

練習：安裝建置Java環境

● 操作重點

1. 下載、安裝 Java SE SDK
2. 查詢、安裝 Java SE API文件
3. 安裝文字編輯器 (NotePad++)
4. 測試



下載與安裝 JDK

◆ JDK(Java SE Development Kit ,Java標準版開發套件)

<https://www.oracle.com/java/technologies/javase-downloads.html>

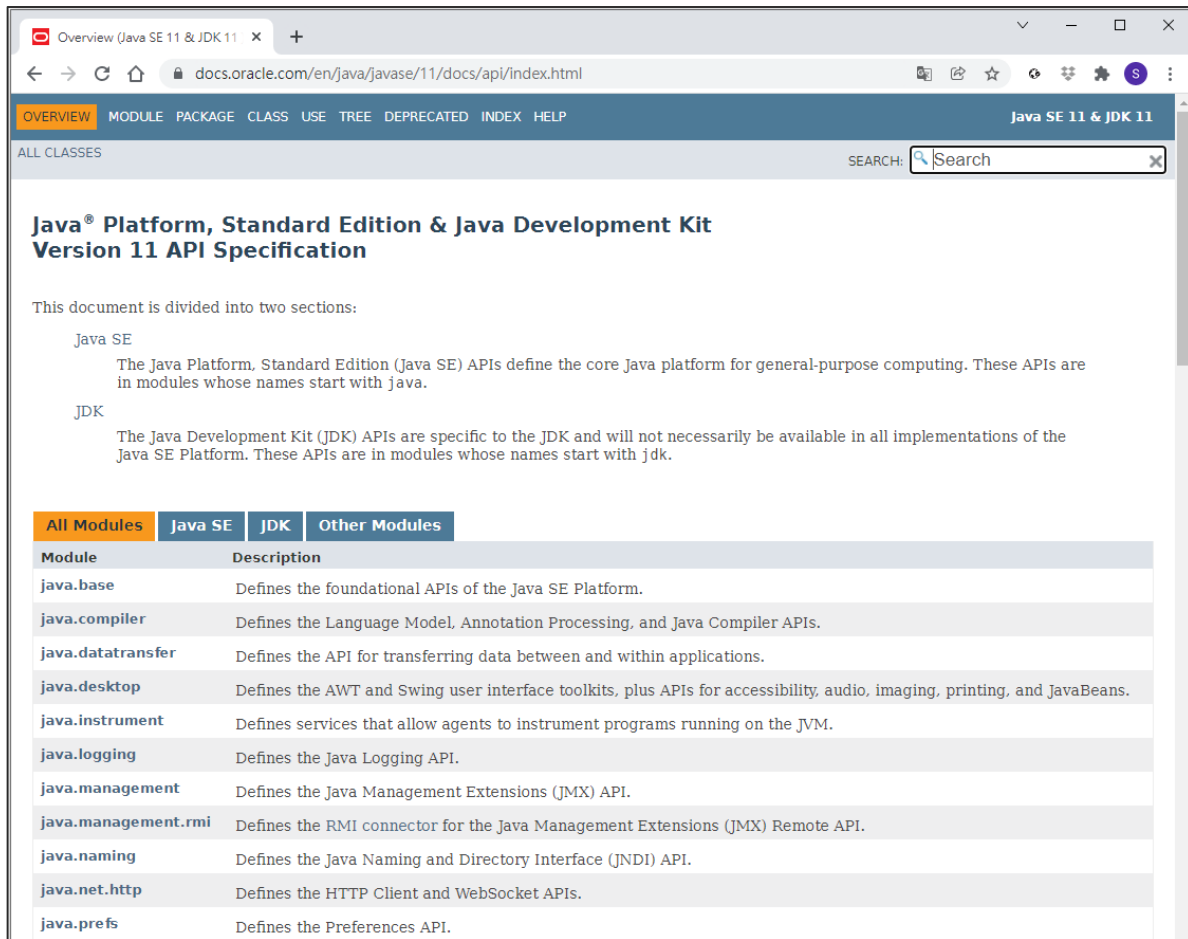
The screenshot shows the Oracle Java Downloads page for JDK 17 on Windows. The page header includes the Oracle logo and navigation links. Below the header, there is a section titled "Java 17 available now" with a brief description of the LTS release and its support terms. A button labeled "Learn about Java SE Subscription" is present. Below this, the "Java SE Development Kit 17.0.2 downloads" section is visible, featuring a table with download links for Linux, macOS, and Windows. The Windows tab is selected, showing three download options: x64 Compressed Archive, x64 Installer, and x64 MSI Installer, each with its file size and a download link.

