

实验一 SparrowRecSys 推荐系统安装与初步研究

2023 级网络空间安全

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作业 1: 运行麻雀系统，完成安装实验报告

作业要求:

请根据教程，安装麻雀推荐系统，并且完成实验报告。

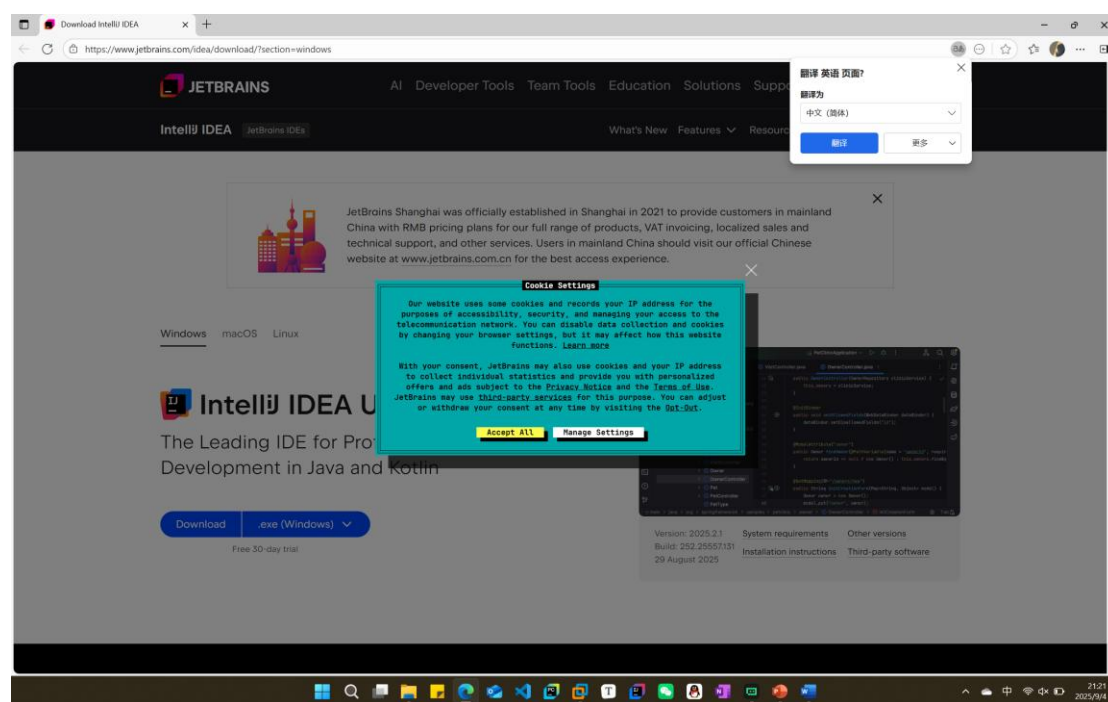
把安装过程和安装结果记录下来写在实验报告里面。

实验报告可以使用 md 文件格式，也可以使用 docx、pdf 等格式。

一、逐步安装麻雀推荐系统步骤: SparrowRecSys 配置及运行

1、IDEA 下载

去往课件给出的网址 <https://www.jetbrains.com/idea/download/?section=windows> 完成 idea 的下载



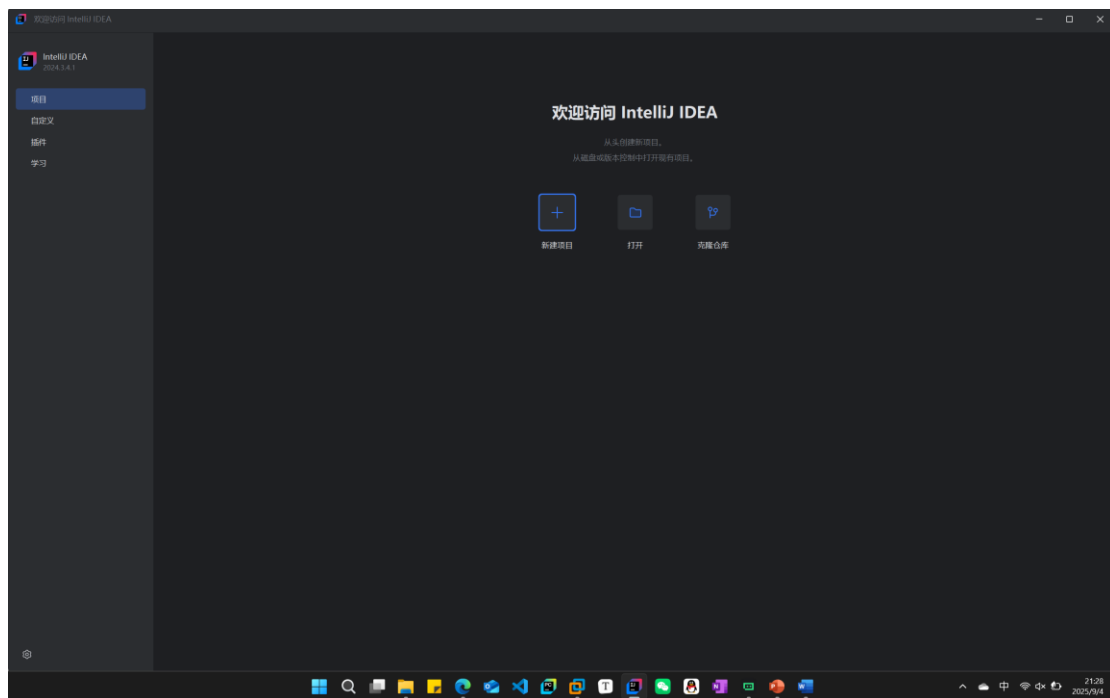
 **IntelliJ IDEA Ultimate**

The Leading IDE for Professional
Development in Java and Kotlin



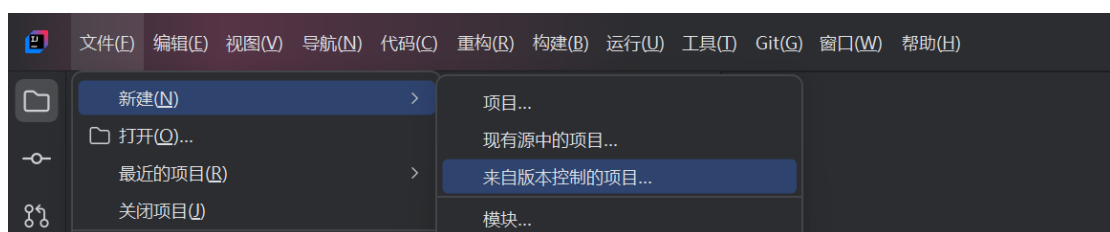
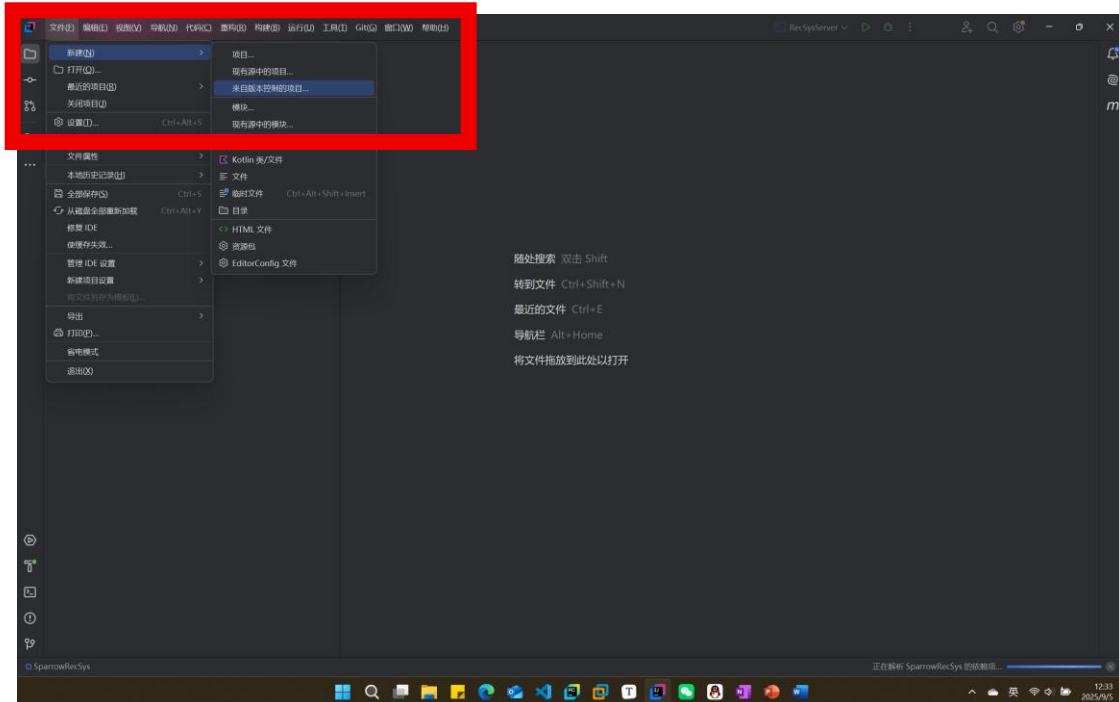
IntelliJ IDEA Ultimate 是收费软件，决定使用不收费的社区版的 IntelliJ IDEA 软件

