

熟悉Java的开发环境

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实验内容

•Windows下Java的安装

- JDK安装
- 环境变量的设置
- 为什么要设置环境变量
- 编译并运行

•Linux下Java的安装

•Mac下Java的安装

•常用的IDE

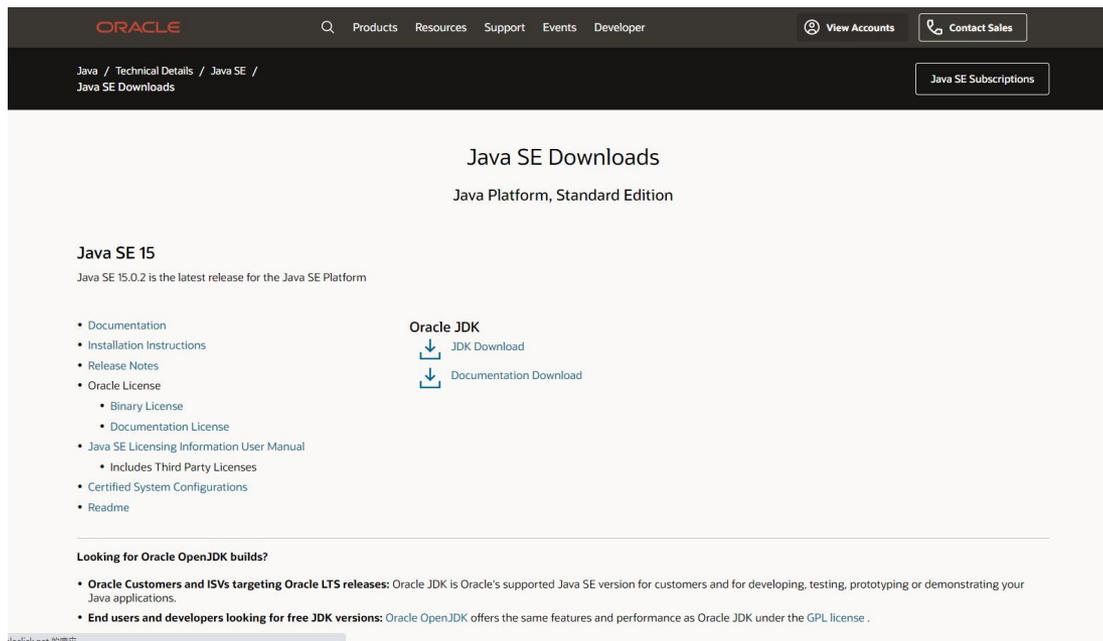
•javac/java+文本编辑器和IDE模式比较

Windows下Java的安装

JDK安装

1. 进入jdk官方下载页面

<https://www.oracle.com/technetwork/java/javase/downloads/index.html>



JDK 安装

2. 可以看到Java SE Development下载, jdk (Java Development Kit) = jre (Java Runtime Environment) + java的开发工具[java, javac等]

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Java SE Development Kit 8 Downloads

Thank you for downloading this release of the Java™ Platform, Standard Edition Development Kit (JDK™). The JDK is a development environment for building applications, applets, and components using the Java programming language.

The JDK includes tools useful for developing and testing programs written in the Java programming language and running on the Java platform.

Important Oracle JDK License Update

The Oracle JDK License has changed for releases starting April 16, 2019.

The new [Oracle Technology Network License Agreement for Oracle Java SE](#) is substantially different from prior Oracle JDK licenses. The new license permits certain uses, such as personal use and development use, at no cost -- but other uses authorized under prior Oracle JDK licenses may no longer be available. Please review the terms carefully before downloading and using this product. An FAQ is available [here](#).

Commercial license and support is available with a low cost [Java SE Subscription](#).

Oracle also provides the latest OpenJDK release under the open source [GPL License](#) at [jdk.java.net](#).

See also:

[Java Developer Newsletter](#): From your Oracle account, select **Subscriptions**, expand **Technology**, and subscribe to **Java**.