| Product/file description | File size | Download |
|--------------------------|-----------|--|
| x64 Compressed Archive | 171.34 MB | https://download.oracle.com/java/17/latest/jdk-17_windows-x64_bin.zip (sha256) |
| x64 Installer | 152.43 MB | https://download.oracle.com/java/17/latest/jdk-17_windows-x64_bin.exe (sha256) |
| x64 MSI Installer | 151.32 MB | https://download.oracle.com/java/17/latest/jdk-17_windows-x64_bin.msi (sha256) |

The screenshot shows the Oracle Java Downloads page for JDK 11 on Windows. The page header is similar to the previous one. Below the header, there is a section titled "Java SE subscribers have more choices" with a brief description of the subscription model. A button labeled "Learn about Java SE Subscription" is present. Below this, the "Java SE Development Kit 11.0.14" section is visible, featuring a table with download links for Linux, macOS, Solaris, and Windows. The Windows tab is selected, showing two download options: x64 Installer and x64 Compressed Archive, each with its file size and a download link.

| Product/file description | File size | Download |
|--------------------------|-----------|---|
| x64 Installer | 140.24 MB | jdk-11.0.14_windows-x64_bin.exe |
| x64 Compressed Archive | 157.79 MB | jdk-11.0.14_windows-x64_bin.zip |

JDK 文件



The screenshot shows the Oracle Java SE 11 & JDK 11 API Specification Overview page. The browser address bar shows the URL `docs.oracle.com/en/java/javase/11/docs/api/index.html`. The page has a navigation bar with tabs: OVERVIEW, MODULE, PACKAGE, CLASS, USE, TREE, DEPRECATED, INDEX, and HELP. The 'OVERVIEW' tab is selected. Below the navigation bar is a search bar labeled 'SEARCH:'. The main content area is titled 'Java® Platform, Standard Edition & Java Development Kit Version 11 API Specification'. It contains two sections: 'Java SE' and 'JDK'. The 'Java SE' section states that the Java Platform, Standard Edition (Java SE) APIs define the core Java platform for general-purpose computing. The 'JDK' section states that the Java Development Kit (JDK) APIs are specific to the JDK and will not necessarily be available in all implementations of the Java SE Platform. Below these sections is a table with four columns: All Modules, Java SE, JDK, and Other Modules. The table lists various modules and their descriptions.

| All Modules | Java SE | JDK | Other Modules |
|----------------------------------|--|-----|---------------|
| Module | Description | | |
| <code>java.base</code> | Defines the foundational APIs of the Java SE Platform. | | |
| <code>java.compiler</code> | Defines the Language Model, Annotation Processing, and Java Compiler APIs. | | |
| <code>java.datatransfer</code> | Defines the API for transferring data between and within applications. | | |
| <code>java.desktop</code> | Defines the AWT and Swing user interface toolkits, plus APIs for accessibility, audio, imaging, printing, and JavaBeans. | | |
| <code>java.instrument</code> | Defines services that allow agents to instrument programs running on the JVM. | | |
| <code>java.logging</code> | Defines the Java Logging API. | | |
| <code>java.management</code> | Defines the Java Management Extensions (JMX) API. | | |
| <code>java.management.rmi</code> | Defines the RMI connector for the Java Management Extensions (JMX) Remote API. | | |
| <code>java.naming</code> | Defines the Java Naming and Directory Interface (JNDI) API. | | |
| <code>java.net.http</code> | Defines the HTTP Client and WebSocket APIs. | | |
| <code>java.prefs</code> | Defines the Preferences API. | | |

