Problem F. Train Seats

Time limit: 3 seconds
Memory limit: 1024 megabytes

There are N people numbered from 1 to N sitting on M chairs arranged in a row. The chair in the i-th position from the left is called chair i. Person i sits on chair A_i.

When a person sits down, let L and R be the numbers of the closest occupied chairs to the left and right of that person, respectively (if there is no such chair on the left, $L = 0$; if there is no such chair on the right, $R = M + 1$). The score of the person is calculated as $R - L$.

There are $N!$ possible ways for the N people to sit in order. Find the maximum possible total sum of the scores of all N people.

Constraints

- $1 \leq N \leq 2 \times 10^5$
- $N \leq M \leq 10^9$
- $1 \leq A_i \leq M$
- If $i \neq j$, then $A_i \neq A_j$

Input

The input is given in the following format from standard input:

N M

A_1 A_2 $\ldots$ A_N

Output

Output the answer.

Examples

standard input	standard output
3 10 3 7 10	28
5 20 3 10 11 14 17	73
10 1000000000 136909656 243332691 <...> 182482400 (download in the attchments)	7649951260

Note

For the first sample case:

For example, if the people sit in the order of person 3, person 1, and then person 2, the scores are as follows:

- When person 3 sits down, $L = 0$ and $R = 11$, so their score is $11 - 0 = 11$.
- When person 1 sits down, $L = 0$ and $R = 10$, so their score is $10 - 0 = 10$.
- When person 2 sits down, $L = 3$ and $R = 10$, so their score is $10 - 3 = 7$.

Therefore, the total sum of scores is $11 + 10 + 7 = 28$, which is the maximum.