[Java Developer Day hands-on workshops \(free\)](#) and other events

[Java Magazine](#)

JDK 安装

3. 选择相应的Windows版进行下载，其中有x86版和x64版。若机器是32位的选择x86，若是64位的选择x64版。在下载前要把Accept License Agreement进行勾选。

Linux x86 RPM Package	100.40 MB	jdk-8u281-linux-i586.rpm
Linux x86 Compressed Archive	136.95 MB	jdk-8u281-linux-i586.tar.gz
Linux x64 RPM Package	108.06 MB	jdk-8u281-linux-x64.rpm
Linux x64 Compressed Archive	137.06 MB	jdk-8u281-linux-x64.tar.gz
macOS x64	205.26 MB	jdk-8u281-macosx-x64.dmg
Solaris SPARC 64-bit (SVR4 package)	125.96 MB	jdk-8u281-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	88.77 MB	jdk-8u281-solaris-sparcv9.tar.gz
Solaris x64 (SVR4 package)	134.68 MB	jdk-8u281-solaris-x64.tar.Z
Solaris x64	92.66 MB	jdk-8u281-solaris-x64.tar.gz
Windows x86	154.69 MB	jdk-8u281-windows-i586.exe
Windows x64	166.97 MB	jdk-8u281-windows-x64.exe

