

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	