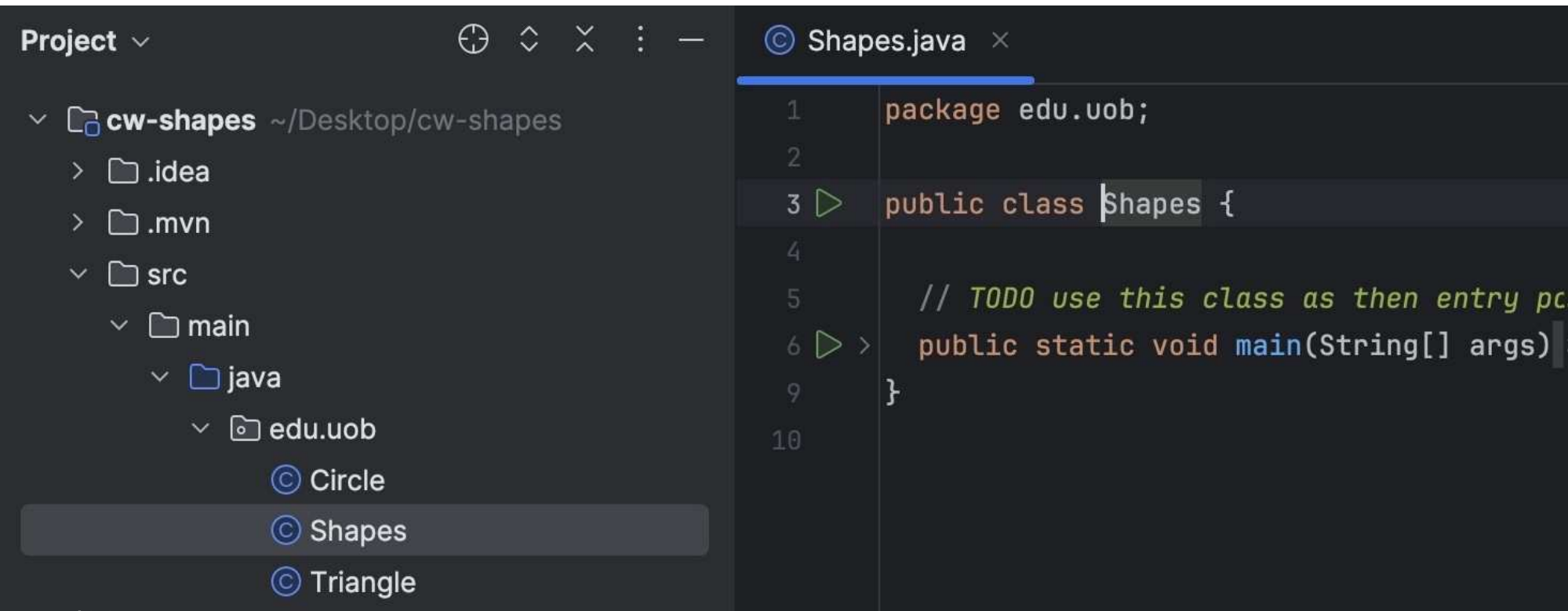
A successfully opened project looks something like this:



Open the Main Class

Let's explore the project view to find the main class

In this project, the main class is a file called 'Shapes'



The screenshot shows an IDE interface. On the left, the 'Project' view displays a tree structure of the project files. The project is named 'cw-shapes' and is located at '~/Desktop/cw-shapes'. The tree structure is as follows:

