The spies of *Alpha Complex* often find themselves blending in at diplomatic soirées. This can involve *i*nfiltration, *c*oercion and *e*avesdropping, and experienced spies have very strong opinions on ICE. Notably a preference for their martinis containing either cubes (0) or slivers (1) of the substance.

Fortunately invitation reply cards for soirées always ask for ice preference, so the correct number of drinks are always prepared. Unfortunately when spies arrive they are so busy looking inconspicuous they always pick up the leftmost drink remaining in the row.

Diplomatic soirées strive for perfection so queueing guests are observed by liveried staff peeking through the cut-out eyes of antique oil paintings, and the row of drinks is efficiently rearranged. There is tight choreography for rearranging the row of drinks — spies have been known to look through the paintings from the other side — so the only steps allowed in a rearrangement are reversals of blocks of adjacent drinks which include the leftmost drink. As no-one enjoys melted ice, if there are *n* guests, the staff only have time for *n-1* steps.

For example, suppose the initial row of drinks is 0101 but the preference for drinks as they'll be picked up is 0011.
- If the leftmost two drinks are reversed the row becomes 1001;
- If the leftmost three drinks are now reversed the row becomes 0011.

The first line of the input will contain a single integer, n ($1 \leq n \leq 5000$) indicating the number of spies. This will be followed by 2 lines, the first containing the initial arrangement of drinks in the row and the second containing the required ordering of drinks in the row.

You should output, in order, the reversals required to ensure all the spies have their preference using no more than *n-1* steps. You do not need to find the minimum number of steps. One step should appear per line, with the line containing a single integer indicating the number of drinks that are reversed. You should terminate your list of reversals with −1.

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4
0101
0011
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2
3
−1
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