

Tutorial For JDK Installing

Based on the tutorial of "2020S-Java-A" designed by teaching group in SUSTech

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Modified (mainly change to JDK17 version) by LI Boao in 2022. Sep. 3rd

Objectives

1. Install JDK 17 and configure environment variable.
2. Learn compilation and execution of your first Java program in command line.

Software Installation

1. JDK Introduce

JDK: The Java Development Kit (JDK) is a software development environment for developing Java applications and applets. It includes a Java Runtime Environment (JRE), an interpreter/loader (java), a compiler (javac), an archiver (jar), a documentation generator (javadoc) and other tools needed in Java development.

2. Download and Install JDK

URL of download JDK:

<https://jdk.java.net/archive/>

17.0.2 (build 17.0.2+8)

Windows	64-bit	zip (sha256) 178M
Mac/AArch64	64-bit	tar.gz (sha256) 174M
Mac/x64	64-bit	tar.gz (sha256) 176M
Linux/AArch64	64-bit	tar.gz (sha256) 178M
Linux/x64	64-bit	tar.gz (sha256) 179M
Source		Tags are jdk-17.0.2+8, jdk-17.0.2-ga

17.0.1 (build 17.0.1+12)

Windows	64-bit	zip (sha256) 178M
Mac/AArch64	64-bit	tar.gz (sha256) 174M
Mac/x64	64-bit	tar.gz (sha256) 176M
Linux/AArch64	64-bit	tar.gz (sha256) 177M
Linux/x64	64-bit	tar.gz (sha256) 179M
Source		Tags are jdk-17.0.1+12, jdk-17.0.1-ga

17 GA (build 17+35)

Windows	64-bit	zip (sha256) 178M
Mac/AArch64	64-bit	tar.gz (sha256) 174M
Mac/x64	64-bit	tar.gz (sha256) 176M
Linux/AArch64	64-bit	tar.gz (sha256) 177M
Linux/x64	64-bit	tar.gz (sha256) 179M
Source		Tags are jdk-17+35, jdk-17-ga

Note: You need to download the corresponding JDK according to your operating system.

Please choose 17.0.2 version.

If you use Windows 64-bit, click 'zip' and start downloading.

If you use Mac OS, please check the form of your CPU. If your computer uses **Intel** chip, please download "x64" version. If your computer uses **Apple M1** chip, please download "AArch64" version.

Installation:

Once downloaded, just uncompress the zip all.

Then you will see a directory like this.

openjdk-17.0.2_windows-x64_bin > jdk-17.0.2

在jdk-17.0.2中搜索

名称	修改日期	类型	大小
bin	2/9/2022 下午11:42	文件夹	
conf	2/9/2022 下午11:42	文件夹	
include	2/9/2022 下午11:42	文件夹	
jmods	2/9/2022 下午11:42	文件夹	
legal	2/9/2022 下午11:42	文件夹	
lib	2/9/2022 下午11:42	文件夹	
release	2/9/2022 下午11:42	文件	2 KB

However, the system cannot find the *java/javac* file under the "bin" directory at once.

So we need to configure the environment variable in order to solve the problem.