JDK 安装

4. 打开你所下载的jdk安装文件，根据指示，设置好安装路径（任意路径，但与之后的环境变量配置有关），进行安装。



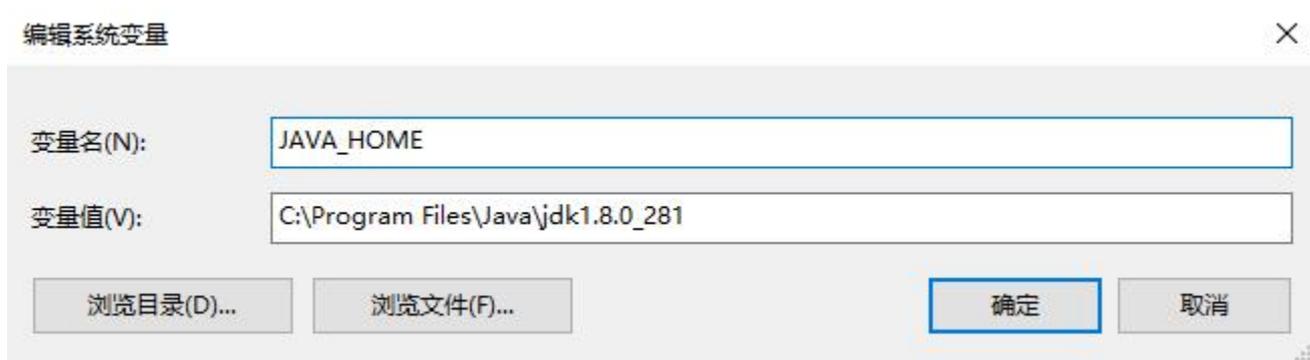
环境变量的设置

1. 这里以win10为例。在搜索栏搜索环境变量。



环境变量的设置

2. 在系统变量下，新建变量名为JAVA_HOME的变量，变量值为之前安装jdk的目录，如：

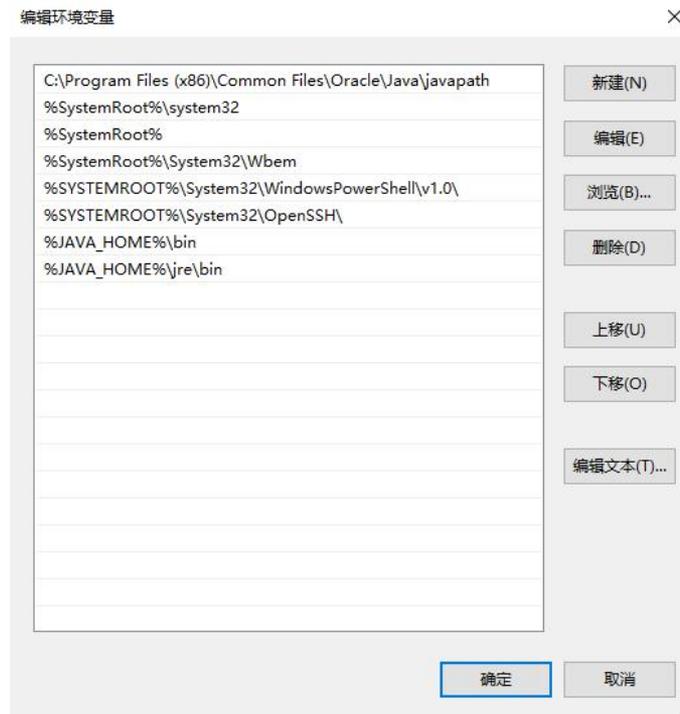


环境变量的设置

3. 还是还在系统变量下，找到path变量，进行编辑。

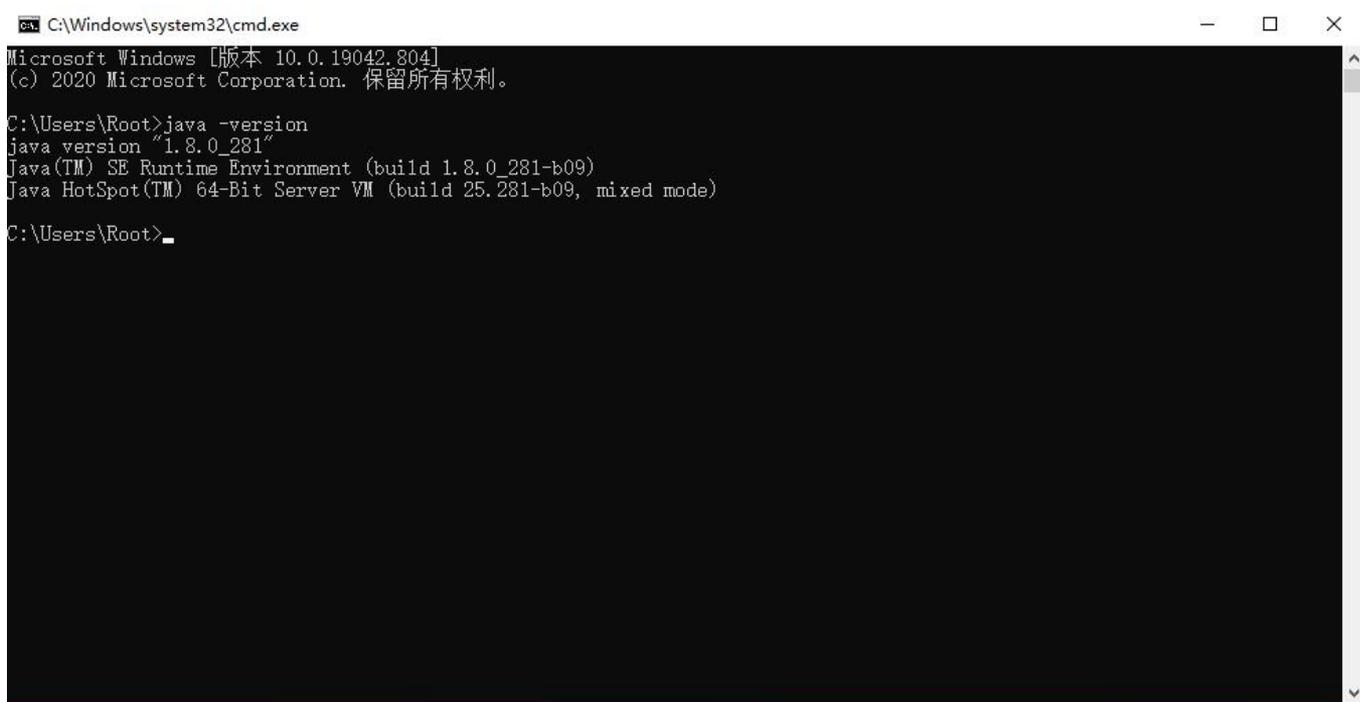
`%JAVA_HOME%\bin`

`%JAVA_HOME%\jre\bin`



环境变量的设置

4. 完成上述配置后，我们来检测一下是否真的配置成功。在开始菜单中输入cmd，进入命令行下，然后分别输入 `java -version` 进行检测。看结果是不是如下：



```
C:\Windows\system32\cmd.exe
Microsoft Windows [版本 10.0.19042.804]
(c) 2020 Microsoft Corporation. 保留所有权利。

C:\Users\Root>java -version
java version "1.8.0_281"
Java(TM) SE Runtime Environment (build 1.8.0_281-b09)
Java HotSpot(TM) 64-Bit Server VM (build 25.281-b09, mixed mode)

C:\Users\Root>
```



