Cube Summation

Chinese Version
Russian Version

You are given a 3-D Matrix in which each block contains 0 initially. The first block is defined by the coordinate (1,1,1) and the last block is defined by the coordinate (N,N,N). There are two types of queries.

```
UPDATE x y z W
```

updates the value of block (x,y,z) to W.

```
QUERY x1 y1 z1 x2 y2 z2
```

calculates the sum of the value of blocks whose x coordinate is between x1 and x2 (inclusive), y coordinate between y1 and y2 (inclusive) and z coordinate between z1 and z2 (inclusive).

Input Format
The first line contains an integer T, the number of test-cases. T testcases follow.
For each test case, the first line will contain two integers N and M separated by a single space.
N defines the N * N * N matrix.
M defines the number of operations.
The next M lines will contain either

```
1. UPDATE x y z W
2. QUERY  x1 y1 z1 x2 y2 z2
```

Output Format
Print the result for each QUERY.

Constrains
1 <= T <= 50
1 <= N <= 100
1 <= M <= 1000
1 <= x1 <= x2 <= N
1 <= y1 <= y2 <= N
1 <= z1 <= z2 <= N
1 <= x,y,z <= N
-10^9 <= W <= 10^9

Sample Input

```
2
4 5
UPDATE 2 2 2 4
QUERY 1 1 1 3 3 3
UPDATE 1 1 1 23
QUERY 2 2 2 4 4 4
QUERY 1 1 1 3 3 3
2 4
UPDATE 2 2 2 1
QUERY 1 1 1 1 1 1
QUERY 1 1 1 2 2 2
QUERY 2 2 2 2 2 2
```

Sample Output

```
4
4
27
0
1
1
```

Explanation

First test case, we are given a cube of 4 * 4 * 4 and 5 queries. Initially all the cells (1,1,1) to (4,4,4) are 0.
`UPDATE 2 2 2 4` makes the cell (2,2,2) = 4
`QUERY 1 1 1 3 3 3`. As (2,2,2) is updated to 4 and the rest are all 0. The answer to this query is 4.
`UPDATE 1 1 1 23`. updates the cell (1,1,1) to 23. `QUERY 2 2 2 4 4 4`. Only the cell (1,1,1) and (2,2,2) are non-zero and (1,1,1) is not between (2,2,2) and (4,4,4). So, the answer is 4.
`QUERY 1 1 1 3 3 3`. 2 cells are non-zero and their sum is 23+4 = 27.