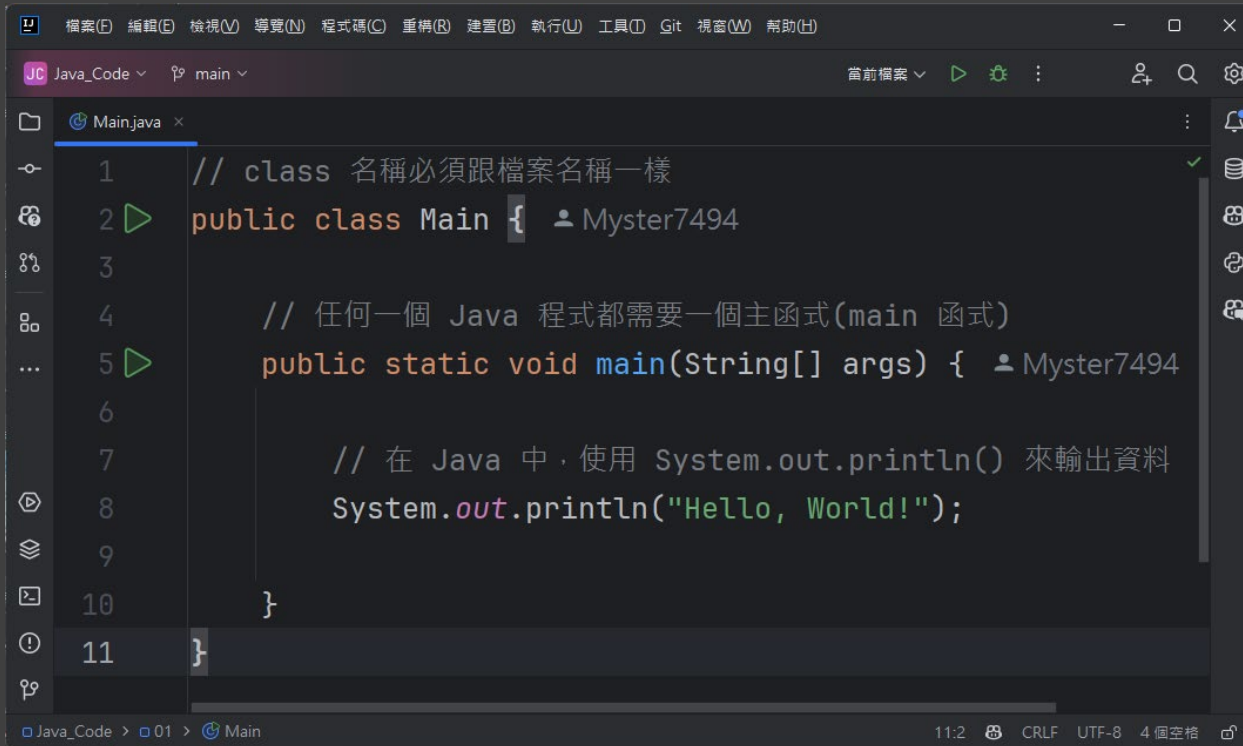


# IntelliJ IDEA

TYIC 桃高資訊社

# IDE

功能多  
不易上手



```
// class 名稱必須跟檔案名稱一樣
public class Main {
    // 任何一個 Java 程式都需要一個主函式(main 函式)
    public static void main(String[] args) {
        // 在 Java 中，使用 System.out.println() 來輸出資料
        System.out.println("Hello, World!");
    }
}
```

整合式開發環境  
(Integrated Development  
Environment，簡稱 IDE)

通常是針對特定的程式語言設計  
並且整合了許多東西，包含：  
文字編輯器、除錯器(debugger)、  
自動組建工具(build automation)  
，部分還有版本控制系統(Version  
Control System，簡稱 VCS)  
如：PyCharm、Visual Studio、  
Code::Blocks、Dev-C++、  
Eclipse、**IntelliJ IDEA**

一款好的 **IDE** 能很大程度加速開發

# Java IDE

常見的 Java IDE 如下：

86,544 responses



2023 Stack Overflow 調查

IntelliJ IDEA 26.82%

Eclipse 9.9%

Netbeans 3.19%

## IntelliJ IDEA



**IntelliJ IDEA**  
JETBRAINS IDE

作者：JetBrains 公司  
免費版：自由開源軟體  
旗艦版：專有軟體  
使用 Java 編寫

## Eclipse



**eclipse**

作者：Eclipse 基金會  
自由開源軟體  
使用 Java 編寫

## Netbeans



Apache  
**NetBeans IDE**

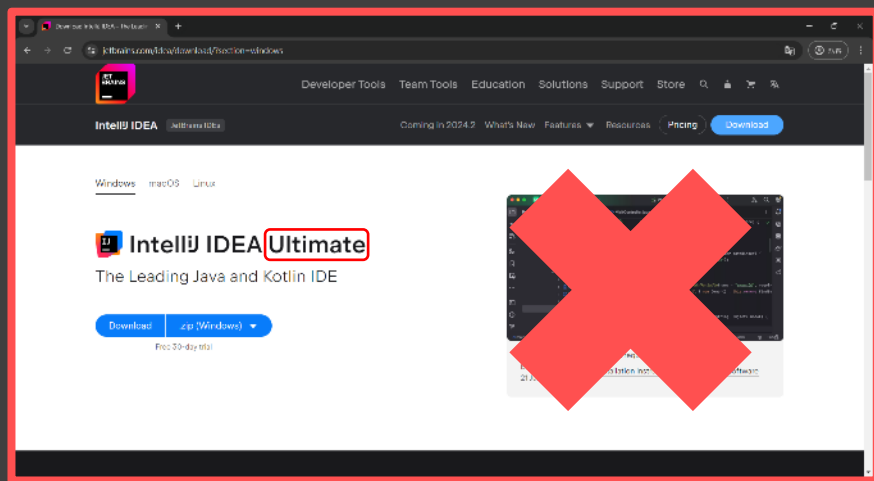
作者：Apache 基金會  
自由開源軟體  
使用 Java 編寫

IntelliJ IDEA 是這學年會用的

還有許多 Java IDE，但極為少見

# 下載/安裝

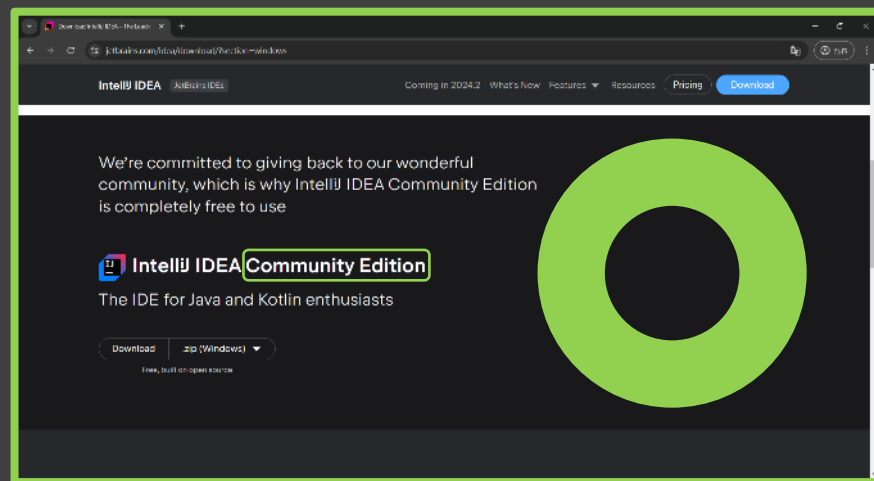
<https://www.jetbrains.com/idea/download/>



付費版(旗艦版)



往下捲動



免費版(社區版)

選擇 **.exe** 後就會開始下載安裝程式  
安裝過程非常簡單  
按照安裝程式的說明即可



# 新增專案

開啟後的介面



# 新增專案

點擊 "New Project" 後  
會出現右圖視窗  
填好名稱後就可以創建專案

注意：不要勾選  
"Add Sample Code"

