Priority Queue

(priority_queue.cpp/c)

Time Limit： 2 sec ， Memory Limit： 131072 KB

A priority queue is a data structure which maintains a set S of elements, each of with an associated value (key), and supports the following operations:

- insert(S, k): insert an element k into the set S
- extractMax(S): remove and return the element of S with the largest key

Write a program which performs the insert(S, k) and extractMax(S) operations to a priority queue S. The priority queue manages a set of integers, which are also keys for the priority.

Input (priority_queue.in)

Multiple operations to the priority queue S are given. Each operation is given by "insert k", "extract" or "end" in a line. Here, k represents an integer element to be inserted to the priority queue.

The input ends with "end" operation.

Output (priority_queue.out)

For each "extract" operation, print the element extracted from the priority queue S in a line.

Constraints

- The number of operations $\leq 2,000,000$
- $0 \leq k \leq 2,000,000,000$

Sample Input 1

```
insert 8
insert 2
extract
insert 10
extract
insert 11
extract
extract
end
```

Sample Output 1

```
8
10
11
2
```