

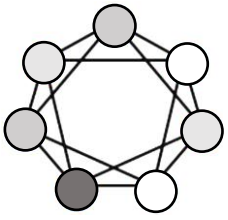
# Tutorial 1

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2024/1/17



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The Chinese University of Hong Kong, Shenzhen



# *How to write a Java program*

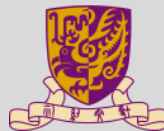
Let's see the general structure of a java code

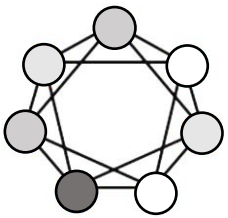
```
import java.util.*;

public class Sample { // define a main class
    public static void main(String[] args) { // main function
        /* your code here */
    }
    public static void my_fun(int a1, float a2, double a3) { }
}

class MyClass { // a self-defined class
    public int num_1;
    private double num_2;

    MyClass() { }
    public double getNum2() { return num_2; }
    public void setNum2(double new_val) { num_2 = new_val; }
}
```





```
import java.util.*; // import statement: import every class in java.util package

// define a main class:
// the class should be public and the class name
// should be the same as the corresponding file name
public class Sample {
    // there should be a `public` and `static` main function inside the main class
    public static void main(String[] args) {
        /* your code here */
    }

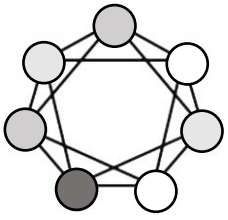
    // If you define new functions used in the main function,
    // state them as `static` function
    // NOTE: java is statically typed,
    //       so be sure to declare the return type / classes and argument types / classes.
    public static void my_fun(int a1, float a2, double a3) { }
}

// If you need self-defined classes,
// please define it as below.
// NOTE: self-defined classes should not be declared as 'public'
class MyClass {

    // attributes
    public int num_1;
    private double num_2;

    // initialization
    MyClass() { }

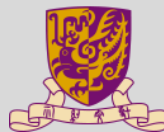
    // methods (here set and get, for example)
    public double getNum2() { return num_2; }
    public void setNum2(double new_val) { num_2 = new_val; }
}
```

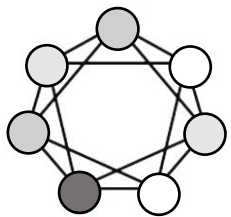


# *Sample Program: Hello World*

```
1 public class Hello {  
2     public static void main(String[] args) {  
3         System.out.println("hello, world!");  
4     }  
5 }  
6  
7  
8
```

The screenshot shows an IDE window titled 'tutorial1' with a 'Version control' dropdown. The left sidebar displays a project tree for 'tutorial1' located at 'D:\ASUS\OneDrive - C'. The tree includes folders '.idea', 'out', and 'src'. Under 'src', there are files 'Hello', 'Main', and 'Sample.java' (highlighted). There is also a '.gitignore' file and a 'tutorial1.iml' file. The main editor area shows the 'Hello.java' file with the following code:





# *Compile & Run your Java program using command line*

## Take “Hello.java” as example

– (commands also work on MacOS)

1. Compile and generate the “Hello.class” file.
2. Run your code

The screenshot shows an IDE with a project named 'tutorial1'. The file 'Hello.java' is open, containing the following code:

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

The terminal window shows the following commands and output:

```
PS D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src> ls

目录: D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src

Mode                LastWriteTime         Length Name
----                -
-a---l            2024/1/9 22:37             128 Hello.java
-a---l            2024/1/9 22:21             778 Main.java
-a---l            2024/1/9 22:29             241 Sample.java

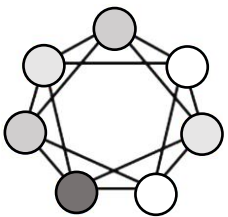
PS D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src> javac .\Hello.java 1
PS D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src> ls

目录: D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src

Mode                LastWriteTime         Length Name
----                -
-a----            2024/1/9 22:39             417 Hello.class
-a---l            2024/1/9 22:37             128 Hello.java
-a---l            2024/1/9 22:21             778 Main.java
-a---l            2024/1/9 22:29             241 Sample.java

PS D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src> java Hello 2
hello, world!
PS D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src>
```





# *Compile & Run your Java program using command line*

**Alternative: (use when the program contains one file only)**

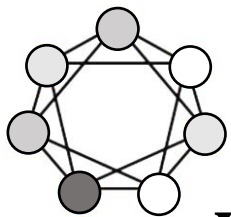
```
Terminal  Local × + ∨
PS D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src\tmp> ls

目录: D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src\tmp

Mode                LastWriteTime         Length Name
----                -
-a---l            2024/1/9 22:37             128 Hello.java

PS D:\ASUS\OneDrive - CUHK-Shenzhen\TA\3100-23S\tut1\tutorial1\src\tmp> java .\Hello.java
hello, world!
```





# *CUHKSZ Online Judge*

---

Website [Campus only] <http://oj.cuhk.edu.cn>

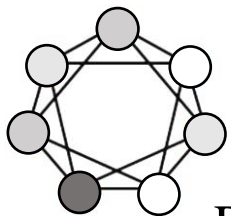
Why use the OJ?

