

## B. Kuriyama Mirai's Stones

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

Kuriyama Mirai has killed many monsters and got many (namely  $n$ ) stones. She numbers the stones from  $1$  to  $n$ . The cost of the  $i$ -th stone is  $V_i$ . Kuriyama Mirai wants to know something about these stones so she will ask you two kinds of questions:

1. She will tell you two numbers,  $l$  and  $r$  ( $1 \leq l \leq r \leq n$ ), and you should tell her  $U_l, U_{l+1}, \dots, U_r$ .
2. Let  $U_i$  be the cost of the  $i$ -th cheapest stone (the cost that will be on the  $i$ -th place if we arrange all the stone costs in non-decreasing order). This time she will tell you two numbers,  $l$  and  $r$  ( $1 \leq l \leq r \leq n$ ), and you should tell her  $V_l, V_{l+1}, \dots, V_r$ .

For every question you should give the correct answer, or Kuriyama Mirai will say "fuyukai desu" and then become unhappy.

### Input

The first line contains an integer  $n$  ( $1 \leq n \leq 10^5$ ). The second line contains  $n$  integers:  $V_1, V_2, \dots, V_n$  ( $1 \leq V_i \leq 10^9$ ) — costs of the stones.

The third line contains an integer  $m$  ( $1 \leq m \leq 10^5$ ) — the number of Kuriyama Mirai's questions. Then follow  $m$  lines, each line contains three integers  $type, l$  and  $r$  ( $1 \leq l \leq r \leq n$ ;  $1 \leq type \leq 2$ ), describing a question. If  $type$  equal to  $1$ , then you should output the answer for the first question, else you should output the answer for the second one.

### Output

Print  $m$  lines. Each line must contain an integer — the answer to Kuriyama Mirai's question. Print the answers to the questions in the order of input.

### Examples

input
6 6 4 2 7 2 7 3 2 3 6 1 3 4 1 1 6
output
24 9 28

input
4 5 5 2 3 10 1 2 4 2 1 4 1 1 1 2 1 4 2 1 2 1 1 1 1 3 3 1 1 3 1 4 4 1 2 2
output
10

### Codeforces Round #248 (Div. 2)

Finished

### → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

### → Problem tags

dp implementation sortings

No tag edit access

### → Contest materials

- Announcement 
- Tutorial 

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**Note**

Please note that the answers to the questions may overflow 32-bit integer type.