

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

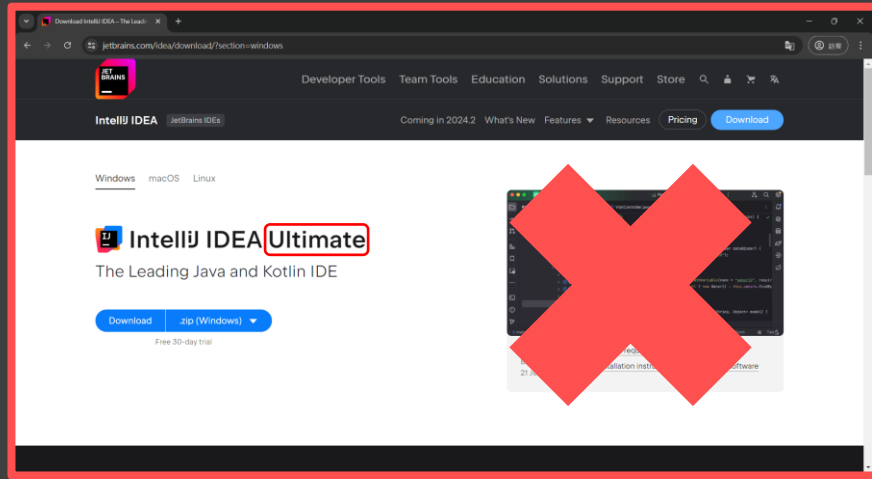
作者：Apache 基金會
自由開源軟體
使用 Java 編寫

IntelliJ IDEA 是這學年會用的

還有許多 Java IDE，但極為少見

下載/安裝

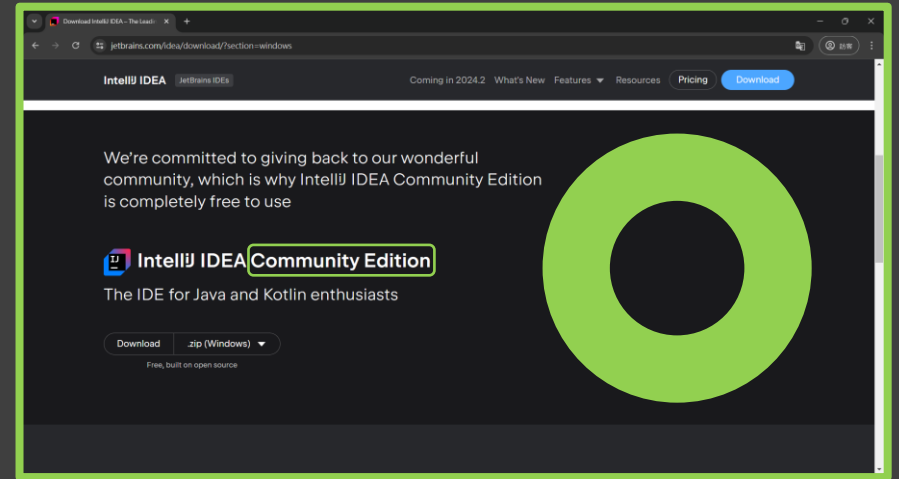
<https://www.jetbrains.com/idea/download/>



