Trudy is a very superstitious person. She owns n different socks all with different lengths. Once she wears two socks on one day, she will never wear that exact pair again. After $\binom{n}{2}$ days, she will throw the n socks away and buy more. She has come up with a plan to ensure that she will not wear the same pairs of socks on different days: Each day, she will look at all pairs that she has not yet worn and choose the pair whose lengths are as close as possible, breaking ties by selecting the pair with the smallest sock.

For example, if you have five socks of lengths 1, 2, 4, 6 and 15. The first five pairs of socks will be

Day	1	2	3	4	5
Socks	(1, 2)	(2, 4)	(4, 6)	(1, 4)	(2, 6)
Difference	1	2	2	3	4

But Trudy didn't realize how hard it was going to be to track which pairs to wear, and now she needs your help. Given the lengths of the socks and the current day, can you tell Trudy which socks she should wear today?

Input

The input will contain multiple test cases. Each test case will start with two integers n ($2 \leq n \leq 100000$) and k ($1 \leq k \leq 100000$ and $k \leq n2$). The next line will contain n distinct integers denoting the lengths of Trudy's socks. Each length with be between 1 and 10^9, inclusive.

The output will end when $n = k = 0$.

Output

For each test case, output two integers, the lengths of the two socks that Trudy should wear on day k. Output the smaller sock first then the larger sock.

Sample Input

```
5 4
1 2 4 6 15
4 6
2 8 13 120
0 0
```

Sample Output

```
1 4
2 120
```