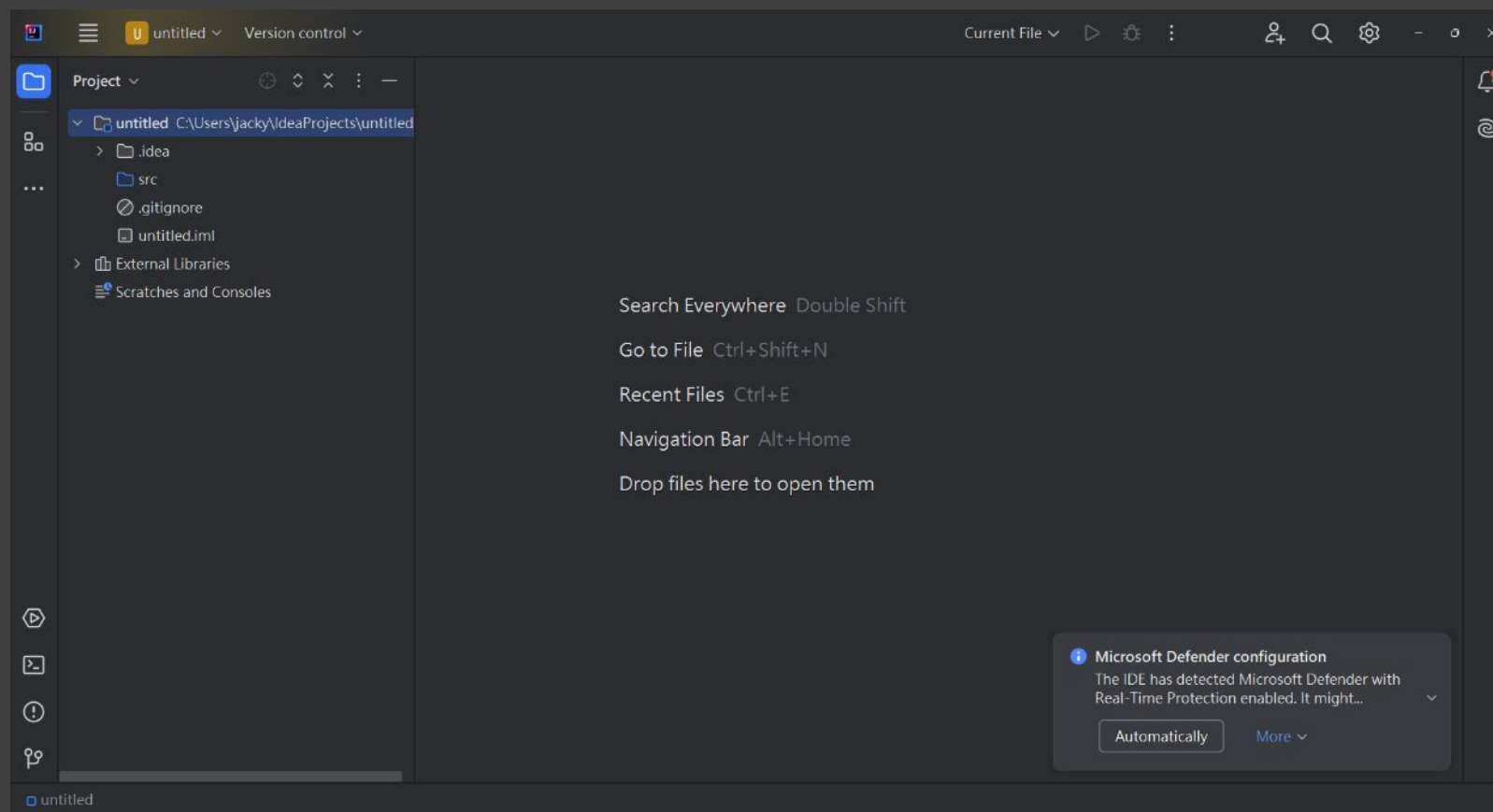
The screenshot shows the 'New Project' dialog in IntelliJ IDEA. The left sidebar lists project types: Java (selected), Kotlin, Groovy, Empty Project, and a section for Generators including Maven Archetype, JavaFX, Spring, and Compose for Desktop. The main area contains the following fields and options:

- Name:** untitled
- Location:** ~\IdeaProjects
- Project will be created in:** ~\IdeaProjects\untitled
- Create Git repository:** ☐
- Build system:** IntelliJ (selected), Maven, Gradle
- JDK:** temurin-21 Eclipse Temurin 21.0.3
- Add sample code:** ☐ (unchecked)
- Generate code with onboarding tips:** ☒ (checked)
- Advanced Settings:** >
- Create:** (highlighted button)
- Cancel:** (button)