为什么要设置环境变量

配置环境变量是为了在命令行窗口下成功编译和运行Java程序。

详见：<https://zhuanlan.zhihu.com/p/97631364>

<https://www.cnblogs.com/wkrbky/p/6351235.html>

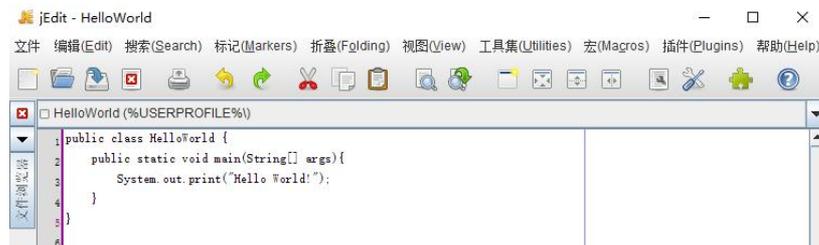
编译并运行

常见的用于编写Java程序的文本编辑器

➤ 记事本

```
*HelloWorld.txt - 记事本
文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)
public class HelloWorld{
    public static void main(String[] args){
        System.out.print("Hello World!");
    }
}
```

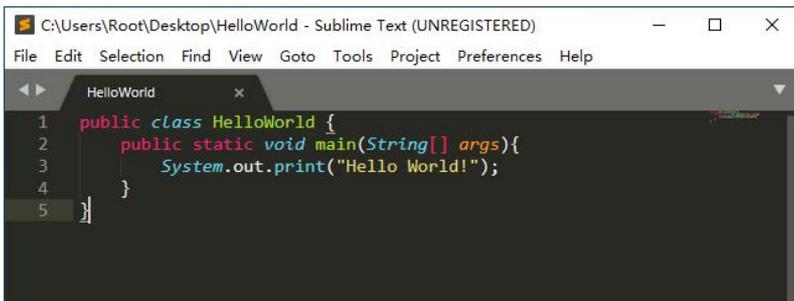
➤ jEdit



The screenshot shows the jEdit editor window titled "jEdit - HelloWorld". The menu bar includes "文件", "编辑(Edit)", "搜索(Search)", "标记(Markers)", "折叠(Folding)", "视图(View)", "工具集(Utilities)", "宏(Macros)", "插件(Plugins)", and "帮助(Help)". The toolbar contains various icons for file operations and editing. The main editor area displays the following code:

```
1 public class HelloWorld {
2     public static void main(String[] args){
3         System.out.print("Hello World!");
4     }
5 }
```

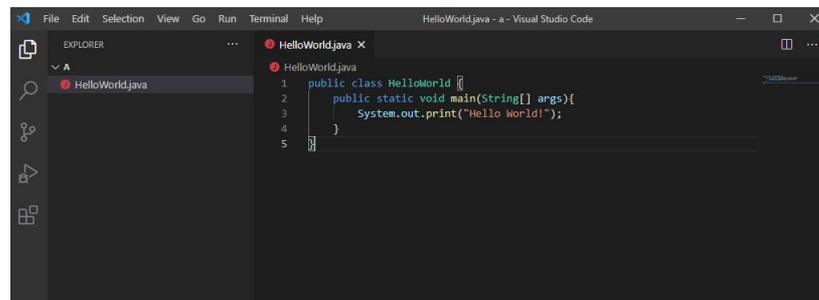
➤ Sublime



The screenshot shows the Sublime Text editor window titled "C:\Users\Root\Desktop\HelloWorld - Sublime Text (UNREGISTERED)". The menu bar includes "File", "Edit", "Selection", "Find", "View", "Goto", "Tools", "Project", "Preferences", and "Help". The main editor area displays the following code:

```
1 public class HelloWorld {
2     public static void main(String[] args){
3         System.out.print("Hello World!");
4     }
5 }
```