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

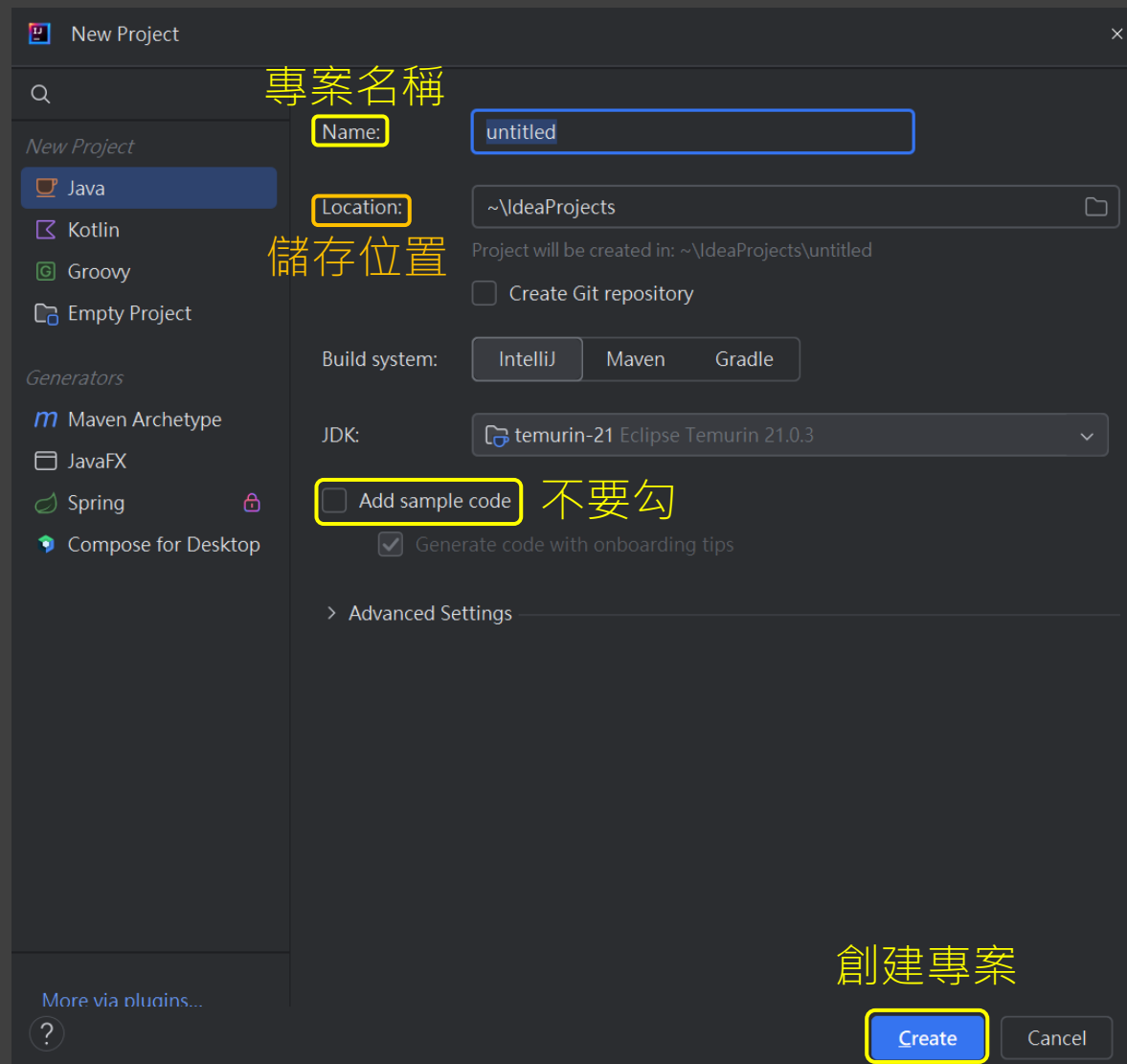
開啟後的介面



新增專案

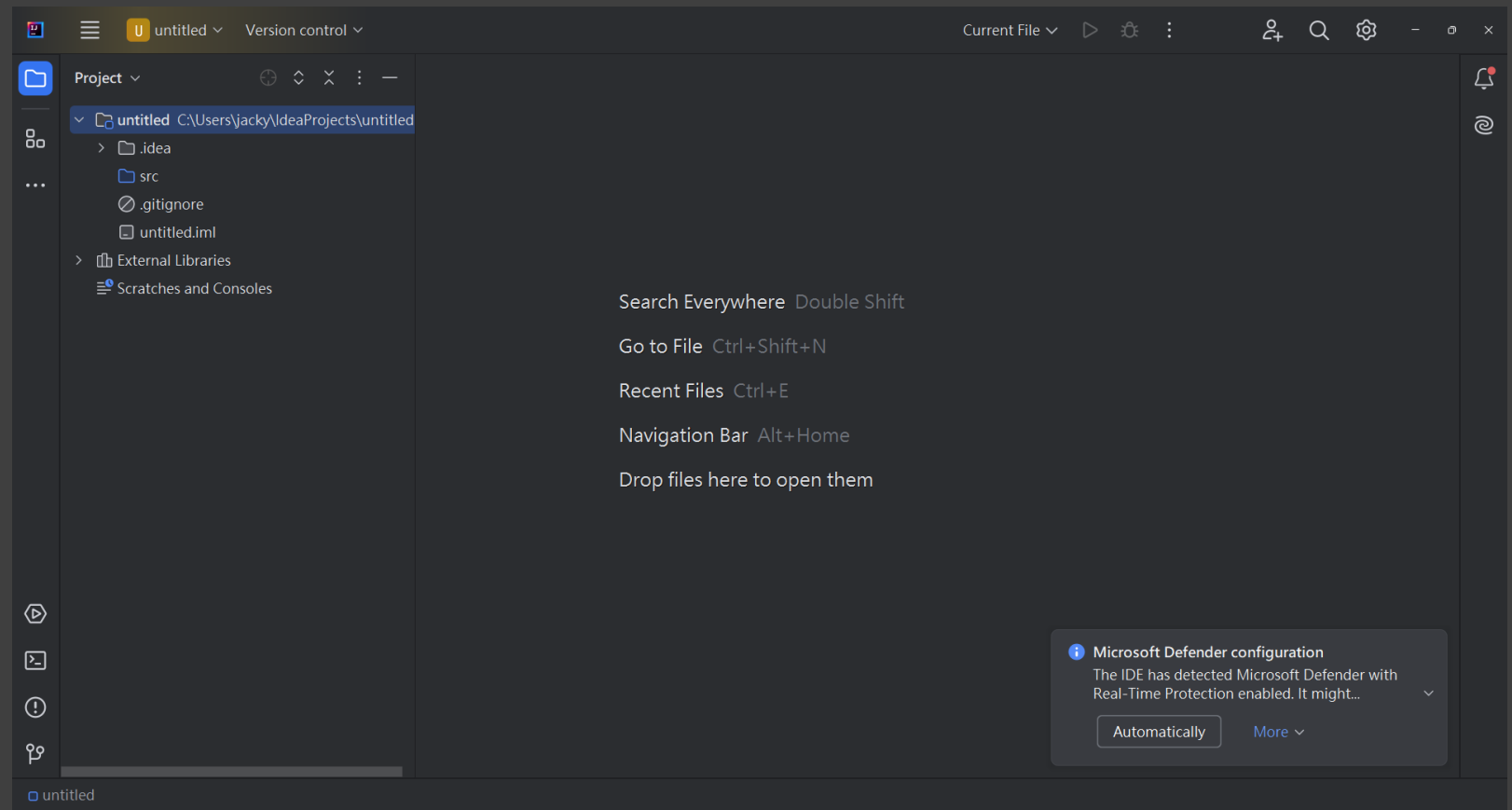
點擊 "New Project" 後
會出現右圖視窗
填好名稱後就可以創建

注意：不要勾選
"Add Sample Code"