創建專案

# 新增專案

創建完後  
就會顯示專案



# 新增檔案

要新增 **class**

只需要在資料夾上

右鍵 -> New

-> Java Class

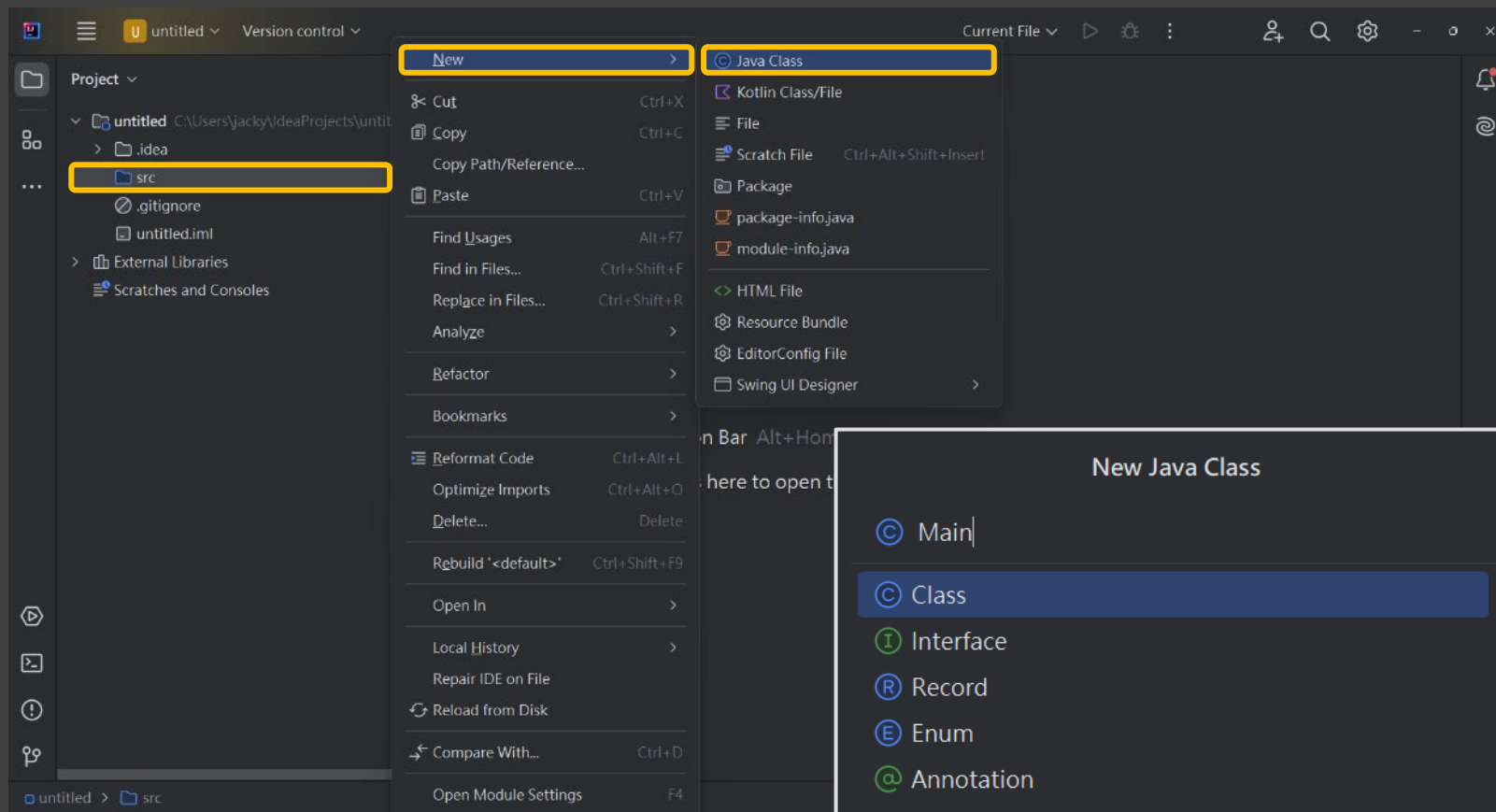
填入類別名稱

按下 **Enter**

即可創建

目前 **class**

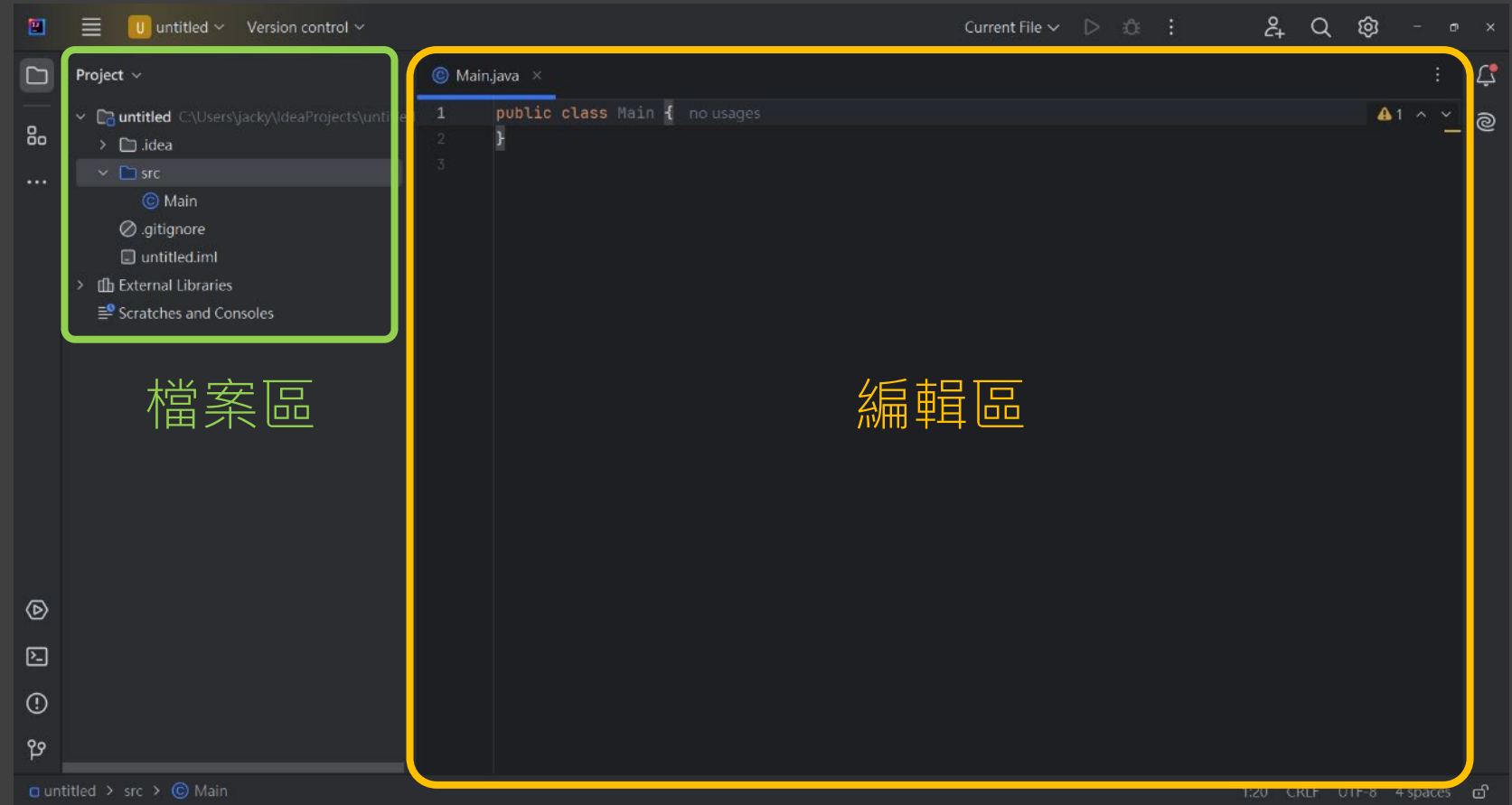
皆放在 "src" 下





# 新增檔案

創建完後  
會自動開啟檔案  
即可在編輯區編輯  
所有專案檔案  
都會出現在檔案區



# 編輯

嘗試將上一個程式打上去  
並觀察打字過程發生了什麼

```
01  import java.util.Scanner; // 載入套件
02
03  public class Main {
04      public static void main(String[] args) {
05          Scanner scanner = new Scanner(System.in); // 創建新的 Scanner 實例
06          System.out.print("姓名 學號 身高 :");
07          String name = scanner.next(); // 讀入下一個字串並存入變數 name
08          int studentId = scanner.nextInt(); // 讀入下一個 int 並存入變數 studentId
09          double height = scanner.nextDouble(); // 讀入下一個 double 並存入變數 height
10          System.out.printf("姓名 : %s 學號 : %d 身高 : %.2f\n", name, studentId, height);
11      }
12  }
```

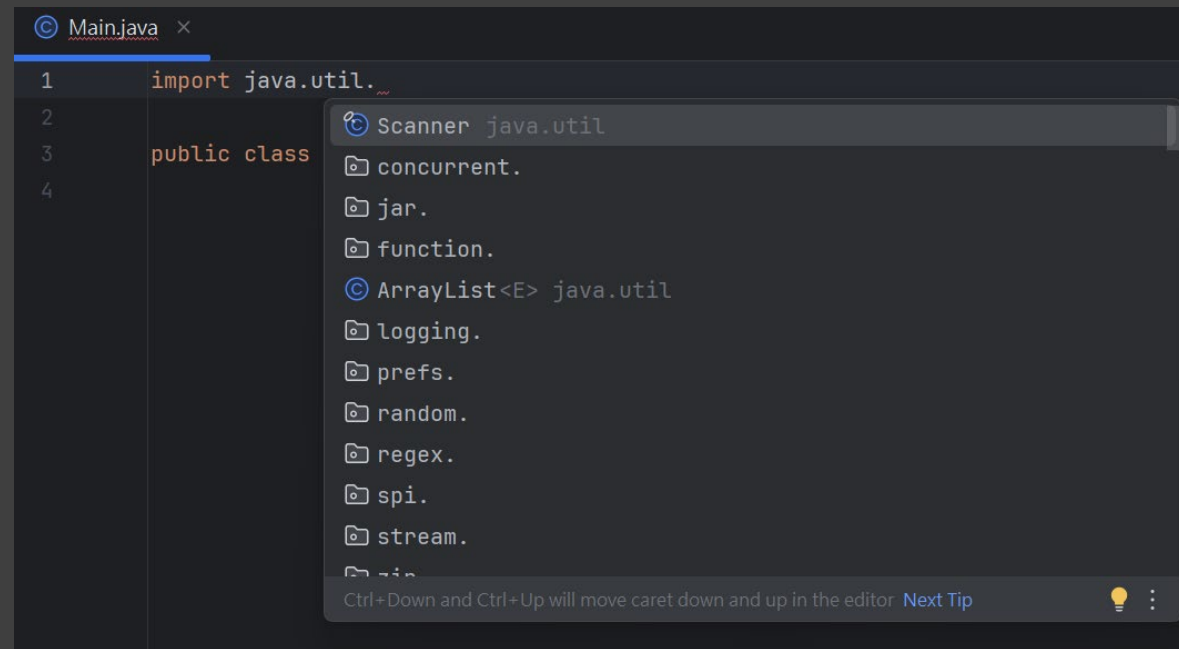


java

# 自動補全

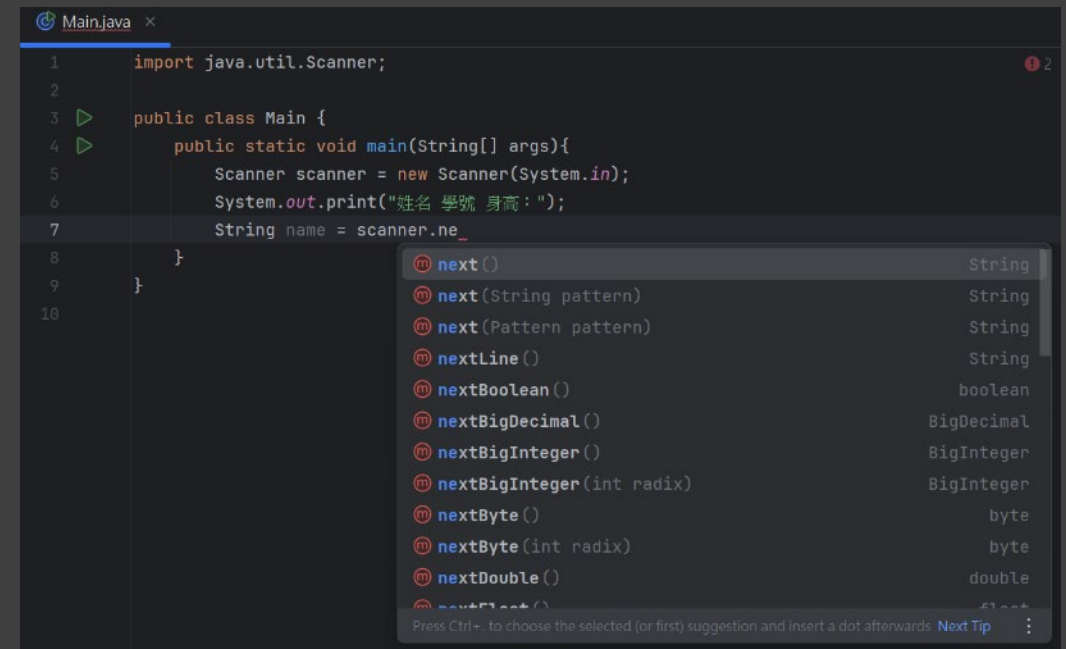
打字過程中出現了些許變化：

1. 打了左括號，會自動補右括號，雙引號也是
2. 會列出可以接什麼



This screenshot shows an IDE window titled 'Main.java'. The code contains an import statement for 'java.util.' followed by 'public class'. An auto-completion dropdown menu is visible, listing various classes from the 'java.util' package, including 'Scanner', 'concurrent.', 'jar.', 'function.', 'ArrayList<E>', 'logging.', 'prefs.', 'random.', 'regex.', 'spi.', and 'stream.'. The 'Scanner' class is highlighted at the top of the list. A 'Next Tip' message at the bottom indicates that 'Ctrl+Down and Ctrl+Up will move caret down and up in the editor'.

```
1 import java.util.  
2  
3 public class  
4
```

