

Swap Permutation

You are given an array $A = [1, 2, 3, \dots, n]$:

1. How many sequences (S_1) can you get after exact k adjacent swaps on A ?
2. How many sequences (S_2) can you get after at most k swaps on A ?

An adjacent swap can be made between two elements of the Array A , $A[i]$ and $A[i+1]$ or $A[i]$ and $A[i-1]$.
A swap otherwise can be between any two elements of the array $A[i]$ and $A[j] \forall 1 \leq i, j \leq N, i \neq j$.

Input Format

First and only line contains n and k separated by space.

Output Format

Output $S_1 \% MOD$ and $S_2 \% MOD$ in one line, where $MOD = 1000000007$.

Constraints

- $1 \leq n \leq 2500$
 $1 \leq k \leq 2500$

Sample Input

3 2

Sample Output

3 6

Explanation

Original array: [1, 2, 3]
1. After 2 adjacent swaps:
We can get [1, 2, 3], [2, 3, 1], [3, 1, 2] ==> $S_1 == 3$

2. After at most 2 swaps:
1) After 0 swap: [1, 2, 3]
2) After 1 swap: [2, 1, 3], [3, 2, 1], [1, 3, 2].
3) After 2 swaps: [1, 2, 3], [2, 3, 1], [3, 1, 2]
==> $S_2 == 6$