

Problem I. EIP1559

Input file: *standard input*
 Output file: *standard output*
 Time limit: 3 seconds
 Memory limit: 512 mebibytes

You are an avid Ethereum researcher. Recently Ethereum passed a resolution to change the gas rate of a transaction from a value *gasPrice* to a pair (*maxFee*, *maxPriorityFee*). The exact gas price of a transaction is calculated by $gasPrice = \min(maxFee, maxPriorityFee + baseFee)$, while *baseFee* is a parameter that can change over time.

You maintain a dynamic collection of transactions. At some moments, you want to know, for a specific *baseFee*, what is the largest *gasPrice* of a transaction in the collection.

Specifically, you need to maintain a collection of transactions that supports the following three operations:

1. Add a transaction with the gas rate (*maxFee*, *maxPriorityFee*) to the collection.
2. Remove a single transaction with the gas rate (*maxFee*, *maxPriorityFee*) from the collection. It is guaranteed that there is at least one transaction that satisfies the condition.
3. For a specific *baseFee*, find the maximum value of *gasPrice* in the collection when the current base fee is *baseFee*. It is guaranteed that there is at least one transaction in the collection.

Input

The first line contains an integer *t* ($0 \leq t \leq 10^6$) representing the number of operations. For the following *t* lines, the first integer *type* on each line represents the type of the current operation.

If *type* = 1, the next two integers are *maxFee* and *maxPriorityFee*. You should add a transaction with gas rate (*maxFee*, *maxPriorityFee*) to the collection.

If *type* = 2, the next two integers are *maxFee* and *maxPriorityFee*. You should remove a single transaction with gas rate (*maxFee*, *maxPriorityFee*) from the collection.

If *type* = 3, the next integer is *baseFee*. You should output the maximum value of *gasPrice* in the collection when the current base fee is *baseFee*.

It is guaranteed that all the values of *maxFee*, *maxPriorityFee*, and *baseFee* are integers in range $[0, 10^6]$.

Output

For each operation with *type* = 3, output a line with an integer representing the current largest *gasPrice* when the current base fee is *baseFee*.

Example

<i>standard input</i>	<i>standard output</i>
9	120000
1 200000 20000	140000
1 150000 40000	160000
1 120000 50000	130000
1 130000 30000	
3 80000	
3 100000	
3 140000	
2 150000 40000	
3 100000	