

KOTLIN I

Date: 2024/04/29



Why Kotlin?



- 跨平台

Server	(Kotlin/JVM)
Web	(Kotlin/JS)
Desktop	(Kotlin/JVM)
Android	(Kotlin/JVM)
IOS	(Kotlin/Native)



簡易的線上測試編譯器

- <https://play.kotlinlang.org/>

The screenshot shows the Kotlin online playground interface. At the top, there's a navigation bar with links for Solutions, Docs, Community, Teach, and Play. Below this, the Kotlin logo is on the left, and version 1.9.23, JVM, and a text input field for program arguments are in the center. On the right, there are links for Copy link, Share code, and a Run button. The main area contains a Kotlin code snippet:

```
/**
 * You can edit, run, and share this code.
 * play.kotlinlang.org
 */
fun main() {
    println("Hello, world!!!")
}
```



建議使用的IDE IntelliJ IDEA

- 有付費版與community版本

Windows macOS Linux



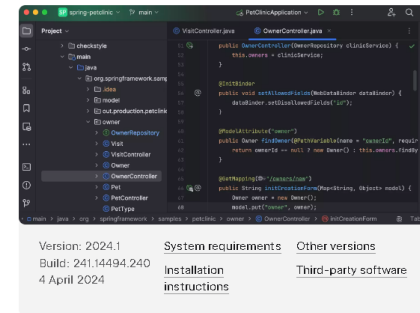
IntelliJ IDEA Ultimate

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IntelliJ IDEA Community Edition

The IDE for Java and Kotlin enthusiasts

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變數與常數宣告

- 變數

```
var course_name: String = "嵌入式微處理器系統設計"
```

變數名稱

型態

值

- 常數

```
val min_score: Int = 70
```



變數與常數宣告

- 型態可省略由編譯器自動判斷 (需考慮可讀性與資源問題)

```
var num1: Int = 10  
var num2 = 10
```

資料型態



- 整數

Type	Size (bits)	Min value	Max value
Byte	8	-128	127
Short	16	-32768	32767
Int	32	-2,147,483,648 (-2^{31})	2,147,483,647 ($2^{31} - 1$)
Long	64	-9,223,372,036,854,775,808 (-2^{63})	9,223,372,036,854,775,807 ($2^{63} - 1$)

- 浮點數

Type	Size (bits)	Significant bits	Exponent bits	Decimal digits
Float	32	24	8	6-7
Double	64	53	11	15-16

Conditions



- If else

```
var score = 70
if (score > 70){
    print("穩啦")
}else if(score == 70){
    print("讚啦")
}else{
    print("哭阿")
}
```


Conditions



- When (Switch)

```
var day = 1
when(day){
    6,7->{
        print("sleeping")
    }
    3->{
        print("studying")
    }
    else->{
        print("working")
    }
}
```



Loops

- for

```
for (i in 0..10){  
    println(i)  
}  
  
for (i in 10 downto 0 step 1){  
    println(i)  
}
```



Arrays and ArrayList

```
val animals: Array<String> = arrayOf("monkey", "elephant")

// val fruits: ArrayList<String> = ArrayList<String>()
val fruits = ArrayList<String>()

fruits.add("banana") //append()
fruits.add("melon")

for ((index, value) in animals.withIndex()) {
    println("The $value is eating a ${fruits[index]}")
}
```



