

Submit a solution for A-187089. Nearest number

Time limit: 3 s
Real time limit: 6 s
Memory limit: 256M

Problem A: 187089. Nearest number

You are given list of integers and an integer k. Find nearest to k number in the list. Distance between numbers is defined as absolute value of their difference. If there are multiple such numbers, choose the first one.

Input format

The first line of input contains an integer n, number elements in the list $(1 \le n \le 10^6)$. Next line contains n integers, values of the list $(-10^8 \le a_i \le 10^8)$. The last line contains an integer k $(-10^8 \le k \le 10^8)$.

Output format

Print the offset from the head of list of the nearest to k number from the list. If there are multiple answers, choose the first one (with smaller offset).

Examples

Input

```
6
7 8 -10 4 2 -1
5
```

Output

3

Input

```
3
1 2 3
-10
```

Output

0

Input

```
5
1 1 1 1 1 1
1
```

Output

0

Input

```
6
1 2 90 32 2 2
10
```

Output

1

Notes

In the first example, the closest number to 5 is 4, which offset is 3.

In the second example, the closest number to -10 is 1. Its offset is 0.

In the third example, distance to k is equal for all numbers of the offset. So we will take first of them (with offset 0).

In the last example, the closest number to 10 is 2, so we take the offset of its first occurrence -1.

Submit a solution

There're lots of Sergek cameras in our city, and many drivers usually don't like it because of a high penalty. So let's help drivers to know will they get a penalty for increasing speed or not. You're given m x n matrix arr, arr[i][j] is speed on current interval. You're also given the limit number, so if at least one of the checked speed is greater than a limit, the driver will get a penalty and you should print Penalty!, else print No penalty for today.

Input format

First two numbers - m and n - dimensions of a 2d array, where $1 \le m, n \le 100$ next m x n numbers are elements of the array $1 \le a[i][j] \le 100$. The last line contains single integer limit $(2 \le t \le 100)$.

Output format

If any element of the array is bigger than limit print Penalty. else print No penalty for today...

Examples

Input

```
58 59 60
43 47 53
54 58 61
60
```

Output

Penalty!

Input

```
39 38 40
32 36 40
40
```

Output

No penalty for today.

Input

```
2 2
78 80
79 82
80
```

Output

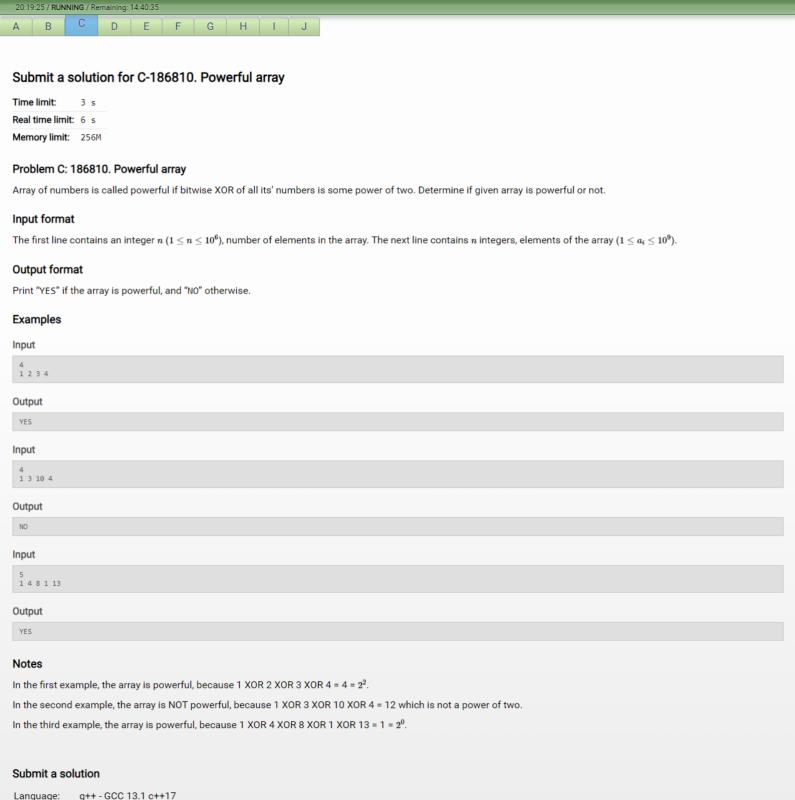
Penalty!

