

Problem F. Permutation

Input file: *standard input*
 Output file: *standard output*
 Time limit: 3 seconds
 Memory limit: 256 mebibytes

A permutation of length n is a sequence $p_1, p_2, \dots, p_n$, where $p_i \in \{1, 2, \dots, n\}$ and $\forall_{i \neq j} p_i \neq p_j$. We say that a pair (p_i, p_j) , where $i < j$, is an *inversion*, if $p_i > p_j$. We call a permutation *stable*, if the number of its inversions does not change after reversing the sequence comprising the permutation.

You are asked to find the k -th stable permutation of length n with respect to the lexicographic order.

Input

The only line of the input contains two integers n, k ($1 \leq n \leq 250\,000$, $1 \leq k \leq 10^{18}$), denoting the length and the index (in the lexicographic order) of the sought stable permutation, respectively.

Output

If there exists such a permutation, in the first line you should output YES and in the second row, n numbers $p_1, \dots, p_n$ representing the sought permutation. Otherwise output NO.

Example

standard input	standard output
4 3	YES 2 4 1 3
4 57	NO

Explanation to the examples: There are 6 stable permutations of length 4:

$(1, 4, 3, 2), (2, 3, 4, 1), (2, 4, 1, 3), (3, 1, 4, 2), (3, 2, 1, 4), (4, 1, 2, 3)$.