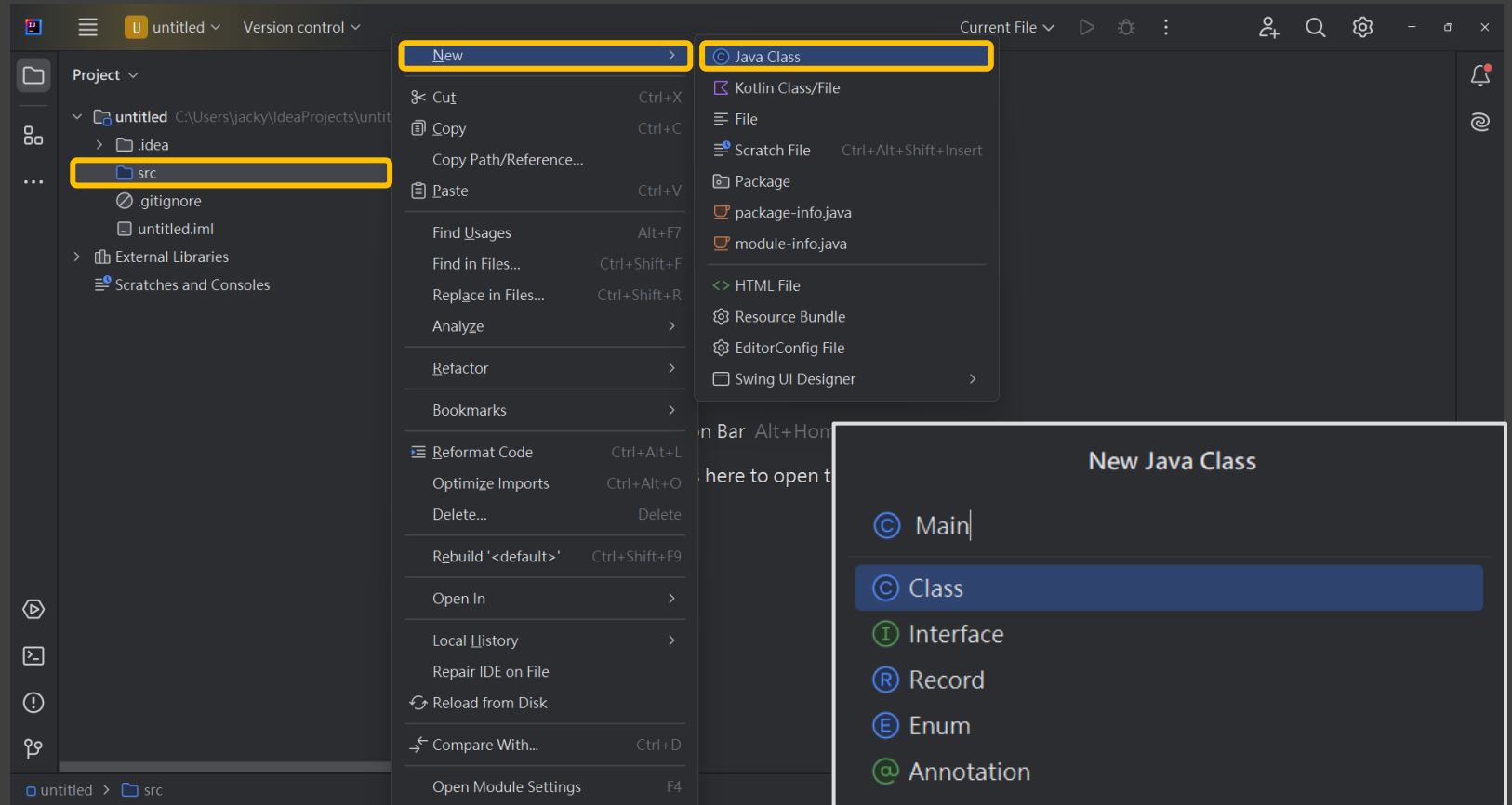
新增專案

創建完後
就會顯示專案



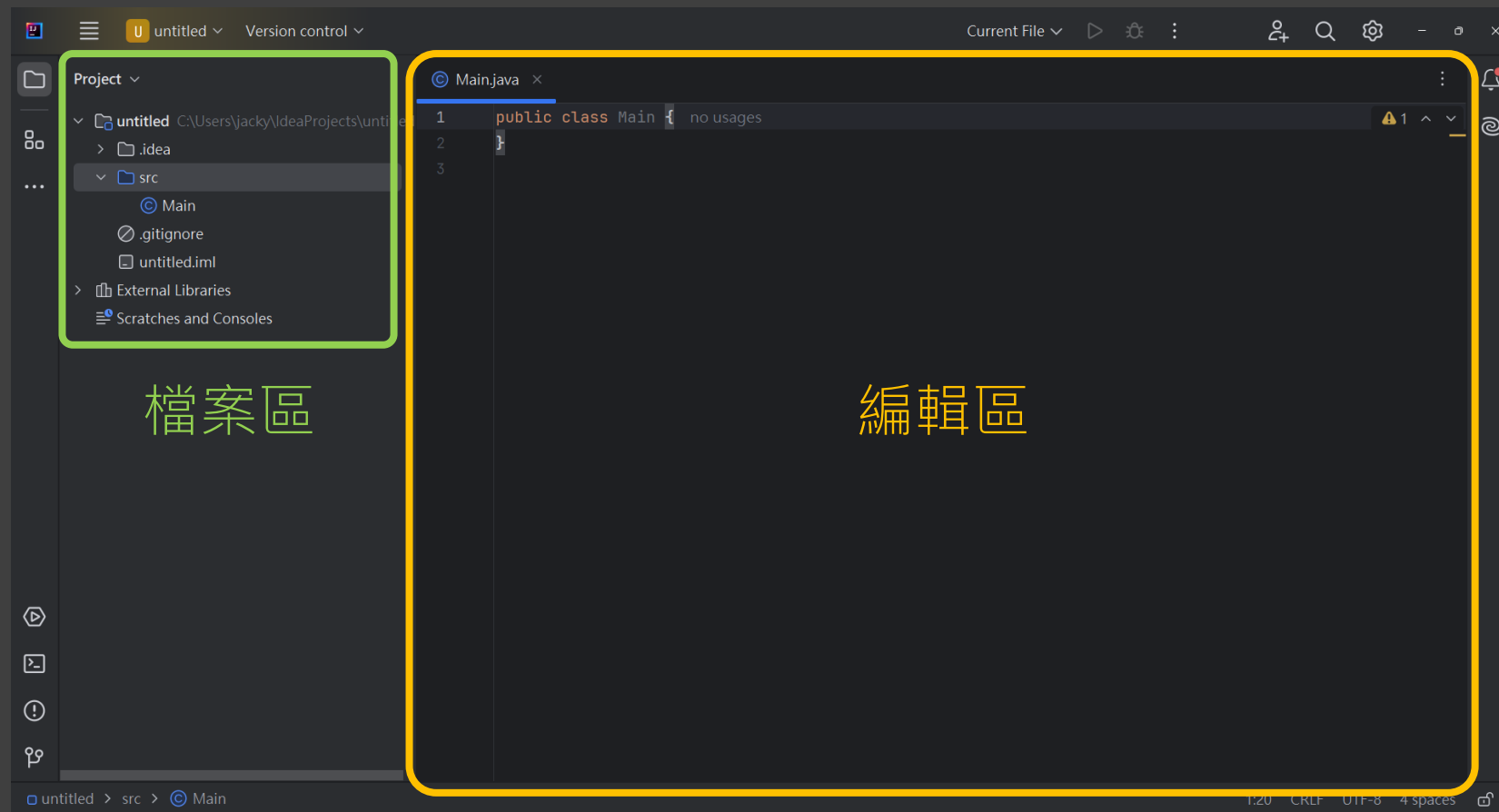
新增檔案

要新增 Class
只需要在
"src" 資料夾上
右鍵 -> New
-> Java Class
填入 Class 名稱
按下 Enter
即可創建



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  }
```

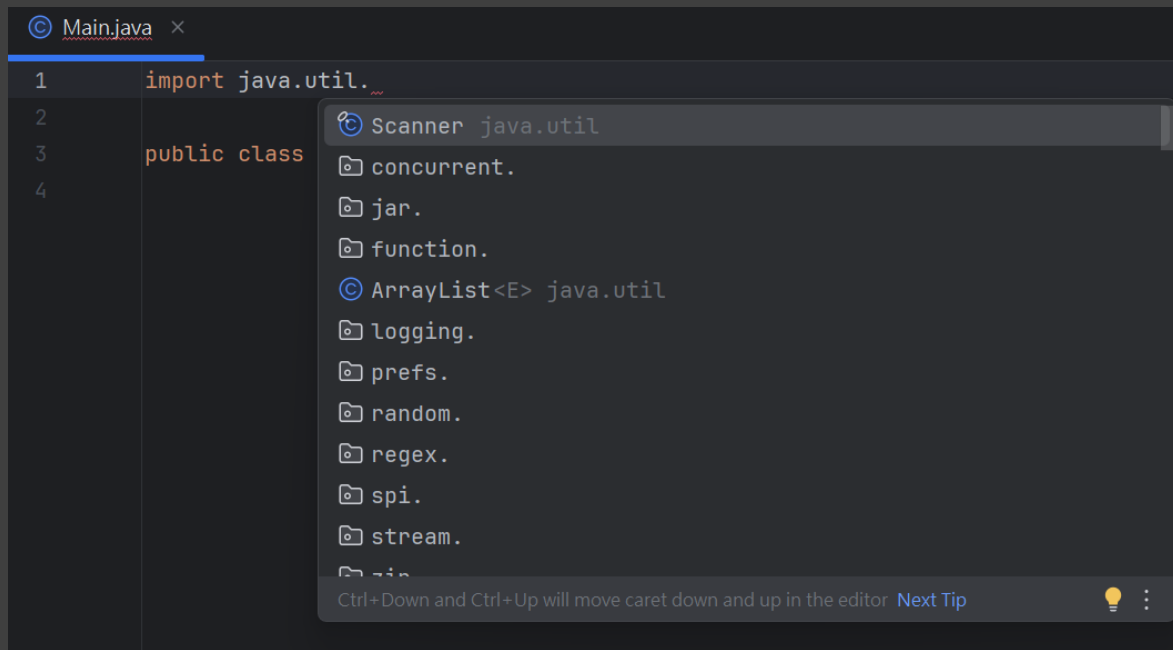


java

自動補全

打字過程中出現了些許變化：

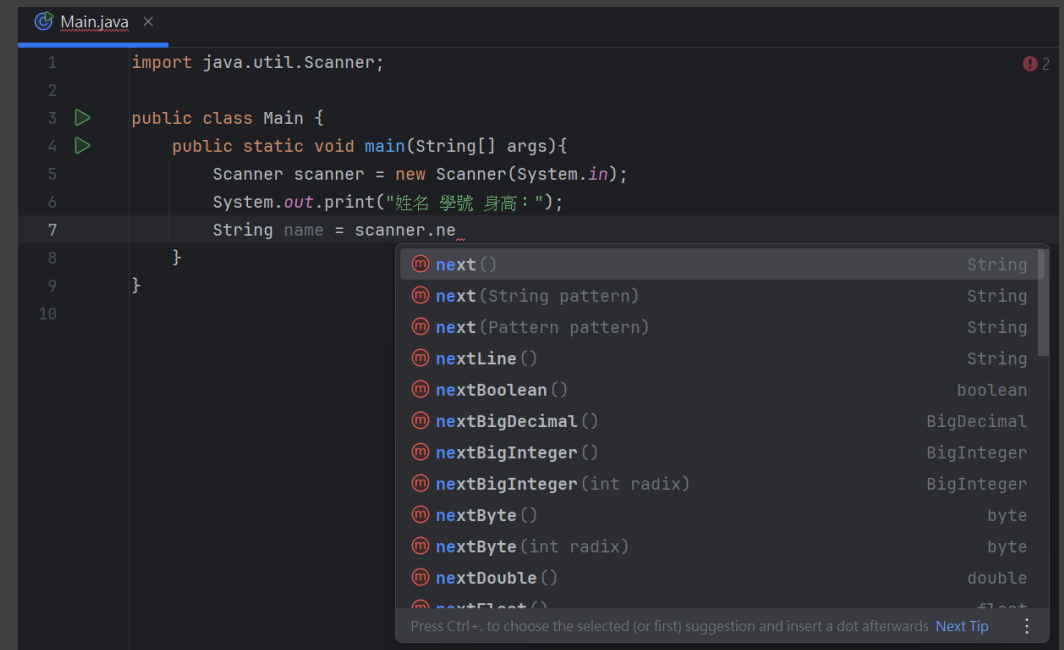
1. 打了左括號，會自動補右括號，雙引號也是
2. 會列出可以接什麼



This screenshot shows an IDE window titled 'Main.java'. The code editor contains the following text:

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

A dropdown menu is open below the 'import' statement, displaying a list of Java packages under the 'java.util' namespace. The packages listed are: Scanner, concurrent, jar, function, ArrayList<E>, logging, prefs, random, regex, spi, and stream. The 'Scanner' package is currently selected. At the bottom of the dropdown, there is a 'Next Tip' section with the text: 'Ctrl+Down and Ctrl+Up will move caret down and up in the editor'.



This screenshot shows the same IDE window 'Main.java' with the following code:

```
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
```

A dropdown menu is open below the 'String name = scanner.ne' line, showing a list of methods from the 'Scanner' class. The methods listed are: 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 currently selected. At the bottom of the dropdown, there is a 'Next Tip' section with the text: 'Press Ctrl+, to choose the selected (or first) suggestion and insert a dot afterwards'.

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" with the following Java code:

```
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 }
```

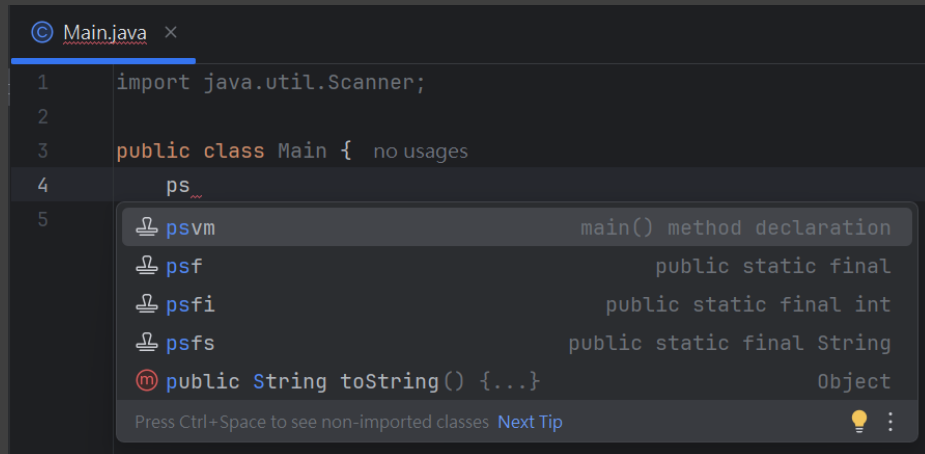
An auto-completion dropdown menu is visible, listing various methods of the `Scanner` class. The methods listed are:

- `nextLine()` (String)
- `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)

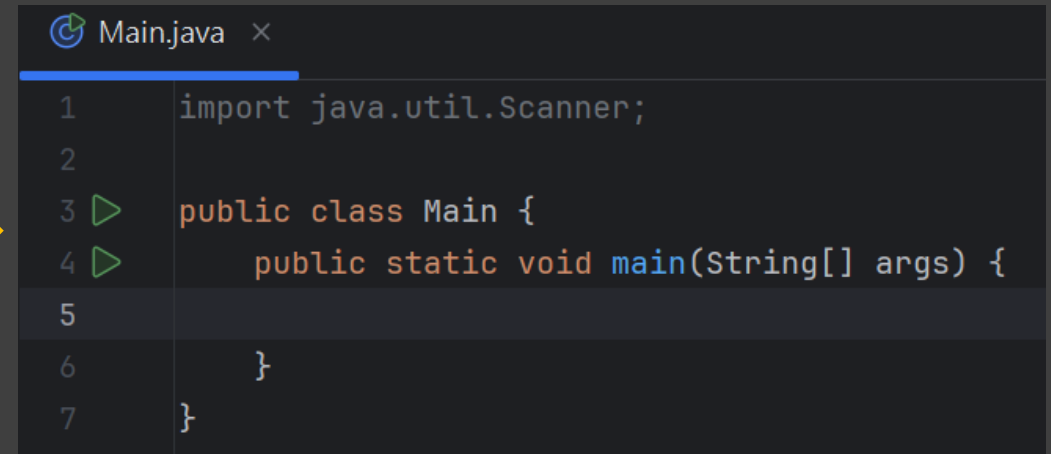
At the bottom of the dropdown, there is a tip: "Ctrl+Down and Ctrl+Up will move caret down and up in the editor. Next Tip".

自動補全

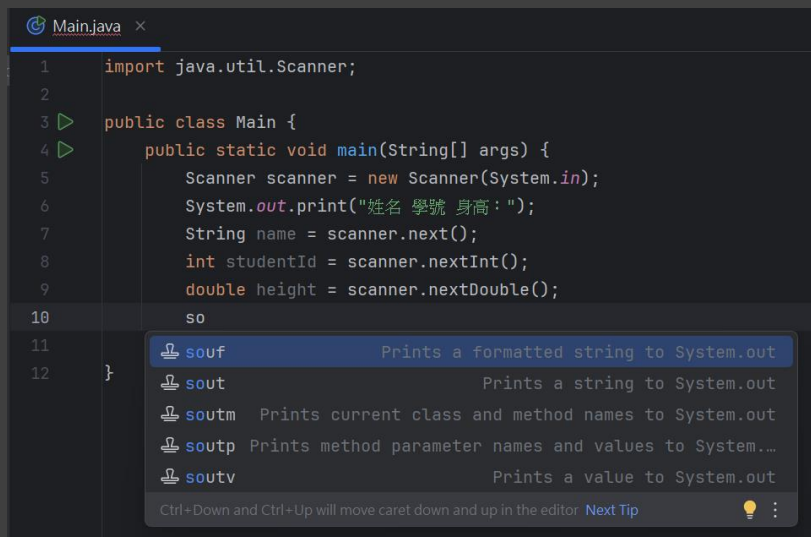
甚至，IDEA 還有內建許多快捷縮寫，如 `psvm`、`sout` 等



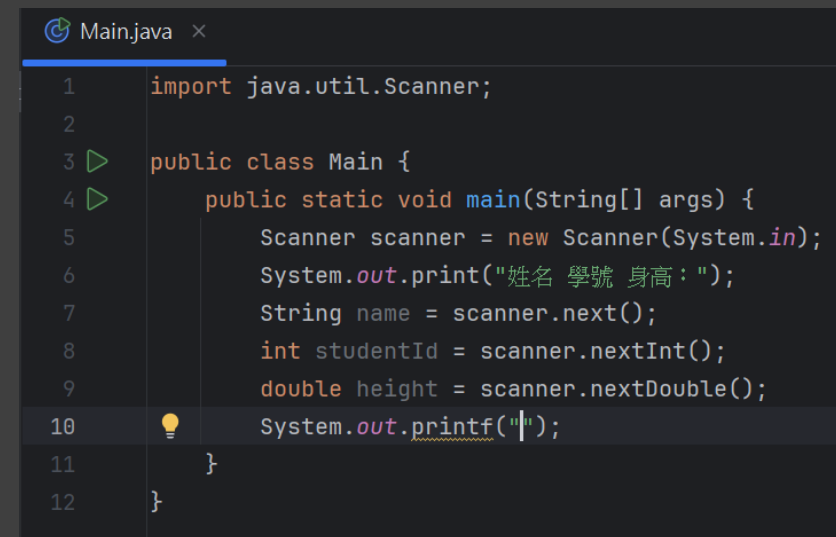
```
© Main.java x
1 import java.util.Scanner;
2
3 public class Main { no usages
4     ps
5     [psvm main() method declaration]
6     [psf public static final]
7     [psfi public static final int]
8     [psfs public static final String]
9     [toString() {...} Object]
10    Press Ctrl+Space to see non-imported classes Next Tip
```



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



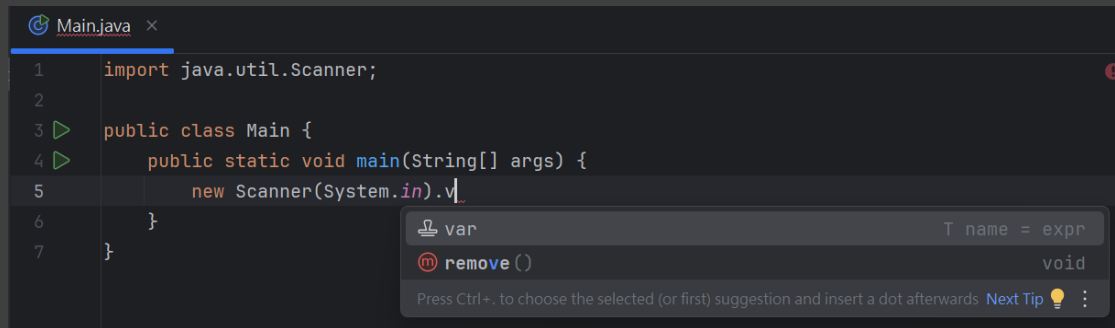
```
© Main.java x
1 import java.util.Scanner;
2
3 public class Main {
4     public static void main(String[] args) {
5         Scanner scanner = new Scanner(System.in);
6         System.out.print("姓名 學號 身高: ");
7         String name = scanner.next();
8         int studentId = scanner.nextInt();
9         double height = scanner.nextDouble();
10        so
11        [souf Prints a formatted string to System.out]
12        [sout Prints a string to System.out]
13        [soutm Prints current class and method names to System.out]
14        [soutp Prints method parameter names and values to System.out]
15        [soutv Prints a value to System.out]
16    }
17 }
```