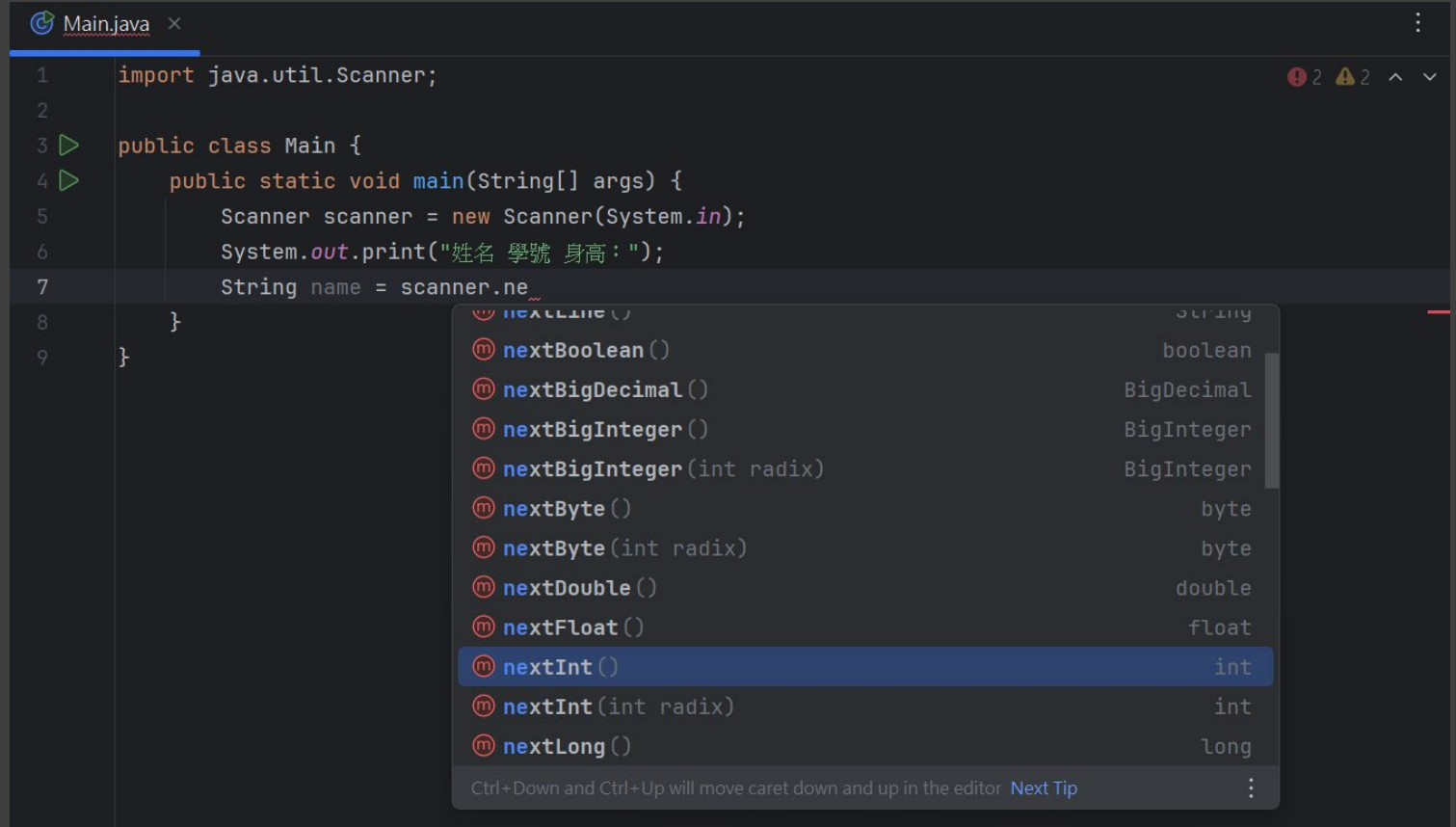


This screenshot shows the same IDE window 'Main.java' at a different point in the code. The code now includes a 'main' method where a 'Scanner' object is created and the 'next()' method is being called. An auto-completion dropdown menu is shown for the 'next()' method, listing various overloaded methods and their return types: 'next()', 'next(String pattern)', 'next(Pattern pattern)', 'nextLine()', 'nextBoolean()', 'nextBigDecimal()', 'nextBigInteger()', 'nextBigInteger(int radix)', 'nextByte()', 'nextByte(int radix)', 'nextDouble()', and 'nextFloat()'. The 'next()' method is highlighted at the top of the list. A 'Next Tip' message at the bottom suggests pressing 'Ctrl+' to choose a suggestion and insert a dot afterwards.

```
1 import java.util.Scanner;  
2  
3 public class Main {  
4     public static void main(String[] args){  
5         Scanner scanner = new Scanner(System.in);  
6         System.out.print("姓名 學號 身高: ");  
7         String name = scanner.ne_  
8     }  
9 }  
10
```

# 自動補全

不只列出可以接什麼  
還可以通過上下鍵  
選擇要輸入的  
然後按 **Tab** 或 **Enter**  
讓 **IDE** 幫你自動補全



The screenshot shows a code editor window titled 'Main.java'. The code is as follows:

```
1 import java.util.Scanner;  
2  
3 public class Main {  
4     public static void main(String[] args) {  
5         Scanner scanner = new Scanner(System.in);  
6         System.out.print("姓名 學號 身高: ");  
7         String name = scanner.ne  
8     }  
9 }
```

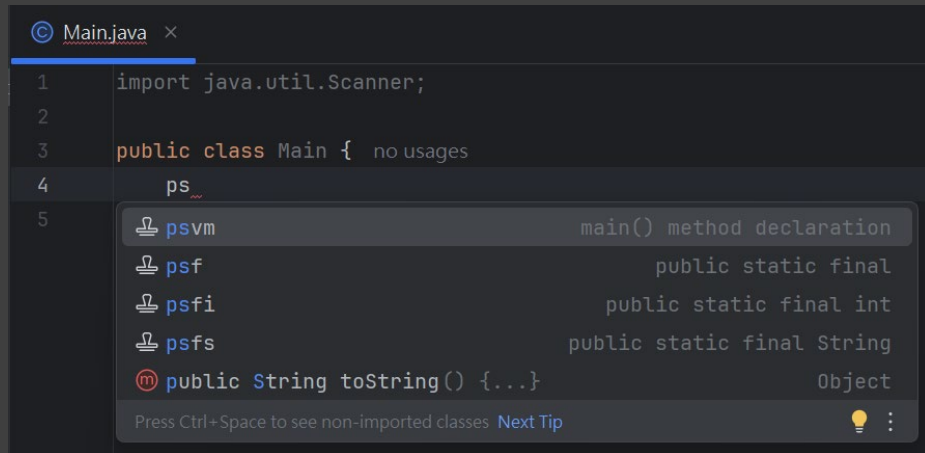
An auto-completion dropdown menu is visible, listing the following methods and their return types:

- `nextBoolean()` boolean
- `nextBigDecimal()` BigDecimal
- `nextBigInteger()` BigInteger
- `nextBigInteger(int radix)` BigInteger
- `nextByte()` byte
- `nextByte(int radix)` byte
- `nextDouble()` double
- `nextFloat()` float
- `nextInt()` int** (highlighted)
- `nextInt(int radix)` int
- `nextLong()` long

At the bottom of the dropdown, there is a tip: 'Ctrl+Down and Ctrl+Up will move caret down and up in the editor. Next Tip'.