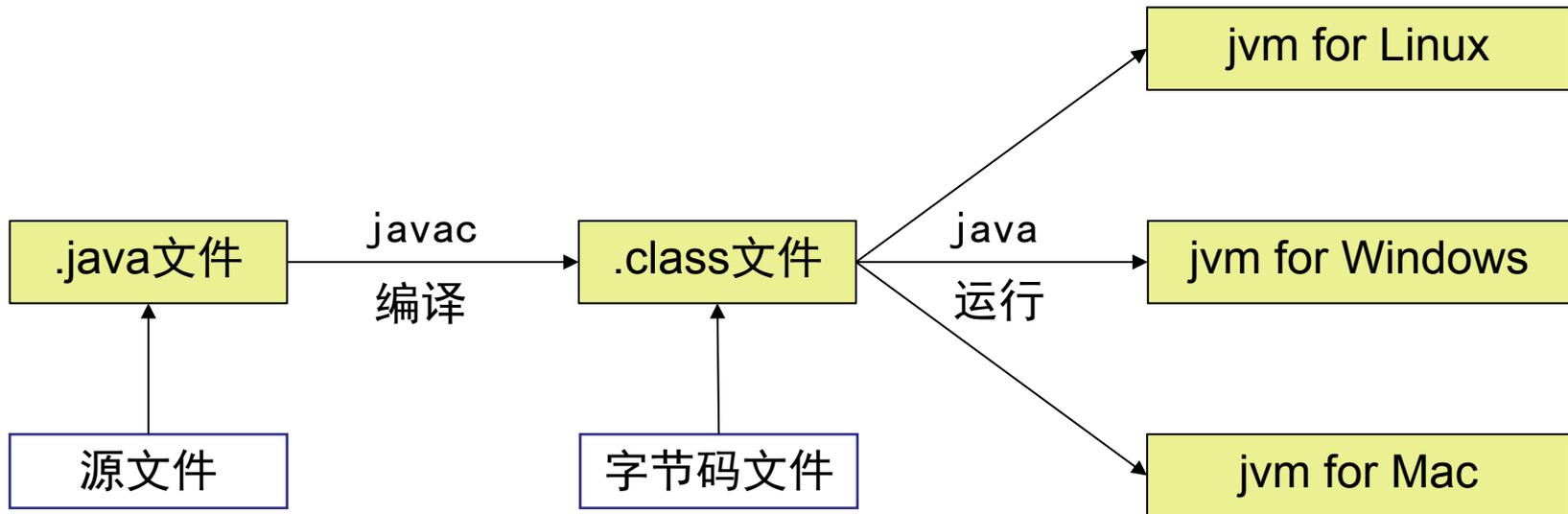
➤ Vscode



The screenshot shows the Visual Studio Code editor window titled "HelloWorld.java - e - Visual Studio Code". The menu bar includes "File", "Edit", "Selection", "View", "Go", "Run", "Terminal", and "Help". The Explorer sidebar on the left shows the file structure. The main editor area displays the following code:

```
1 public class HelloWorld {
2     public static void main(String[] args){
3         System.out.print("Hello World!");
4     }
5 }
```

编写并运行第一个JAVA程序



编写并运行第一个JAVA程序

(1) 打开一个文本编辑器（如记事本），写入如下程序（区分大小写）：

```
*HelloWorld.txt - 记事本
文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)
public class HelloWorld{
    public static void main(String[] args){
        System.out.print("Hello World!");
    }
}
```

(2) 将文件命名为HelloWorld.java，并保存在你自己的工作目录下。

注意：后缀为.java

编写并运行第一个JAVA程序

(3) 进入命令行窗口，转到HelloWorld.java所在目录下。
执行如下命令，对.java文件进行编译：

命令格式：`javac HelloWorld.java`

(4) 利用Java解释器来执行这个程序，查看输出：

命令格式：`java HelloWorld`

注意：不带.class

编写并运行第一个JAVA程序

(5) 运行结果



```
选择C:\Windows\system32\cmd.exe
Microsoft Windows [版本 10.0.19042.804]
(c) 2020 Microsoft Corporation. 保留所有权利。

C:\Users\Root>cd Desktop

C:\Users\Root\Desktop>javac HelloWorld.java

C:\Users\Root\Desktop>java HelloWorld
Hello World!
C:\Users\Root\Desktop>a
```

