April Fools' Day Contest 1 P8 - NP-Hard

Time limit: 1.0s   **Memory limit:** 1G

Given Q queries of an integer X, output [Y] if it should be and [N] if it should be.

Note that this problem will be **online enforced**, meaning that input will be given in an encrypted format. To encrypt the data, the value X in queries will be given as $X' = X \oplus \text{lastAns}$, where $\oplus$ denotes the bitwise XOR operation. Note that lastAns at any time is defined as the answer to the latest query. If the latest query was a [Y], $\text{lastAns} = 1431655765$. If the latest query was an [N], $\text{lastAns} = 715827882$. If no queries have occurred so far, $\text{lastAns} = 0$.

Constraints

$1 \leq Q, X \leq 10^5$

Input Specification

The first line will contain Q, the number of queries.

The following Q lines will contain X'.

Output Specification

Output Q answers for each of the queries.

Sample Input (Unencrypted)

```
2
1
2
```

Sample Input (Encrypted)

```
2
1
1431655767
```

Sample Output

Y
Y