

Problem B. Cumulative Sum Query

Time limit	7000 ms
Mem limit	1572864 kB
Code length Limit	50000 B
OS	Linux

William Macfarlane wants to look at an array.

You are given a list of N numbers and Q queries. Each query is specified by two numbers i and j ; the answer to each query is the sum of every number between the range $[i, j]$ (inclusive).

Note: the query ranges are specified using 0-based indexing.

Input

The first line contains N , the number of integers in our list ($N \leq 100,000$). The next line holds N numbers that are guaranteed to fit inside an integer. Following the list is a number Q ($Q \leq 10,000$). The next Q lines each contain two numbers i and j which specify a query you must answer ($0 \leq i, j \leq N-1$).

Output

For each query, output the answer to that query on its own line in the order the queries were made.

Example

Input:

```
3
1 4 1
3
1 1
1 2
0 2
```

Output:

```
4
5
6
```