Problem D. D

Time limit	1000 ms
Mem limit	1048576 kB
OS	Linux

There is a bag-like data structure, supporting two operations:

1 x: Throw an element x into the bag.

2: Take out an element from the bag.

Given a sequence of operations with return values, you're going to guess the data structure. It is a stack (Last-In, First-Out), a queue (First-In, First-Out), a priority-queue (Always take out larger elements first) or something else that you can hardly imagine!

Input

There are several test cases. Each test case begins with a line containing a single integer n ($1 \leq n \leq 1000$). Each of the next n lines is either a type-1 command, or an integer 2 followed by an integer x. This means that executing the type-2 command returned the element x. The value of x is always a positive integer not larger than 100. The input is terminated by end-of-file (EOF). The size of input file does not exceed 1MB.

Output

For each test case, output one of the following:

`stack`
It's definitely a stack.

`queue`
It's definitely a queue.

`priority queue`
It's definitely a priority queue.

`impossible`
It can't be a stack, a queue or a priority queue.

`not sure`
It can be more than one of the three data structures mentioned above.

Sample 1

Input	Output
6 1 1 1 2 1 3 2 1 2 2 2 3 6 1 1 1 2 1 3 2 3 2 2 2 1 2 1 1 2 2 4 1 2 1 1 2 1 2 2 7 1 2 1 5 1 1 1 3 2 5 1 4 2 4 1 2 1	queue not sure impossible stack priority queue impossible