编写并运行第一个JAVA程序

如果是带有包名的程序，编译的方式还是如上所示，但解释执行起来会有所不同。如现在将你的HelloWorld.java程序代码的最上端加入一行代码：

```
package mypackage; //打包
```

现在再将HelloWorld.java存放在一个mypackage文件夹下。再次在命令行下进行编译

1. 先进入mypackage目录下, 然后执行:

```
javac HelloWorld.java
```

2. 解释执行时需要输入的命令是:

```
cd ..
```

```
java mypackage.HelloWorld
```

Linux下的java安装

1. Linux简介

Linux是一个自由的，免费的，源码开放的操作系统。其最主要的目的就是建立了不受任何商品化软件版权制约的，全世界都能使用的类Unix兼容产品。而我们将服务器部署在Linux将会更加的稳定、安全、高效以及出色的性能这时Windows无法比的。

Linux下的java安装

2. Linux下安装Java（以ubuntu为例）

在有网络情况下，通过apt-get直接下载安装JDK：

```
sudo apt-get install openjdk-8-jdk
```

通过update-alternatives选择系统默认jdk

```
update-alternatives --config java
```

Linux下的java安装

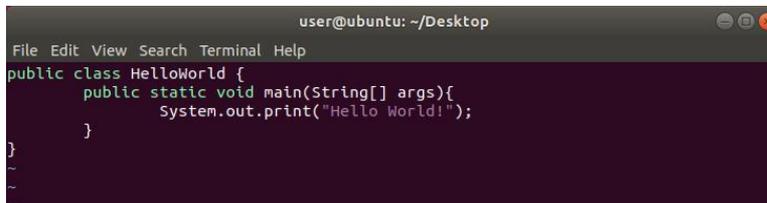
3. 文本编辑器

- gedit (自带)



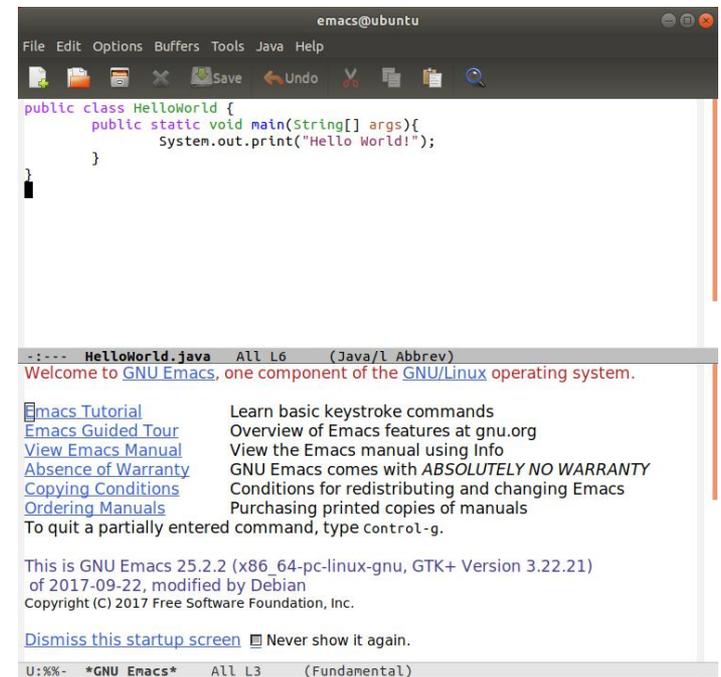
```
public class HelloWorld {  
    public static void main(String[] args){  
        System.out.print("Hello World!");  
    }  
}
```

- Vim (需安装)



```
public class HelloWorld {  
    public static void main(String[] args){  
        System.out.print("Hello World!");  
    }  
}
```

- Emacs (需安装)



```
public class HelloWorld {  
    public static void main(String[] args){  
        System.out.print("Hello World!");  
    }  
}
```

--:-- HelloWorld.java All L6 (Java/l Abbrev)
Welcome to GNU Emacs, one component of the GNU/Linux operating system.

