

Balance of Permutation

Input file: **standard input**
Output file: **standard output**
Time limit: 8 seconds
Memory limit: 1024 megabytes

For a permutation p of numbers from 1 to n , its *balance* is defined as $\sum_{i=1}^n |p_i - i|$. Your task is to find the k -th smallest lexicographically permutation of length n with a balance equal to b .

Input

The standard input contains a single line with three integers n , b , and k ($1 \leq n \leq 30; 0 \leq b; 1 \leq k$), as described in the problem statement.

It is guaranteed that there are at least k permutations of length n with a balance equal to b .

Note that the value of the parameter k may not fit in a 64-bit data type. In C++, we recommend using the `__int128` type to store it.

Output

The output should contain n integers in a single line – the sought permutation.

Examples

standard input	standard output
6 6 6	1 2 6 3 4 5
30 300 3030303030303030303030303030	1 2 3 4 9 23 20 28 24 16 21 17 27 29 8 26 25 30 19 18 22 12 7 13 6 10 5 15 14 11

Note

Consider the first sample test. There are 46 permutations of length 6 with a balance equal to 6. Among them, the sixth smallest in lexicographic order is the permutation $[1, 2, 6, 3, 4, 5]$.

The line breaks in the second example were added to fit in the “output” section of the PDF statement. You do not need to add the line breaks in your actual output.