Hello, **2024101067**.

HEAP HELP!

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Points: 100 (partial)
Time limit: 1.0s
Memory limit: 256M

Allowed languages
C

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:

- 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

Constraints

$1 \leq q \leq 10^6$

\(a ∈ {1, 2, 3}\)

$-1e9 \leq x \leq 1e9$

Sample Testcase

Input

Copy

```
7
1 4
1 5
3
1 8
1 6
2
3
```

Output

Copy

```
5
6
```

Clarifications

Report an issue

No clarifications have been made at this time.