Wine Tasting Tour (wine)

Giorgio loves wine and decided to treat himself and go on a wine tasting tour!

Figure 1: Giorgio while tasting Chianti, a typical Italian wine.

The winery offers several tours of its N vineyards, arranged in a row. Giorgio can start the tour from any vineyard S. Then, once the first tasting is over, he will move on to the vineyard $S+1$, then to the vineyard $S+2$ and so on until reaching the vineyard E that ends the visit. Note that Giorgio is also free to choose to start and end his tour on the same vineyard.

The tasting in the i-th vineyard costs Giorgio V_i euro; therefore the overall cost of the tour is simply the sum of the costs of the visited vineyards.

Giorgio is struggling to choose among the $\frac{N(N+1)}{2}$ possible different tours, and thus decided to defer the decision to a simple algorithm. He is going to list all the tours (S, E) and sort them in increasing order of cost. In case of ties, the tours with the smallest starting vineyard come first. Then, he is going to choose the K-th one (counting from 1) from this sorted list.

Help Giorgio figure out the starting and the ending vineyard of his tour!

> ☞ Among the attachments of this task you may find a template file `wine.*` with a sample incomplete implementation.

Input

The first line contains the integers N and K. The second line contains N integers V_i.

Output

You need to write a single line the integers S and E: the starting and the ending vineyards of Giorgio's tour.

Constraints

- $1 \leq N \leq 200\,000$.
- $1 \leq K \leq \frac{N(N+1)}{2}$.
- $1 \leq V_i \leq 10^9$ for each $i = 0 \ldots N-1$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (50 points) $V_i = 1$ for each $i = 0 \ldots N-1$.

– **Subtask 3** (20 points) $N \leq 1000$.

– **Subtask 4** (30 points) No additional limitations.

Examples

input	output
4 4 1 2 3 1	0 1
6 18 1 2 1 2 1 2	2 5

Explanation

In the **first sample case** there are 10 possible tours. The sorted list is therefore:

1. from 0 to 0: the cost is 1
2. from 3 to 3: the cost is 1
3. from 1 to 1: the cost is 2
4. from 0 to 1: the cost is $3 = 1 + 2$
5. from 2 to 2: the cost is 3
6. from 2 to 3: the cost is $4 = 3 + 1$
7. from 1 to 2: the cost is $5 = 2 + 3$
8. from 0 to 2: the cost is $6 = 1 + 2 + 3$
9. from 1 to 3: the cost is $6 = 2 + 3 + 1$
10. from 0 to 3: the cost is $7 = 1 + 2 + 3 + 1$

The fourth ($K = 4$) tour in this sorted list starts from vineyard 0 and ends in vineyard 1.