## Maximum and Minimum Element

You have an empty sequence. You will receive an integer – **N***.* On the next **N** lines you will receive queries. Each query is one of these four types:

**'1 x'** – **Push** the element **x** into the stack.

**'2'** – **Delete** the element at the **top** of the **stack**.

**'3'** – **Print** the **maximum** element in the stack.

**'4'** – **Print** the **minimum** element in the stack.

After you go through all the queries, print the **stack from the top to the bottom** in the following format:

"{n}, {n1}, {n2} …, {nn}"

### Constraints

* **It is guaranteed that each query is valid**
* **1 ≤ N ≤ 105**
* **1 ≤ x ≤ 109**
* **1 ≤ type ≤ 4**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 9  1 97  2  1 20  2  1 26  1 20  3  1 91  4 | 26  20  91, 20, 26 |
| 10  2  1 47  1 66  1 32  4  3  1 25  1 16  1 8  4 | 32  66  8  8, 16, 25, 32, 66, 47 |