Problem A. Amazing Trick

Time limit: 3 seconds
Memory limit: 1024 megabytes

Alice is a magician and she creates a new trick. She has n cards with different numbers from 1 to n written on them. First, she asks an audience member to shuffle the deck and put cards in a row. Let's say the i-th card from the left has the number a_i on it.

Then Alice picks two permutations p and q. There is a restriction on p and q — **permutations can't have fixed points**. Which means $\forall i : p_i \neq i \; and \; q_i \neq i$.

After permutations are chosen, Alice shuffles the cards according to them. Now the i-th card from the left is the card $a[p[q[i]]$. The trick is considered successful if i-th card from the left has the number i on it after the shuffles.

Help Alice pick the permutations p and q or say it is not possible for the specific starting permutation a.

Input

The first line of the input contains the number of tests t ($1 \leq t \leq 10^5$).

Each test is described in two lines. The first line contains one integer n — the number of cards ($1 \leq n \leq 10^5$). The second line contains n integers a_i — the initial permutation of the cards ($1 \leq a_i \leq n$; $\forall i \neq j : a_i \neq a_j$).

It is guaranteed that the sum of n over all tests does not exceed 10^5.

Output

Print the answer for each test case in the same order the cases appear in the input.

For each test case, print "`Impossible`" in a single line, if no solution exists.

Otherwise, print "`Possible`" in the first line, and in the following two lines print permutations p and q.

Example

standard input	standard output
4 2 2 1 3 1 2 3 4 2 1 4 3 5 5 1 4 2 3	Impossible Possible 3 1 2 2 3 1 Possible 3 4 2 1 3 4 2 1 Possible 4 1 2 5 3 3 1 4 5 2