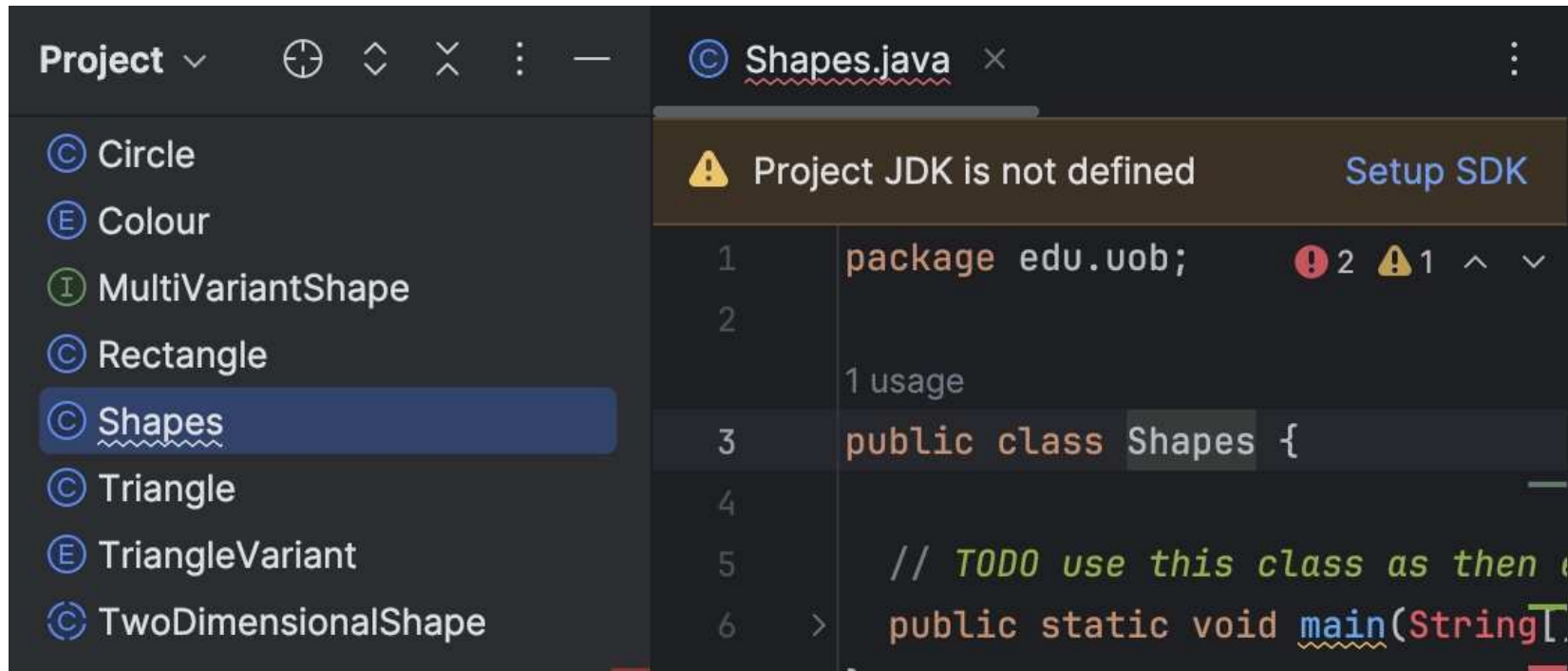
- cw-shapes
 - .idea
 - .mvn
 - src
 - main
 - java
 - edu.uob
 - Circle
 - Shapes
 - Triangle

The 'Shapes' class is highlighted in the tree. On the right, the 'Shapes.java' file is open, showing the following code:

```
1 package edu.uob;  
2  
3 public class Shapes {  
4  
5     // TODO use this class as then entry po  
6     public static void main(String[] args) {  
7  
8     }  
9  
10
```

