

# Basic Segment Tree

Time Limit: 1 Second  
Memory Limit: 2048 MB

You are given an array  $A$  with  $n$  elements ( $1 \leq n \leq 5 \times 10^5$ ), and all of its elements are initially 0. Write a program that supports the following three operations:

1. **Add**  $x \ v$  - add  $v$  to  $x$ -th element of  $A$ .
2. **Set**  $x \ v$  - set  $x$ -th element to  $v$ .
3. **Max**  $l \ r$  - find the maximum element of  $A[l \dots r]$ .

## Input

The first line contains two integers  $n$  and  $q$  ( $1 \leq n, q \leq 5 \times 10^5$ ) - the number of elements in array  $A$  and the number of operations.

The next  $q$  lines describe the sequence of operations. Each line starts with one of **Add**, **Set**, or **Max**. If the operation is **Add** or **Set**, two integers  $x$  and  $v$  ( $1 \leq x \leq n, 1 \leq v \leq 10^5$ ) follow. Otherwise two integers  $l$  and  $r$  ( $1 \leq l \leq r \leq n$ ) follow.

## Output

For each operation of type **Max**, output a single integer denoting value of the maximum element in the given range.

### Sample Inputs

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```
3 4
Add 1 2
Max 1 3
Set 2 5
Max 1 3
```

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### Sample Outputs

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```
2
5
```

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