社区版 IntelliJ IDEA 在上个学期（即 2425 春季学期）的 Java 上机课程中已经完成安装



2、导入 Git 项目

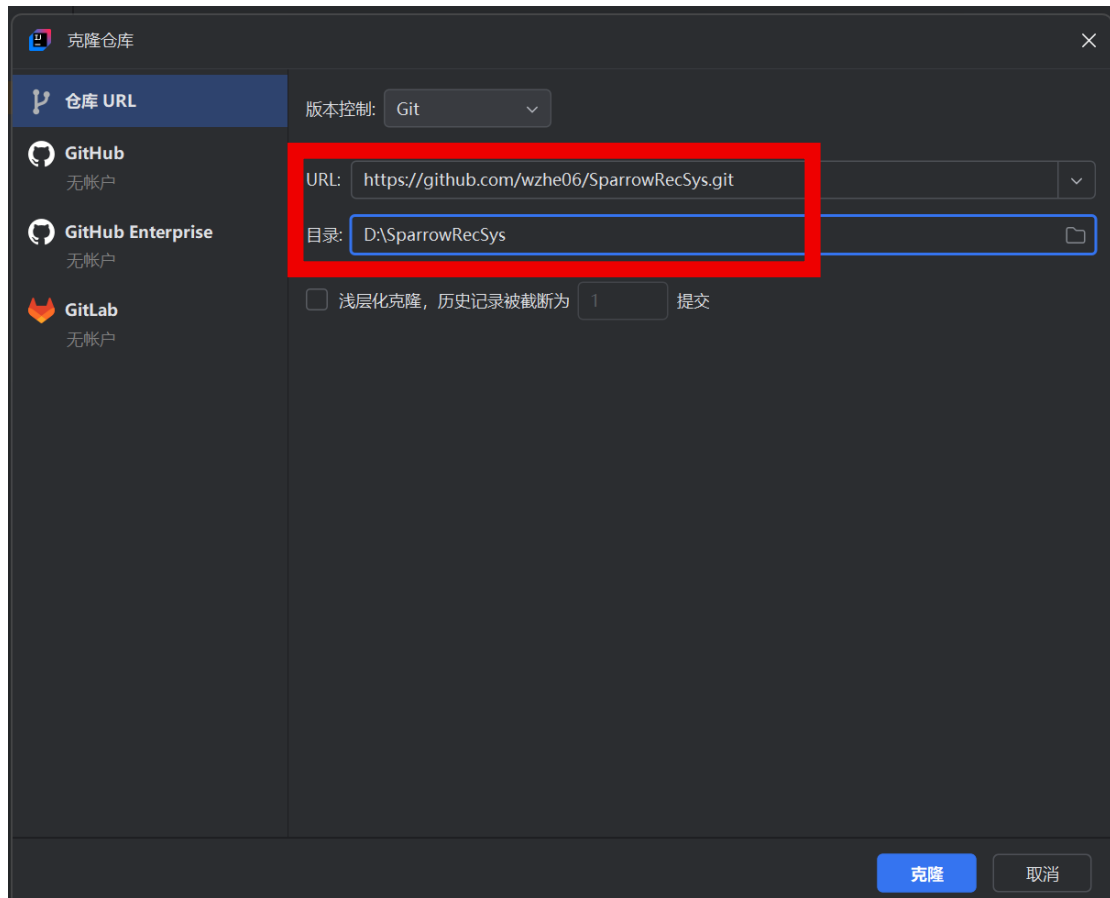
(1) 点击【File】-【New】-【Project from Version Control】



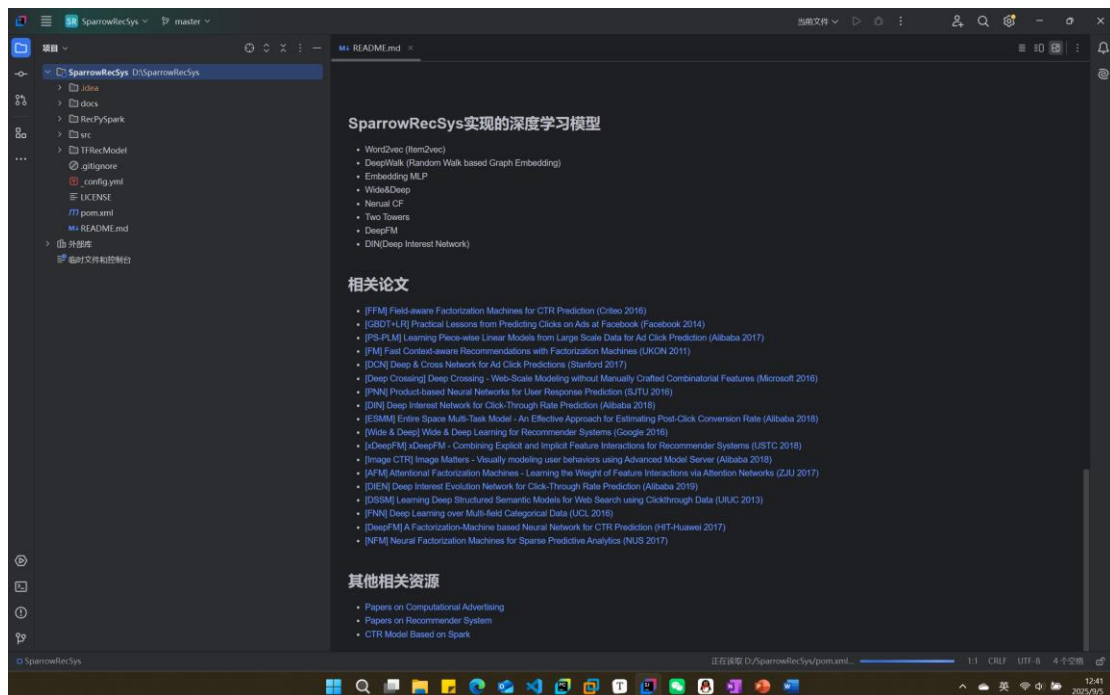
(2) 设置 git 链接和本地路径

Git 链接: <https://github.com/wzhe06/SparrowRecSys.git>

本地路径: "D:\SparrowRecSys"

