**Problem : Matrix Rotations**

You are given a square matrix of dimension **N**. Let this matrix be called **A**. Your task is to rotate **A** in clockwise direction by**S** degrees, where **S** is angle of rotation. On the matrix, there will be 3 types of operations viz.

1. Rotation

Rotate the matrix A by angle S, presented as input in form of **A S**

1. **Q**uerying

Query the element at row K and column L, presented as input in form of **Q K L**

1. **U**pdation

Update the element at row X and column Y with value Z, presented as input in form of **U X Y Z**

Print the output of individual operations as depicted in Output Specification

**Input Format:**  
  
Input will consist of three parts, viz.  
1. Size of the matrix (N)  
2. The matrix itself (A = N \* N)  
3. Various operations on the matrix, one operation on each line. (Beginning either with A, Q or U)  
  
-1 will represent end of input.

**Note:**

* Angle of rotation will always be multiples of 90 degrees only.
* All Update operations happen only on the initial matrix. After update all the previous rotations have to be applied on the updated matrix

**Output Format:**  
  
For each Query operation print the element present at K-L location of the matrix in its current state.

**Constraints:**

**1<=N<=1000**

**1<=Aij<=1000**

**0<=S<=160000**

**1<=K, L<=N**

**1<=Q<=100000**

[**Sample Input and Output**](https://www.blogger.com/null)

|  |  |  |
| --- | --- | --- |
| **SNo.** | **Input** | **Output** |
| 1 | 2 1 2 3 4 A 90 Q 1 1 Q 1 2 A 90 Q 1 1 U 1 1 6 Q 2 2 -1 | 3 1 4 6 |