```
© Main.java x
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.print("姓名 學號 身高: ");
11    }
12 }
```

自動補全

還能通過 `.var` 等縮寫讓 IDE 幫你補更多東西

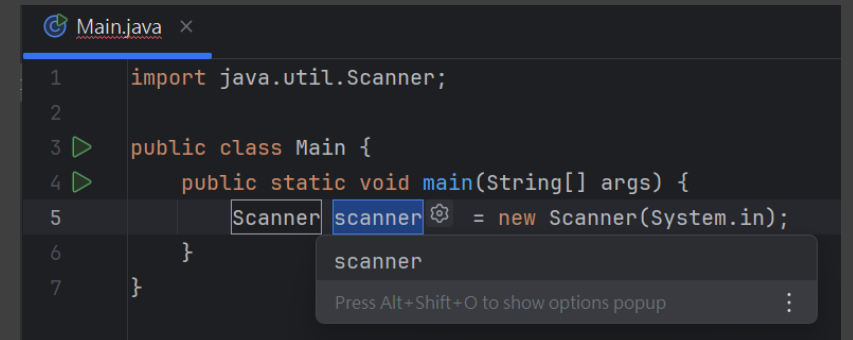


```
1 import java.util.Scanner;
2
3 public class Main {
4     public static void main(String[] args) {
5         new Scanner(System.in).v
6     }
7 }
```

The IDE shows a completion list for the character 'v' at the end of line 5. The suggestions are:

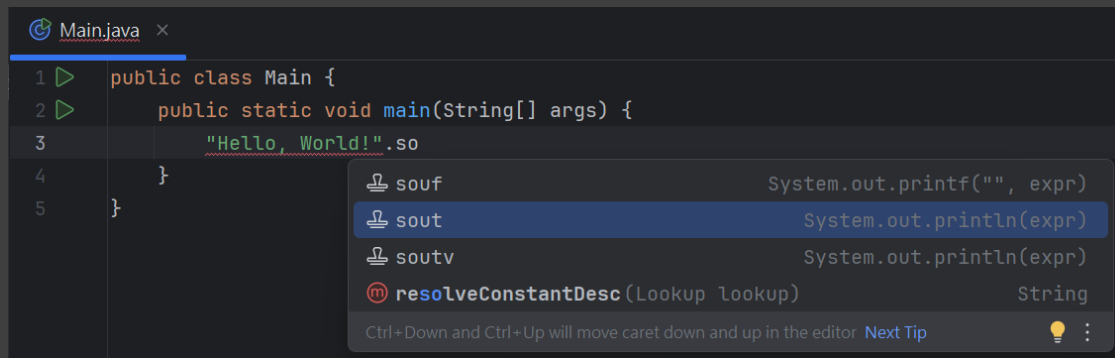
- `var` (with a tooltip `T name = expr`)
- `remove()` (with a tooltip `void`)

Below the suggestions, it says: "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 }
```

The IDE shows the result of selecting 'var' from the previous screenshot. The variable 'scanner' has been added to the code. A tooltip for 'scanner' is visible, and a message at the bottom says: "Press Alt+Shift+O to show options popup".