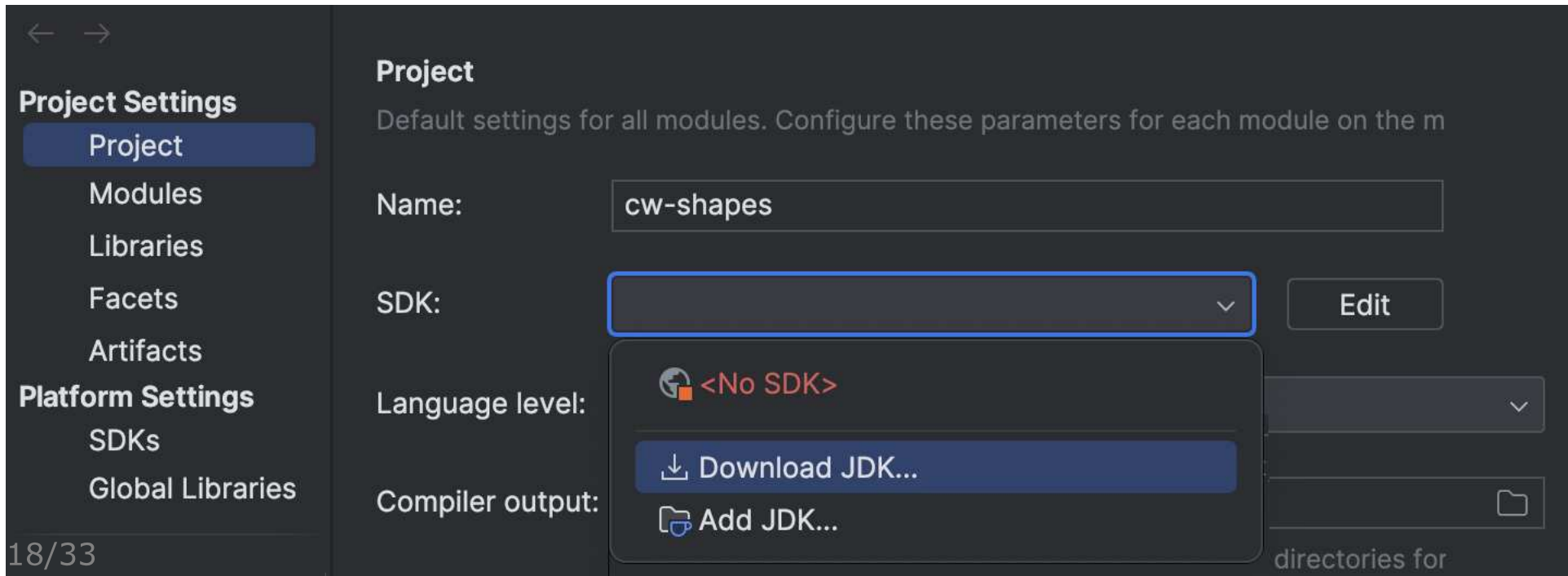

"Project JDK is not defined"

IntelliJ is just an IDE - it has no built-in compiler !
Lab machines have Java Development Kit installed
If working on your own laptop, YOU must install it



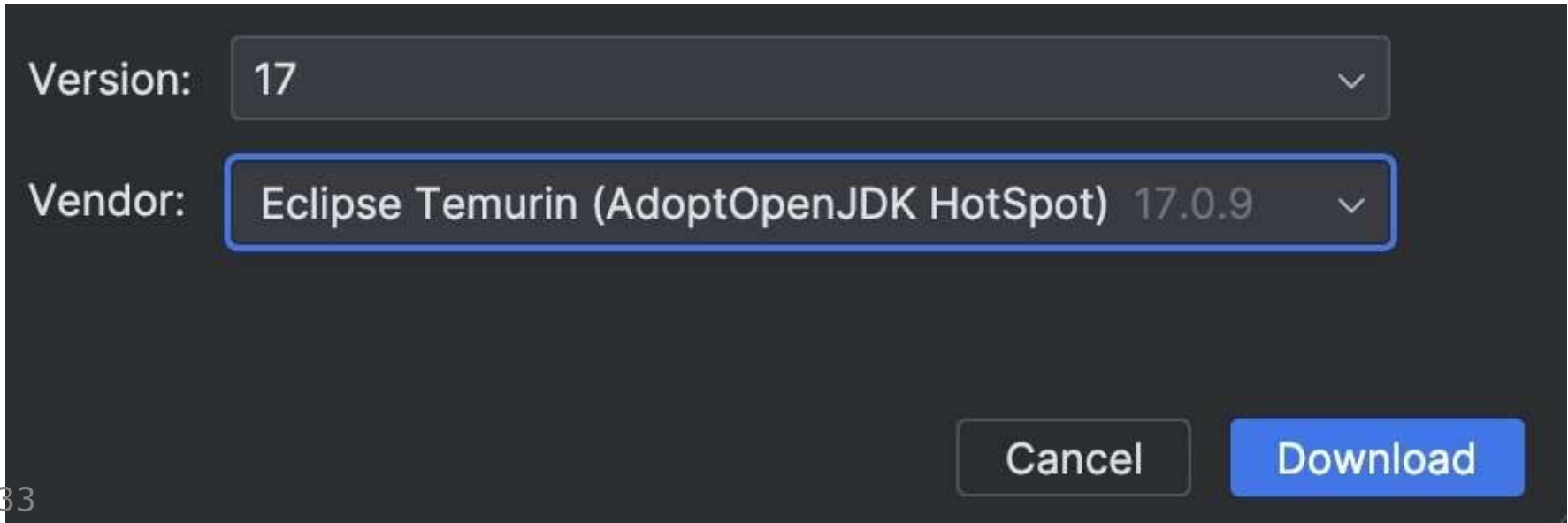
Project Settings (File > Project Structure !!!)

Need to select a JDK to use to compile & run project
Could use an existing JDK (if you have one installed)
Or download a new one from list of those available...



Download JDK

Select JDK to automatically download & install
Lowest Common Denominator: Lab has Java 17
(That's where we are going to mark your code !)
Best to choose: Eclipse Temurin (AdoptOpenJDK)



A screenshot of a dark-themed dialog box for selecting a JDK. It features two dropdown menus. The first, labeled 'Version:', has '17' selected. The second, labeled 'Vendor:', has 'Eclipse Temurin (AdoptOpenJDK HotSpot) 17.0.9' selected and is highlighted with a blue border. At the bottom right are 'Cancel' and 'Download' buttons.

