

I Can Guess the Data Structure!

Problem ID:
guessthestructure
CPU Time limit: 1 second
Memory limit: 1024 MB

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.

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Source: Rujia Liu's Present 3: datastructure contest celebrates the 100th anniversary of Tsinghua University

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Sample Input 1

```
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
```

Sample Output 1

```
queue
not sure
impossible
stack
priority queue
impossible
```