# 自動補全

甚至，**IDEA** 還有內建許多快捷縮寫，如 **psvm**、**sout** 等

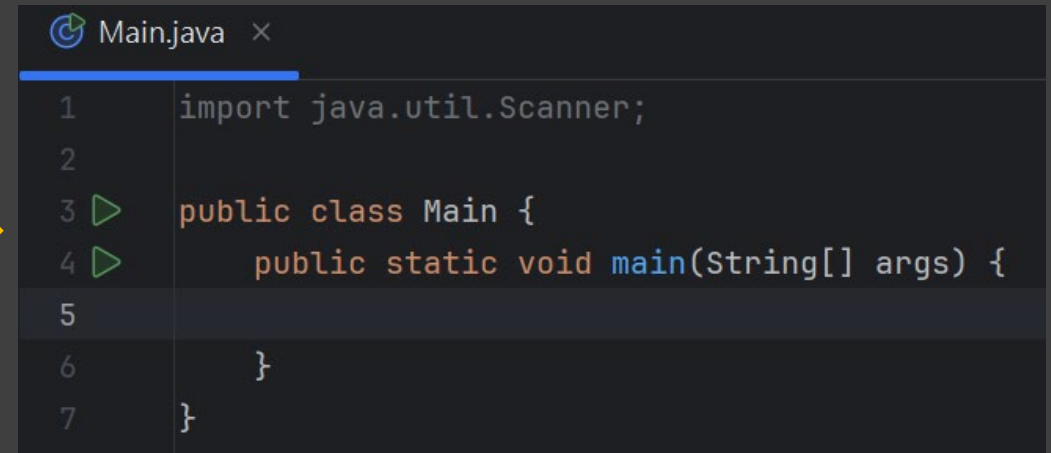


© Main.java ×

```
1 import java.util.Scanner;
2
3 public class Main { no usages
4     ps
5
```

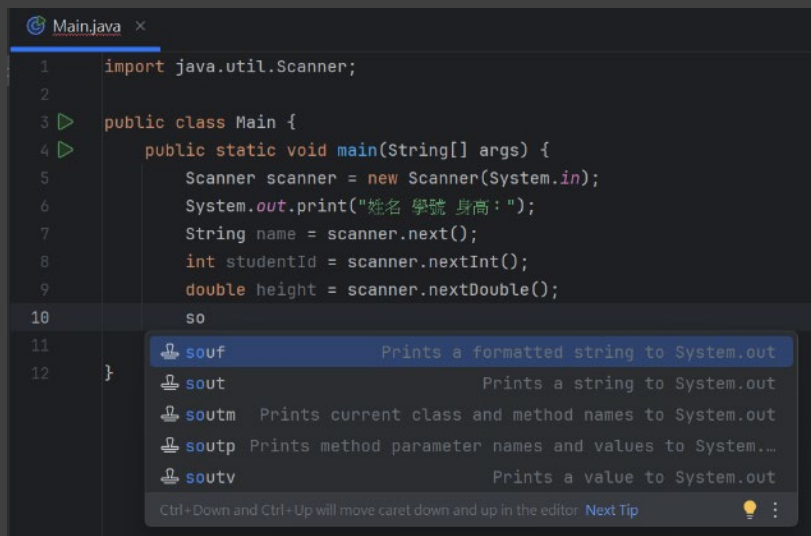
- psvm main() method declaration
- psf public static final
- psfi public static final int
- psfs public static final String
- public String toString() {...} Object

Press Ctrl+Space to see non-imported classes Next Tip



© Main.java ×

```
1 import java.util.Scanner;
2
3 public class Main {
4     public static void main(String[] args) {
5
6     }
7 }
```

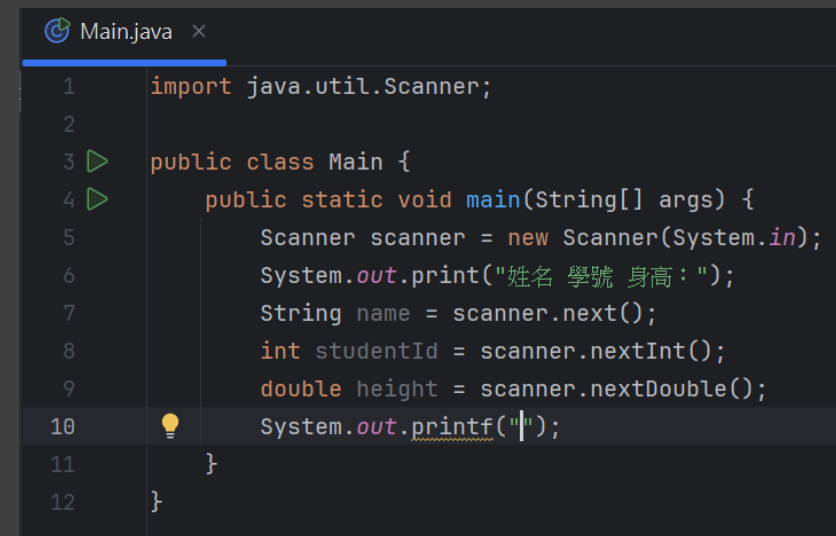


© Main.java ×

```
1 import java.util.Scanner;
2
3 public class Main {
4     public static void main(String[] args) {
5         Scanner scanner = new Scanner(System.in);
6         System.out.print("姓名 學號 身高: ");
7         String name = scanner.next();
8         int studentId = scanner.nextInt();
9         double height = scanner.nextDouble();
10        so
11    }
12 }
```

- souf Prints a formatted string to System.out
- sout Prints a string to System.out
- soutm Prints current class and method names to System.out
- soutp Prints method parameter names and values to System...
- soutv Prints a value to System.out

Ctrl+Down and Ctrl+Up will move caret down and up in the editor Next Tip

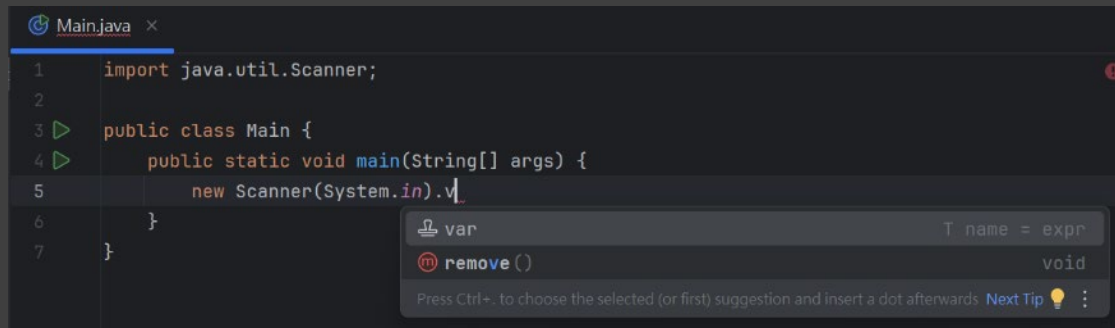


© Main.java ×

```
1 import java.util.Scanner;
2
3 public class Main {
4     public static void main(String[] args) {
5         Scanner scanner = new Scanner(System.in);
6         System.out.print("姓名 學號 身高: ");
7         String name = scanner.next();
8         int studentId = scanner.nextInt();
9         double height = scanner.nextDouble();
10        System.out.printf("|");
11    }
12 }
```

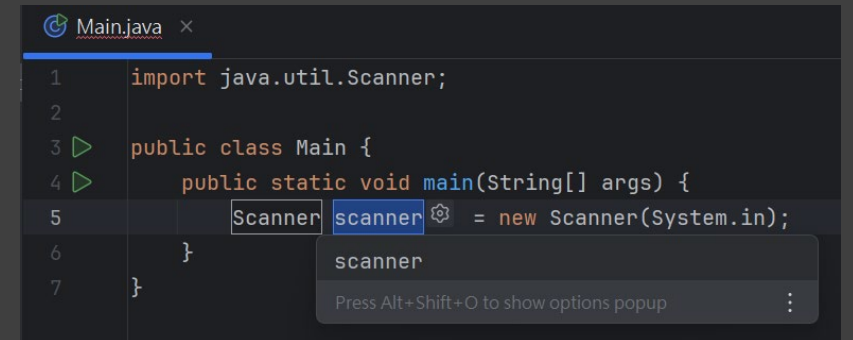
# 自動補全

還能通過 **.var** 等縮寫讓 **IDE** 幫你補更多東西



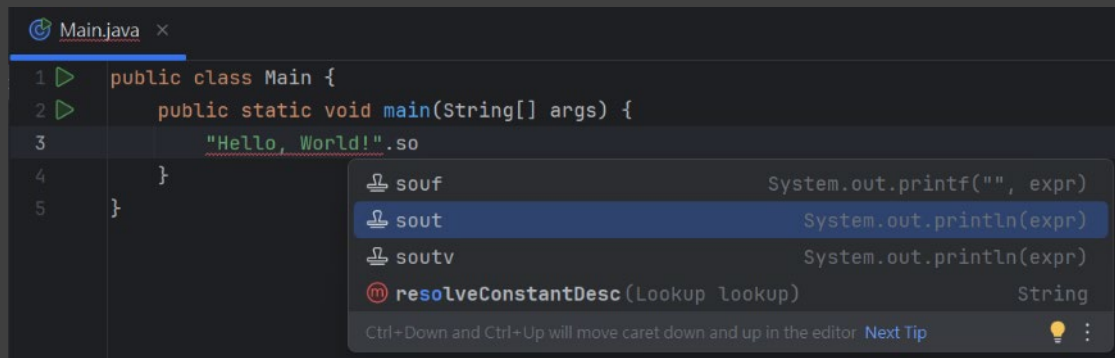
```
1 import java.util.Scanner;
2
3 public class Main {
4     public static void main(String[] args) {
5         new Scanner(System.in).v
6     }
7 }
```

var T name = expr  
remove() void  
Press Ctrl+. to choose the selected (or first) suggestion and insert a dot afterwards Next Tip