- Evaluate the coding assignments
- Easily get the feedback (both for you and TA)
- Enjoy programming

When grading assignments, the OJ only collects the score from the last submission.

**PS: Remember to submit your highest-scoring program as the final submission.**





# OJ Quick Start

Please carefully read the wiki -- <http://oj.cuhk.edu.cn/wiki#/quick-start>

Wrong steps can affect your score

Sch/OJ

Home Problems Submissions Users Contests About Status **Wiki**

223040238 Edit profile Log out

### News

#### 100 Data Structure Practice Problems Are Now Available on OJ!

★ Enderturtle, 100ProblemsUploader posted 2 months ago 1

We are excited to share that 100 high-quality data structure problems are now accessible on the Online Judge for your practice. These problems encompass a range of topics, providing an excellent opportunity for you to enhance your coding skills. They are categorized into eight major classes:

- Array/List
- Graph
- Hashing
- Recursion/Divide-and-conquer
- Sorting
- Stack/Queue
- Strings
- Tree

Additionally, they are labeled with three difficulty levels:

- one star for difficulty below CSC3100 assignment level
- two stars for equal difficulty
- three stars for difficulty above assignment level

#### 10000 AC and New Address

Enderturtle posted on Dec. 5, 2022, 12:40 p.m. 1

Today, Sch/OJ received its 10000th AC submission!!!

Since the new Sch/OJ was used for CSC courses in September this year, it has judged more than 30000 submissions.

Thank you for your code, support and suggestions.

After ITSO approval, OJ has a new address. You can directly use [oj.cuhk.edu.cn](http://oj.cuhk.edu.cn) to access OJ.

#### New Support for Java

Enderturtle posted on Nov. 6, 2022, 5:51 p.m. 0

In order to support CSC1003 teaching, OJ has introduced some libraries from Princeton Univerity, which you can call directly without using `import`.

### Sch/OJ Wiki

[Back to Sch/OJ](#)

#### Quick Start

- How to register?
- How to participate in contest (assignment)?
- How to submit solution?
- How to check the feedback and score?

Submission Status (Feedback)

Q&A

Sorting

Sorting | ★★

Paired Up | ★

DSC / Atom

## Quick Start

Updated: 2022.10.19

### How to register?

- Step 1. Click the [register](#) bottom.
- Step 2. For students, we recommend that you follow the format below to ensure that your grades are entered properly for the corresponding course.

Username

Email

Password (?)

Password (again, for confirmation)

Timezone (select your closest major city)

Shanghai

Default language

Python 3

Affiliated organizations

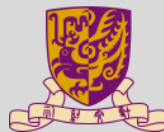
☐

Your student ID

Please use official email address

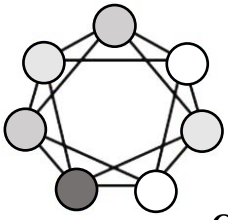
Please choose UTC+8 Time Zone  
Such as Shanghai, Hong Kong etc.

You can simply ignore them



香港中文大學(深圳)  
The Chinese University of Hong Kong, Shenzhen





# Register

oj.cuhk.edu.cn/accounts/register/

Username

12109XXXX

Email

12109XXXX@link.cuhk.edu.cn

Password (?)

.....

Password (again, for confirmation)

.....

Timezone (select your closest major city)

Shanghai

or [pick from map](#), [detect](#)

Default language

Python 3

Affiliated organizations

☐

By registering, you agree to our [Terms & Conditions](#).

Register!

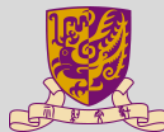
Your student ID

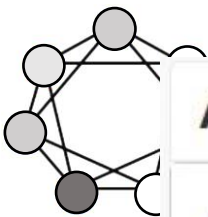
Please use official email address

Incorrect username may cause TA  
to be unable to get your score.

Please choose UTC+8 Time Zone Such as  
Shanghai, Hong Kong etc.

*You can simply ignore them*






## Activate your CUHKSZ OJ account

 将消息翻译为 | 始终不翻译 英语



Tianci Hou (SDS, 121090184)

收件人: 



周日 2022/9/4 14:31

**Thanks for registering on the SchOJ! We're glad to have you.**

**Click it !**

The last step is activating your account. Please activate your CUHKSZ OJ account in the next 7 days.

Please click on the following link to activate your account:

<http://10.26.200.13/accounts/activate/>  

Alternatively, you can reply to this message to activate your account. Your reply must keep the following text intact for this to work:



See you soon!

If you have problems activating your account, feel free to send us an email at [oj@cuhk.edu.cn](mailto:oj@cuhk.edu.cn).

