

Planet Parade

Input file: **standard input**
 Output file: **standard output**
 Time limit: 3 seconds
 Memory limit: 256 megabytes

You are given an array a_1, a_2, \dots, a_n .

Count the number of permutations p_1, p_2, \dots, p_n such that the following condition holds:

$$(a_{p_1} \bmod a_{p_2}) + (a_{p_2} \bmod a_{p_3}) + \dots + (a_{p_{n-1}} \bmod a_{p_n}) \leq \min(a_1, a_2, \dots, a_n) + \alpha,$$

where \bmod denotes the modulo operation, and $\min(a_1, a_2, \dots, a_n)$ is the minimum of the numbers a_1, a_2, \dots, a_n .

Since the answer can be quite large, output it modulo $10^9 + 7$.

Recall that an array p_1, p_2, \dots, p_n is called a permutation if for each number x from 1 to n , there exists exactly one i from 1 to n such that $p_i = x$.

Input

The first line of input contains two integers n, α ($2 \leq n \leq 300\,000$, $|\alpha| \leq 1$) — the length of the array a and the parameter α .

The second line of input contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^9$) — the elements of the array a .

Output

In a single line, output the answer to the problem — the number of permutations that satisfy the condition, modulo $10^9 + 7$.

Scoring

Subtask	Points	Additional constraints			Necessary Groups	Comments
		n	α	a_i		
0	0	–	–	–	–	Tests from the statement
1	9	$n \leq 10$	–	–	–	
2	11	$n \leq 20$	$\alpha \leq 0$	all a_i are distinct	–	
3	5	–	–	$a_i \leq 2$	–	
4	8	–	–	a_i is a power of two	3	
5	7	–	$\alpha = -1$	–	–	
6	9	$n \leq 300$	$\alpha = 0$	–	–	
7	10	$n \leq 3000$	$\alpha = 0$	–	6	
8	11	–	$\alpha = 0$	–	6,7	
9	15	$n \leq 300$	–	$a_i \geq 2$	–	
10	4	$n \leq 300$	–	–	0,1,2,6,9	
11	4	–	–	$a_i \geq 2$	9	
12	7	–	–	–	0-11	

Examples

standard input	standard output
5 0 2 3 6 12 18	4
7 0 5 4 1 1 1 20 20	228
10 -1 121 12 3 4 940412847 121 3 4 12 121	48
11 1 1 1 1 1 2 2 2 2 2 2 2	18748800
16 1 1 1 1 2 4 8 16 32 64 128 256 512 1024 2048 4096 8192	28574934
3 -1 1000000000 999999999 999999998	1
20 0 604661760 120932352 46656 144 2592 3 139968 60466176 2 18 2519424 5038848 432 20155392 5184 36 72 9 1296 279936	131073
8 1 1 3 3 2 5 3 5 6	48
5 1 6 1 1 3 3	72
13 -1 1 1 1 1 1 1 1 1 1 1 1 1 1	227020758
4 1 100 51 26 14	0

Note

In the first test, the suitable arrays-permutations of the array a are:

1. $[18, 2, 12, 6, 3]$, $18 \bmod 2 + 2 \bmod 12 + 12 \bmod 6 + 6 \bmod 3 = 2 \leq 2$
2. $[18, 6, 2, 12, 3]$, $18 \bmod 6 + 6 \bmod 2 + 2 \bmod 12 + 12 \bmod 3 = 2 \leq 2$
3. $[12, 2, 18, 6, 3]$, $12 \bmod 2 + 2 \bmod 18 + 18 \bmod 6 + 6 \bmod 3 = 2 \leq 2$
4. $[12, 6, 2, 18, 3]$, $12 \bmod 6 + 6 \bmod 2 + 2 \bmod 18 + 18 \bmod 3 = 2 \leq 2$

In the fifth and seventh tests, the elements of the array are also, as in all tests, provided **in one line**, while in the statement the elements of the array are spread over several lines for better readability.