Increasing Elo

Hans is an avid chess player who would do anything (well, anything except cheating, right?) to increase his Elo rating, together with his skill in the game. Monitoring the long-term improvement of one’s playing strength is not an easy task: one may accidently have some bad games, drop some Elo rating points, which they would immediately win back in a subsequent set of games.

Hans came up with a new system to measure his performance over time: given $N$ chess games played by Hans, he assigns a unique score to each game, which is a number between 1 and $N$ (inclusive). The scores are assigned so they represent the relative differences in Hans’ Elo ratings following each game. For example, if $N = 3$ then the scores 1, 3, 2 depict that his Elo was the lowest after the first game, the highest after the second game and the second highest after the third game.

Hans then chooses a positive integer $K$, representing his tolerance for stagnating Elo ratings. He claims that his improvement is satisfactory over the $N$ games if the score of any game is strictly greater than the minimum score of the previous $K$ games. Formally, denote the scores of the games by $s_1, s_2, \ldots, s_N$. Hans is satisfied if for every $i$ from $k + 1$ to $N$ (inclusive) $s_i > \min(s_{i-1}, s_{i-2}, \ldots, s_{i-k})$ holds.

For example, the scores 1, 3, 2 are satisfactory for $K = 2$ as $2 > \min(1, 3)$. However, the same scores are not satisfactory for $K = 1$ as out of $3 > \min(1)$ and $2 > \min(3)$, the second inequality does not hold.

Hans is wondering: given the value of $N$ and $K$, how many sequences of scores exist which are satisfactory.

Input

The input is a single line containing $N$ and $K$ ($1 \leq K \leq N \leq 1\,000\,000$), the number of games and the stagnation tolerance.

Output

Print a single line containing the number of different satisfactory score sequences. Since the answer can be large, output it modulo $10^9 + 7$.

Examples

<table>
<thead>
<tr>
<th>input</th>
<th>output</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 2</td>
<td>4</td>
</tr>
<tr>
<td>3 1</td>
<td>1</td>
</tr>
<tr>
<td>4 2</td>
<td>10</td>
</tr>
</tbody>
</table>

Explanation

In the first sample case, the four satisfactory sequences are 1, 2, 3; 1, 3, 2; 2, 1, 3; and 3, 1, 2. Note that the scores in each sequence must be unique.