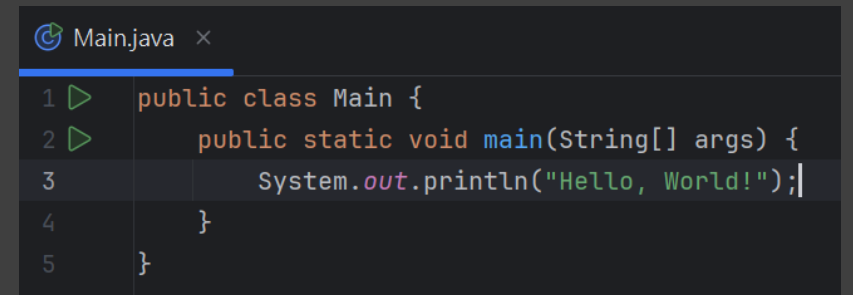


```
1 public class Main {
2     public static void main(String[] args) {
3         "Hello, World!".so
4     }
5 }
```

The IDE shows a completion list for the characters 'so' at the end of line 3. The suggestions are:

- `souf` (with a tooltip `System.out.printf("", expr)`)
- `sout` (with a tooltip `System.out.println(expr)`)
- `soutv` (with a tooltip `System.out.println(expr)`)
- `resolveConstantDesc(lookup lookup)` (with a tooltip `String`)

Below the suggestions, it says: "Ctrl+Down and Ctrl+Up will move caret down and up in the editor Next Tip".

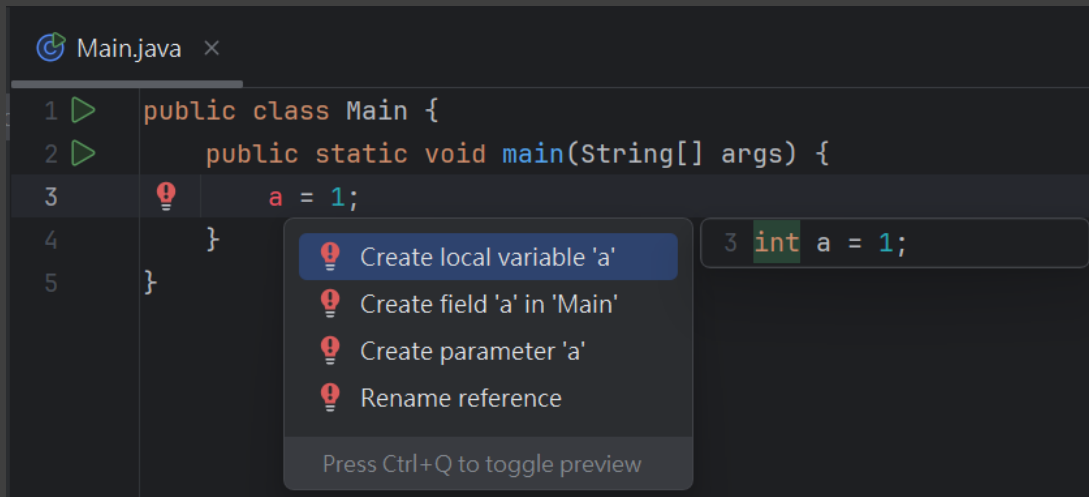


```
1 public class Main {
2     public static void main(String[] args) {
3         System.out.println("Hello, World!");
4     }
5 }
```

The IDE shows the result of selecting 'sout' from the previous screenshot. The code now prints "Hello, World!".

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

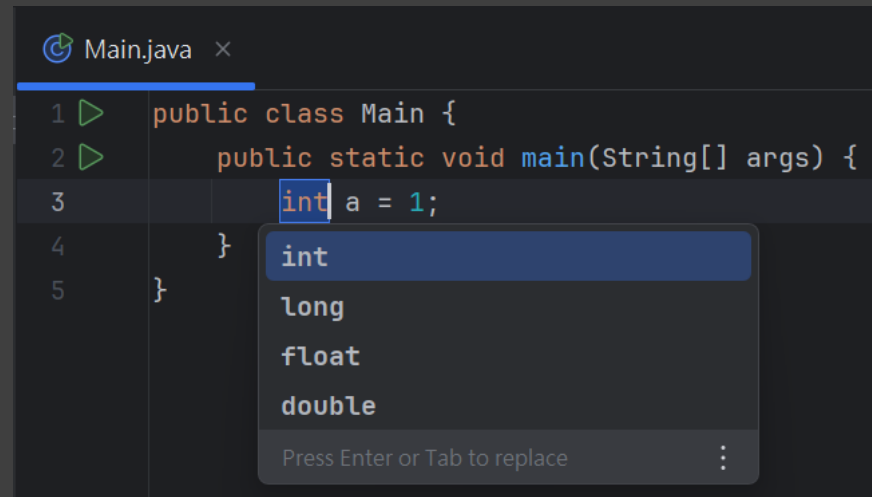


```
1 public class Main {
2     public static void main(String[] args) {
3         a = 1;
4     }
5 }
```

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

Press Ctrl+Q to toggle preview

3 int a = 1;



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

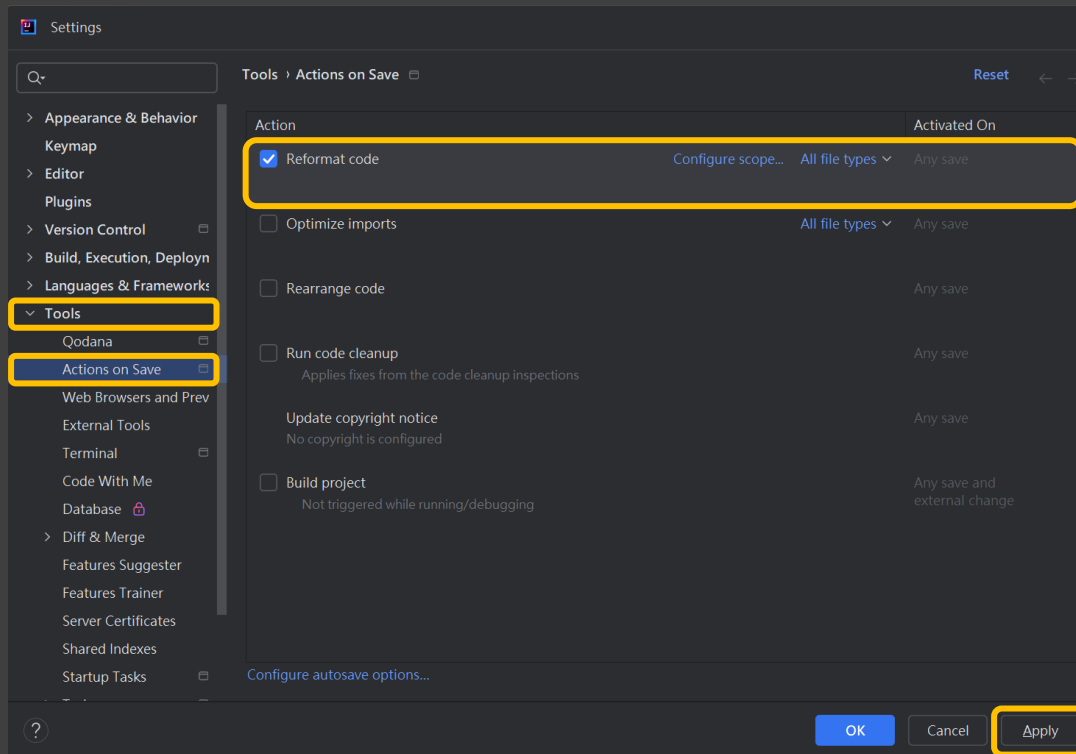
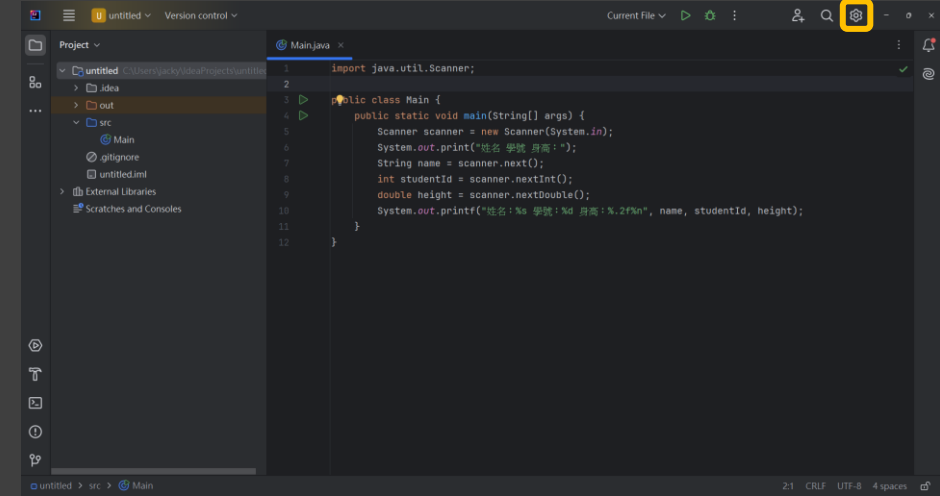
- int
- long
- float
- double