Field	Value
Version:	17
Vendor:	Eclipse Temurin (AdoptOpenJDK HotSpot) 17.0.9

Buttons: Cancel, Download

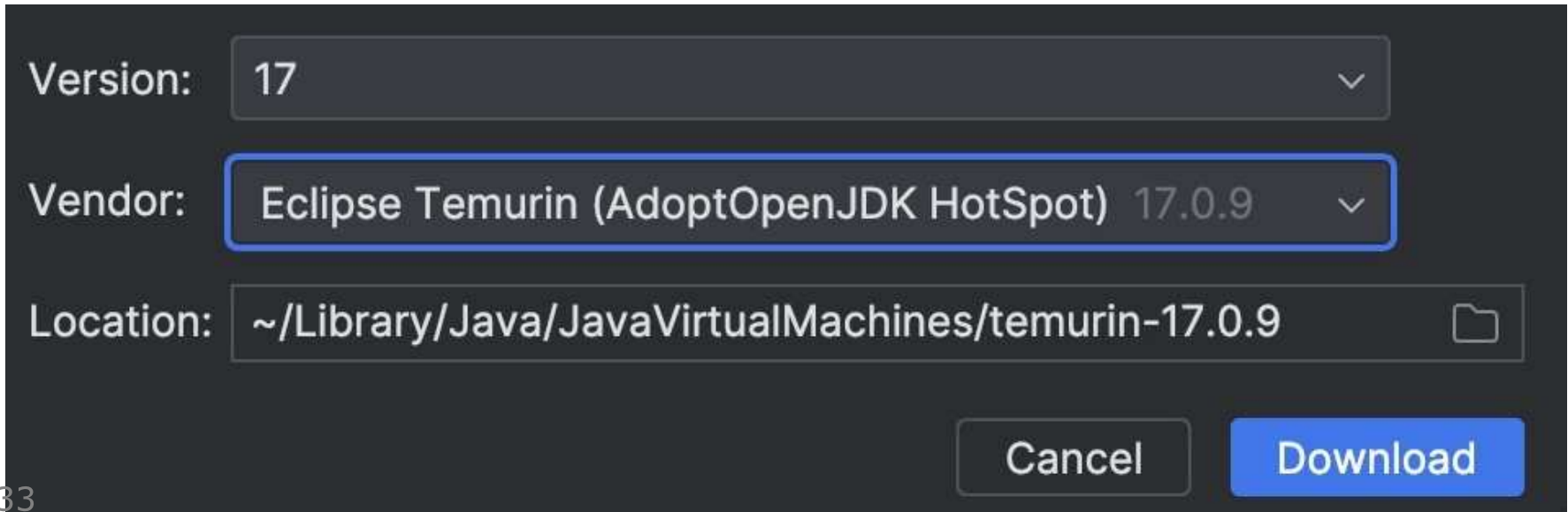
Installation Location

Keep a note of location where IntelliJ will install JDK

You'll need this later (to compile on command line)

On Mac OSX the location will be something like:

`~/Library/Java/JavaVirtualMachines/temurin-17.0.9`



Version: 17

Vendor: Eclipse Temurin (AdoptOpenJDK HotSpot) 17.0.9

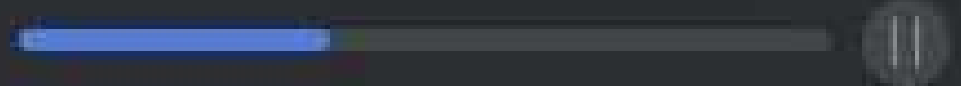
Location: ~/Library/Java/JavaVirtualMachines/temurin-17.0.9

Cancel Download

Be Patient !

It takes a while for the JDK to download and install
Don't worry, only happens once (when you first install)
Keep an eye on how things are going on progress bar:

Indexing JDK 'temurin-17'