測試

◆ 測試環境變數

◆ java -version

◆ javac

```
C:\JavaClass>javac
Usage: javac <options> <source files>
where possible options include:
  @<filename>                Read options and filenames from file
  -Akey[=value]              Options to pass to annotation processors
  --add-modules <module>(,<module>)*
                             Root modules to resolve in addition to the initial modules, or all modules
                             on the module path if <module> is ALL-MODULE-PATH.
  --boot-class-path <path>, -bootclasspath <path>
                             Override location of bootstrap class files
  --class-path <path>, -classpath <path>, -cp <path>
                             Specify where to find user class files and annotation processors
  -d <directory>             Specify where to place generated class files
  -deprecation                Output source locations where deprecated APIs are used
  --enable-preview            Enable preview language features. To be used in conjunction with either -source
  or --release.
```

```
C:\JavaClass>java -version
java version "11.0.8" 2020-07-14 LTS
Java(TM) SE Runtime Environment 18.9 (build 11.0.8+10-LTS)
Java HotSpot(TM) 64-Bit Server VM 18.9 (build 11.0.8+10-LTS, mixed mode)

C:\JavaClass>
```

練習1：撰寫第一個 Java 程式

● 操作重點

★建立工作目錄

1. 在 C 磁碟新增資料夾，並命名為：`workspace`

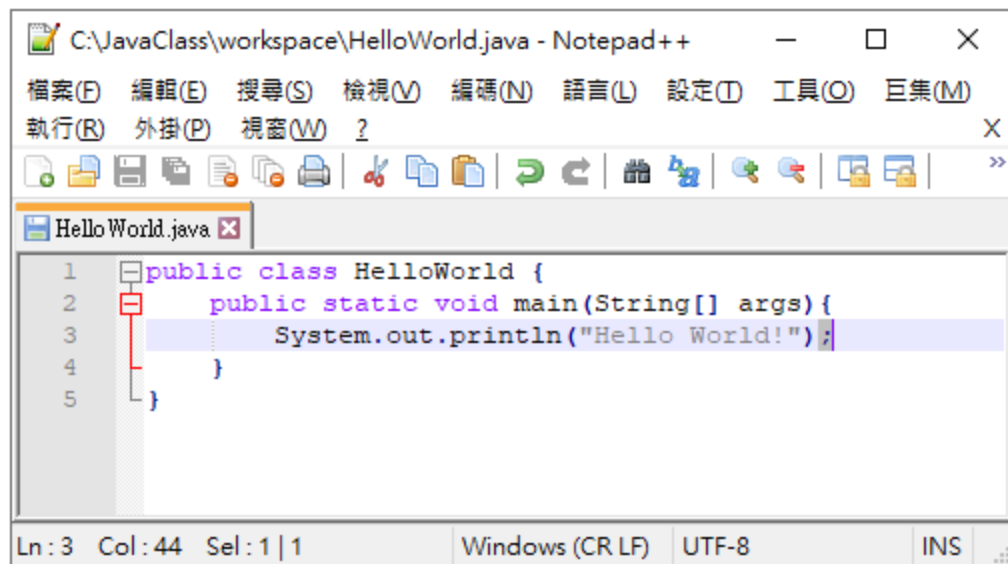
★開啟「純文字編輯器」

1. 檔名為：`HelloWorld.java` (注意副檔名為 `.java`)
2. 撰寫程式(注意英文大小寫)
3. 存檔

★開啟「命令提示字元」

1. 切換工作目錄：`cd workspace`
2. 輸入編譯指令：`javac HelloWorld.java`
3. 輸入執行指令：`java HelloWorld`