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

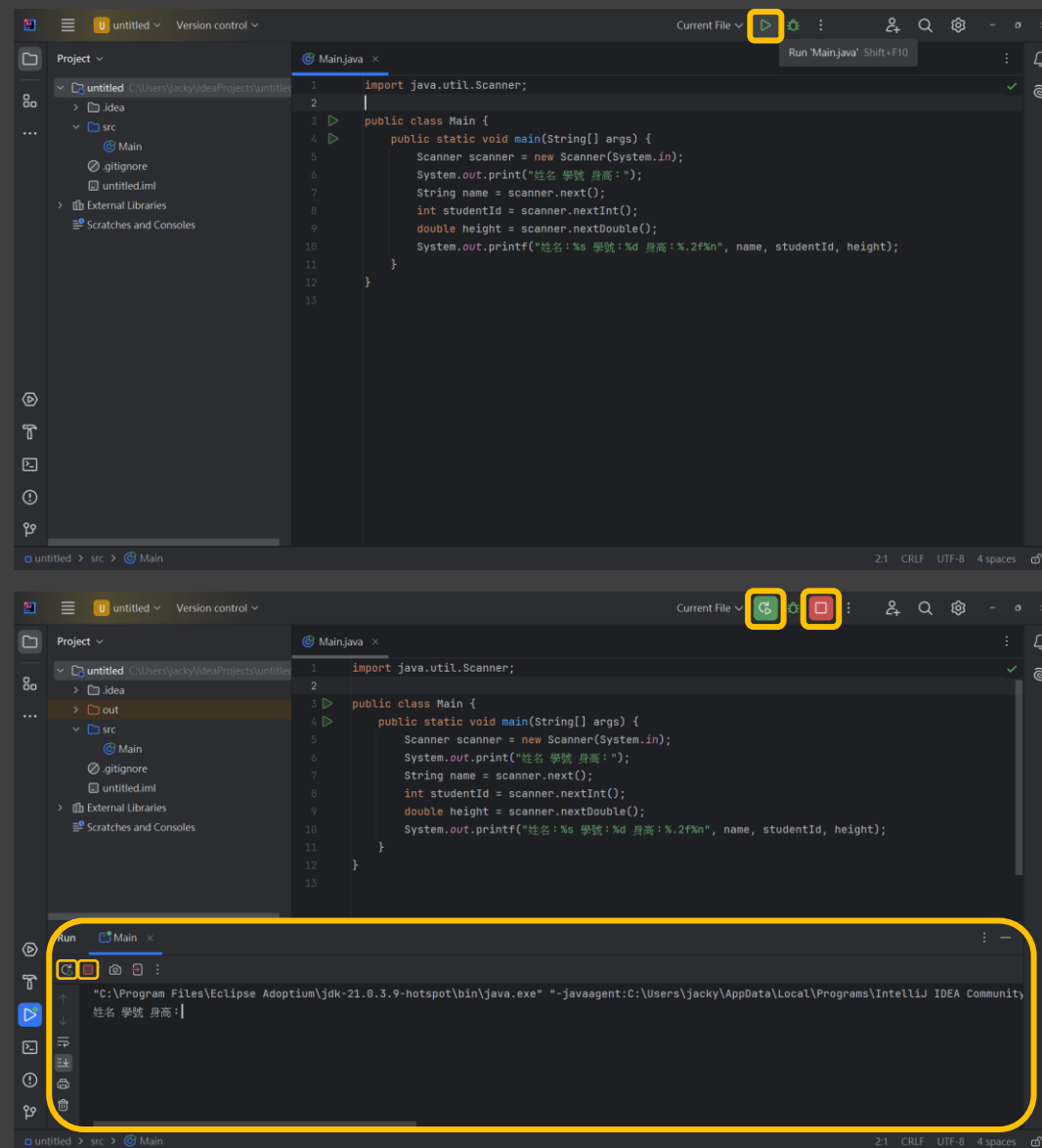
Ctrl + / 單行註解

Ctrl + Shift + / 多行註解

執行

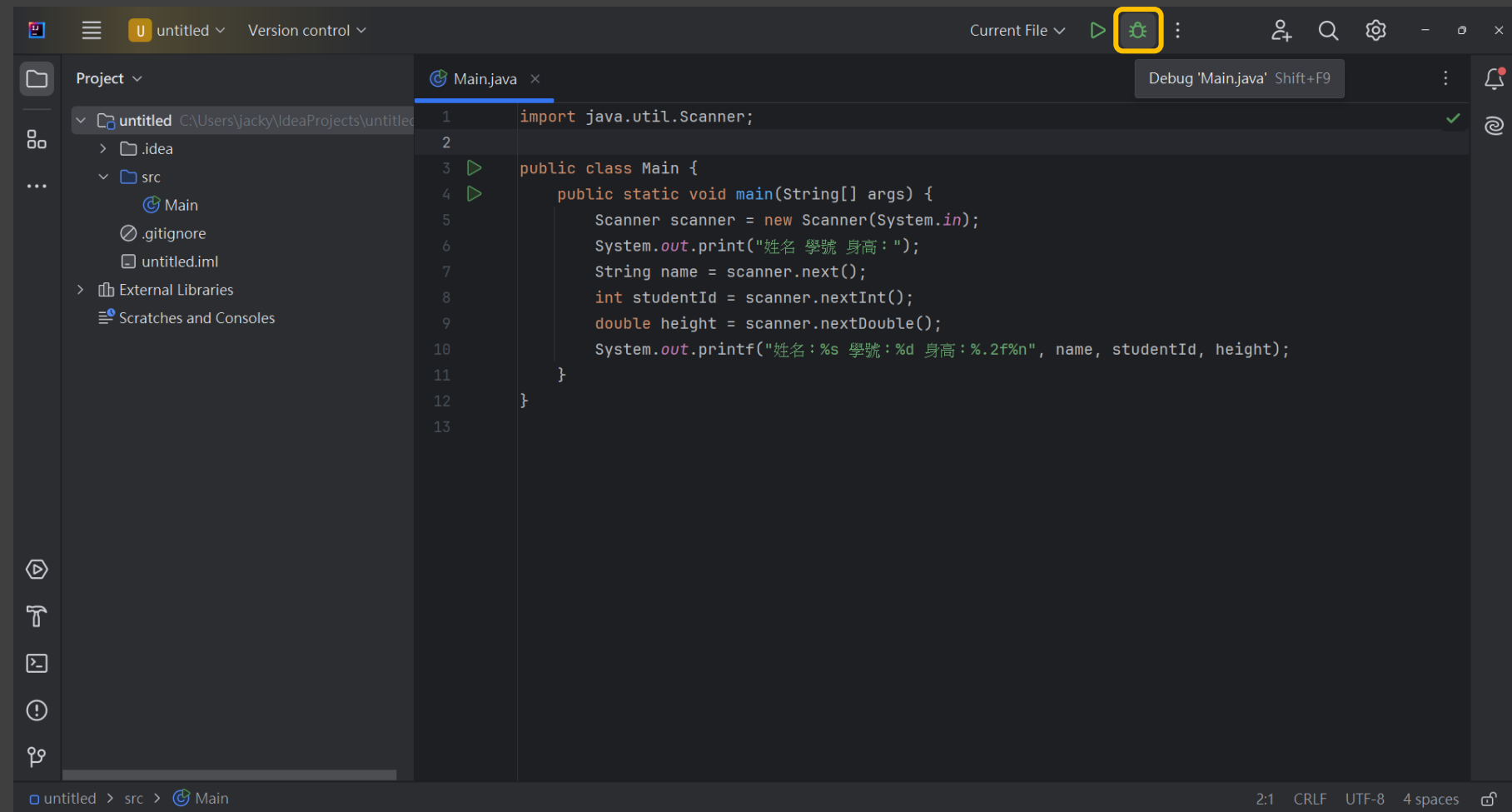
按下右上角的執行按鈕
即可編譯與執行
無需自行輸入指令

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

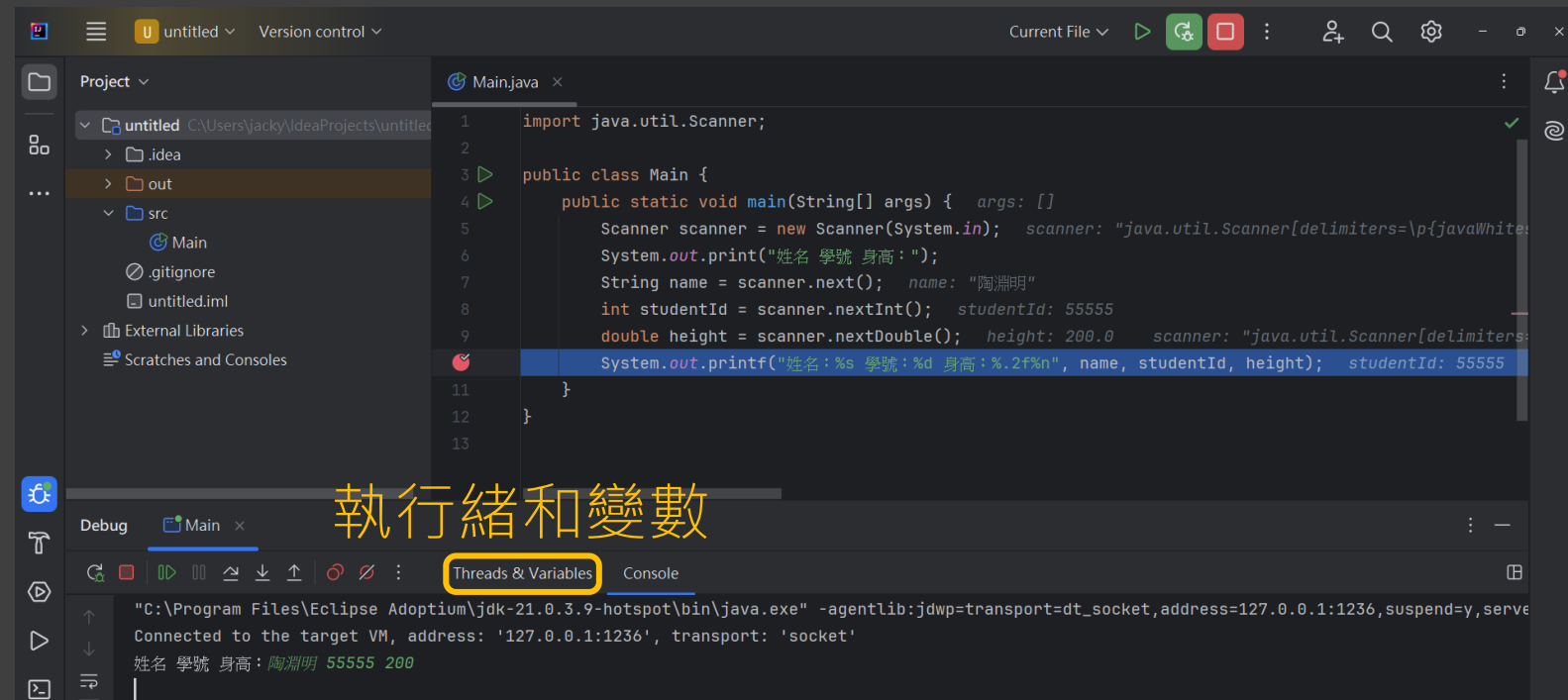


```
1  import java.util.Scanner;
2
3  public class Main {
4      public static void main(String[] args) {
5          Scanner scanner = new Scanner(System.in);
6          System.out.print("姓名 學號 身高:");
7          String name = scanner.next();
8          int studentId = scanner.nextInt();