Emacs Tutorial	Learn basic keystroke commands
Emacs Guided Tour	Overview of Emacs features at gnu.org
View Emacs Manual	View the Emacs manual using Info
Absence of Warranty	GNU Emacs comes with ABSOLUTELY NO WARRANTY
Copying Conditions	Conditions for redistributing and changing Emacs
Ordering Manuals	Purchasing printed copies of manuals

To quit a partially entered command, type control-g.

This is GNU Emacs 25.2.2 (x86_64-pc-linux-gnu, GTK+ Version 3.22.21)
of 2017-09-22, modified by Debian
Copyright (C) 2017 Free Software Foundation, Inc.

[Dismiss this startup screen](#) Never show it again.

U:%%- *GNU Emacs* All L3 (Fundamental)

Linux下的java安装

4. 编译并运行（同Windows）

打开上文介绍的任意一种文本编辑器，输入：

A screenshot of a code editor window. The title bar shows "HelloWorld.java" and the file path "~/Desktop". The editor contains the following Java code:

```
public class HelloWorld {  
    public static void main(String[] args){  
        System.out.print("Hello World!");  
    }  
}
```

保存为HelloWorld.java

然后执行

```
javac HelloWorld.java
```

```
java HelloWorld
```

Mac下的java安装

首先打开终端窗口，输入命令：`java -version`，看是否会显示java版本信息。如果没有，则按照下面安装教程进行安装。

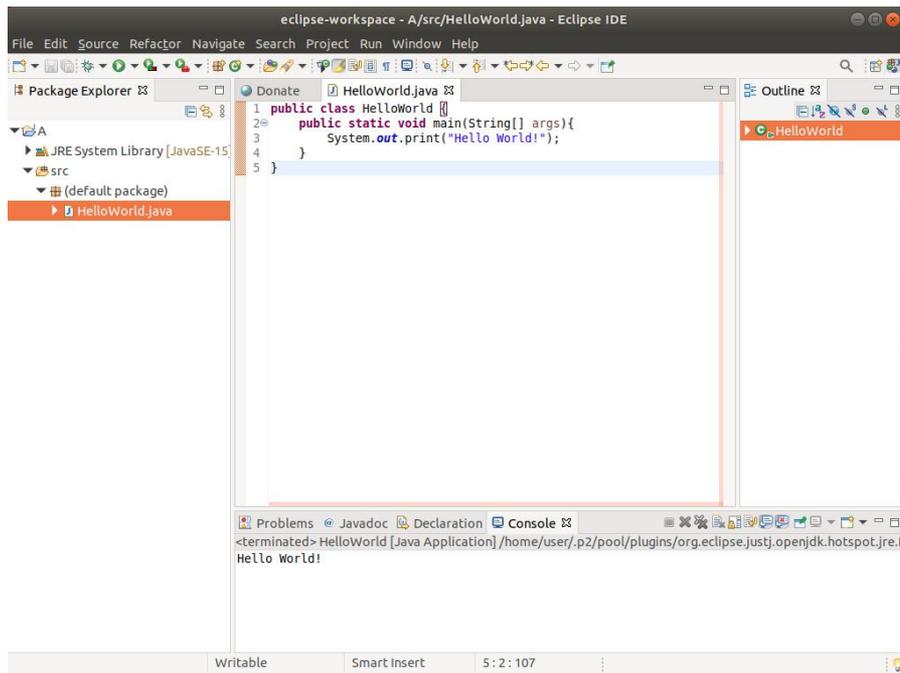
```
(base) yangxideMacBook-Air:Desktop yangxi$ java --version
java 10.0.1 2018-04-17
Java(TM) SE Runtime Environment 18.3 (build 10.0.1+10)
Java HotSpot(TM) 64-Bit Server VM 18.3 (build 10.0.1+10, mixed mode)
```

安装教程：

<https://jingyan.baidu.com/article/7f766daffd99354101e1d095.html>

常用的IDE(集成开发环境)