HelloWorld.java



C:\JavaClass\workspace\HelloWorld.java - Notepad++

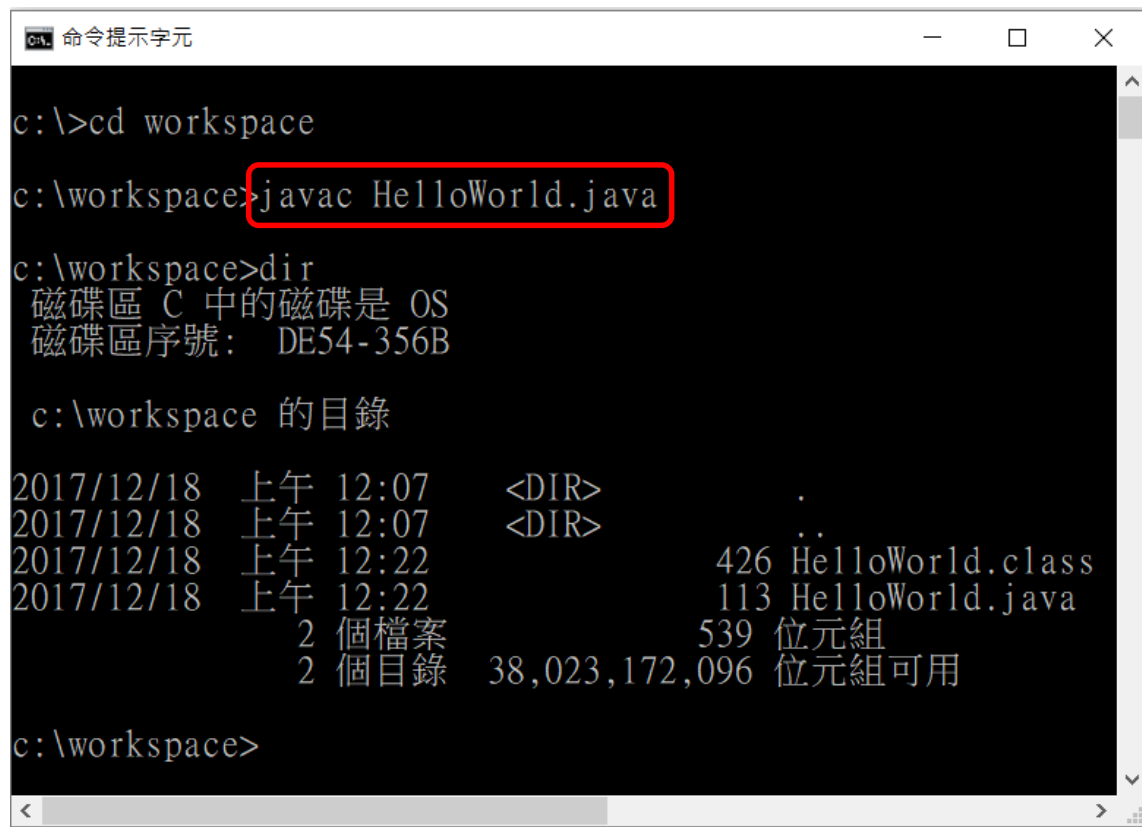
檔案(F) 編輯(E) 搜尋(S) 檢視(V) 編碼(N) 語言(L) 設定(I) 工具(O) 巨集(M)
執行(R) 外接(P) 視窗(W) ?

HelloWorld.java

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

Ln: 3 Col: 44 Sel: 1 | 1 Windows (CR LF) UTF-8 INS

編譯 Java 程式



A screenshot of a Windows Command Prompt window titled "命令提示字元". The window shows the following commands and output:

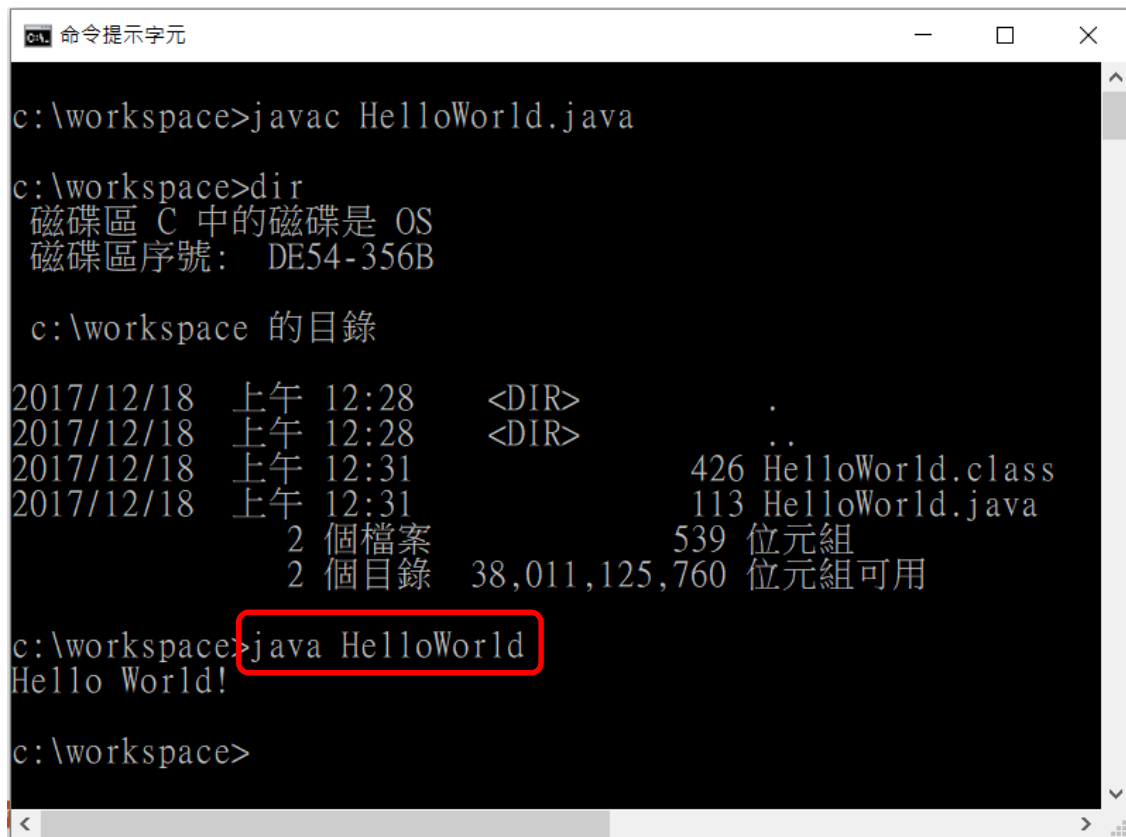
```
c:\>cd workspace
c:\workspace>javac HelloWorld.java
c:\workspace>dir
磁碟區 C 中的磁碟是 OS
磁碟區序號: DE54-356B

c:\workspace 的目錄
2017/12/18 上午 12:07 <DIR> .
2017/12/18 上午 12:07 <DIR> ..
2017/12/18 上午 12:22      426 HelloWorld.class
2017/12/18 上午 12:22     113 HelloWorld.java
                        2 個檔案      539 位元組
                        2 個目錄 38,023,172,096 位元組可用

c:\workspace>
```

The command `javac HelloWorld.java` is highlighted with a red rectangle. The output of the `dir` command shows the directory contents, including the compiled `HelloWorld.class` file and the source `HelloWorld.java` file.

執行 Java 程式



```
C:\> 命令提示字元

c:\workspace>javac HelloWorld.java

c:\workspace>dir
磁碟區 C 中的磁碟是 OS
磁碟區序號: DE54-356B

c:\workspace 的目錄

2017/12/18 上午 12:28 <DIR>          .
2017/12/18 上午 12:28 <DIR>          ..
2017/12/18 上午 12:31                426 HelloWorld.class
2017/12/18 上午 12:31                113 HelloWorld.java
                        2 個檔案          539 位元組
                        2 個目錄      38,011,125,760 位元組可用

c:\workspace>java HelloWorld
Hello World!

c:\workspace>
```


練習2：修正常見錯誤

● 操作重點

★編譯及執行範例程式

1. 範例程式Test1.java、Test2.java、Test3.java、Test4.java均包含錯誤
2. 編譯這些程式，若編譯失敗請閱讀其錯誤訊息，並試著修正，使其可編譯成功
3. 執行這些程式，若無法執行請閱讀其錯誤訊息，並試著修正，使其可被執行

