Problem 7B - Fibonacci Words

Maybe you know the Fibonacci sequence, which can be formalized as

$$\begin{aligned}\mathrm{Fib}_1 &= 1\\ \mathrm{Fib}_2 &= 1\\ \mathrm{Fib}_n &= \mathrm{Fib}_{n-2} + \mathrm{Fib}_{n-1}\end{aligned}$$

We get the sequence $1, 1, 2, 3, 5, 8, 13, 21, \ldots$

Now we redefine it for a binary alphabet as

$$\begin{aligned}\mathrm{Fib}_1 &= D\\ \mathrm{Fib}_2 &= O\\ \mathrm{Fib}_n &= \mathrm{Fib}_{n-2} \circ \mathrm{Fib}_{n-1}\end{aligned}$$

We get the sequence $D, O, DO, ODO, DOODO, ODODOODO, \ldots$

Given n and k, what is the k-th letter in the n-th string in the new sequence?

Input

The input consists out of:

- One line with two integers n ($1 \leq n \leq 100000$) and k ($1 \leq k \leq 100000$).

Output

The k-th letter in the n-th string in the new sequence

Sample Input 1	**Sample Output 1**
`7 7`	`D`

Sample Input 2	**Sample Output 2**
`777 777`	`O`