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D. Fast search

time limit per test: 2 seconds memory limit per test: 512 megabytes input: standard input output: standard output

You are given an array a of n integers a_1, a_2, \ldots, a_n .

Your task is to response to the queries like "How many numbers' values are between l and r?".

Input

The first line of the input contains n — the length of the array ($1 \le n \le 10^5$).

The second line contains n integers a_1, a_2, \ldots, a_n ($-10^9 \le a_i \le 10^9$).

The third line contains integer k — the number of queries ($1 \le k \le 10^5$).

The following k lines contain a pair of integers l r — query, described above ($-10^9 \le l \le r \le 10^9$).

Output

The output must consist of k integers — responses for the queries.

Example



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