Test1.java

```
Test1.java x
1 public class Test1 {
2     public static void main(String[] args) {
3         System.out.println("What's wrong with this program?");
4     }
5 }
6 public class TestAnother1 {
7     public static void main(String[] args) {
8         System.out.println("What's wrong with this program?");
9     }
10 }
11 }
```



```
Test1.java x
1 public class Test1 {
2     public static void main(String[] args) {
3         System.out.println("What's wrong with this program?");
4     }
5 }
6 class TestAnother1 {
7     public static void main(String[] args) {
8         System.out.println("What's wrong with this program?");
9     }
10 }
11 }
```

Test2.java

```
Test2.java x
1 public class Testing2 {
2     public static void main(String[] args) {
3         System.out.println("What's wrong with this program?");
4     }
5 }
6
```



```
Test2.java x
1 class Testing2 {
2     public static void main(String[] args) {
3         System.out.println("What's wrong with this program?");
4     }
5 }
6
```

Test3.java

```
Test3.java x
1 public class Test3 {
2     public static void main(String args) {
3         System.out.println("What's wrong with this program?");
4     }
5 }
6
```



```
Test3.java x
1 public class Test3 {
2     public static void main(String[] args) {
3         System.out.println("What's wrong with this program?");
4     }
5 }
6
```

Test4.java

```
Test4.java x
1 public class Test4 {
2     public void main(String[] xyz) {
3         System.out.println("What's wrong with this program?");
4     }
5 }
6
```



```
Test4.java x
1 public class Test4 {
2     static public void main(String[] xyz) {
3         System.out.println("What's wrong with this program?");
4     }
5 }
6
```

練習3：問好程式

● 操作重點

★ 撰寫中文問好程式

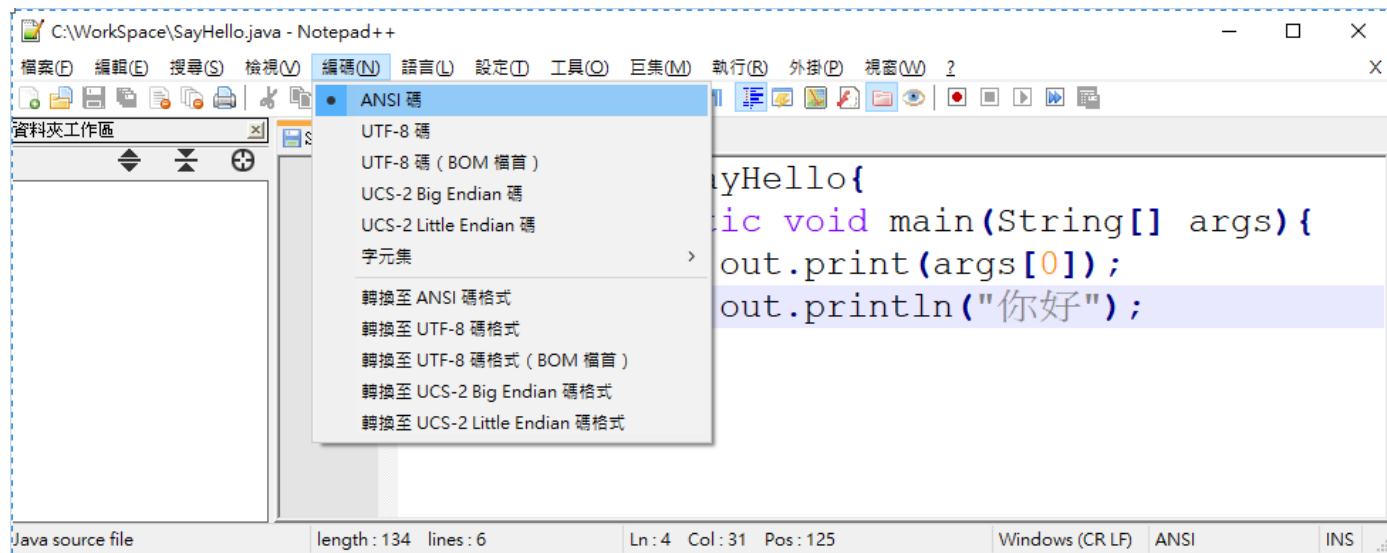
1. 撰寫程式SayHello.java，在螢幕上顯示你的名字與"您好!"
2. 編碼設為ANSI
3. 你的名字由執行時命令列第一個引數取得