Function

```
fun my_plus_func(a: Int, b: Int): Int{  
    return a+b  
}
```

函式名稱

參數名稱:型態

回傳型態

```
print("${my_plus_func(3, 4)}")
```



Read and Split

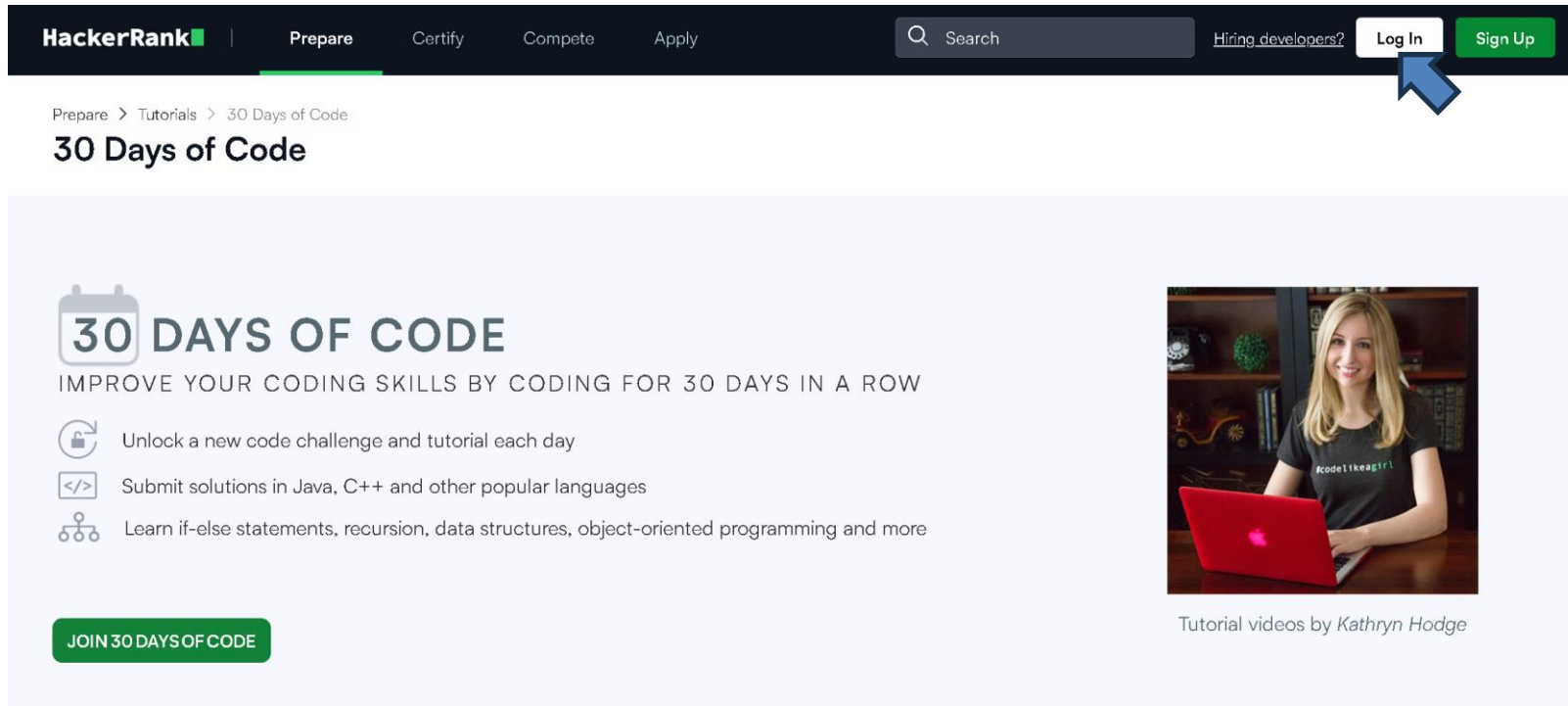
```
import java.io.*
import java.util.*

fun main(args: Array<String>) {
    val hello = readLine()
    println(hello)

    val (a, b) = readLine()!!.split(' ')
    println(a.toInt() + b.toInt())
}
```

作業

- 先點選以下網址進入Hackerrank，並且利用Google帳號登入
<https://www.hackerrank.com/domains/tutorials/30-days-of-code>



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Search Hiring developers? Log In Sign Up

Prepare > Tutorials > 30 Days of Code

30 Days of Code

30 DAYS OF CODE

IMPROVE YOUR CODING SKILLS BY CODING FOR 30 DAYS IN A ROW

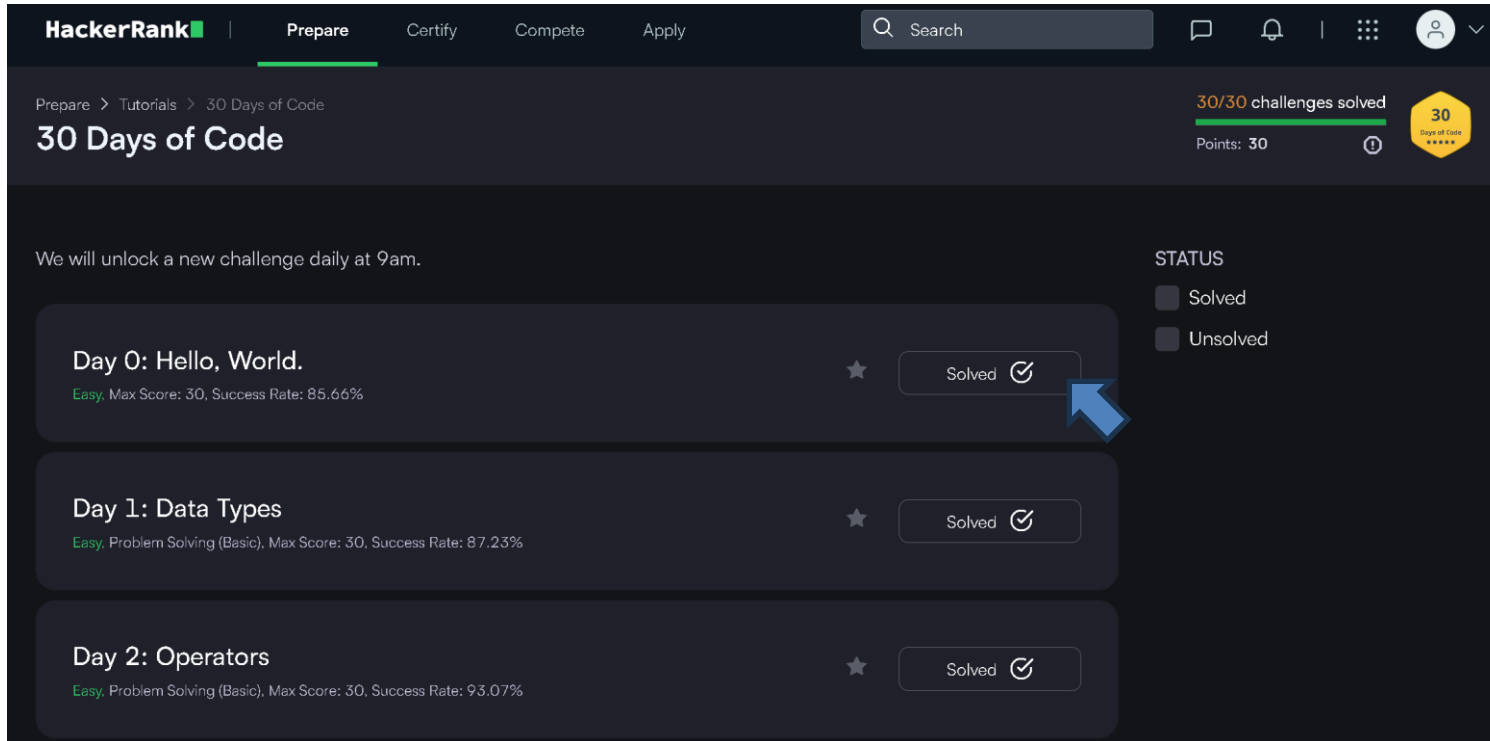
- Unlock a new code challenge and tutorial each day
- Submit solutions in Java, C++ and other popular languages
- Learn if-else statements, recursion, data structures, object-oriented programming and more

