

Problem A

Alternation Formulae

Source file name: alternation.c, alternation.cpp or alternation.java

For a positive integer n , let $S(n)$ be the string defined by the concatenation of the decimal notations (without leading zeroes!) of $1, 2, \dots, n$. For instance, $S(11)=1234567891011$.

An (arithmetic) formula F is an n -alternation if it is built inserting in the string $S(n)$ arithmetic operators $+$, $-$ and parentheses $(,)$. Besides of that, it is required that the used arithmetic operators occur alternately in F .

An n -alternation, being an arithmetic formula, has an integer value. The following are two examples of 11-alternations with the indicated values:

$$\begin{aligned} 1 - (2 + 3) - 4 + 5 - 6 + 7 - 8 + 9 - 1 + 0 - 11 &= -13 \\ -1 + 2 - 3 + 4 - 5 + 6 - 7 + 89 - 1 + 011 &= 95 \end{aligned}$$

Let's consider the following puzzle: given two integers n and m ($n > 0$), decide if there exists an n -alternation F that evaluates to m . From the examples above it is clear that it is possible to build 11-alternations that evaluate to -13 and 95 . However, it is easy to see that it is impossible to find a 3-alternation that evaluates to 10 .

In order to be precise in the description of the required task, an (arithmetic) *formula* is defined as follows:

- The empty string is not a formula.
- A numeric string, i.e., a string made of digits $0 \dots 9$, with at most 5 of them, is a formula.
- If α and β are formulae, then $\alpha + \beta$ and $\alpha - \beta$ are formulae.
- If α is a formula, then $+\alpha$, $-\alpha$ and (α) are formulae.

Input

The input consists of several test cases, each one defined by a line containing two blank-separated integers n and m ($1 \leq n \leq 100$, $-10^7 \leq m \leq 10^7$).

The input must be read from standard input.

Output

For each test case, print a line with the character 'Y' if there exists an n -alternation F that evaluates to m , or with the character 'N', otherwise.

The output must be written to standard output.

Sample input	Output for the sample input
11 -13	Y
11 95	Y
3 10	N