A. Mysterious strings

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Input

The input contains a single integer a ($1 \le a \le 40$).

Output

Output a single string.

Examples

input
2
output
Adams

input
8
output
Van Buren

input
29
output
Harding

B. QR code

Input

The input contains two integers a_1, a_2 ($0 \le a_i \le 32$), separated by a single space.

Output

Output a single integer.

Examples

input
1 1

output
0

input
3 7

output
0

input
13 10

output
1

C. WTF?

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

HAI
I HAS A TUX
GIMMEH TUX
I HAS A FOO ITS 0
I HAS A BAR ITS 0
I HAS A BAZ ITS 0
I HAS A QUZ ITS 1
TUX IS NOW A NUMBR
IM IN YR LOOP NERFIN YR TUX TIL BOTH SAEM TUX AN 0
I HAS A PUR
GIMMEH PUR
PUR IS NOW A NUMBR
FOO R SUM OF FOO AN PUR
BAR R SUM OF BAR AN 1
BOTH SAEM BIGGR OF PRODUKT OF FOO AN QUZ AN PRODUKT OF BAR BAZ AN PRODUKT OF FOO AN QUZ
O RLY?
YA RLY
BAZ R FOO
QUZ R BAR
OIC
IM OUTTA YR LOOP
BAZ IS NOW A NUMBAR
VISIBLE SMOOSH QUOSHUNT OF BAZ QUZ
KTHXBYE

Input

The input contains between 1 and 10 lines, i-th line contains an integer number x_i ($0 \le x_i \le 9$).

Output

Output a single real number. The answer is considered to be correct if its absolute or relative error does not exceed 10^{-4}.

Examples

input
3 0 1 1
output
0.666667

D. Orange

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Input

The first line of the input is a string (between 1 and 50 characters long, inclusive). Each character will be a letter of English alphabet, lowercase or uppercase.

The second line of the input is an integer between 0 and 26, inclusive.

Output

Output the required string.

Examples

input
AprilFool 14
output
AprILFooL

E. HQ

The famous joke programming language HQ9+ has only 4 commands. In this problem we will explore its subset — a language called HQ...

Input

The only line of the input is a string between 1 and 10^6 characters long.

Output

Output "Yes" or "No".

Examples

input
HHHH
output
Yes

input
HQHQH
output
No

input
HHQHHQH
output
No

input
HHQQHHQQHH
output
Yes

Note

The rest of the problem statement was destroyed by a stray raccoon. We are terribly sorry for the inconvenience.

F. Greedy Petya

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Petya is an unexperienced programming contestant. Recently he has come across the following problem:

You are given a non-directed graph which consists of n nodes and m edges. Your task is to determine whether the graph contains a Hamiltonian path.

Petya wrote a quick bug-free code which he believes solves this problem. After that Petya decided to give this problem for April Fools Day contest. Unfortunately, Petya might have made a mistake, and it's quite possible that his algorithm is wrong. But this isn't a good excuse to leave the contest without submitting this problem, is it?

Input

The first line contains two integers n, m ($1 \le n \le 20$; $0 \le m \le 400$). Next m lines contain pairs of integers v_i, u_i ($1 \le v_i, u_i \le n$).

Output

Follow the format of Petya's code output.

Examples

input
2 3 1 2 2 1 1 1
output
Yes

input
3 0
output
No

input
10 20 3 10 4 6 4 9 7 5 8 8 3 10 9 7 5 2 9 2 10 6 10 4 1 1 7 2 8 4 7 2 1 8 5 4 10 2 8 5 5 2
output
No