F - Counting of Subarrays

Time Limit: 2 sec / Memory Limit: 1024 MB

Score : 1800 points

Problem Statement

For a sequence S of positive integers and positive integers k and l, S is said to belong to *level* (k, l) when one of the following conditions is satisfied:

- The length of S is 1, and its only element is k.
- There exist sequences $T_1, T_2, \ldots, T_m$ ($m \geq l$) belonging to level $(k-1, l)$ such that the concatenation of $T_1, T_2, \ldots, T_m$ in this order coincides with S.

Note that the second condition has no effect when $k = 1$, that is, a sequence belongs to level $(1, l)$ only if the first condition is satisfied.

Given are a sequence of positive integers $A_1, A_2, \ldots, A_N$ and a positive integer L. Find the number of subsequences $A_i, A_{i+1}, \ldots, A_j$ ($1 \leq i \leq j \leq N$) that satisfy the following condition:

- There exists a positive integer K such that the sequence $A_i, A_{i+1}, \ldots, A_j$ belongs to level (K, L).

Constraints

- $1 \leq N \leq 2 \times 10^5$
- $2 \leq L \leq N$
- $1 \leq A_i \leq 10^9$

Input

Input is given from Standard Input in the following format:

$$N \quad L$$
$$A_1 \quad A_2 \quad \ldots \quad A_N$$

Output

Print the number of subsequences $A_i, A_{i+1}, \ldots, A_j$ $(1 \leq i \leq j \leq N)$ that satisfy the condition.

Sample Input 1 Copy

```
9 3
2 1 1 1 1 1 1 2 3
```

Sample Output 1 Copy

```
22
```

For example, both of the sequences $(1, 1, 1)$ and (2) belong to level $(2, 3)$, so the sequence $(2, 1, 1, 1, 1, 1, 1)$ belong to level $(3, 3)$.

Sample Input 2 Copy

```
9 2
2 1 1 1 1 1 1 2 3
```

Sample Output 2 Copy

```
41
```

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Sample Input 3 Copy

```
15 3
4 3 2 1 1 1 2 3 2 2 1 1 1 2 2
```

Copy

Sample Output 3 Copy

```
31
```

Copy

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