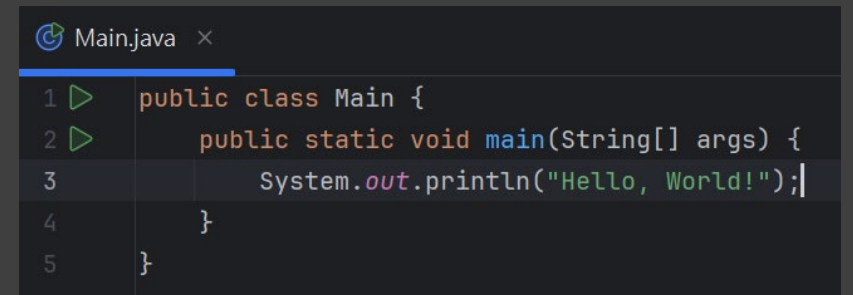
```
1 import java.util.Scanner;
2
3 public class Main {
4     public static void main(String[] args) {
5         Scanner scanner = new Scanner(System.in);
6     }
7 }
```

scanner  
Press Alt+Shift+O to show options popup



```
1 public class Main {
2     public static void main(String[] args) {
3         "Hello, World!".so
4     }
5 }
```

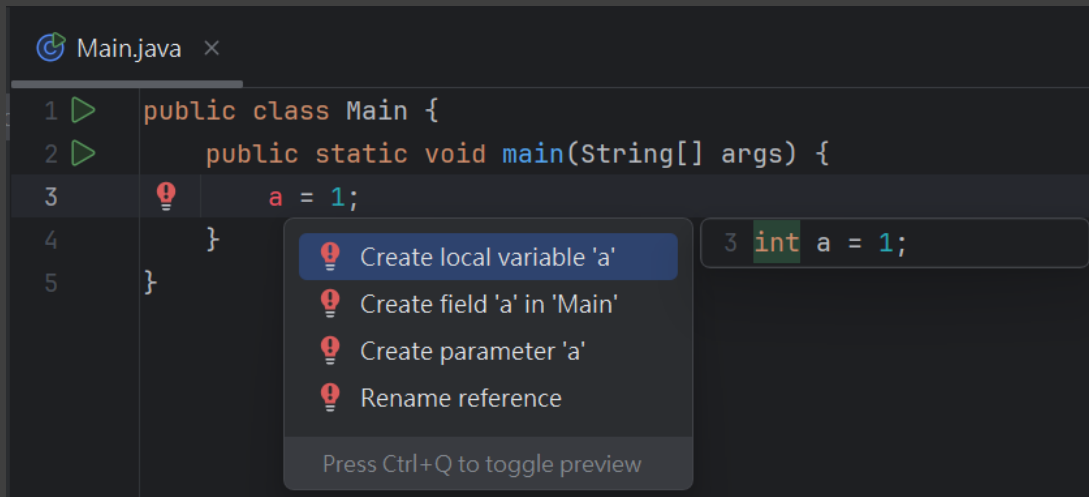
souf System.out.printf("", expr)  
sout System.out.println(expr)  
soutv System.out.println(expr)  
resolveConstantDesc(Lookup lookup) String  
Ctrl+Down and Ctrl+Up will move caret down and up in the editor Next Tip



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

# 動作

文字游標在某些地方時  
還可以按 **Alt + Enter** 開啟動作選單  
可以選擇並執行動作



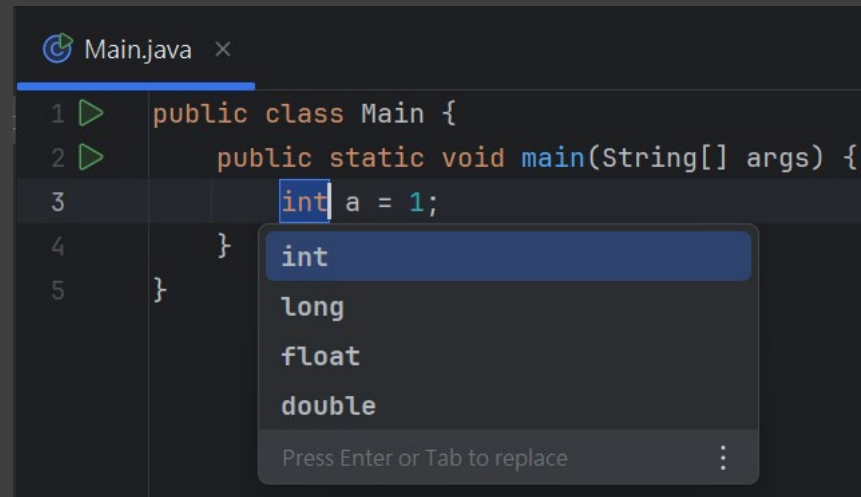
The screenshot shows a Java file named 'Main.java' with the following code:

```
1 public class Main {  
2     public static void main(String[] args) {  
3         a = 1;  
4     }  
5 }
```

At line 3, the variable 'a' is undeclared, indicated by a red squiggly line. A yellow arrow points to the 'Alt + Enter' action menu that appears. The menu contains the following options:

- Create local variable 'a'
- Create field 'a' in 'Main'
- Create parameter 'a'
- Rename reference

At the bottom of the menu, it says 'Press Ctrl+Q to toggle preview'. To the right of the menu, a preview box shows the code after the action: '3 int a = 1;'.



The screenshot shows the same Java file 'Main.java' after the 'Create local variable' action has been performed. The code is now:

```
1 public class Main {  
2     public static void main(String[] args) {  
3         int a = 1;  
4     }  
5 }
```

The variable 'a' is now declared as 'int', and the red squiggly line is gone. A dropdown menu is open below the code, showing the list of primitive data types: 'int', 'long', 'float', and 'double'. At the bottom of the menu, it says 'Press Enter or Tab to replace'.

# 自動格式化

如果想要讓程式碼更容易閱讀  
可以開啟自動格式化  
讓 IDE 在檔案儲存時幫你格式化

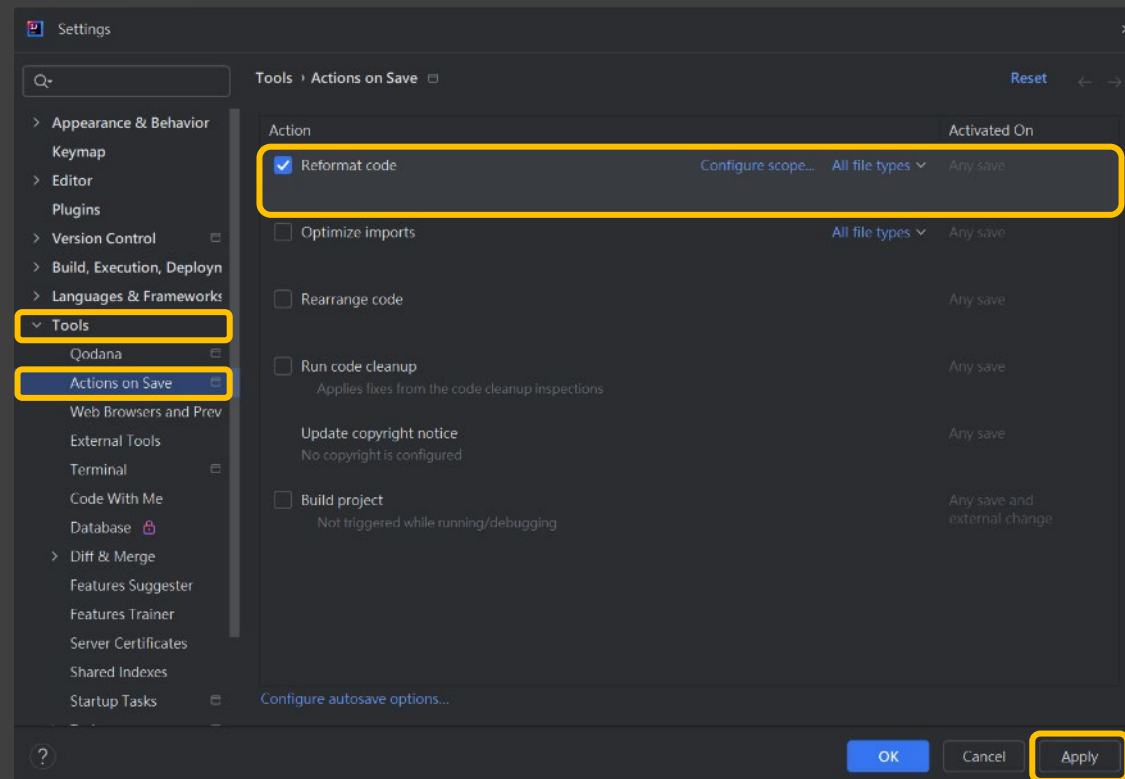
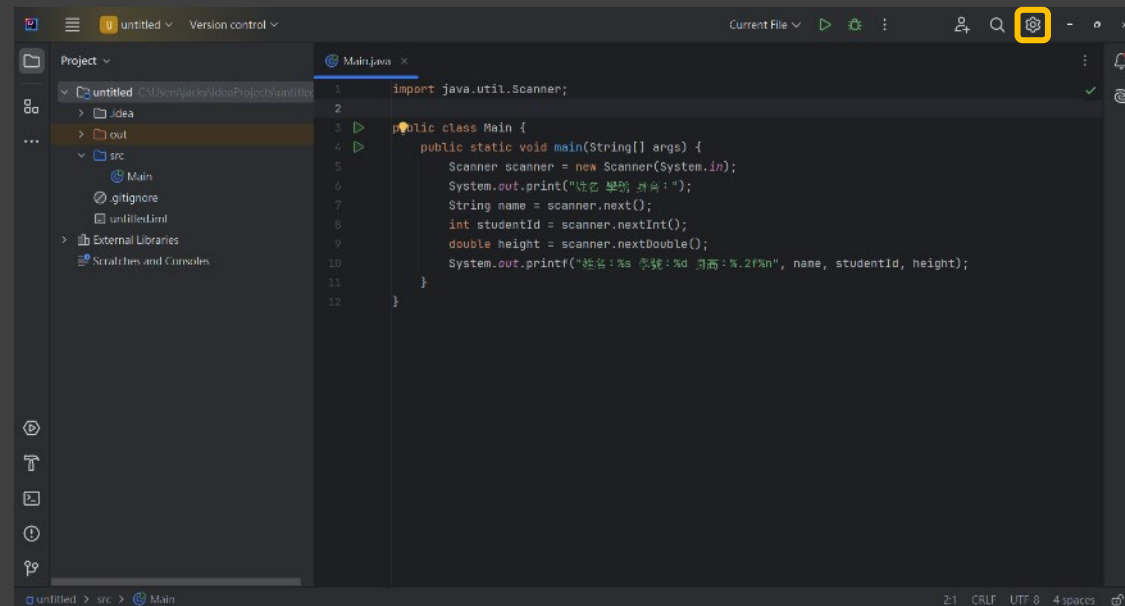
開啟方法：

