



Cube Summation

by [stranger9811](#)

Problem

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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.

Constraints

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

-10⁹ <= W <= 10⁹

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 $23+4 = 27$.

[f](#) [t](#) [in](#)

Submissions: 2209

Max Score: 50

Difficulty: Hard

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Java 7
v

```

1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
6
7 public class Solution {
8
9     public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11     }
12 }

```

Line: 1 Col: 1

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☐ Test against custom input

Run Code

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