

1 Sum of Two Digits

Sum of Two Digits Problem

Compute the sum of two single digit numbers.

Input: Two single digit numbers.

Output: The sum of these numbers.

$$2 + 3 = 5$$

We start from this ridiculously simple problem to show you the pipeline of reading the problem statement, designing an algorithm, implementing it, testing and debugging your program, and submitting it to the grading system.

Input format. Integers a and b on the same line (separated by a space).

Output format. The sum of a and b .

Constraints. $0 \leq a, b \leq 9$.

Sample.

Input:

9 7

Output:

16

Time limits (sec.):

C	C++	Java	Python	C#	Haskell	JavaScript	Kotlin	Ruby	Rust	Scala
1	1	1.5	5	1.5	2	5	1.5	5	1	3

Memory limit. 512 Mb.

1.1 Implementing an Algorithm

For this trivial problem, we will skip “Designing an algorithm” step and will move right to the pseudocode.

```
SUMoftwODIGITS( $a$ ,  $b$ ):  
return  $a + b$ 
```

Since the pseudocode does not specify how we input a and b , below we provide solutions in C++, Java, and Python3 programming languages as well as recommendations on compiling and running them. You can copy-and-paste the code to a file, compile/run it, test it on a few datasets, and then submit (the source file, not the compiled executable) to the grading system. Needless to say, we assume that you know the basics of one of programming languages that we use in our grading system.

C++

```
#include <iostream>  
  
int sum_of_digits(int first_digit, int second_digit) {  
    return first_digit + second_digit;  
}  
  
int main() {  
    int a = 0;  
    int b = 0;  
    std::cin >> a;  
    std::cin >> b;  
    std::cout << sum_of_digits(a, b);  
    return 0;  
}
```

Save this to a file (say, `aplusb.cpp`), compile it, run the resulting executable, and enter two numbers (on the same line).

Java

```
import java.util.Scanner;

class SumOfDigits {
    static int sumOfDigits(int first_digit, int second_digit) {
        return first_digit + second_digit;
    }

    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        int a = s.nextInt();
        int b = s.nextInt();
        System.out.println(sumOfDigits(a, b));
    }
}
```

Save this to a file `SumOfDigits.java`, compile it, run the resulting executable, and enter two numbers (on the same line).

Python3

```
# python3

def sum_of_digits(first_digit, second_digit):
    return first_digit + second_digit

if __name__ == '__main__':
    a, b = map(int, input().split())
    print(sum_of_digits(a, b))
```

Save this to a file (say, `aplusb.py`), run it, and enter two numbers on the same line. (The first line in the code above tells the grading system to use Python3 rather Python2.)

Your goal is to implement an algorithm that produces a correct result under the given time and memory limits for any input satisfying the given constraints. You do not need to check that the input data satisfies the constraints, e.g., for the Sum of Two Digits Problem you do not need to check that the given integers a and b are indeed single digit integers (this is guaranteed).