



HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP RAYAN

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

F. Two Subarrays

time limit per test: 3 seconds memory limit per test: 512 megabytes

You are given two integer arrays a and b, both of size n.

Let's define the cost of the subarray [l,r] as $a_l+a_{l+1}+\cdots+a_{r-1}+a_r+b_l+b_r$. If l=r, then the cost of the subarray is $a_l+2\cdot b_l$.

You have to perform queries of three types:

- "1 p x" assign $a_p := x$;
- "2 p x" assign $b_p := x$;
- "3 l r" find two non-empty non-overlapping subarrays within the segment [l, r] with the maximum total cost and print their total cost.

Input

The first line contains a single integer n ($2 \le n \le 2 \cdot 10^5$).

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 n integers b_1, b_2, \ldots, b_n ($-10^9 \le b_i \le 10^9$).

The fourth line contains a single integer q ($1 \le q \le 2 \cdot 10^5$).

The next q lines contain the queries: one per line. Each query is of one of three types:

- "1 p x" ($1 \le p \le n$; $-10^9 \le x \le 10^9$);
- "2 p x" ($1 \le p \le n$; $-10^9 \le x \le 10^9$);
- " $3 \ l \ r$ " ($1 \le l < r \le n$).

It is guaranteed that there is at least one query of the third type.

Output

For each query of the third type, print the maximum possible total cost of two non-empty non-overlapping subarrays within the segment [l, r].

Examples



Educational Codeforces Round 172 (Rated for Div. 2) Finished

Practice



→ Virtual participation

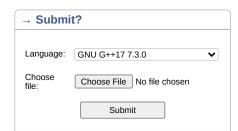
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Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest



→ Contest materials

- Announcement
- Tutorial #1
- Video Tutorial (en)