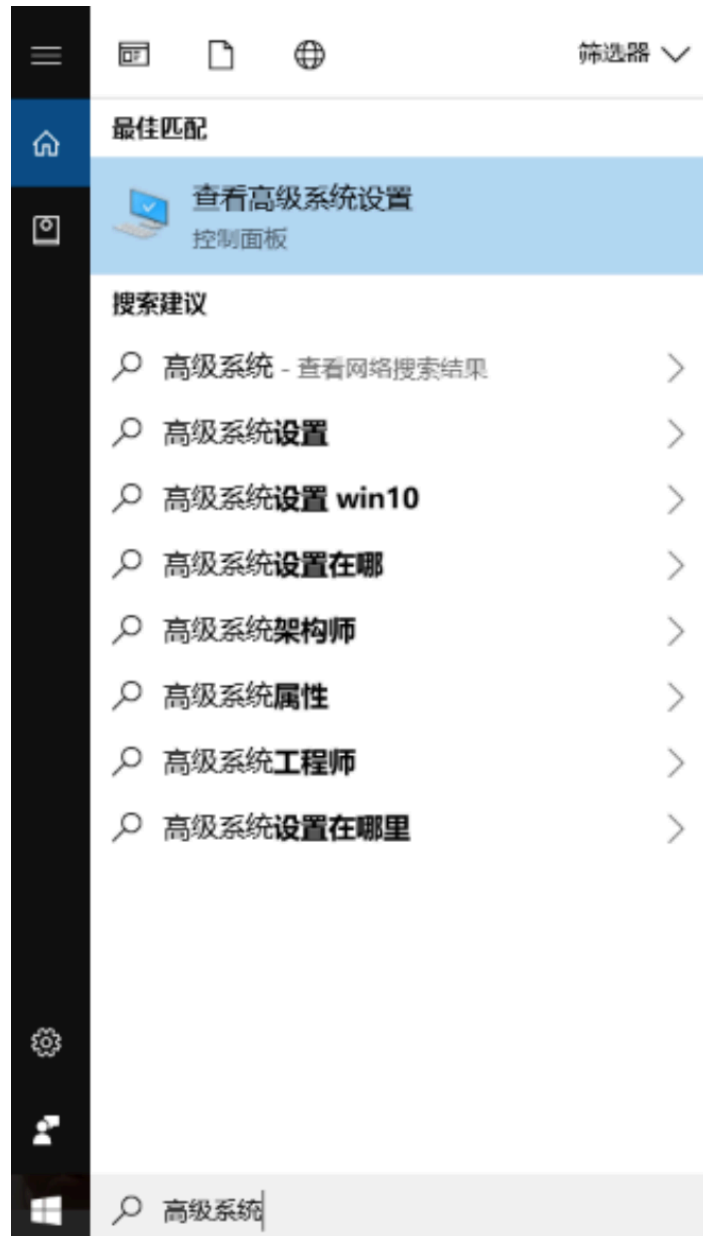
3. Environment Variable

If you are a **Mac OS** user, you can **ignore** environment variable in this lab.

If you are a Windows user, you **need** to do as following steps.

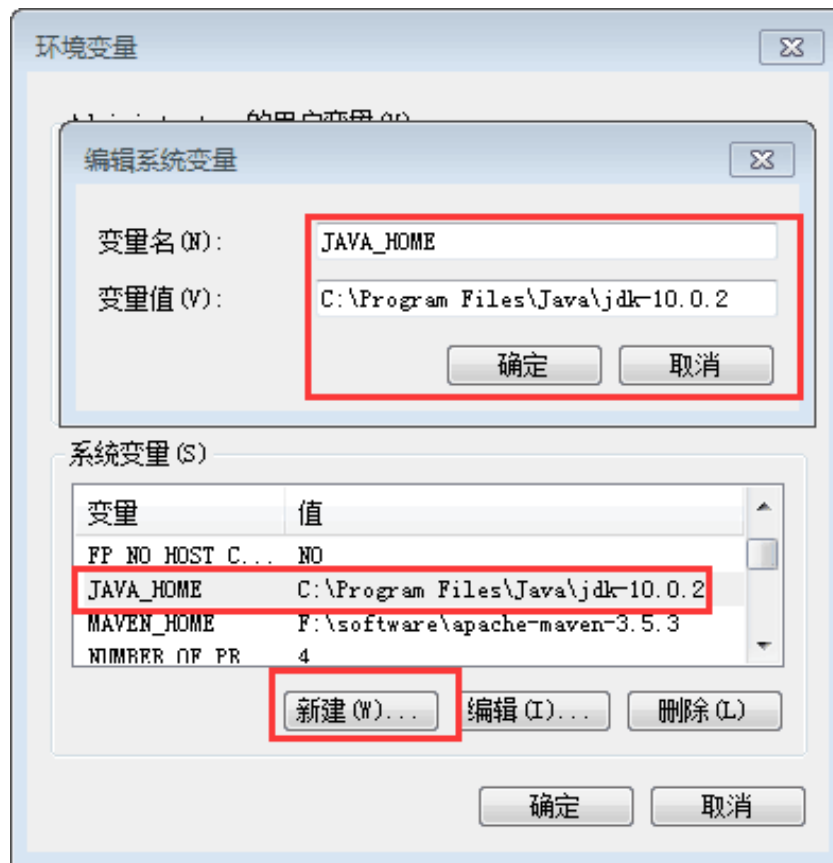
- Advanced System Settings: Type **advanced system settings** (高级系统设置) in the search box (beside the Windows start button), clicks View **advanced system settings**.

