

Problem E. Even Intervals

Input file: *standard input*
Output file: *standard output*
Time limit: 20 seconds
Memory limit: 1024 mebibytes

You are given an array with n pairwise different values: $A = [a_0, a_1, \dots, a_{n-1}]$. We define the sorted subarray of A starting at l and ending at r as the array that we obtain after sorting $[a_l, a_{l+1}, \dots, a_r]$. For example, if we are given the array $[0, 2, 14, 6, 8, 10]$, the sorted subarray starting at 1 and ending at 4 would be the array that we would get after sorting $[2, 14, 6, 8]$, that is, the array $[2, 6, 8, 14]$.

You are given q queries, each one consists of two integers, l and r . For each query, print the sum of the values in the even positions of the sorted subarray of A starting at l and ending at r . Here, we assume that all arrays are indexed starting from 0.

For example, consider the array $[0, 2, 14, 6, 8, 10]$ and the query $(1, 4)$. The subarray starting at 1 and ending at 4 is just the array $[2, 14, 6, 8]$. Thus, the sorted subarray starting at 1 and ending at 4 is the array $[2, 6, 8, 14]$. Now we have to sum the values in even positions, that is, $2 + 8 = 10$.

Print the answers modulo $10^9 + 7$.

Input

The first line contains two integers n and q ($1 \leq n \leq 5 \cdot 10^4$; $1 \leq q \leq 2 \cdot 10^5$): the number of elements in the array and the number of queries.

The second line contains n integers a_0, a_1, \dots, a_{n-1} ($0 \leq a_i \leq 10^9$; a_i are pairwise different), the elements of the array.

Finally, each of the next q lines contains two integers l and r ($0 \leq l \leq r < n$): the starting and ending points of the sorted subarray we are considering.

Output

For each query, print a line with the sum of the elements in even positions of the sorted subarray starting at l and ending at r modulo $10^9 + 7$.

Examples

standard input	standard output
5 5	12
2 4 10 16 6	20
0 2	12
1 3	10
0 3	24
2 3	
0 4	
8 8	132
38 20 76 96 74 18 66 92	92
0 5	20
3 6	184
1 2	226
2 7	76
0 6	160
2 2	18
1 6	
5 5	