[JOIN 30 DAYS OF CODE](#)

Tutorial videos by Kathryn Hodge

課堂作業

- 點選要解的題目



The screenshot displays the HackerRank interface for the '30 Days of Code' challenge. The top navigation bar includes 'HackerRank', 'Prepare', 'Certify', 'Compete', and 'Apply'. A search bar and user profile icon are also present. The main header shows '30/30 challenges solved' and 'Points: 30'. The challenge list includes:

- Day 0: Hello, World.** (Easy, Max Score: 30, Success Rate: 85.66%) - Solved
- Day 1: Data Types** (Easy, Problem Solving (Basic), Max Score: 30, Success Rate: 87.23%) - Solved
- Day 2: Operators** (Easy, Problem Solving (Basic), Max Score: 30, Success Rate: 93.07%) - Solved

A blue arrow points to the 'Solved' button for Day 0. The 'STATUS' legend on the right indicates 'Solved' (checked) and 'Unsolved' (unchecked).

課堂作業



- 本次課堂作業 (超連結，按ctrl+左鍵進入題目)

[Day 0: Hello, World.](#)

[Solve Me First](#)

[Simple Array Sum](#)

[Compare the Triplets](#)

[A Very Big Sum](#)

[Diagonal Difference](#)

[Plus Minus](#)



課堂作業

- Language 選擇 Kotlin

HackerRank | Prepare > Tutorials > 30 Days of Code > Day 0: Hello, World. Exit Full Screen View

Problem

Objective

In this challenge, we review some basic concepts that will get you started with this series. You will need to use the same (or similar) syntax to read input and write output in challenges throughout HackerRank. Check out the [Tutorial](#) tab for learning materials and an instructional video!

Task

To complete this challenge, you must save a line of input from stdin to a variable, print `Hello, World.` on a single line, and finally print the value of your variable on a second line.

You've got this!

Note: The instructions are Java-based, but we support submissions in many popular languages. You can switch languages using the drop-down menu above your editor, and the `inputString` variable may be written differently depending on the best-practice conventions of your submission language.

Input Format

A single line of text denoting `inputString` (the variable whose contents must be printed).

Output Format

Code Editor: Language: Kotlin

```
1 import java.io.*
2 import java.util.*
3
4 fun main(args: Array<String>) {
5     /* Enter your code here. Read input from STDIN. Print output to STDOUT. */
6
7 }
8
```

Line: 8 Col: 1

Buttons: Upload Code as File, Test against custom input, Run Code, Submit Code



課堂作業

- 根據題目解說與右方模板提示作答

HackerRank | Prepare > Tutorials > 30 Days of Code > Day 0: Hello, World. Exit Full Screen View

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Code Editor: Change Theme Language: Kotlin

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6 }
7
8
```

Line: 8 Col: 1

Upload Code as File Test against custom input Run Code Submit Code



課堂作業

- Run Code 會依據範例輸入至程式

HackerRank | Prepare > Tutorials > 30 Days of Code > Day 0: Hello, World. Exit Full Screen View

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6
7 }
8
```

Line: 8 Col: 1

Upload Code as File Test against custom input Run Code Submit Code



課堂作業

- 勾選此選項可以自定義輸入測試程式

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Output Format

```
6  to STDOUT. */
7  }
8
```

Line: 8 Col: 1

☒ Test against custom input



課堂作業

- Submit Code 會有多組隱藏測試來檢驗程式是否通過

HackerRank | Prepare > Tutorials > 30 Days of Code > Day 0: Hello, World. Exit Full Screen View

Problem

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本次Bonus



- Encryption