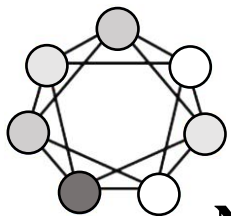
 答复

 转发



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The Chinese University of Hong Kong, Shenzhen



# Test

Now please join the contest to test.

<http://oj.cuhk.edu.cn/contest/testcontest>

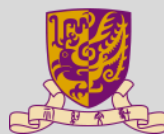
[Home](#)[Problems](#)[Submissions](#)[Users](#)[Contests](#)[About](#)[Status](#)[Login](#)[Register](#)

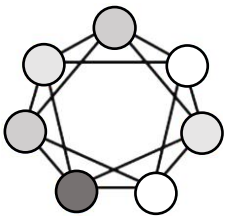
## Contests

[List](#)[Calendar](#)

### Ongoing Contests

Contest	Users	
<a href="#">test</a> Ends in 14 days 02:22:45 Sep 4, 2022, 9:31 14 days 02:23 long	0	<a href="#">Join</a>





# *hello, world*

## ✓ hello, world

Please output "hello, world" (no quotations)

[Report an issue](#)

[Submit solution](#)

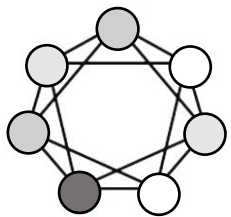
[My submissions](#)  
[All submissions](#)  
[Best submissions](#)

[Manage tickets](#)  
[Edit problem](#)  
[Edit test data](#)  
[Manage submissions](#)  
[Clone problem](#)

✓ Points: 1  
⌚ Time limit: 1.0s  
≡ Memory limit: 256M

✎ Author:  
[Enderturtle](#)  
> Problem type  
≡ Judges:  
[Gensokyo](#), [Marisa](#), [Reimu](#),  
[Reisen](#), [Youmu](#)



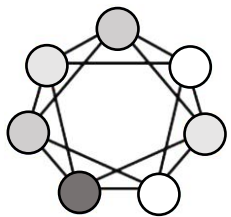


# *Solution*

---

```
public class Hello {  
    public static void main(String[] args) {  
        System.out.println("hello, world");  
    }  
}
```





# ***A+B problem***

---

## ✓ A+B problem

---

### Description

A+B problem

### Input

The input is in two lines. The first line contains the value of integer  $a$  ( $0 < a < 10$ ) and the second line contains the value of integer  $b$  ( $0 < b < 10$ )

### Output

The output is a line containing the value of  $a + b$

### Sample input

1  
2

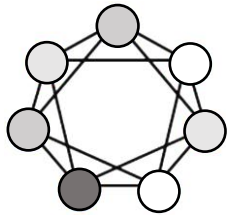
Copy

### Sample output

3

Copy

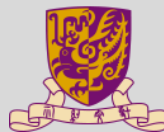


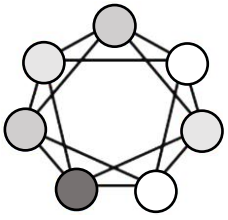


# *Solution*

---

```
import java.util.*;
public class AplusB {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int a = input.nextInt();
        int b = input.nextInt();
        input.close();
        System.out.println(a + b);
    }
}
```





# *Fibonacci sequence*

## Fibonacci sequence

### Description

Fibonacci sequence.

Fibonacci:  $f(0) = 1$   $f(1) = 1$   $f(n) = f(n-1) + f(n-2)$   $n \geq 2$

Since  $f(n)$  can be really big, so you only need to output  $f(n) \bmod 998244353$

### Input

The input is an integer  $n$  ( $0 \leq n \leq 1000$ ).

### Output

The output is a line containing the value of  $f(n) \bmod 998244353$

### Sample input

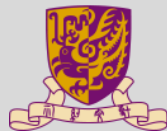
4

Copy

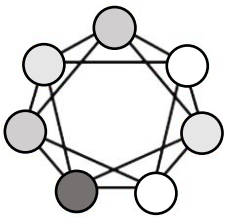
### Sample output

5

Copy







# Solution

```
import java.util.*;

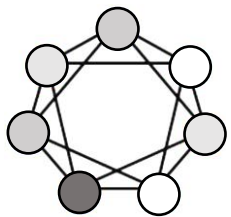
public class Fibonacci {
    static final int mod = 998244353; // mod constant

    public static int getFibLoop(int n) {
        // get fibonacci by loop
        if(n == 1 || n == 0)
            return 1;
        int f_prev = 1, f_now = 1, f_next;
        for(int i = 2; i <= n; i++) {
            f_next = (f_prev + f_now) % mod;
            f_prev = f_now;
            f_now = f_next;
        }
        return f_now;
    }

    public static int getFibRec(int n) {
        // calculate fibonacci by recursion
        if(n == 1 || n == 0)
            return 1;
        return (getFibRec(n - 1) + getFibRec(n - 2)) % mod;
    }

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        int n = input.nextInt();
        input.close();
        int ans = getFibRec(n);
        System.out.println(ans);
    }
}
```





***Thank  
You!***