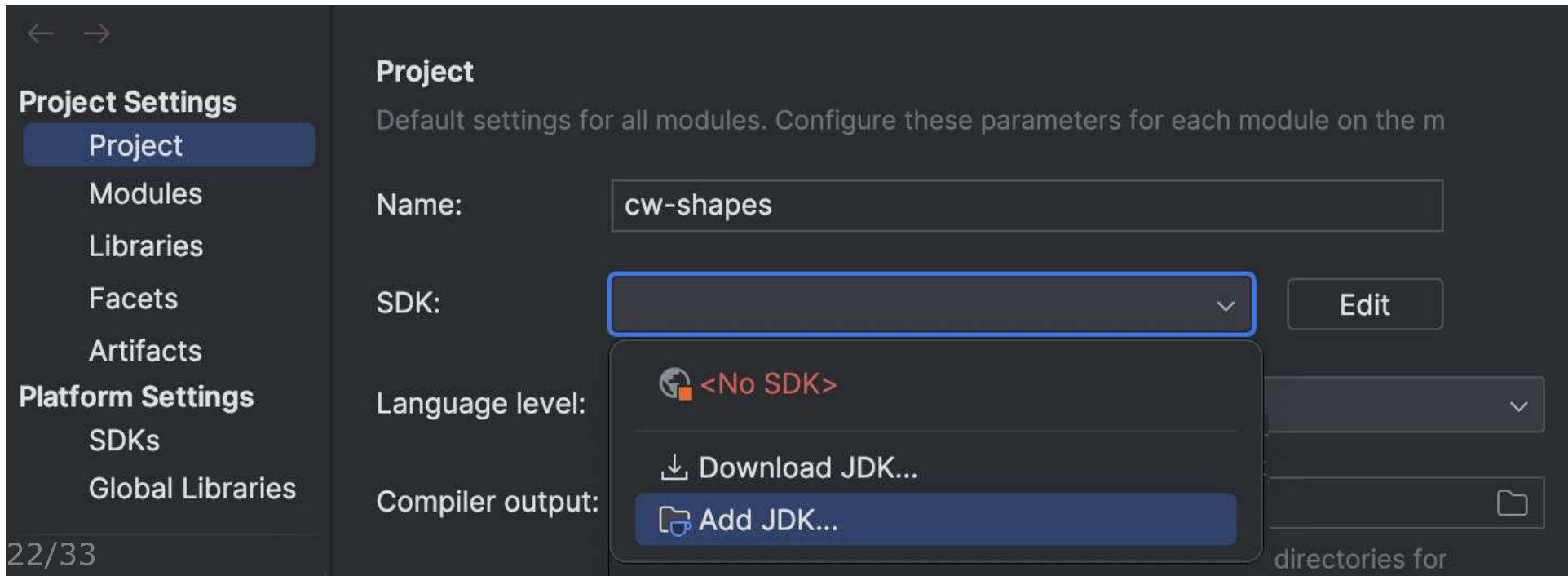


Using an Existing JDK

If you already have a JDK installed, you can use that

This will save you having multiple versions installed

It *might* be listed in dropdown, if not click "Add JDK"



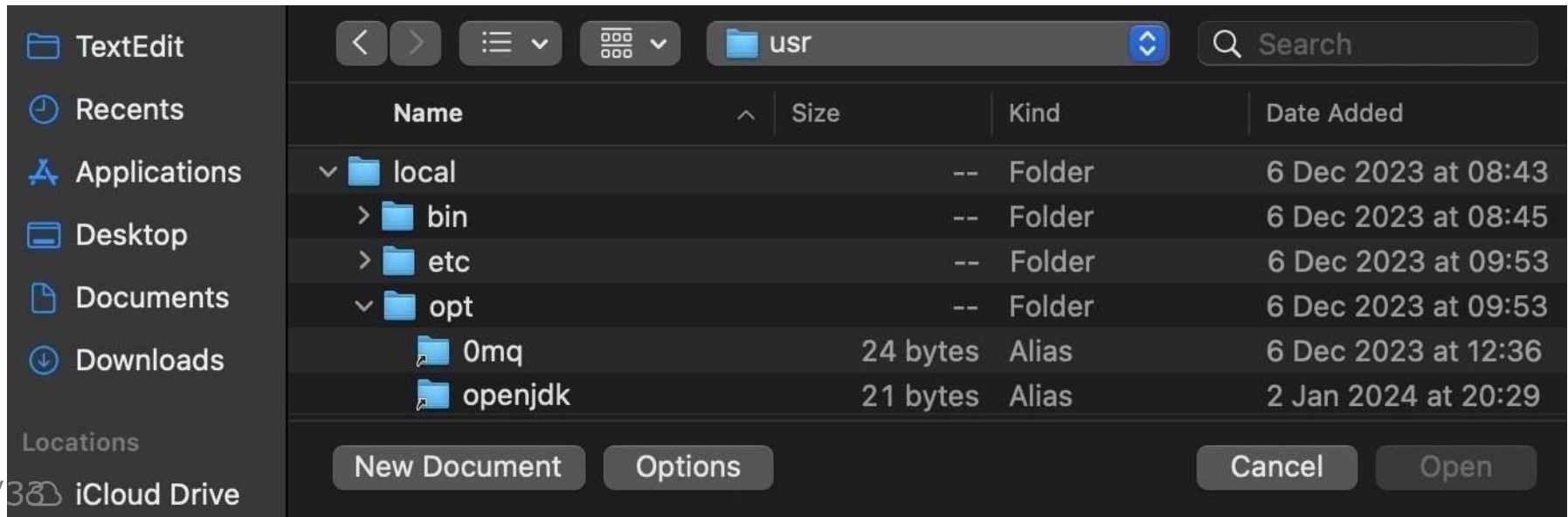
Hunting down Existing JDK

IntelliJ is clever and will usually find installed JDKs

I installed JDK using 'Homebrew' package manager

Homebrew is good at hiding installed software ;o)

