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I Can Guess the Data Structure!

By Rujia Liu 🇨🇳 China

Timelimit: 2

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 <= **n** <= 1000). Each of the next **n** lines is either a type-1 command, or an integer 2 followed by an integer **x**. That means after executing a type-2 command, we get an element **x** *without error*. 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 Input	Sample Output
6	queue
1 1	not sure
1 2	impossible
1 3	stack
2 1	priority queue
2 2	
2 3	
6	
1 1	
1 2	
1 3	
2 3	
2 2	

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```
4
1 2
1 1
2 1
2 2
7
1 2
1 5
1 1
1 3
2 5
1 4
2 4
```

Rujia Liu's Present 3: A Data Structure Contest Celebrating the 100th Anniversary of Tsinghua University
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