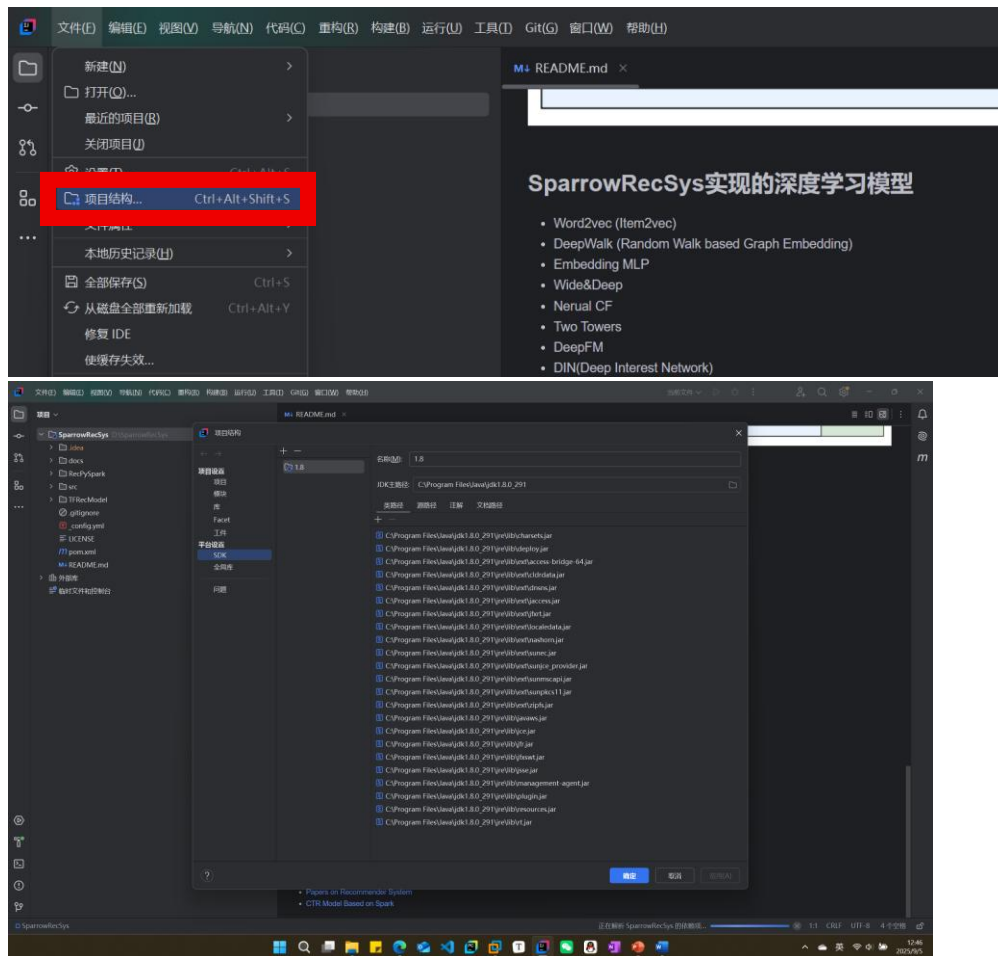


成功导入 SparrowRecSys 项目

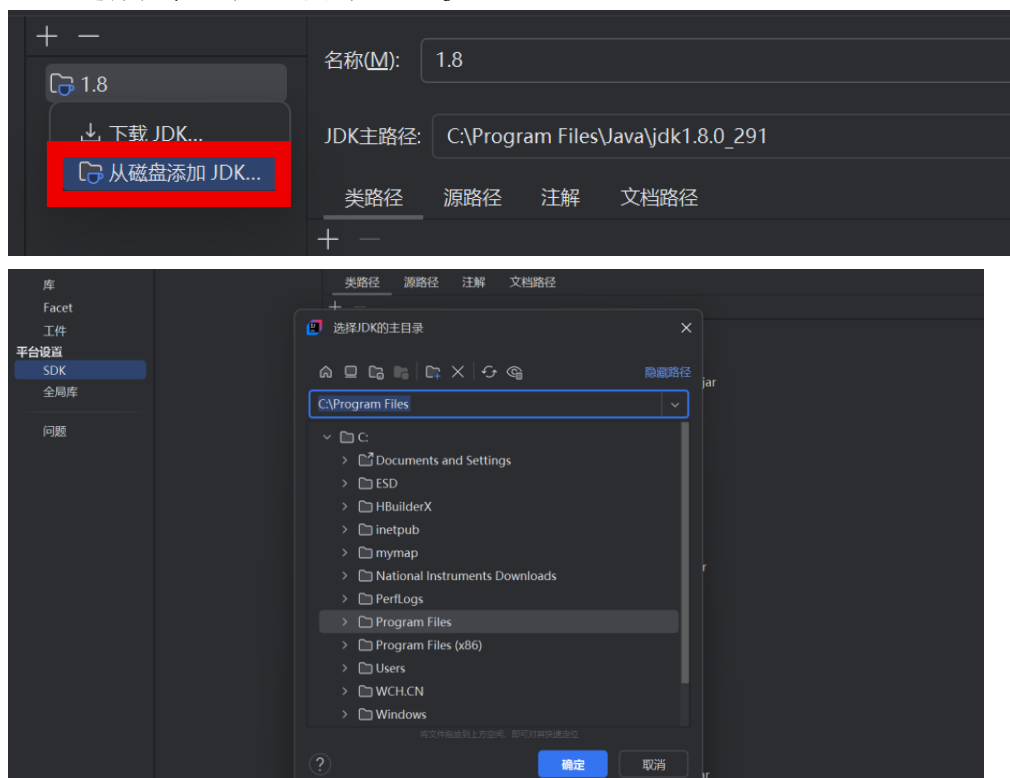


3、配置项目所用的 JDK

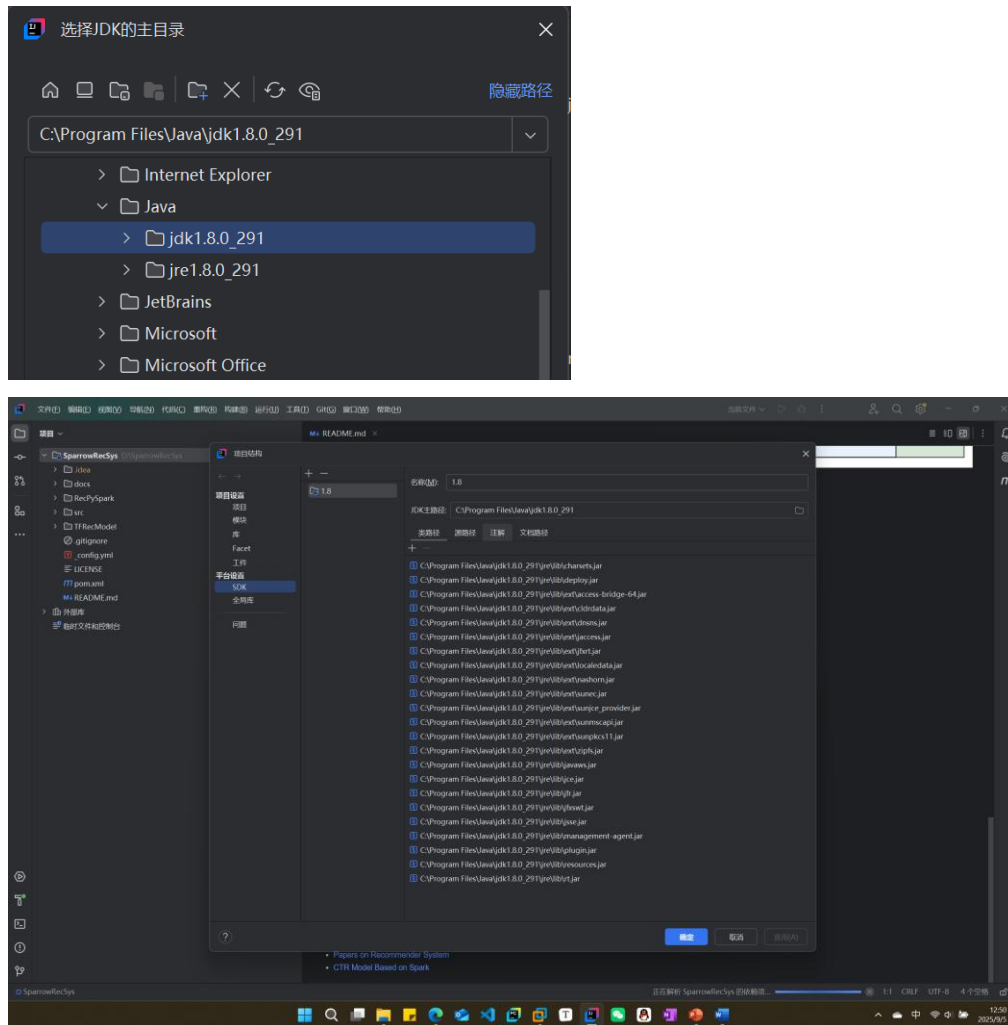
(1) 点击【File】-【Project Structure】-【SDKs】



(2) 选择从本地导入：点击【Add JDK from disk】

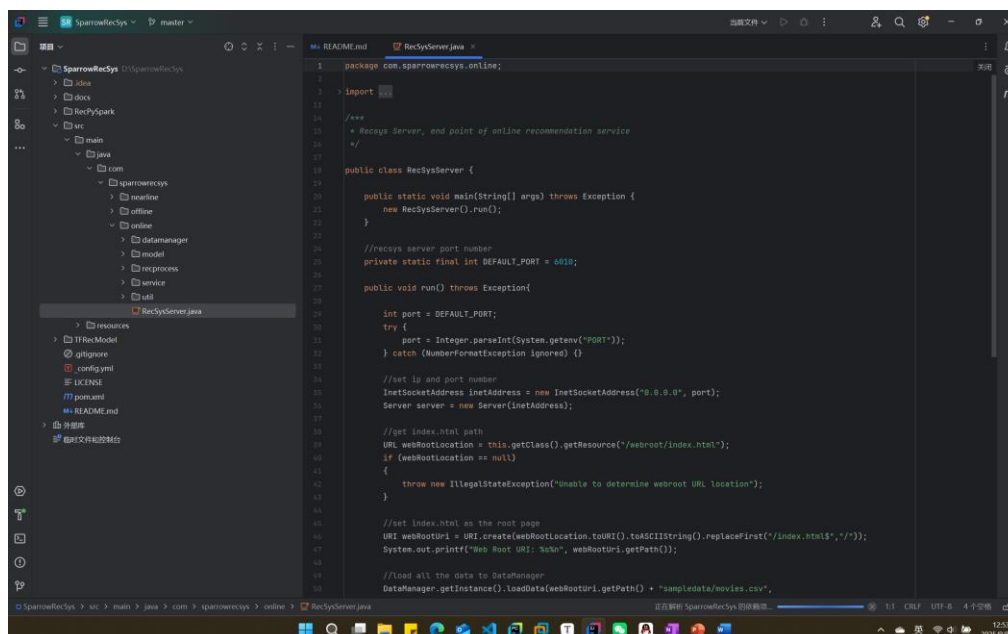


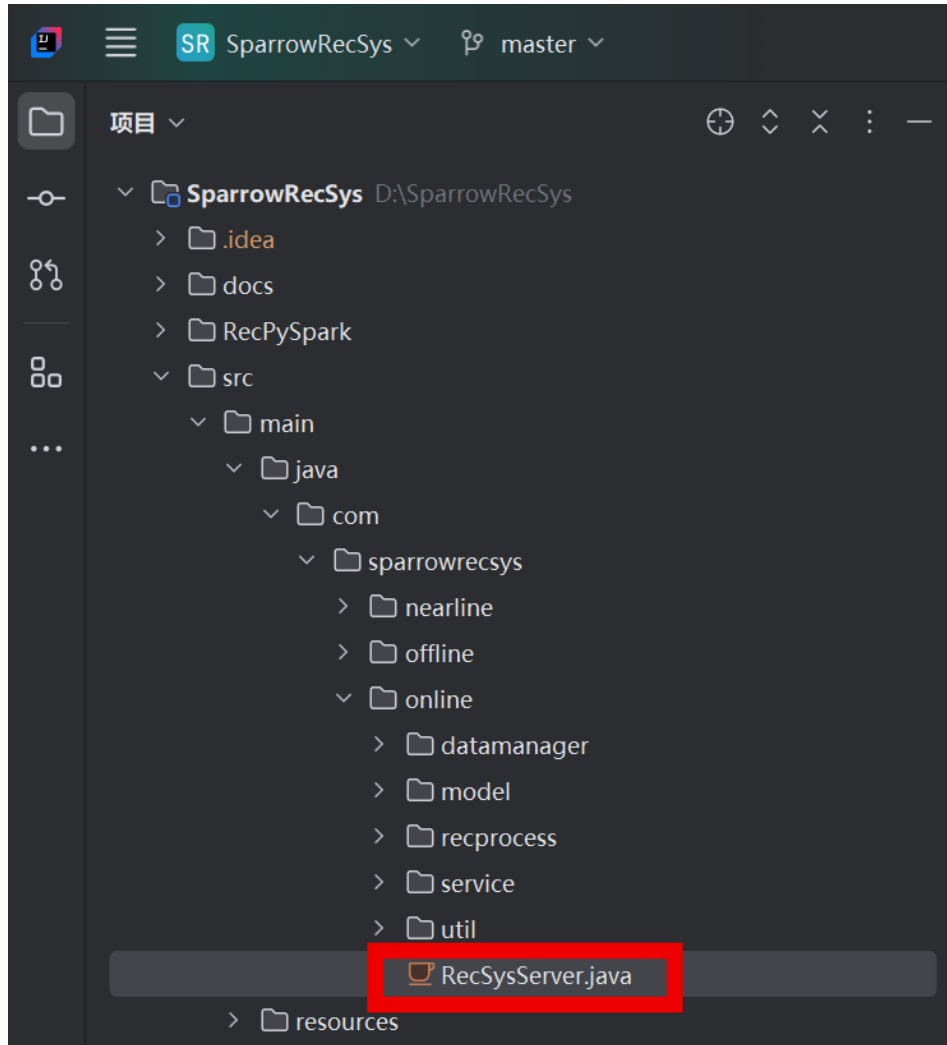
(3) 找到 Java 安装路径



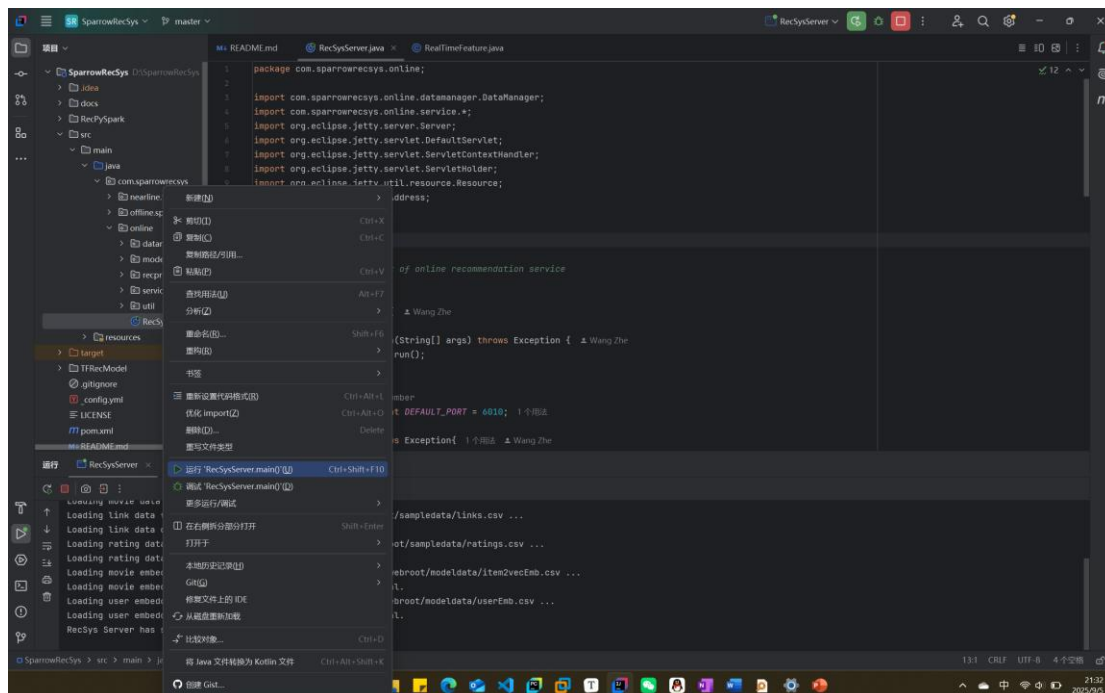
4、运行项目

(1) 在【src】-【main】-【java】-【com.sparrowrecsys】-【online】目录下找到 RecSysServer 文件

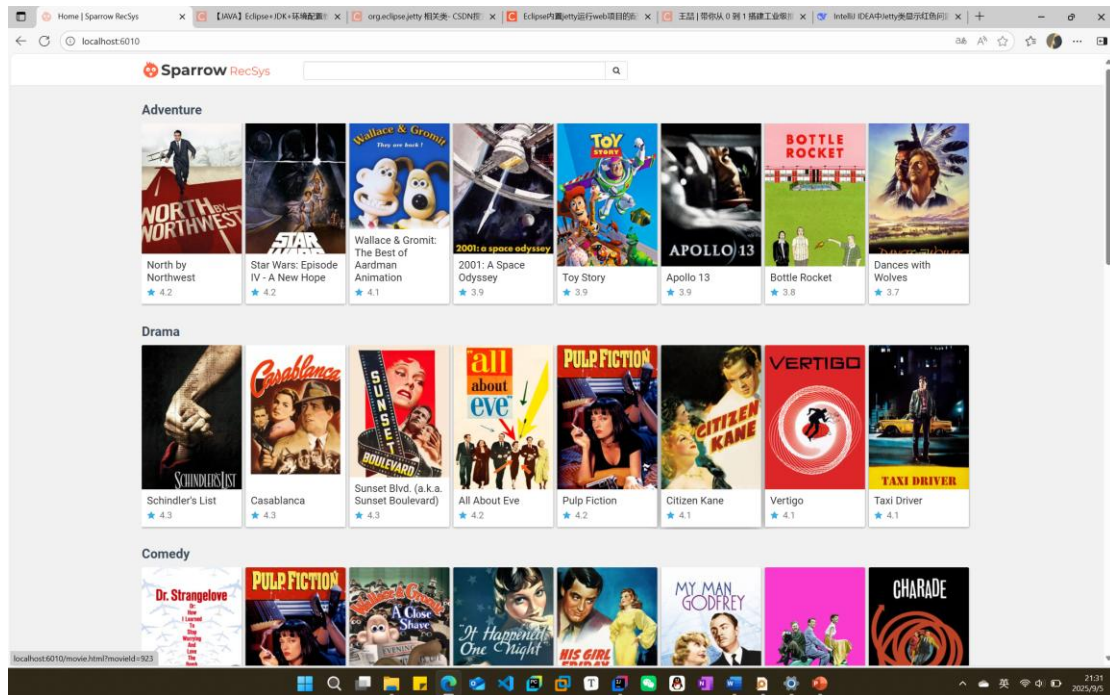




(2) 右键选择【Run 'RecSysServer.main()'】运行服务



(3) 在浏览器中输入`http://localhost:6010/` 即可访问项目前端



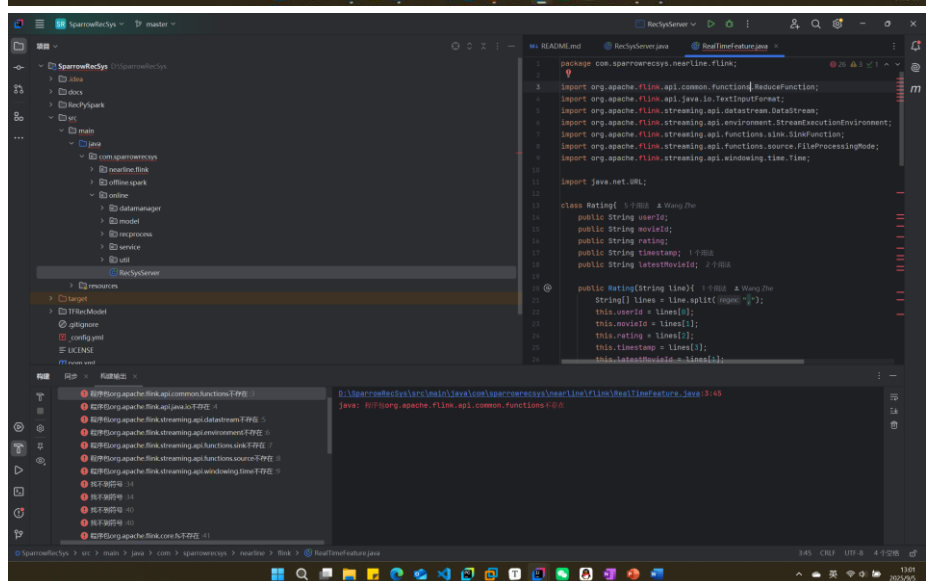
1、在 run 步骤出现无法解析的情况

```

1 package com.sparrowecsys.online;
2
3 import com.sparrowecsys.online.datamanager.DataManager;
4 import com.sparrowecsys.online.service.*;
5 import org.eclipse.jetty.server.Server;
6 import org.eclipse.jetty.servlet.DefaultServlet;
7 import org.eclipse.jetty.servlet.handler;
8 import org.eclipse.jetty.servlet.handler.DefaultServletHandler;
9 import org.eclipse.jetty.servlet.handler.DefaultServletHandler;
10 import org.eclipse.jetty.servlet.handler.DefaultServletHandler;
11 import org.eclipse.jetty.servlet.handler.DefaultServletHandler;
12 import org.eclipse.jetty.servlet.handler.DefaultServletHandler;
13
14 //...
15
16 * RecSysServer, server and point of online recommendation service
17 */
18
19 public class RecSysServer {
20     //...
21
22     public static void main(String[] args) throws Exception {
23         //...
24         new RecSysServer().run();
25     }
26
27     //...
28
29     private static final int DEFAULT_PORT = 8080;
30
31     public void run() throws Exception {
32         //...
33         int port = DEFAULT_PORT;
34         try {
35             port = Integer.parseInt(System.getenv("PORT"));
36         } catch (NumberFormatException ignored) {}
37
38         //...
39
40         //set ip and port number
41         InetAddress inetAddress = new InetAddress("0.0.0.0", port);
42         Server server = new Server(inetAddress);
43
44         //...
45
46         //get index.html path
47         URL webRootLocation = this.getClass().getResource("/webroot/index.html");
48         if (webRootLocation == null) {
49             //...
50         }
51     }
52 }