So I needed to manually hunt around to find the JDK



JDK Version

The version I have installed is more recent than 17
However, we can limit language features used to 17
Prevents use of newer features that won't work in lab

Project

Default settings for all modules. Configure these parameters for each module on the module page as needed.

Name:

cw-shapes

SDK:

 21 version 21.0.1



Edit

Language level:

17 - Sealed types, always-strict floating-point semantics



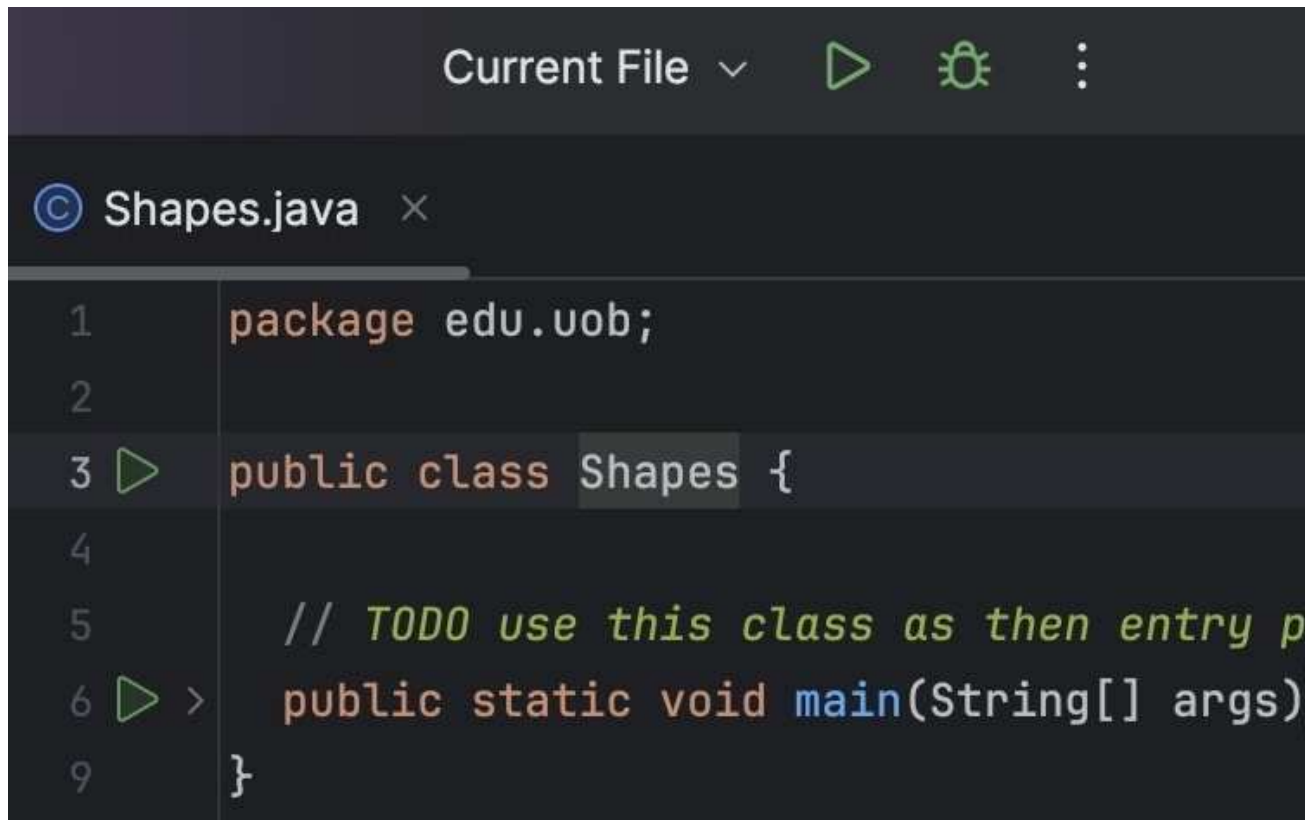
REMEMBER

Labs machines ALREADY have a JDK installed
(so you won't need to follow the previous steps)
You only need to install JDK on your OWN laptop

Back to the Project...