9          double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

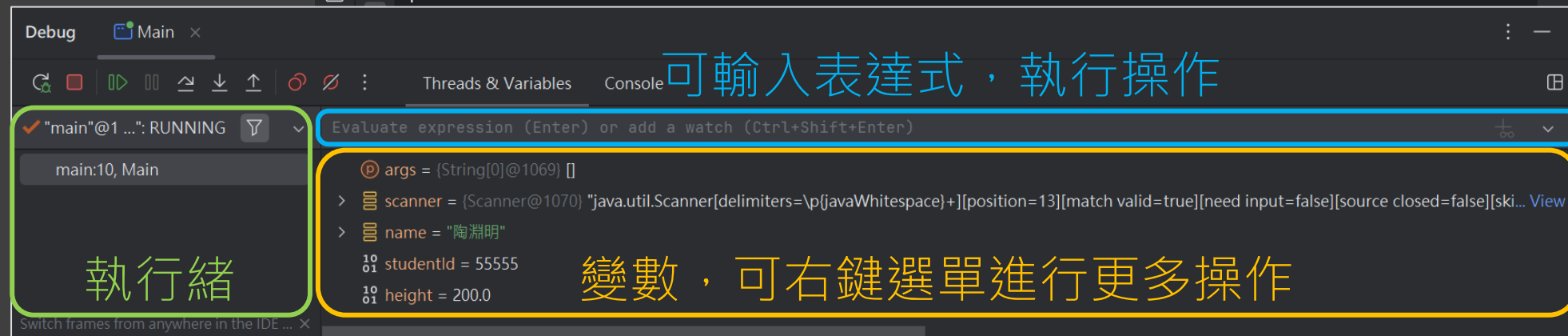
The screenshot shows a code editor window titled 'Main.java'. The code is a Java program that prompts for a name, student ID, and height, then prints them. A red circle breakpoint is set on line 10, which is highlighted in a dark red background. The line numbers 1 through 12 are visible on the left side of the editor.

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



執行緒和變數



可輸入表達式，執行操作

執行緒

變數，可右鍵選單進行更多操作

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