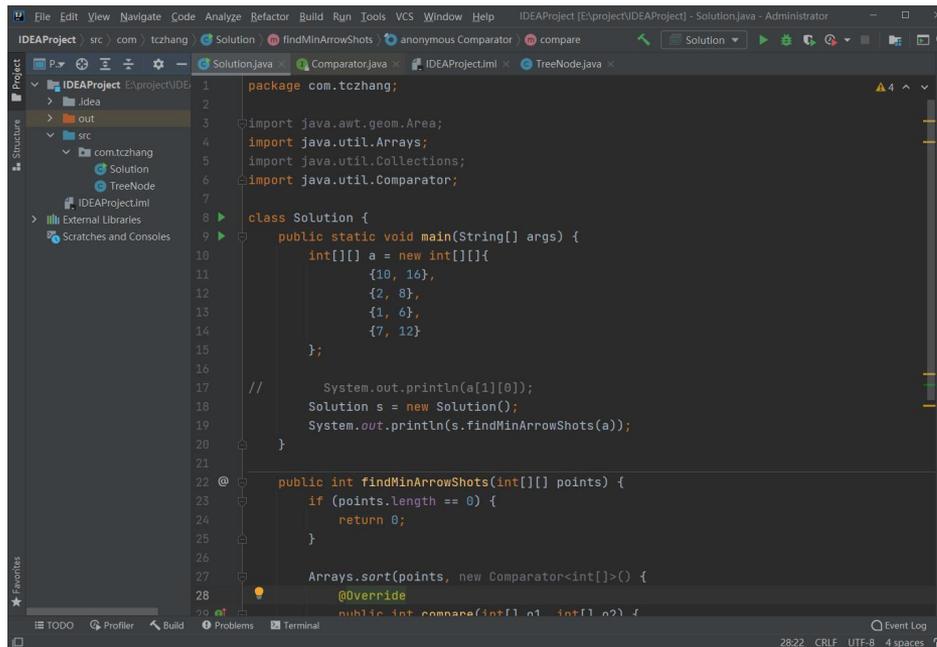
Eclipse 是一个开放源代码的、基于Java的可扩展开发平台，通过插件组件构建开发环境。



教程链接：<https://www.runoob.com/eclipse/eclipse-tutorial.html>

常用的IDE（集成开发环境）

IntelliJ IDEA在业界被公认为最好的java开发工具，有旗舰版（付费）和社区版（免费）。



```
1 package com.tczhang;
2
3 import java.awt.geom.Area;
4 import java.util.Arrays;
5 import java.util.Collections;
6 import java.util.Comparator;
7
8 class Solution {
9     public static void main(String[] args) {
10         int[][] a = new int[][]{
11             {10, 16},
12             {2, 8},
13             {1, 6},
14             {7, 12}
15         };
16
17         // System.out.println(a[1][0]);
18         Solution s = new Solution();
19         System.out.println(s.findMinArrowShots(a));
20     }
21
22     @Override
23     public int findMinArrowShots(int[][] points) {
24         if (points.length == 0) {
25             return 0;
26         }
27
28         Arrays.sort(points, new Comparator<int[]>() {
29             @Override
30             public int compare(int[] o1, int[] o2) {
```

教程链接：<https://www.cnblogs.com/zyx110/p/10666082.html>

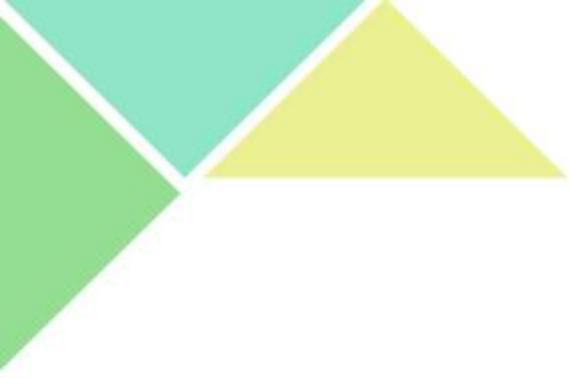
javac/java+文本编辑器与IDE模式比较

javac/java+文本编辑器

- 优点：
快速下载、占用内存小、使用便捷
- 缺点：
配套工具较少，开发效率低

IDE模式

- 优点：
开发效率高，具备一体化的开发软件服务，适合项目开发
- 缺点：
启动慢、占用内存大



Thanks