```

```
18 public class RecSysServer { & WangZhe
19
20     public void run() throws Exception { & WangZhe
21
22         System.out.println("New Host URI: " + hostUri, webHostUri.getPath());
23
24         //load all the data to DataManager
25         DataManager.getInstance().loadData(movieHostUri, webHostUri.getPath() + "sampledata/movies.csv",
26             webHostUri, webHostUri.getPath() + "sampledata/ratings.csv", webHostUri, webHostUri.getPath() + "sampledata/ratings.csv",
27             movieHostUri, webHostUri.getPath() + "sampledata/movieinfo.csv",
28             webHostUri, webHostUri.getPath() + "sampledata/userinfo.csv",
29             movieHostUri, webHostUri.getPath() + "sampledata/iteminfo.csv");
30
31         //create server context
32         ServletContextHandler context = new ServletContextHandler();
33         context.setContextPath("/");
34         context.setResources(new Resource[]{webHostUri});
35         context.setWelcomeFile(new String[] { "index.html" });
36         context.setInitParameter("adminMapping", "txt", "text/plain;charset=utf-8");
37
38         //bind services with different servlets
39         context.addServlet(DefaultServlet.class, "/");
40         context.addServlet(new ServletHolder(new MovieService()), "/getmovie");
41         context.addServlet(new ServletHolder(new UserService()), "/getuser");
42         context.addServlet(new ServletHolder(new SimilarService()), "/getsimilar");
43         context.addServlet(new ServletHolder(new RecommendationService()), "/getrecommendation");
44         context.addServlet(new ServletHolder(new RecommendationService()), "/getrecommendation");
45
46         //set url handler
47         server.setHandler(context);
48         System.out.println("RecSys Server has started.");
49
50         //start server
51         server.start();
52         server.join();
53     }
54 }
```

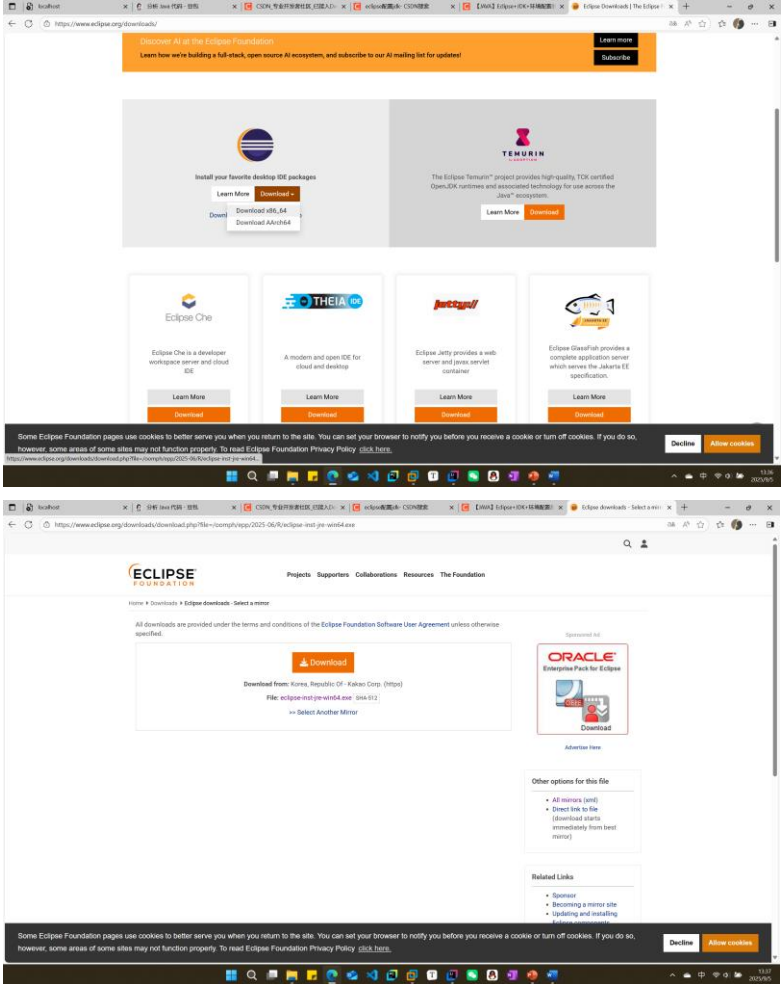


解决方法 1:

下载安装配置 eclipse

参考的 csdn 帖子: [【JAVA】Eclipse+JDK+环境配置教程（图片步骤教程） eclipse 配置 jdk-CSDN 博客](#)