Notes

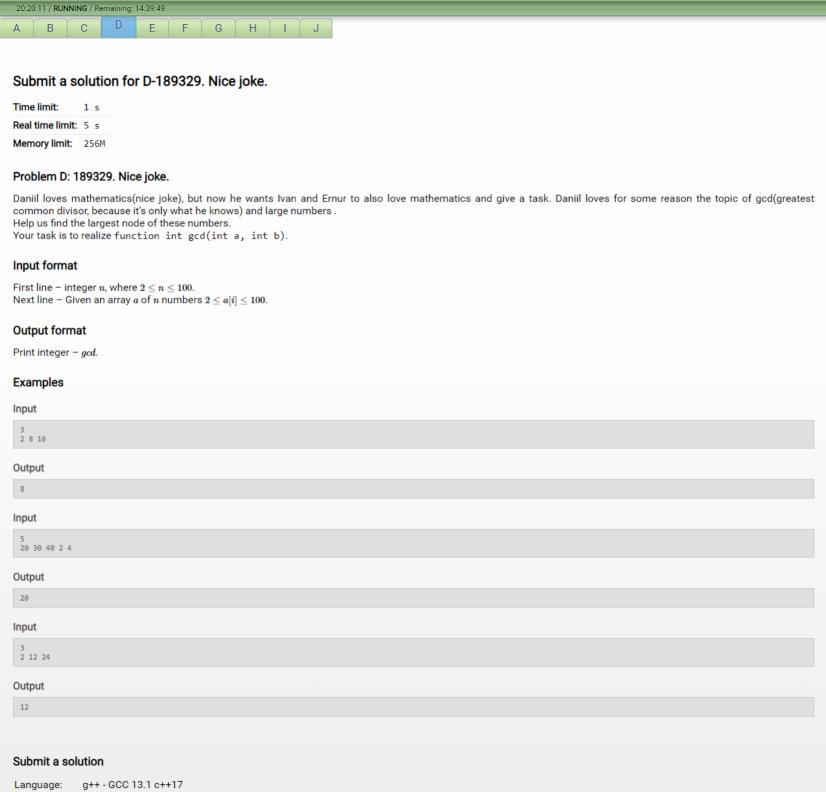
In the first example, a[2][2] is 61, which is bigger than the limit number - 60, so the answer is Penalty!.

Submit a solution

g++ - GCC 13.1 c++17 Language:



Language:



20:20:51 / RUNNING / Remaining: 14:39:09
A B C D E F G H I J
Submit a solution for E-188330. Dec to Hex.
Fime limit: 1 s
Real time limit: 5 s
Memory limit: 256M
Problem E: 188330. Dec to Hex.
Boris studies various number systems at school. He was given a homework assignment in which a decimal number is given as an input, he needs to convert the given decimal number to the equivalent hexadecimal number i.e. convert a number with a base value of 10 to a base value of 16. Help Boris write a program that solves this problem
Hexadecimal numbers use 16 values to represent a number. The numbers 0 through 9 are represented by the numbers 0-9, and 10-15 are represented by the characters A hrough F.
nput format
You are given integer N_{\cdot}
Output format
Print hex number of N .
Examples
nput
10
Dutput
A
nput
45
Output
20
2545
Output
9F1
nput
79/

