Problem 1 Prefix Sum and Segment Sum (4%)

Let $A = \{a_1, a_2, \ldots, a_n\}$ be a sequence of n integers. The kth prefix sum of A, $1 \leq k \leq n$, is defined as

$$\texttt{Prefix}_k(A) \;=\; \sum_{1 \leq i \leq k} a_i \;=\; a_1 + a_2 + \ldots + a_k \;.$$

Given m segments $(\ell_1, r_1), (\ell_2, r_2), \ldots, (\ell_m, r_m)$, where $1 \leq \ell_i \leq r_i \leq n$ for all $1 \leq i \leq m$, your task in this problem is to compute (efficiently) the sum of the elements within these segments, using the prefix sums of the sequence.

Input

The first line contains two integers n and m, $(1 \leq n \leq 10^5, 1 \leq m \leq 10^6)$, the length of the input sequence and the number of segments.

The second line contains n integers which are the elements a_i of the sequence, $(1 \leq a_i \leq 10^4)$.

Then m lines follow, each of which contains two integers ℓ_i and r_i, the end-points of the ith segment, where $1 \leq \ell_i \leq r_i \leq n$.

Output

For each input segment, print the sum of the elements in the segment.
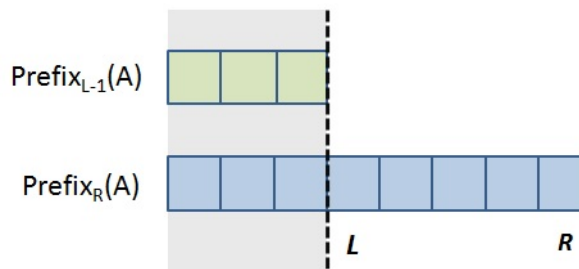
Example

Sample Input

```
8 4
9 3 4 2 1 6 7 8
2 5
1 8
4 7
3 3
```

Sample Output

```
10
40
16
4
```

Note

You may want to use the observation for computing the sum of a segment (L, R):

Problem 2 Maximum Sum Segment (4%)

Read a sequence of n integers and compute its maximum sum segment.

Input

The first line contains one integer n, $(1 \leq n \leq 10^5)$, the length of the input sequence. The second line contains n integers which are the elements a_i of the sequence, $(-10^4 \leq a_i \leq 10^4)$.

Output

Print two integers ℓ and r on the first line, the end-points of the segment that results in the maximum sum possible. Note that we require that $1 \leq \ell \leq r \leq n$.

On the second line print the value of the sum.

If there are multiple solutions, print any of them.

Example 1

Input		Output
6		2 5
-2 4 1 -2 3 -4		6

Example 2

Input		Sample Output
5		2 2
-1 -1 -1 -2 -1		-1

Note

You may want to use the observation given at the end of Problem 1.