Implement a «minimum queue» data structure. The structure should support the following types of operations: add a number to the end of the queue, remove a number from the beginning of the queue, and output the minimum number in the queue.

The queue is initially empty.

The first line of the input contains an integer q – the number of operations with the queue ($1 \le q \le 10^6$).

Each of the following q lines contains a description of the operation with the queue:

- **push x** – add an integer x to the end of the queue ($0 \le x \le 10^9$);
- **pop** – delete the number at the beginning of the queue. It is guaranteed that the queue is not empty;
- **min** – print the minimum number in the queue. It is guaranteed that the queue is not empty.

For each min operation print the minimum number in the queue.

Sample input:

```
7
push 3
push 2
min
pop
min
push 1
min
```

Sample output:

```
2
2
1
```