Problem G
Chaining
Time limit: 2 seconds

Lucy is playing a treasure hunting game with her friends. They have to decode a encoded message to receive hints. The encoded message is given in a sequence of numbers between 0 and n. To decode the message, Lucy and friends need to use each given number as pointer to point to the position in the seuqence as indicated by the given number. For example, in Figure 1(a), the given encoded message is *5 4 0 6 3 1*. The first number, which is *5*, act as pointer that points to the fifth number in the encoded message, which contains the number *3*. The fifth number, which is *3*, then act as a pointer that points to the third number in the encoded message. Figure 1(b) depicts the final message chain. Note that *0* denotes the end of the message, so it does not point to any other position in the encoded message. Given this chain, the decoded message is the list of position numbers of the chain from the head of the chain, which is position 2 (that contains number *4*), to the end of the chain, which is position 3 (that contains number *0*). So the final decoded message is *2 4 6 1 5 3*. In this instance, there is only one message chain, but there can be more than one message chain in an encoded message.
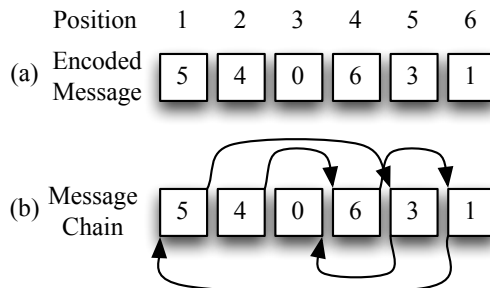

Figure 2: (a) Encoded message. (b) Message chain

Please write a program to help Lucy and friends to decode messages.

Technical Specification

1. The length of the encoded message is n, $1 \leq n \leq 10000$.

2. There are at least 1 and at most 15 message chains in an input instance.

3. Each position in the encoded message must belong to exactly one message chain.

Input Format

An instance of the problem consists of two lines of input. The first line contains a single integer n, denoting the length of the encoded message. The second line contains encoded message which has n integers between 0 and n. There is always a space between any two consecutive integers. The last instance is followed by a line containing a single 0.

Output Format

For each instance, output several integers. The first integer is the number of message chains contained in the given encoded message. For each message chain, output the starting position and the length of the message chain. There should be one space between any two consecutive integers. If there is more than one message chain, output in the order of the starting positions of the message chains.

Sample Input

```
6
5 4 0 6 3 1
12
0 6 0 10 7 4  3 1 12 5 2 11
3
0 0 2
0
```

Sample Output for the Sample Input

```
1 2 6
2 8 2 9 10
2 1 1 3 2
```

Note that the first output
1 2 6
means 1 message chain, the chain starts at position 2 and has length 6.

The second output
2 8 2 9 10
means 2 message chains, the first one starts at position 8 and has length 2, and second one starts at position 9 and has length 10.