Consecutive primes

Problem ID: consecutiveprimes

You may know that prime number is one of the most amazing concepts in number theory! In the life of every competitive programmer, there must be a huge number of problems about prime numbers, and this is another one!

Recall that prime numbers are positive integers which have exactly two positive divisors. 10 smallest prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23, and 29.

In this problem, a positive integer n is called "nice" if and only if it can be represented as product of consecutive prime numbers. More formally, a positive integer n is "nice" if and only if there exists a sequence of integers $p_1, p_2, \ldots, p_k$ such that:

- All numbers $p_1, p_2, \ldots, p_k$ are prime numbers,
- $n = p_1 \cdot p_2 \cdot \ldots \cdot p_k$,
- $p_1 < p_2 < \ldots < p_k$,
- No prime number x exists such that $p_i < x < p_{i+1} (1 \leq i < k)$.

According to the above definition, $2 = 2$, $6 = 2 \cdot 3$, $30 = 2 \cdot 3 \cdot 5$ and $210 = 2 \cdot 3 \cdot 5 \cdot 7$ are nice, while $4 = 2^2$, $10 = 2 \cdot 5$ and $20 = 2^2 \cdot 5$ are not.

Given several integers, your task is to determine which ones are nice.

Input

The first line of the input contains an integer t ($1 \leq t \leq 10^5$). The next t lines contain t integers $n_1, n_2, \ldots, n_t$ ($1 \leq n_i \leq 10^{19}$), each is printed in a single line.

Output

Print t words. The i-th one should be `NICE` if n_i is a nice number, or `UGLY` otherwise.

Sample Input 1	Sample Output 1
10 1 2 3 4 5 6 7 8 9 10	UGLY NICE NICE UGLY NICE NICE NICE UGLY UGLY UGLY