(1) 下载安装 eclipse

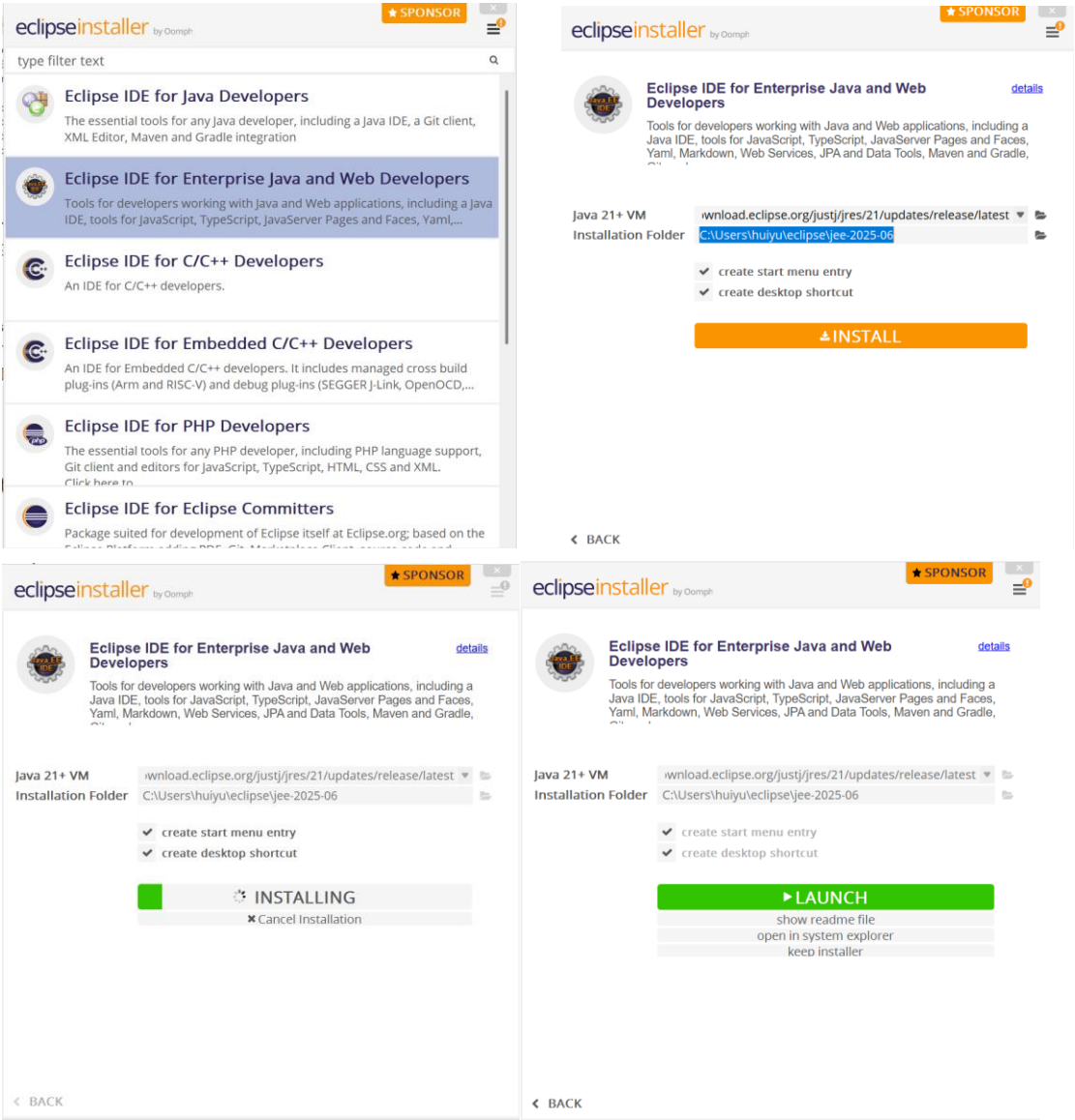


切换为阿里云的下载镜像

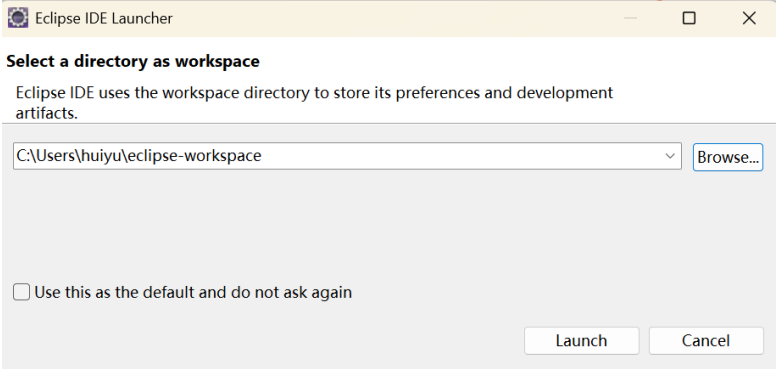
所有下载均根据 Eclipse 基金会的条款和条件提供 除非另有规定, 否则软件用户协议。



