## §1  Fill the Cups!

*This is a code golf problem. Try to solve it using the fewest number of characters in your code! The team with the shortest solution that passes all of the tests will win. The time limit is 1 second for C++, Java, and Python.*

You are preparing a series of eggnog drinks for a party. You have $N$ cups labeled $1, 2, \ldots, N$ which are all initially empty. Each cup has a certain capacity given by $C_1, C_2, \ldots, C_N$. Cup $i$ can hold up to $C_i$ ounces of eggnog. You perform $Q$ actions on the lines of cups. Each action is one of the following:

- FILL $i$ - You fill up cup $i$ to its full capacity with eggnog

- EMPTY $i$ - You empty out all of the eggnog from cup $i$

- POUR $i$ $j$ - Pour as much eggnog as you can from cup $i$ to cup $j$. Stop pouring as soon as cup $j$ fills up or cup $i$ is empty.

Please output the final amount of eggnog in every cup.

**Input Format:**

The first line contains $N$ and $Q$. ($1 \le N \le 100$ and $1 \le Q \le 1000$)

The second line contains $N$ integers $C_1, C_2, \ldots, C_N$. ($1 \le C_i \le 100$)

The next $Q$ lines each contain an action as described above.

**Output Format:**

Output a single line of $N$ integers representing the final amount of eggnog in each cup.

**Sample Input**

```
4 5
1 3 4 2
FILL 2
POUR 2 1
FILL 4
POUR 2 3
EMPTY 1
```

**Sample Output**

```
0 0 2 2
```

| The four cups start out empty: | $0, 0, 0, 0$ |
| After cup 2 is filled: | $0, 3, 0, 0$ |
| After cup 2 is poured into cup 1: | $1, 2, 0, 0$ |
| After cup 4 is filled: | $1, 2, 0, 2$ |
| After cup 2 is poured into cup 3: | $1, 0, 2, 2$ |
| After cup 1 is emptied: | $0, 0, 2, 2$ |