Note: You can also find it by right click "My computer", then choose "Properties".

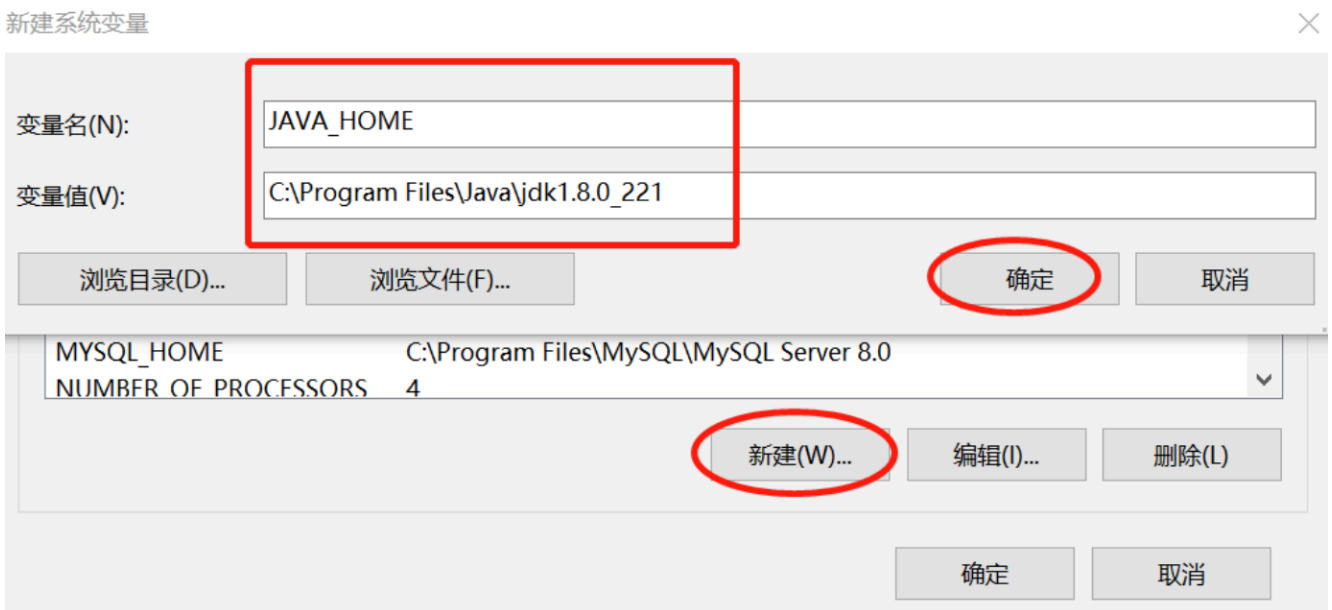
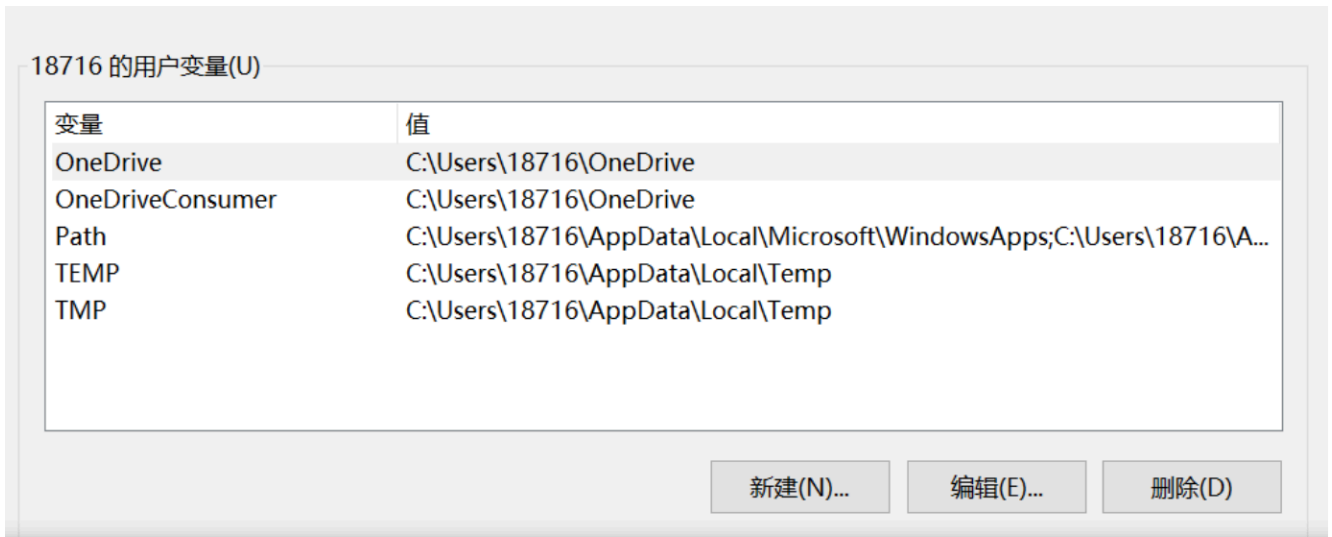