Setting -> Tools

-> Actions on Save

-> Reformat code

然後按下 Apply 即可





# 自動格式化

格式化前：

```
Main.java ×
1 import java.util.Scanner;
2 public class Main{public static void main(String[]args){
3     Scanner scanner=new Scanner(System.in);
4         System.out.print("姓名 學號 身高:");
5         String name=scanner.next();
6     int studentId=scanner.nextInt();double height=scanner.nextDouble();
7     System.out.printf("姓名:%s 學號:%d 身高:%.2f\n",name,studentId,height);
8 }}
```

格式化後：

```
Main.java ×
1 import java.util.Scanner;
2
3 public class Main {
4     public static void main(String[] args) {
5         Scanner scanner = new Scanner(System.in);
6         System.out.print("姓名 學號 身高:");
7         String name = scanner.next();
8         int studentId = scanner.nextInt();
9         double height = scanner.nextDouble();
10        System.out.printf("姓名:%s 學號:%d 身高:%.2f\n", name, studentId, height);
11    }
12 }
```

# 快捷鍵

除了支援之前介紹的快捷鍵之外  
還有許多好用的快捷鍵

如 **Ctrl + D** 複製貼上該行程式碼

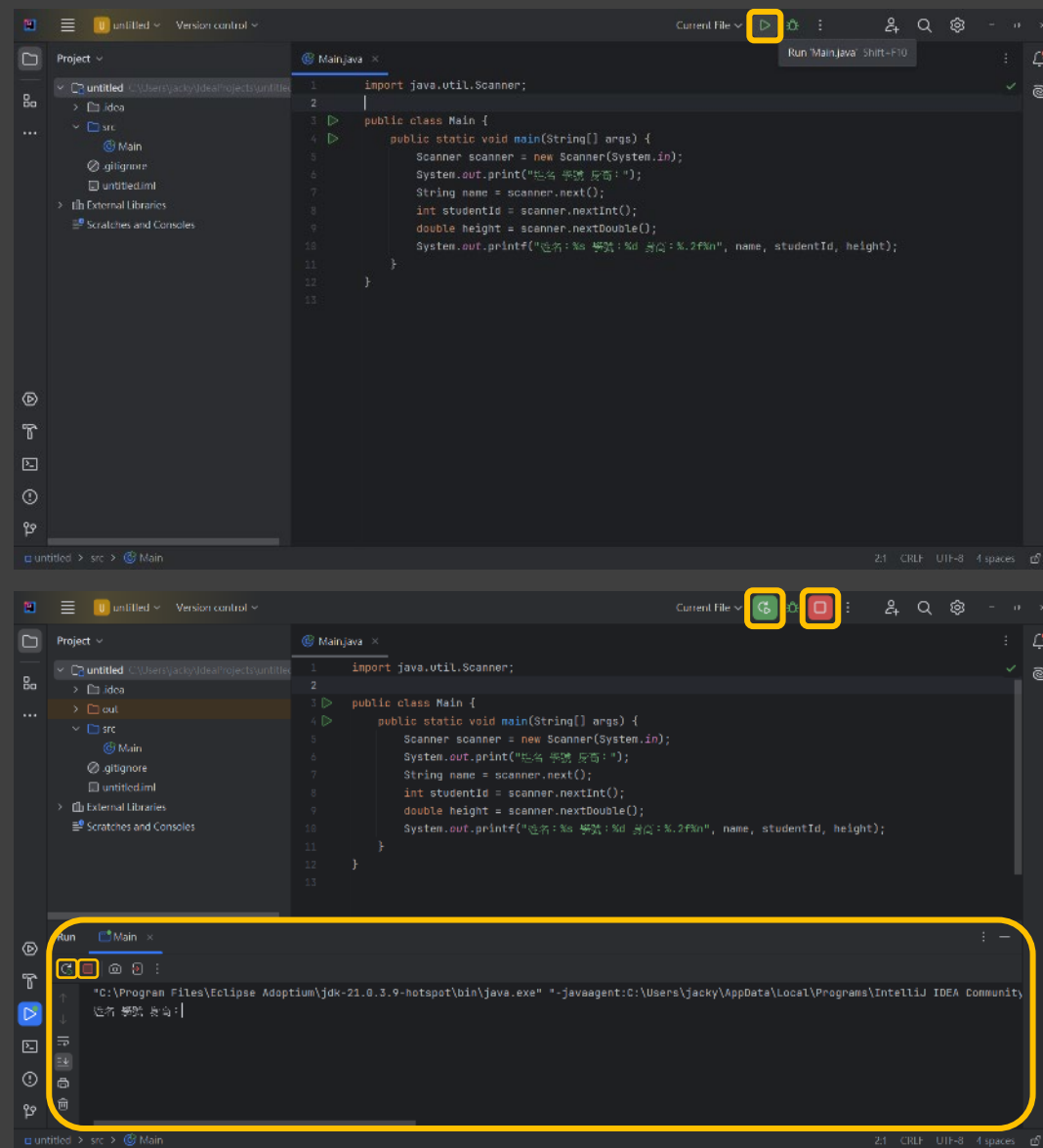