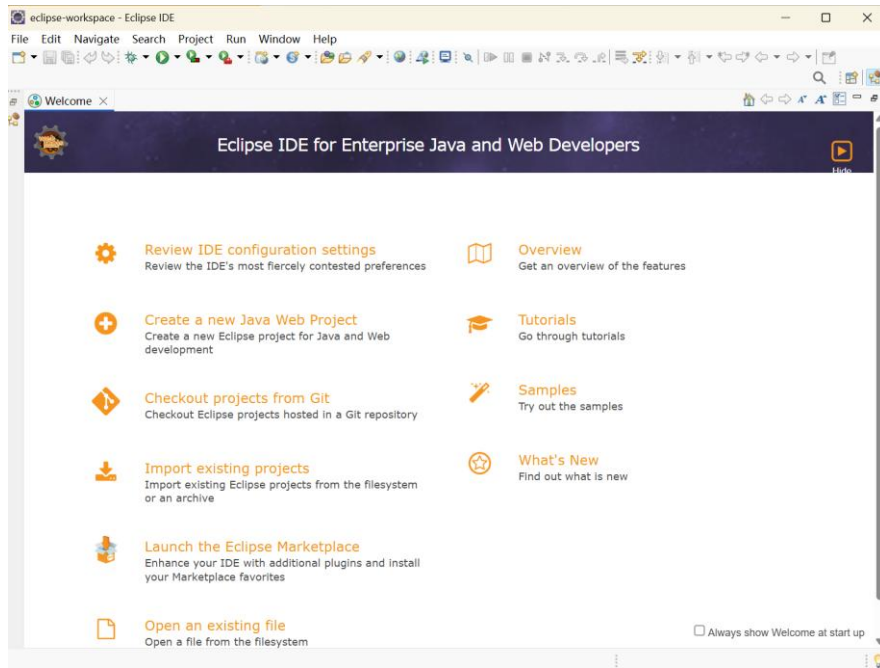
根据步骤指引安装程序



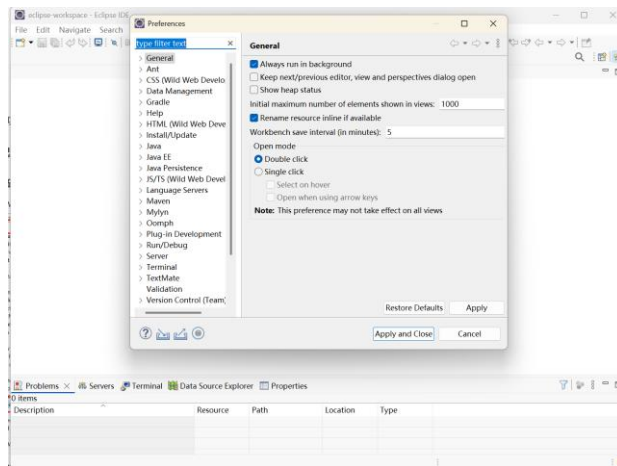
完成安装



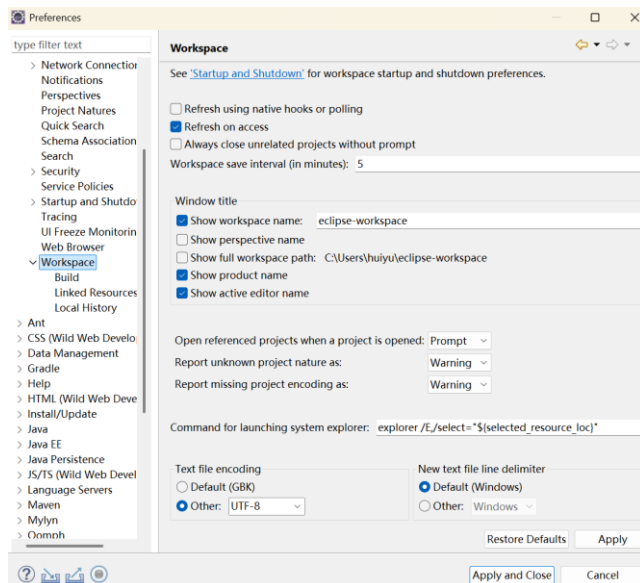
选定工作空间



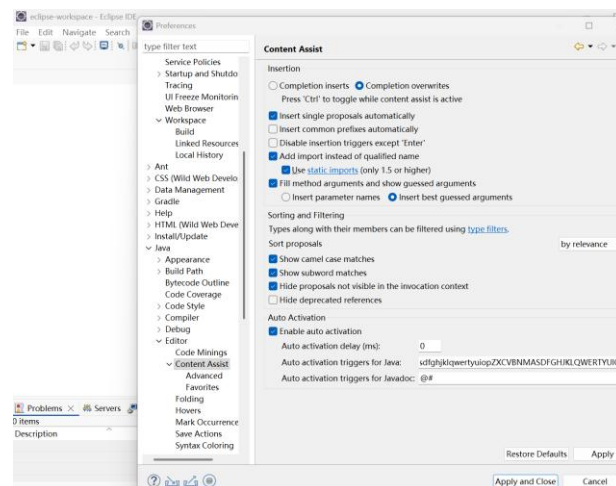
(2) 基础配置



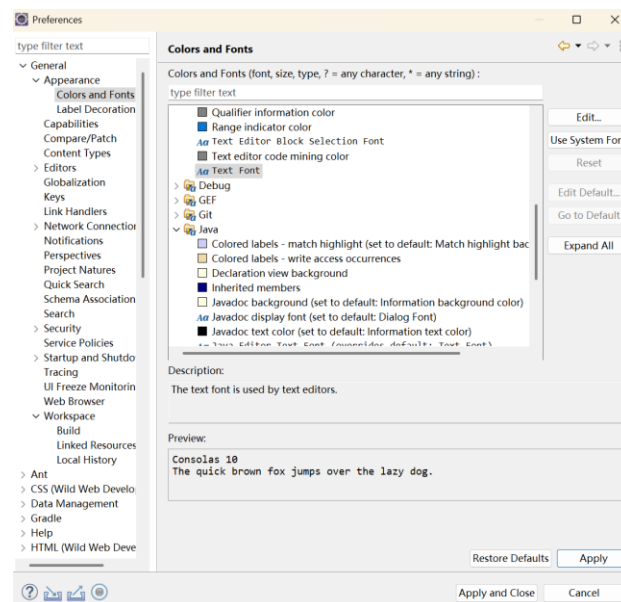
设置编码格式



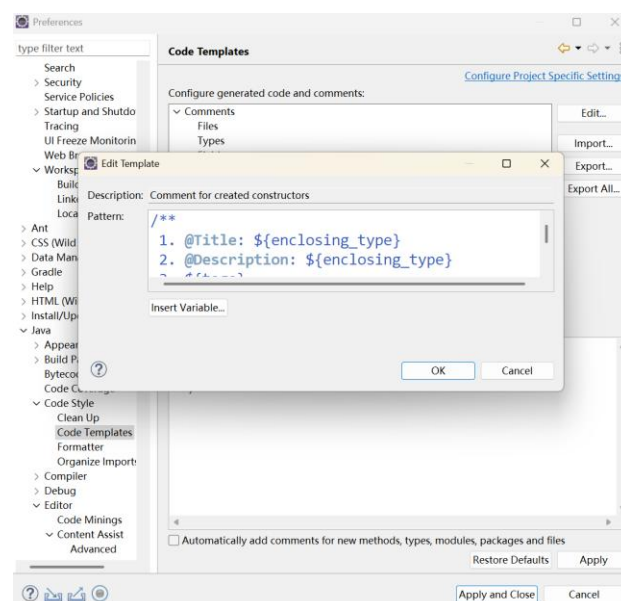
设置自动补充代码



设置字体字号

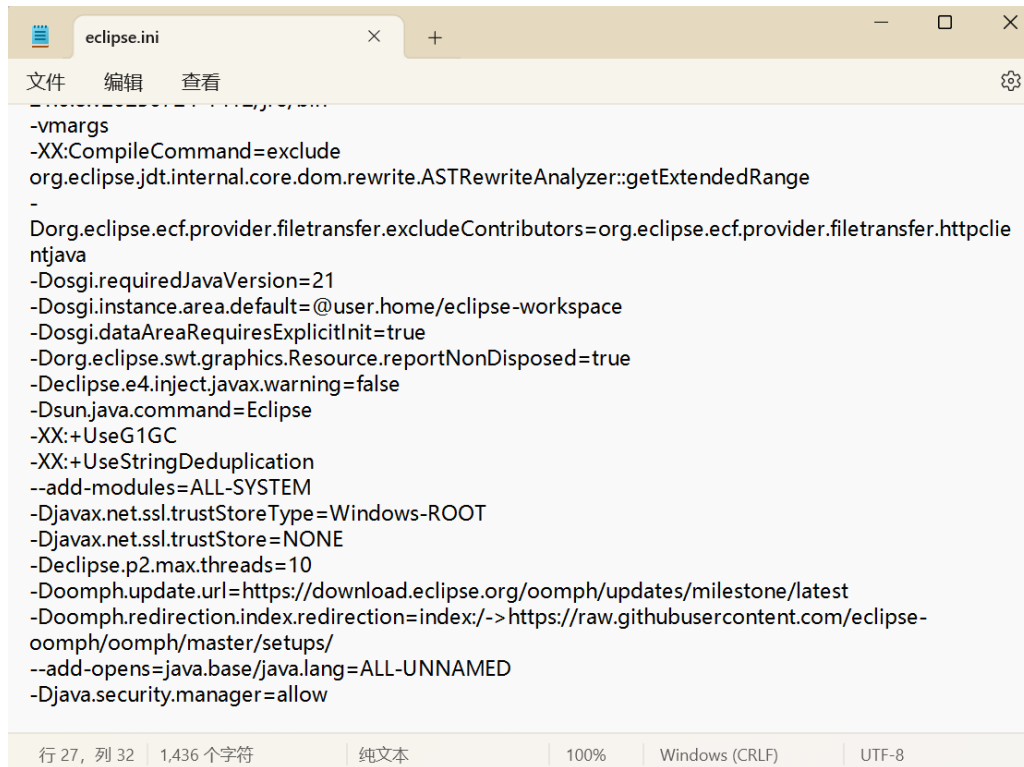


自动注释



(3) 下载 JDK

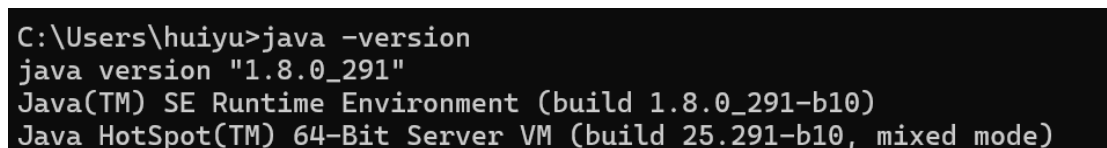
检查 Eclipse 对应的 JDK 版本号 JDKVersion=21



The screenshot shows the content of the eclipse.ini file in a text editor. The file contains various JVM and Eclipse-specific configuration options. The relevant line for the JDK version is -Djre.version=21.

```
-vmargs
-XX:CompileCommand=exclude
org.eclipse.jdt.internal.core.dom.rewrite.ASTRewriteAnalyzer::getExtendedRange
-
Dorg.eclipse.ecf.provider.filetransfer.excludeContributors=org.eclipse.ecf.provider.filetransfer.httpclie
ntjava
-Dosgi.requiredJavaVersion=21
-Dosgi.instance.area.default=@user.home/eclipse-workspace
-Dosgi.dataAreaRequiresExplicitInit=true
-Dorg.eclipse.swt.graphics.Resource.reportNonDisposed=true
-Declipse.e4.inject.javafx.warning=false
-Dsun.java.command=Eclipse
-XX:+UseG1GC
-XX:+UseStringDeduplication
--add-modules=ALL-SYSTEM
-Djavax.net.ssl.trustStoreType=Windows-ROOT
-Djavax.net.ssl.trustStore=NONE
-Declipse.p2.max.threads=10
-Doomph.update.url=https://download.eclipse.org/oomph/updates/milestone/latest
-Doomph.redirection.index.redirection=index:->https://raw.githubusercontent.com/eclipse-
oomph/oomph/master/setups/
--add-opens=java.base/java.lang=ALL-UNNAMED
-Djava.security.manager=allow
```

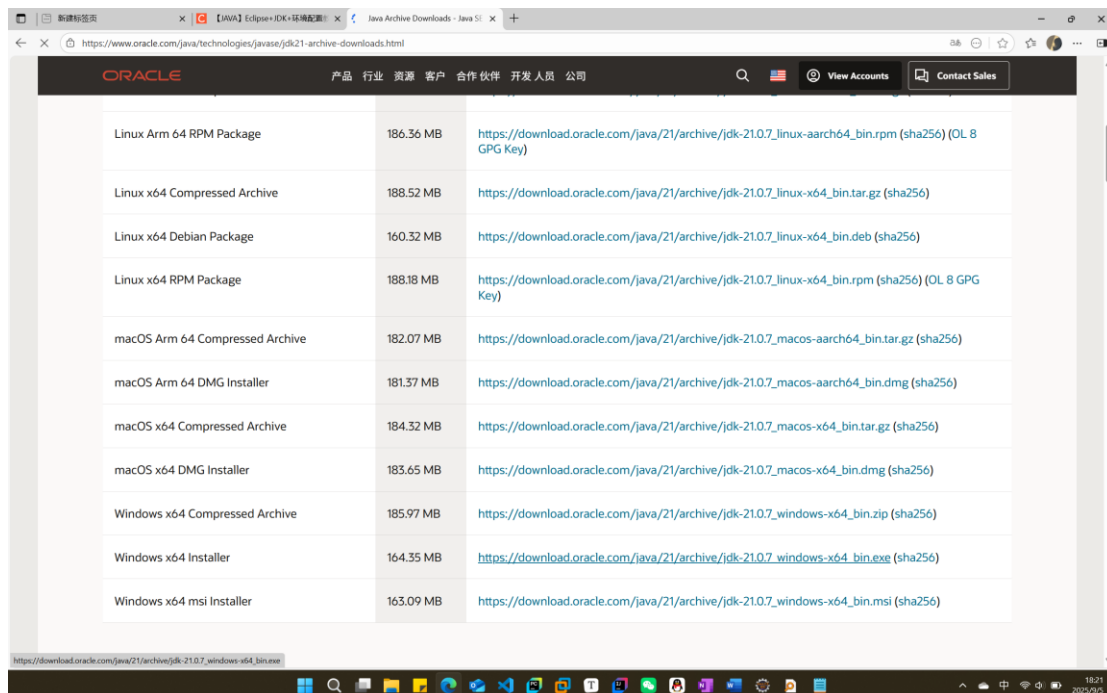
检查 Eclipse 对应的位数 64 位



The screenshot shows the output of the 'java -version' command in a Windows command prompt. It indicates that the Java SE Runtime Environment is build 1.8.0_291-b10 and the Java HotSpot(TM) 64-Bit Server VM is build 25.291-b10, mixed mode.

```
C:\Users\huiyu>java -version
java version "1.8.0_291"
Java(TM) SE Runtime Environment (build 1.8.0_291-b10)
Java HotSpot(TM) 64-Bit Server VM (build 25.291-b10, mixed mode)
```

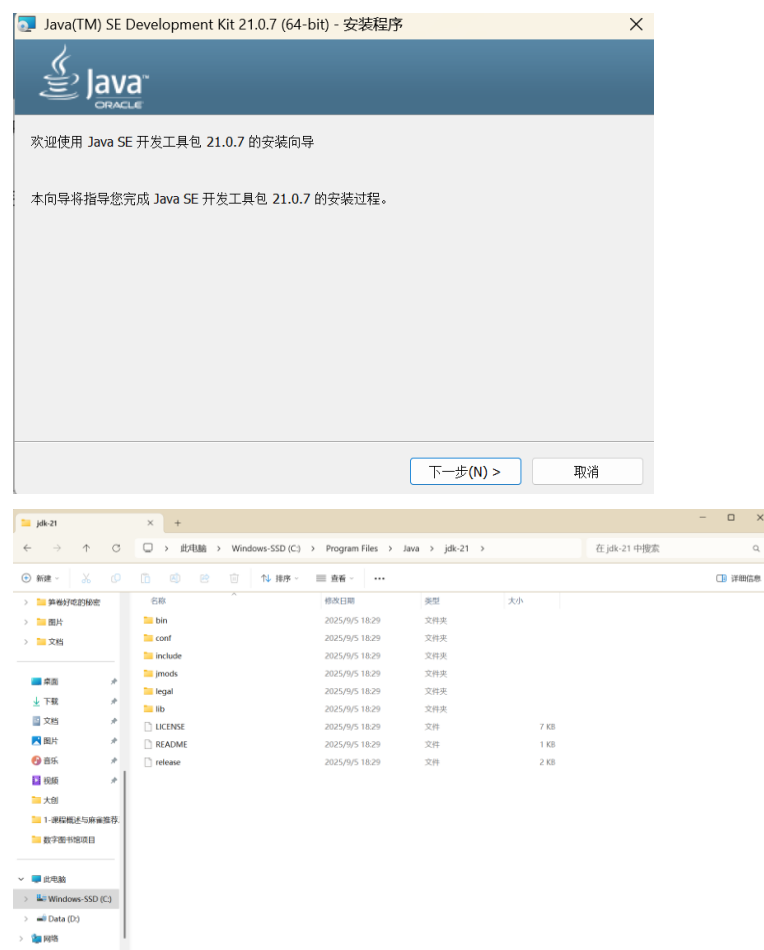
下载 JDK



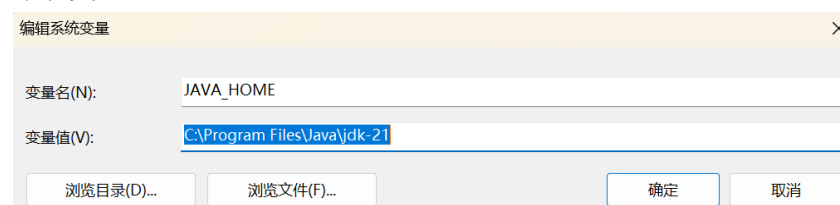
The screenshot shows the Oracle Java Downloads page for JDK 21. The page lists various download options for different operating systems and architectures. The table below summarizes the available download links and their sizes.