- Add `JAVA_HOME` : First click **environment variables**(环境变量). Create a new **System variables**(系统变量), name the variable as `JAVA_HOME` and set the value as the installation location of JDK. *(The following picture assumes JDK 10 is installed, find your equivalent JDK 17 folder)*

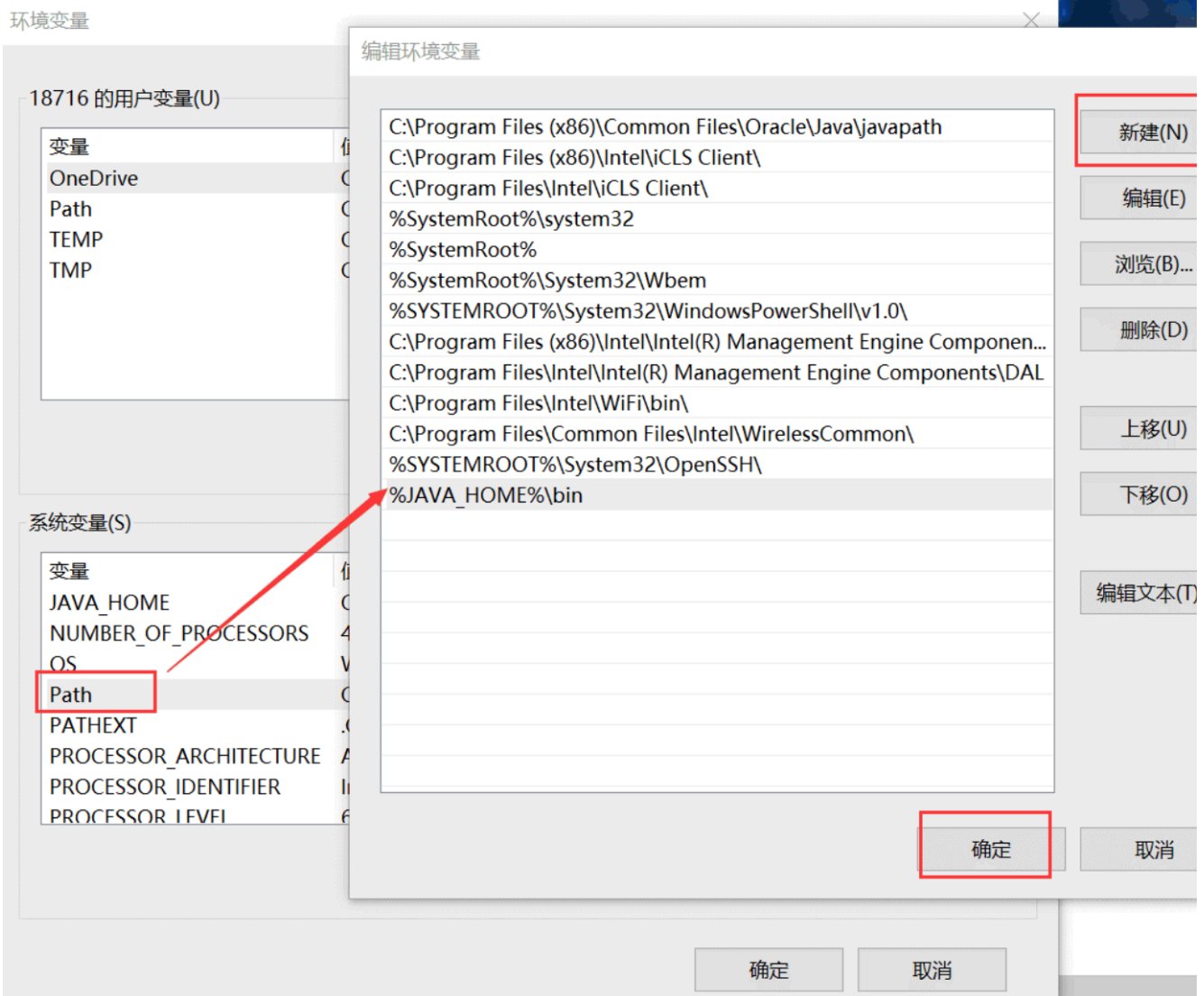
Windows 7 version:



