

The Juggler's Fallacy (prob6)

The Problem

Stephen has run into a slight problem with his friend Bryan. Stephen is a master juggler, and Bryan resents him for it. So much so that he's taken to the Internet in order to sully Stephen's good name. Stephen has come across a blog post by someone who he thinks might be Bryan, claiming to be one of the most brilliant jugglers in the world. However, Stephen suspects that some of the sequences this "@B-ri" claims to be able to juggle just aren't possible. He's enlisted your help to solve his problem.

A juggling sequence consists of a finite sequence of positive integers. Each integer in the sequence consists of a throw of one of the balls, and its value represents how many "beats" until the juggler catches the ball. Essentially any sequence of integers is juggleable as long as the juggler only ever has to catch and throw one ball on a given beat. The only special case is the case of a 0 beat throw, which is a pause and consists of neither a catch or a throw.

Consider the juggling sequence 3 3 3. Even though this is a finite sequence, this continues on for forever, and encodes the infinite sequence of throws of duration 3. With this sequence, the juggler throws their first ball at time step 0, and catches that ball at time step 3. At time step 3, the juggler catches the ball thrown at time step 0 and throws another ball with a duration of 3. This sequence is able to be juggled since each throw of 3 will land on a unique time step.

However, the sequence 2 1 is not able to be juggled. At time step 0, the juggler throws a ball that will land at time step 2. At time step 1, the juggler will throw a ball that will also land at time step 2. This means the juggler needs to catch both balls, *and* throw a ball with a duration of 2. This is not physically possible, and thus the sequence is not valid.

Input

Input will consist of a single integer **N** specifying the number of juggling sequences to follow. Each of the following **N** lines will consist of no more than 25 integers, each separated by a single space. Since most jugglers can only manage a relatively small number of balls, you can assume that each integer is in the range [0, 25].

Output

Output will consist of **N** lines. Each line should output the sequence, followed by a ' - ', then followed by a statement claiming whether the sequence can or cannot be juggled.

Sample Input

```
4
3 3 3
5 0 1
2 1
4 4 1 3
```

Sample Output

```
3 3 3 - can be juggled
5 0 1 - can be juggled
2 1 - cannot be juggled
4 4 1 3 - can be juggled
```