Biweekly Contest - I

A. Hello Codeforces

1 s., 256 MB

You are given an integer N. Print the message `Hello Codeforces` exactly N times.

Along with the message, also print the line number starting from 1.

Each message must be printed on a new line.

Input
The only line contains an integer N ($1 \le N \le 1000$).

Output
Print N lines. The i-th line should be:

`Hello Codeforces i`

where i starts from 1.

input
3
output
Hello Codeforces 1 Hello Codeforces 2 Hello Codeforces 3

B. Is Vowel?

1 second, 256 megabytes

You are given a lowercase English letter.

Your task is to determine whether the given character is a vowel or not.

Vowels are:

$$\{\texttt{a}, \texttt{e}, \texttt{i}, \texttt{o}, \texttt{u}\}$$

Input
The only line contains a single lowercase English letter.

Output
Print `YES` if the character is a vowel, otherwise print `NO`.

input
a
output
YES

input
b
output
NO

C. Second Last Digit

1 second, 256 megabytes

You are given an integer N.

Your task is to print the **second last digit** of N.

Input
The only line contains an integer N ($10 \le N \le 10^5$).

Output
Print a single digit — the second last digit of N.

input
42
output
4

input
10
output
1

input
2004
output
Yes

input
2100
output
No

D. Leap Year

1 second, 256 megabytes

To check whether a year is a leap year, follow these rules:

- First check if the year is divisible by 100. If it is, then it must also be divisible by 400 to be a leap year.
- If the year is not divisible by 100, then it is a leap year if it is divisible by 4.

You are given a year Y. Determine whether it is a leap year or not.

Input
The only line contains an integer Y ($1600 \leq Y \leq 9000$).

Output
Print `Yes` if the year is a leap year, otherwise print `No`.

input
2000
output
Yes

E. Count Good Numbers

1 second, 256 megabytes

You are given an integer N and then N integers.

Count how many of these numbers are *good*.

A number x is said to be good if:

- x is a factor of 18 (i.e., $18 \bmod x = 0$), **or**
- x is a multiple of 45 (i.e., $x \bmod 45 = 0$).

Input
The first line contains an integer N ($1 \leq N \leq 10^5$).

The second line contains N integers $x_1, x_2, \ldots, x_N$ ($0 \leq x_i \leq 10^9$).

Output
Print a single integer: the number of good integers among the N given numbers.

input
8 1 2 3 4 5 6 9 90

output
6

For $x = 0$, it cannot be a factor of 18 (division by zero is undefined), but it **is** a multiple of 45 because $0 \bmod 45 = 0$.

F. FizzBuzz

1 second, 256 megabytes

You are given an integer N.

Print the numbers from 1 to N following the rules below:

- If the number is divisible by 3, print `Fizz`.
- If the number is divisible by 5, print `Buzz`.
- If the number is divisible by both 3 and 5, print `FizzBuzz`.
- Otherwise, print the number itself.

Each output should be printed on a new line.

Input
The only line contains an integer N ($1 \le N \le 10^5$).

Output
Print N lines according to the rules above.

input
15

output
1 2 Fizz 4 Buzz Fizz 7 8 Fizz Buzz 11 Fizz 13 14 FizzBuzz

G. Count Zeros

1 s., 256 MB

You are given a non-negative integer N.

Your task is to find the number of digits equal to `0` in the decimal representation of N.

Input
The only line contains an integer N ($0 \le N \le 10^{18}$).

Output
Print a single integer — the count of zeros in N.

input
102030
output
3

input
0

output
1

H. Empty Rectangle

1 second, 256 megabytes

You are given two integers N and M.

Print a rectangle of N rows and M columns using the character ^ such that:

- The border of the rectangle consists of ^ characters.
- The inside of the rectangle consists of spaces.

Each of the N lines must contain exactly M characters.

Input
The only line contains two integers N and M ($1 \le N, M \le 1000$).

Output
Print the required rectangle.

input
4 5
output
^^^^^ ^ ^ ^ ^ ^^^^^

input
1 5
output
^^^^^

I. Shifted Pyramid

1 second, 256 megabytes

You are given an integer N.

Print a shifted pyramid of height N as shown in the example using the character x.

Each row must be printed on a new line.

Important: Do not print trailing spaces at the end of lines.

Input
The only line contains an integer N ($1 \le N \le 26$).

Output
Print the required shifted pyramid.

input
5
output

x
 xx
  xxx
  xxxx
  xxxxx

J. Hourglass

1 second, 256 megabytes

You are given an integer N.

Print an hourglass pattern of height $2N - 1$ using the character . (dot).

Dots in the same line must be separated by a single space.

Important: Do not print trailing spaces at the end of lines.

Input
You are given an integer N ($1 \le N \le 1000$).

Output
Print the required pattern.

input
5

output
. . . .

K. Arrow

1 second, 256 megabytes

You are given an integer N.

Print an arrow pattern as shown in the example using the character > of height $2N - 1$.

Important: Do not print trailing spaces at the end of lines.

Input
The only line contains an integer N ($1 \leq N \leq 100$).

Output
Print the required pattern of $2N - 1$ lines.

input
5

output
> > > > >> > > > > > > > > > > > > > > > > > > >