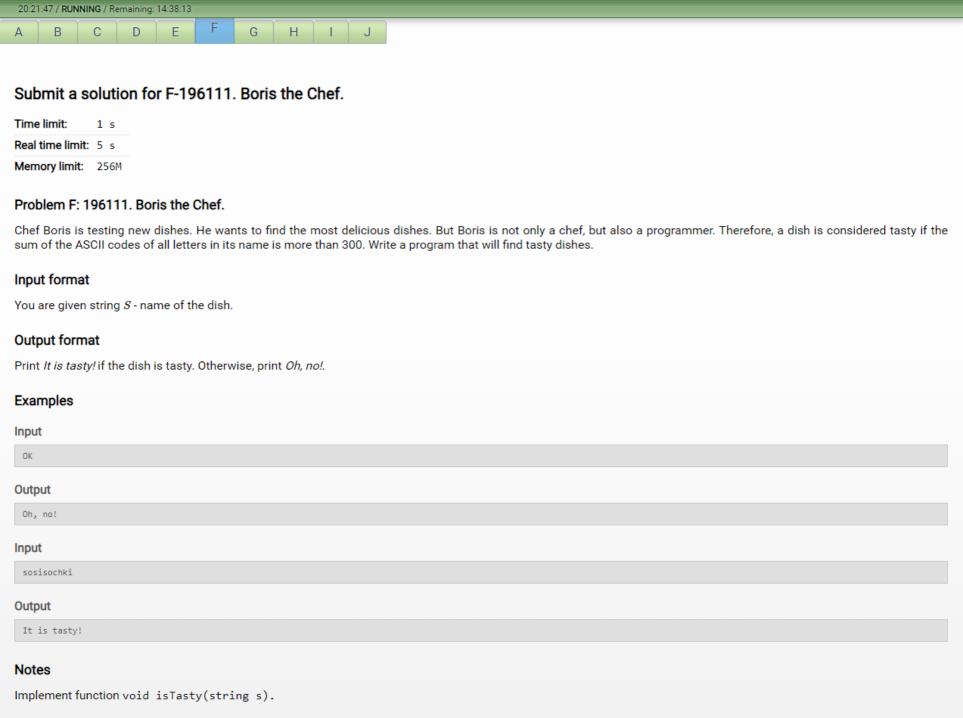
Notes

Output 31A

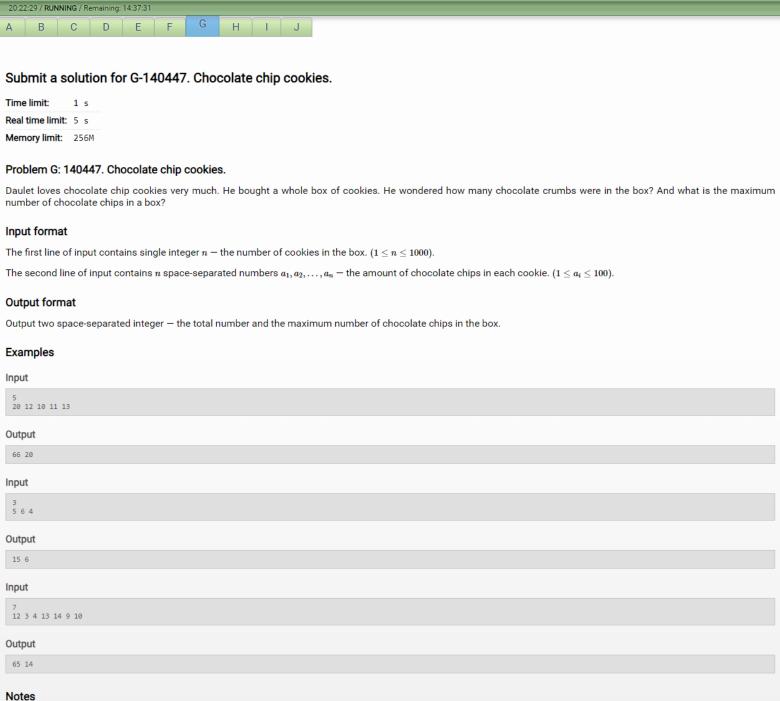
You need to write a function dexToHex():

void decToHex(int n)