Ready to Run !

With the main class open in the editing panel...
You should now see the green "run" button at the top



```
Current File ▾ ▶ ⚙ ⋮  
© Shapes.java ×  
1 package edu.uob;  
2  
3 ▶ public class Shapes {  
4  
5     // TODO use this class as then entry p  
6 ▶ > public static void main(String[] args)  
9     }
```

Success !

Might take a while for IntelliJ to compile & run the code

It has to build a lot of files the first time around

If everything worked OK, you should see...



Command Line

Although we will be using IntelliJ **most** of the time

It is useful to also be able to use the command line

Coursework will be marked on the command line

It's essential that you check your code runs there !

In order to be able to compile and run your code

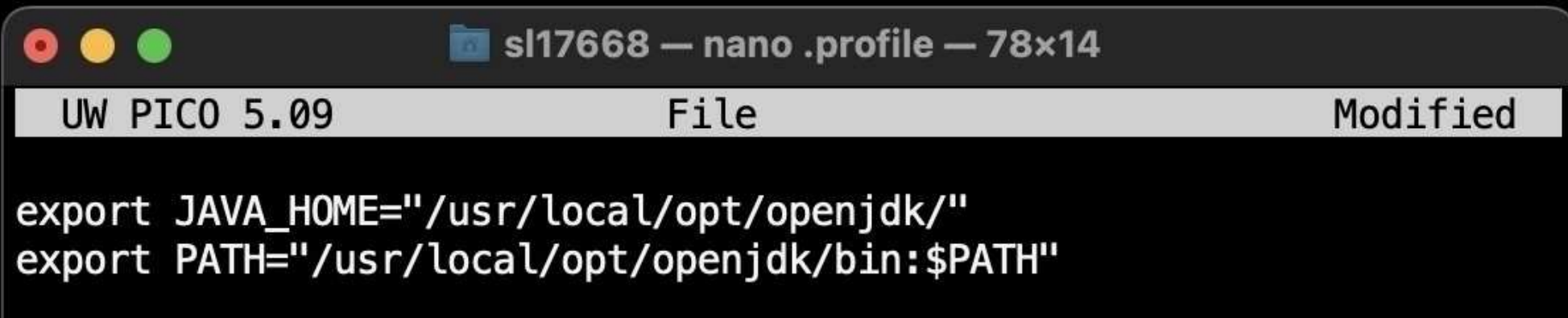
You must tell command line where to find the JDK...

OSX and Linux Environment Variables

Add two environment variables to your shell config file
(`~/.profile` on OSX or `~/.bashrc` on linux)

`JAVA_HOME` must point to your installed JDK folder

You must also prepend the JDK `*bin*` folder to `$PATH`

A screenshot of a terminal window with a dark background. The title bar at the top shows three colored window control buttons (red, yellow, green) on the left, followed by the text "sl17668 — nano .profile — 78x14". Below the title bar is a light gray menu bar with the text "UW PICO 5.09" on the left, "File" in the center, and "Modified" on the right. The main area of the window is black and contains two lines of white text: "export JAVA_HOME=\"/usr/local/opt/openjdk/" and "export PATH=\"/usr/local/opt/openjdk/bin:\$PATH".

```
sl17668 — nano .profile — 78x14
UW PICO 5.09                               File                               Modified
export JAVA_HOME="/usr/local/opt/openjdk/"
export PATH="/usr/local/opt/openjdk/bin:$PATH"
```

Please note that:

`/usr/local/opt/openjdk/`

Is the location of MY installation of the JDK

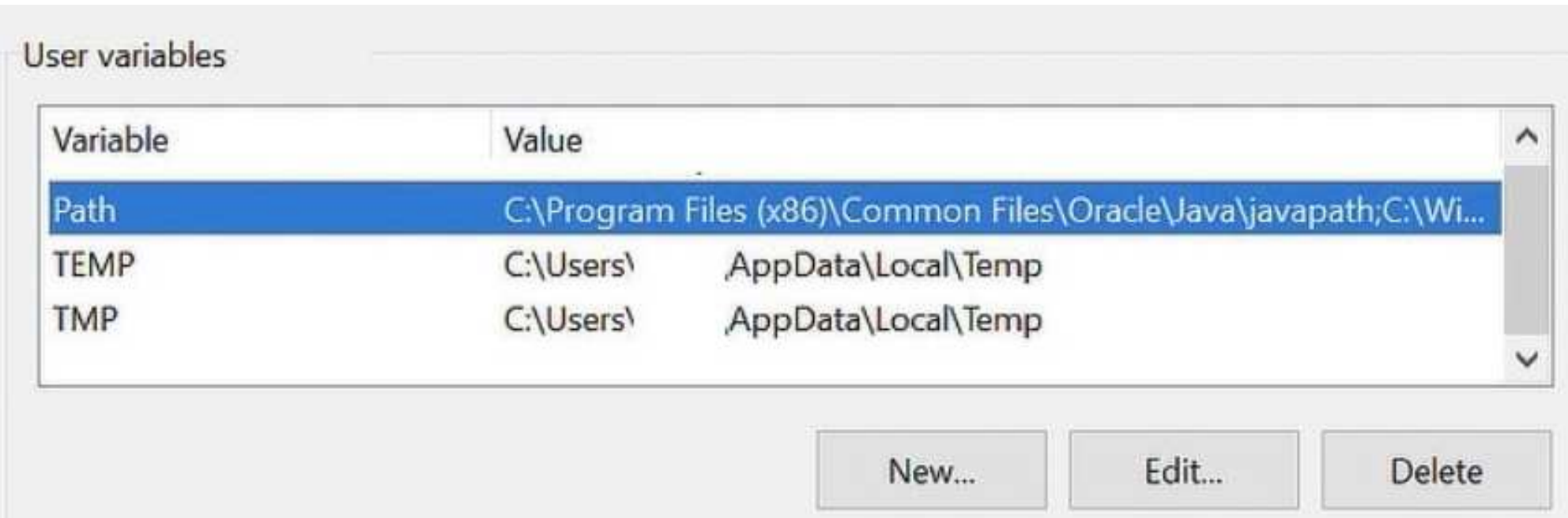
YOURS is going to be somewhere different !
(wherever IntelliJ said it was going to put it)

Windows Environment Variables

Environment Variables in Windows are set differently

Using a graphical interface in "System Preferences"

See separate guide to setting up JDK on windows

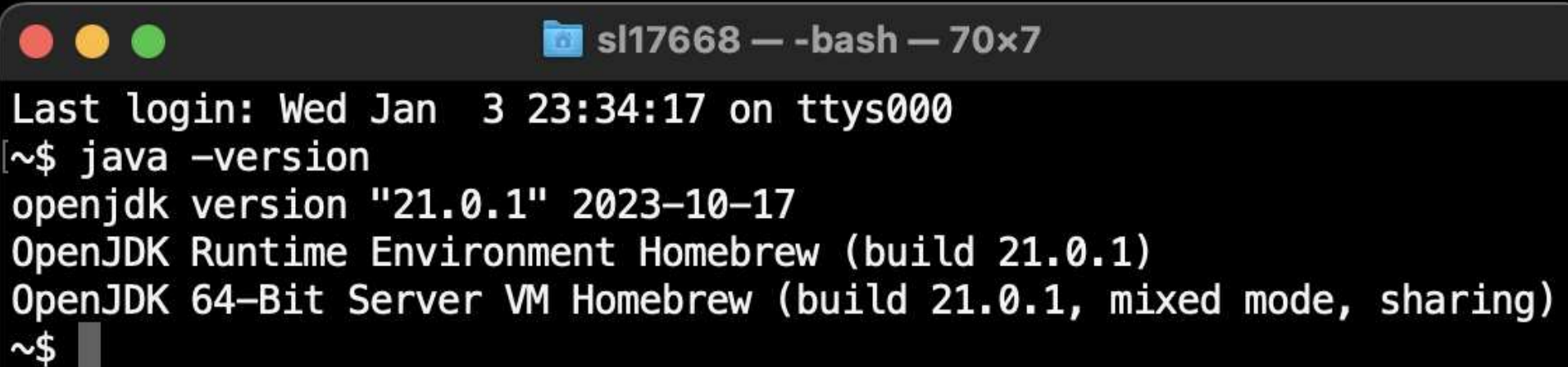


Testing Your Environment

Open a fresh terminal or command prompt and type:

```
java -version
```

If everything worked, you'll see something like:

A screenshot of a macOS terminal window. The title bar shows three colored window control buttons (red, yellow, green) on the left, a folder icon and the text 'sl17668 — -bash — 70x7' in the center. The terminal content shows the last login time and the output of the 'java -version' command.

```
Last login: Wed Jan  3 23:34:17 on ttys000
[~$ java -version
openjdk version "21.0.1" 2023-10-17
OpenJDK Runtime Environment Homebrew (build 21.0.1)
OpenJDK 64-Bit Server VM Homebrew (build 21.0.1, mixed mode, sharing)
~$ █
```


And now to work !