605 The Rotating Disk

A neat puzzle consists of a circular track with n marbles numbered $1, \ldots, n$. The marbles are arranged in a random order, and they can be moved around the track without altering their relative order. In one section of the track there is a rotating disk. The disk contains 4 marbles. The disk can be rotated by 180 degrees so that the inner order of the 4 marbles is reversed. Your mission, should you choose to accept it, is to write a program that will read the content of a puzzle and use the rotating disk to rearrange the marbles in natural order.

Input

The following example will demonstrate a description of a puzzle and display of moves. The size of the track will vary from one data set to another.

Each data set will be a permutation of the integers $1, \ldots, n$ on a single line.

Output

In your output echo the initial track, followed by a blank line then the rotations. Mark the four rotated disks by placing * as the boundary as shown below. You do not have to display moves around the whole track.

Sample Input

```
8  1  2  3  7  10  4  6  5  9

1  2  3  5  4
```

Sample Output:

```
8  1  2  3  7  10  4  6  5  9
8  1  2  3  7  10  *9  5  6  4*
4  8  1  2  3  7  *6  5  9  10*
4 *3  2  1  8*  7  6  5  9  10
4  3  2  1  *5  6  7  8*  9  10
*1  2  3  4*  5  6  7  8  9  10

1  2  3  5  4
It is not possible to  rearrange these disks in natural order.
```