Submit a solution



Submit a solution



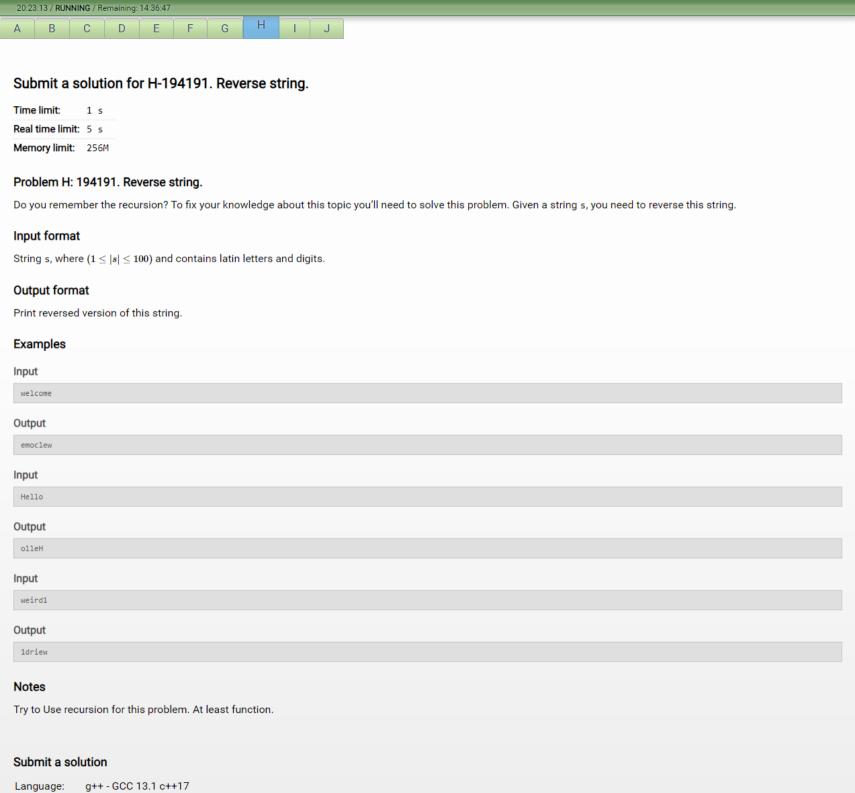
Notes

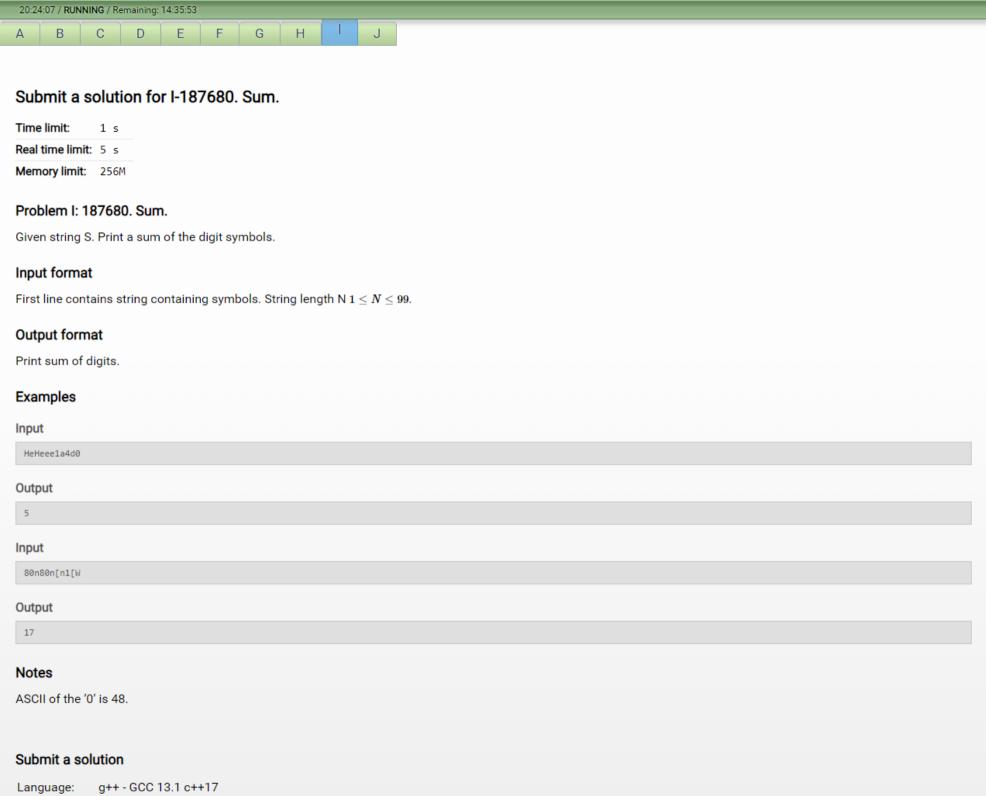
Implement the function

void printTotalNumberAndTheMaximumNumberOfChips(int arr[], int n)

where arr - the amount of chocolate chips in each cookie and n - the number of cookies in the box.

Submit a solution





Submit a solution for J-149537. Sum of two numbers.

Time limit: 1 s
Real time limit: 5 s
Memory limit: 256M

Problem J: 149537. Sum of two numbers.

You're given two arrays of numbers. For each number in the second array print "YES" if it can be viewed as sum of two elements with distinct indices from the first array, and "NO" otherwise.

Input format

The first line contains an integer n ($1 \le n \le 1000$), number of elements in the first array. The next line contains n integers, elements of the first array ($1 \le a_i \le 10^9$). Next line contains one integer m ($1 \le m \le 10^5$), number of elements in the second array. The last line contains m integers ($1 \le b_i \le 10^9$), elements for the second array.

Output format

For each element in the second array print in separate line "YES" if it can be viewed as sum of two elements with distinct indices from the first array, and "NO" otherwise.

Examples

Input

```
9
1 1 7 7 8 10 10 10 8
6
8 18 30 20 1 16
```

Output

```
YES
YES
NO
YES
NO
YES
```

Input

```
5
1 19 37 19 35
4
38 70 20 39
```

Output

```
YES
NO
YES
NO
```

Submit a solution