Problem F. Snyrk's Prediction

Input file:	*standard input*
Output file:	*standard output*
Time limit:	5 seconds
Memory limit:	512 mebibytes

Do you know the best prediction specialist in programming contests?

Yes, definitely! You must know Snyrk.

Snyrk makes a prediction for the final scoreboard of each programming contest. That's why we don't need contests as they used to be anymore. Do you know how expensive is to fly a team of contestants from Sydney to Ekaterinburg? Instead, we could just send an e-mail with names of teams and participants to Snyrk and get the final scoreboard from him in ten to twenty minutes.

Do you really think that most of the contests do really take place? Don't you think that all that we observe is a scoreboard being generated based on Snyrk's predictions? Just try to ask some guys from a scoreboard in a contest you didn't take part in if they are aware of their participation. I bet you will be very surprised!

But how accurate is Snyrk in his predictions? We conducted a following experiment to test this.

We asked Snyrk for his prediction for some hypothetical contest of N particular teams. After that, we organized two real contests for these very N teams.

Let us enumerate the teams according to Snyrk's predictions. In other words, the i-th team ($1 \le i \le N$) took exactly the i-th place in Snyrk's ranking.

Then, the scoreboard in a real contest is a permutation of integers from 1 to N (there were no ties). Let A and B be the two final scoreboards in the two contests we held.

If there exists a pair of teams i and j ($i < j$) such that j ranked higher (took the place with smaller number) than i in both contests, Snyrk's prediction is considered bad. Otherwise, nobody will ever doubt Snyrk's foretelling abilities.

Your task is to check if Snyrk prediction is bad and, if so, provide an example of a pair of teams that proves you right.

Input

The first line contains an integer N ($2 \le N \le 10^6$). The second and the third lines contain N integers each — the permutations A and B respectively ($1 \le A_i \le N, 1 \le B_i \le N$).

Output

On the first line of output, write two integers i and j ($i < j$) — the numbers of teams that make Snyrk's prediction bad.

If no such pair exists, output -1.

Example

standard input	standard output
2 1 2 1 2	-1
5 4 2 1 5 3 5 4 3 1 2	2 4