F. PolandBall and Gifts

time limit per test: 1.5 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

It's Christmas time! PolandBall and his friends will be giving themselves gifts. There are n Balls overall. Each Ball has someone for whom he should bring a present according to some permutation p, $p_i \neq i$ for all i.

Unfortunately, Balls are quite clumsy. We know earlier that exactly k of them will forget to bring their gift. A Ball number i will get his present if the following two constraints will hold:

1. Ball number i will bring the present he should give.
2. Ball x such that $p_x = i$ will bring his present.

What is minimum and maximum possible number of kids who will **not** get their present if exactly k Balls will forget theirs?

Input

The first line of input contains two integers n and k ($2 \leq n \leq 10^6$, $0 \leq k \leq n$), representing the number of Balls and the number of Balls who will forget to bring their presents.

The second line contains the permutation p of integers from 1 to n, where p_i is the index of Ball who should get a gift from the i-th Ball. For all i, $p_i \neq i$ holds.

Output

You should output two values — minimum and maximum possible number of Balls who will **not** get their presents, in that order.

Examples

input
5 2 3 4 1 5 2
output
2 4

input
10 1 2 3 4 5 6 7 8 9 10 1
output
2 2

Note

In the first sample, if the third and the first balls will forget to bring their presents, they will be th only balls not getting a present. Thus the minimum answer is 2. However, if the first ans the second balls will forget to bring their presents, then only the fifth ball will get a present. So, the maximum answer is 4.