★ 執行中文問好程式

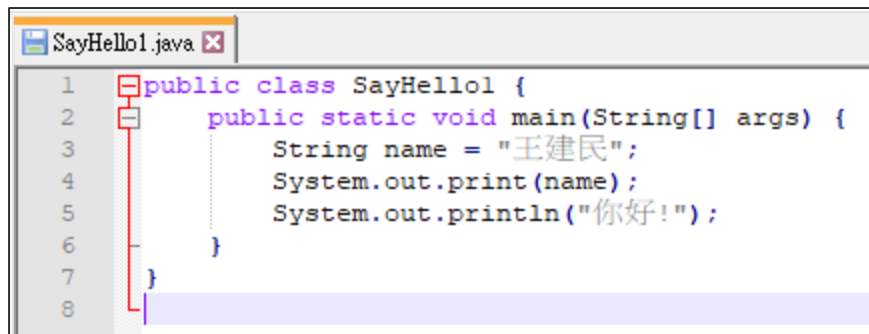
1. 執行時必須加上引數傳入，內容為你的名字

c:\workspace>java SayHello 王建民

編碼設為ANSI

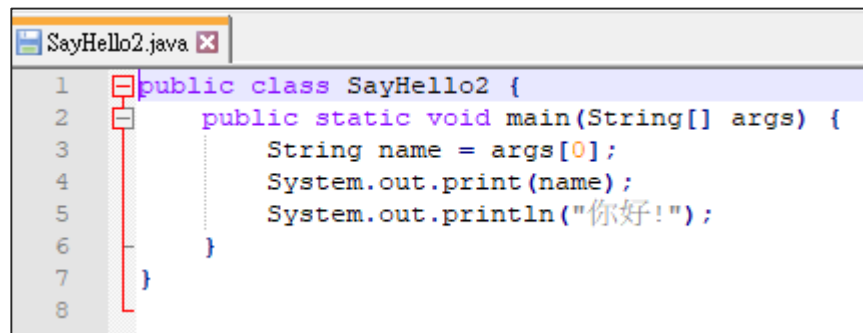


SayHello1.java

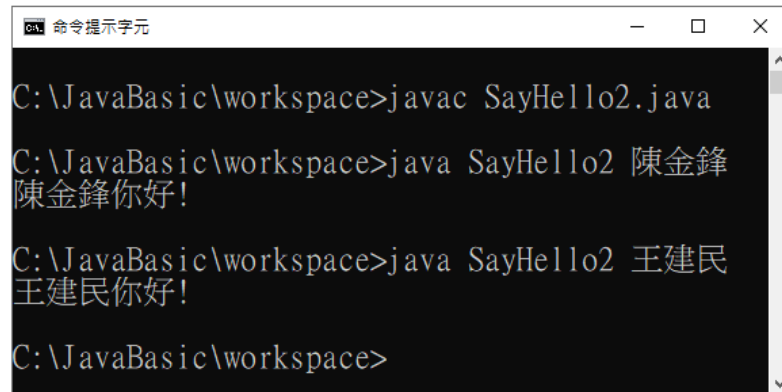


```
1 public class SayHello1 {  
2     public static void main(String[] args) {  
3         String name = "王建民";  
4         System.out.print(name);  
5         System.out.println("你好!");  
6     }  
7 }  
8
```


SayHello2.java



```
1 public class SayHello2 {  
2     public static void main(String[] args) {  
3         String name = args[0];  
4         System.out.print(name);  
5         System.out.println("你好!");  
6     }  
7 }  
8
```



```
C:\JavaBasic\workspace>javac SayHello2.java  
  
C:\JavaBasic\workspace>java SayHello2 陳金鋒  
陳金鋒你好!  
  
C:\JavaBasic\workspace>java SayHello2 王建民  
王建民你好!  
  
C:\JavaBasic\workspace>
```