Operating System / Architecture	Package Type	Size	Download Link
Linux Arm 64	RPM Package	186.36 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_linux-aarch64_bin.rpm (sha256) (OL 8 GPG Key)
Linux x64	Compressed Archive	188.52 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_linux-x64_bin.tar.gz (sha256)
Linux x64	Debian Package	160.32 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_linux-x64_bin.deb (sha256)
Linux x64	RPM Package	188.18 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_linux-x64_bin.rpm (sha256) (OL 8 GPG Key)
macOS Arm 64	Compressed Archive	182.07 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_macos-aarch64_bin.tar.gz (sha256)
macOS Arm 64	DMG Installer	181.37 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_macos-aarch64_bin.dmg (sha256)
macOS x64	Compressed Archive	184.32 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_macos-x64_bin.tar.gz (sha256)
macOS x64	DMG Installer	183.65 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_macos-x64_bin.dmg (sha256)
Windows x64	Compressed Archive	185.97 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_windows-x64_bin.zip (sha256)
Windows x64	Installer	164.35 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_windows-x64_bin.exe (sha256)
Windows x64	msi Installer	163.09 MB	https://download.oracle.com/java/21/archive/jdk-21.0.7_windows-x64_bin.msi (sha256)

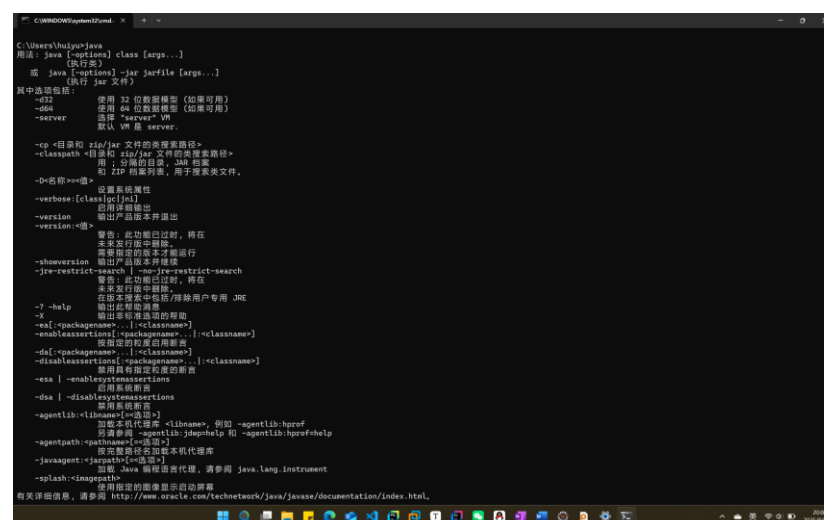
根据安装向导完成 JDK 安装



(4) 配置环境变量



命令行验证是否已经配置成功



```
C:\Users\huiyu>java -version
java version "1.8.0_291"
Java(TM) SE Runtime Environment (build 1.8.0_291-b10)
Java HotSpot(TM) 64-Bit Server VM (build 25.291-b10, mixed mode)
```

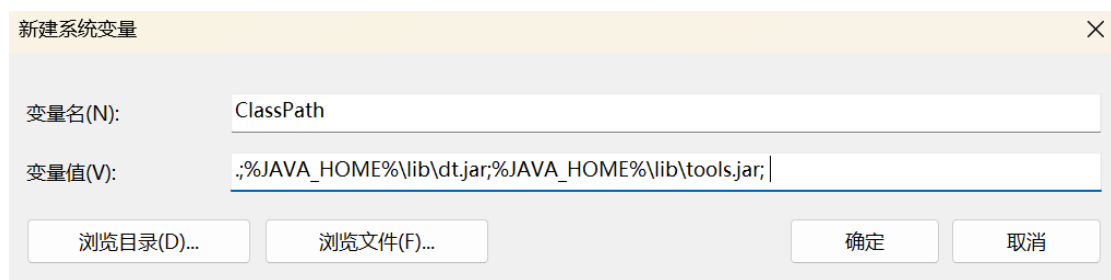
(5) 生成 JRE

一开始不是以管理员身份运行的命令终端，输入 `bin\jlink.exe --module-path jmods --add-modules java.desktop --output jre` 一直出现报错，查询后发现是因为权限不够导致

```
C:\Program Files\Java\jdk-21>bin\jlink.exe --module-path jmods --add-modules java.desktop --output jre
错误: C:\Program Files\Java\jdk-21\jre
```

```
C:\Windows\System32>cd C:\Program Files\Java\jdk-21
C:\Program Files\Java\jdk-21>bin\jlink.exe --module-path jmods --add-modules java.desktop --output jre
C:\Program Files\Java\jdk-21>
```

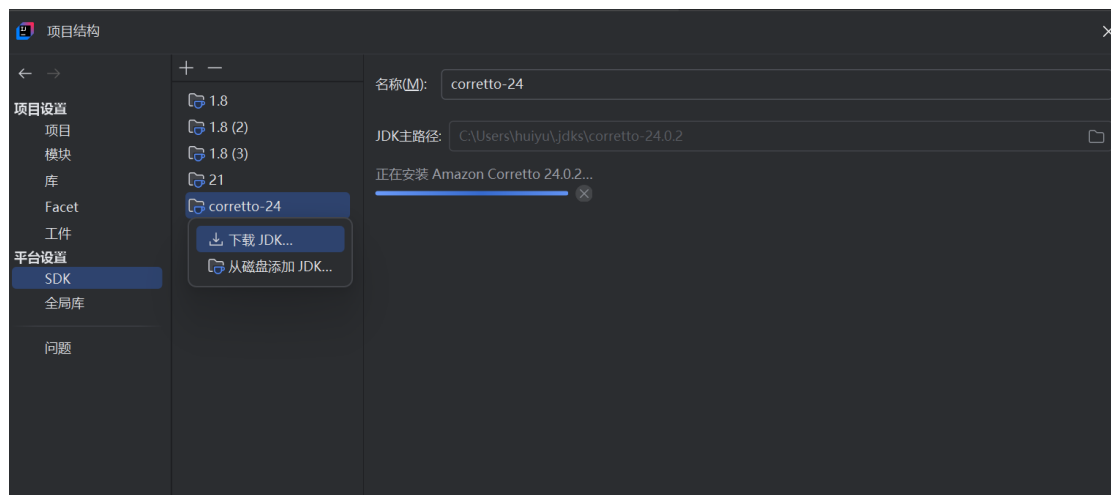
更新配置环境变量



Java 程序依旧不能运行

解决方法 2:

根据网络视频下载 JDK



JDK 下载失败了

解决方法 3:

更换 Maven 仓库镜像 由于访问 Maven 中央仓库 (`repo.maven.apache.org`) 通常很慢且不稳定，更换为国内镜像可以极大改善下载速度。

更换镜像步骤:

(1) 找到 Maven 的 `settings.xml` 文件。

通常在 `C:\Users\<你的用户名>\.m2\settings.xml` (Windows) 或 `/Users/<你的用户`

名>/.m2/settings.xml (Mac)。

如果不存在，可以从 Maven 安装目录的 conf/ 文件夹下复制一份到上述位置。

(2) 用文本编辑器（如 Notepad++、VSCode）打开 settings.xml 文件。

(3) 在 <mirrors> 标签内添加阿里云镜像配置：

```
<settings>
...
<mirrors>
  <!-- 其他镜像配置可以注释掉或保留 -->
  <mirror>
    <id>aliyunmaven</id>
    <mirrorOf>*</mirrorOf>
    <name>阿里云公共仓库</name>
    <url>https://maven.aliyun.com/repository/public</url>
  </mirror>
</mirrors>
...
</settings>
```

(4) 保存文件。

(5) 回到 IntelliJ IDEA，务必重启 IDEA（完全关闭再打开）。

(6) 重启后，再次点击 Maven 工具栏的刷新按钮（Reimport All Maven Projects）。

按照此步骤重新更新仓库镜像可以成功运行推荐系统的程序