**Ctrl + /** 單行註解

**Ctrl + Shift + /** 多行註解

# 執行

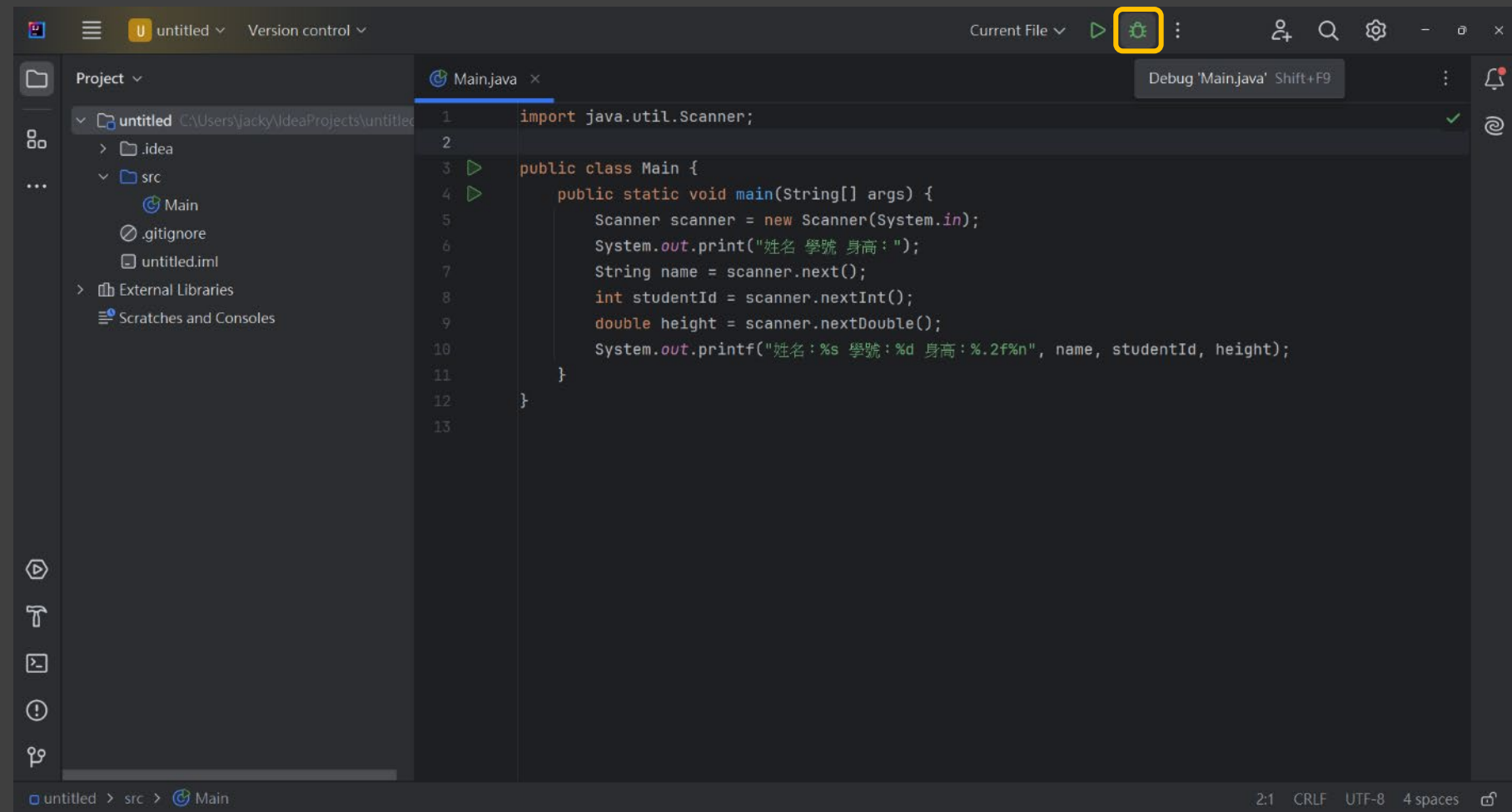
按下右上角的執行按鈕  
即可編譯與執行  
無需自行輸入指令

執行的輸入和輸出在下方的主控台  
按下停止按鈕可停止執行  
按下重啟按鈕可重新執行



# 除錯

按下右上角的  
除錯按鈕  
即可開始進行除錯



# 除錯

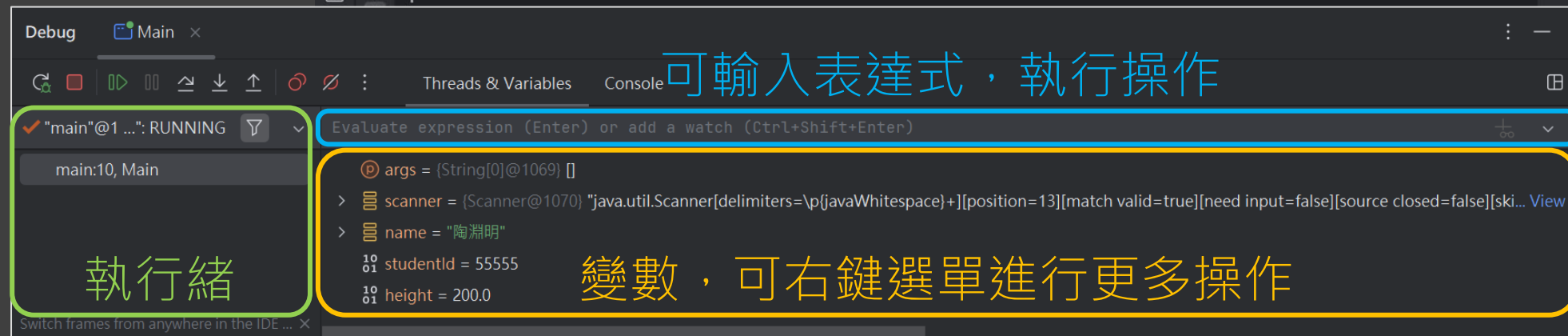
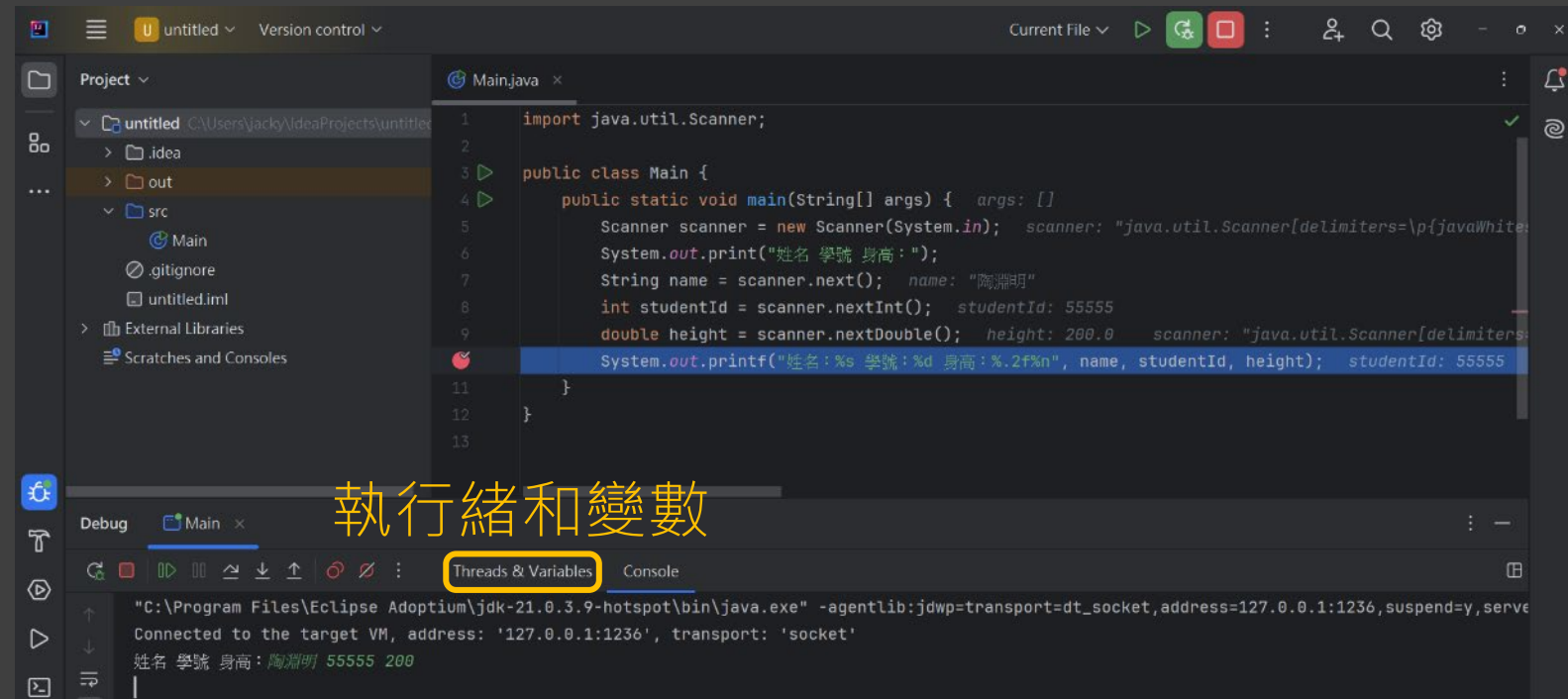
除錯(debug)比一般執行多的功能在於可以下斷點(breakpoint)  
程式在下斷點後，當執行到下斷點的行前，就會先暫停  
只需要在行編號上點擊左鍵即可下斷點，再按一次即可移除斷點



```
1  import java.util.Scanner;
2
3  public class Main {
4      public static void main(String[] args) {
5          Scanner scanner = new Scanner(System.in);
6          System.out.print("姓名 學號 身高:");
7          String name = scanner.next();
8          int studentId = scanner.nextInt();
9          double height = scanner.nextDouble();
10         System.out.printf("姓名:%s 學號:%d 身高:%.2f\n", name, studentId, height);
11     }
12 }
```

# 除錯

當程式停下後  
即可進行許多操作  
如查看、修改變數的值  
也可以移除或加新斷點



# 除錯

若想要繼續執行，可以選擇：

恢復(resume)、步過(step over)、  
步入(step in)、步出(step out)等

恢復就是程式繼續執行

步過就是執行該行，然後繼續暫停

步入與步出在更複雜的程式碼才能體現效果，之後會介紹

另外，還可以暫時忽略所有斷點