windows 10/11 version:



- Update Path: In System variables, find **PATH**, clicks edit and append this `%JAVA_HOME%\bin` into the last line (Windows 10/11 user)



Click "Confirm" to save the settings.

- Restart your command prompt to load the environment configure. **If it still doesn't work, please restart your computer.**
- Checking

Press Win+R. Type cmd to enter the command prompt.

Then type the command below:

```
java --version  
javac --version
```

You will see one of two things. If the JDK / Java compiler is correctly installed, you should see a version number like so:

```
C:\Users\wangd\Desktop\test>java --version
openjdk 17.0.2 2022-01-18
OpenJDK Runtime Environment (build 17.0.2+8-86)
OpenJDK 64-Bit Server VM (build 17.0.2+8-86, mixed mode, sharing)

C:\Users\wangd\Desktop\test>javac --version
javac 17.0.2
```

However, if the JDK isn't installed or the environment variables are not properly configured, then you'll see an error like so:

```
C:\Users\18716>java -version
'java' 不是内部或外部命令，也不是可运行的程序
或批处理文件。
C:\Users\18716>javac -version
'javac' 不是内部或外部命令，也不是可运行的程序
或批处理文件。
```

4. Editor

A simple editor **Notepad++** is recommended for beginners (For windows system user). For Mac users, **Visual Studio Code** is a good option.

Download Notepad++: <https://notepad-plus-plus.org/>

Download Visual Studio Code: <https://code.visualstudio.com/>

Or, you can simply use any text editor (the source code of Java programs is just a sequence of characters), for example **notepad** on windows and **TextEdit** on Mac.

