



## **HEAP HELP!**

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✓ Points: 100 (partial)② Time limit: 1.0s

**Memory limit:** 256M

**→** Allowed languages

#### **Problem Statement**

You are tasked with designing and implementing a data structure called a "Max Heap." A Max Heap is a specialized tree-based structure where each node holds a value, and the following properties are maintained:

- Max Property: The value of a parent node is always greater than or equal to the values of its children.
- Complete Binary Tree: The tree is filled as much as possible, level by level, from left to right.

You are given Q queries. The queries can be of the following types:

- 1 X This query type inserts the element X into the max heap.
- 2 This query type removes the maximum element from the max heap.
- **3** This query type prints the maximum element of the max heap.

#### Clarification

All testcases are valid. You won't be asked to delete or print the max element from a empty heap.

### **Input Format**

Each test case consists of q queries. The description of the test cases is as follows:

- ullet The first line of each test case will contain one integer q representing the number of queries.
- Following would be q lines of queries, each having an integer a, spcifying the type of the query and integers x, if query is of 1st type.

#### **Output Format**

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## **Constraints**

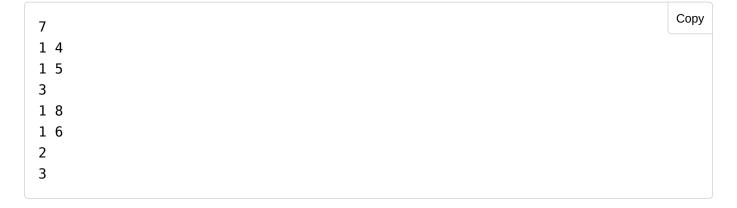
$$1 \leq q \leq 10^6$$

 $(a \in \{1, 2, 3\})$ 

 $-1e9 \le x \le 1e9$ 

## **Sample Testcase**

#### Input



## Output

5 6

# Clarifications

Report an issue

No clarifications have been made at this time.