

# ZSequence

You will be given a sequence  $A$  containing  $N$  positive integers,  $a_1, a_2, \dots, a_N$ .

Let  $S(i, j) = a_i + a_{i+1} + \dots + a_j$ , if  $i \leq j$ .

You should find  $K - 1$  indexes,  $m_1 < m_2 < \dots < m_{K-1}$  such that  $lb_1 \leq S(1, m_1) \leq ub_1, \dots, lb_i \leq S(m_{i-1} + 1, m_i) \leq ub_i$  and  $lb_K \leq S(m_{K-1} + 1, N) \leq ub_K$ .

If the case of multiple solution, print the first lexicographically.

## Input

The first line of the standard input contains two space-separated integers  $N$  ( $2 \leq N \leq 5\,000$ ) and  $K$  ( $1 \leq K - 1 \leq N - 1$ ). Next  $N$  lines contain integers  $a_1, a_2, \dots, a_N$ , respectively,  $1 \leq a_i \leq 10^5$ .

$i$ -th of the next  $K$  lines contain integers  $lb_i$  and  $ub_i$ ,  $1 \leq lb_i \leq ub_i \leq 10^9$ .

## Output

On the first line of the standard output you should print space-separated  $K - 1$  indices of the solution as already explained. If such solution does not exist, you should print only one integer - 1.

### Note:

Memory limit is 16MBs.

## Example

### Input:

```
4 3
1
2
3
4
1 3
2 4
3 10
```

### Output:

```
1 2
```

### Input:

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

3 4

**Output:**

2 3

**Input:**

4 3

1

2

3

4

1 3

2 4

3 3

**Output:**

-1