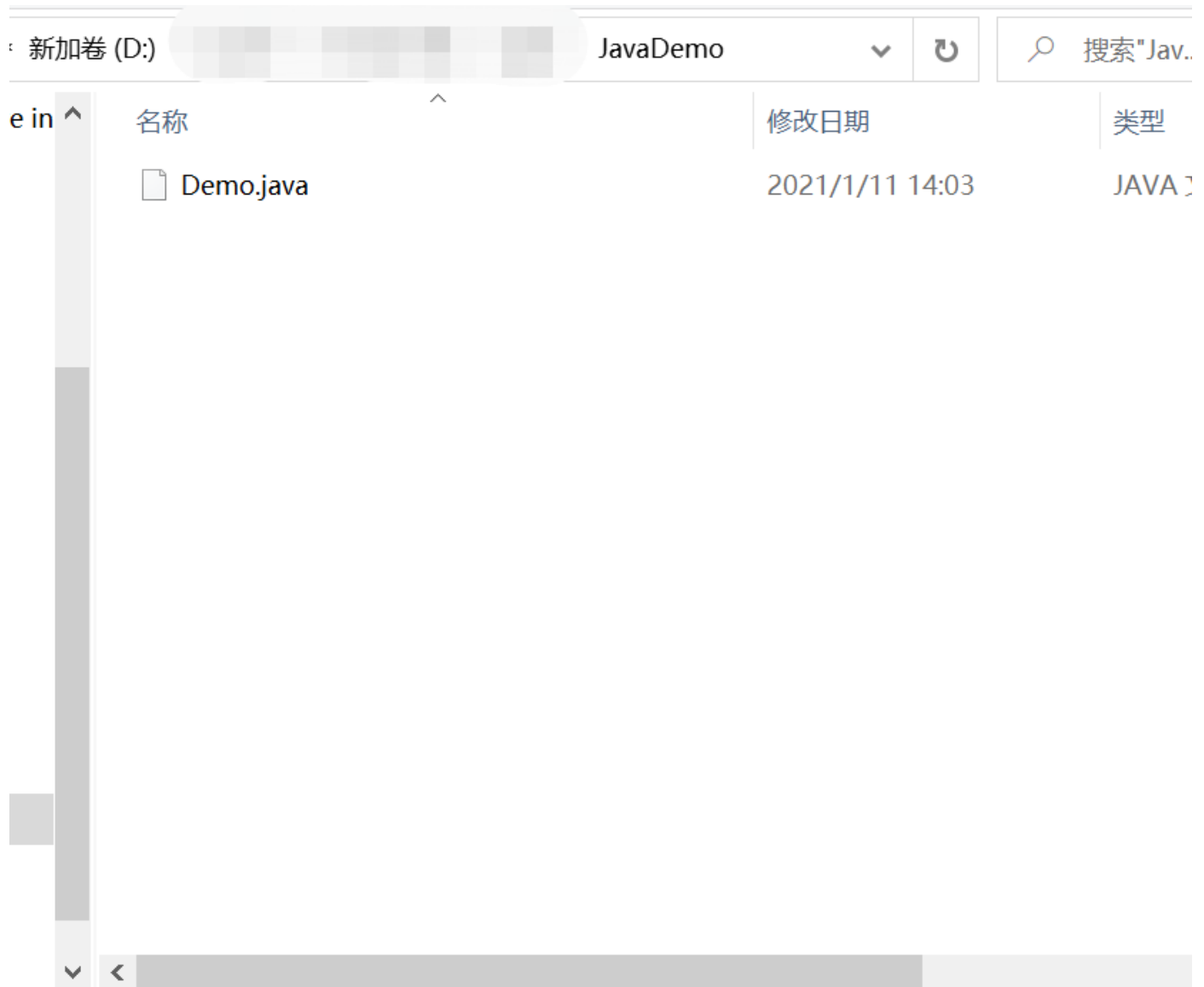
Exercise

Compile a Java Program in Command line

- Open txt file and create a new text file and type the following code.

```
public class Demo {
    public static void main(String[] args) {
        System.out.println("Hello, world!");
    }
}
```

- Using the “save as” command in the “File” menu to save the file with the name `Demo.java`. Note that the .java file name has to be **the same as** the main Class name in your program.



- Open the `cmd` program; in the `cmd` window, use `cd` command to go to the directory where you save your `Demo.java`; use `javac` command to compile your “.java” file; use `java` command to execute the .class file (which must have a main function). The procedure is as follows

```
D:\JavaDemo>javac Demo.java
```

```
D:\JavaDemo>java Demo
```

```
Hello, world!
```

Also, you may notice that a new file **Demo.class** has been produced. This file works when we run the command in cmd. The `java Demo` command still works inspite you delete the **Demo.java** file. However, it is not readable because it is a binary file.

Other Basic CMD:

- Change to d driver:

```
d:
```

- go into sub folder `xxx`:

```
cd xxx
```

- go into root folder:

```
cd /
```

- go into super folder:

```
cd ..
```

- find all files in current folder:

```
dir
```

In this lab, you are using an editor and the compiler separately. There are software products (e.g. Eclipse, NetBeans, IDEA) that could link them up and facilitate your work. In this semester, you are recommended to use IDEA. You can download the community version at the following link:

<https://www.jetbrains.com/idea/download/>

More detailed introductions of how to use IDEA will be introduced in future labs