Mock Test › doliatius@protonmail.com

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Test Name:	**Mock Test**
Taken On:	17 Jan 2024 18:22:28 IST
Time Taken:	27 min 30 sec/ 30 min
Linkedin:	https://www.linkedin.com/in/musab-oguz-68990a200/
Invited by:	Ankush
Invited on:	17 Jan 2024 18:21:53 IST
Skills Score:	
Tags Score:	

Algorithms	90/90
Constructive Algorithms	90/90
Core CS	90/90
Greedy Algorithms	90/90
Medium	90/90
Problem Solving	90/90
problem-solving	90/90

100%

90/90

scored in **Mock Test** in 27 min 30 sec on 17 Jan 2024 18:22:28 IST

Recruiter/Team Comments:

No Comments.

Plagiarism flagged

We have marked questions with suspected plagiarism below. Please review it in detail here -

	Question Description	Time Taken	Score	Status
Q1	Flipping the Matrix › **Coding**	27 min 23 sec	90/ 90	(!)

QUESTION 1

(!)

Needs Review

Score 90

Flipping the Matrix › Coding

Algorithms | Medium | Greedy Algorithms | Constructive Algorithms | problem-solving | Core CS | Problem Solving

QUESTION DESCRIPTION

Sean invented a game involving a $2n \times 2n$ matrix where each cell of the matrix contains an integer. He can reverse any of its rows or columns any number of times. The goal of the game is to maximize the sum of the elements in the $n \times n$ submatrix located in the upper-left quadrant of the matrix.

Given the initial configurations for q matrices, help Sean reverse the rows and columns of each matrix in the best possible way so that the sum of the elements in the matrix's upper-left quadrant is maximal.

Example
$matrix = [[1, 2], [3, 4]]$

```
1 2
3 4
```

It is 2×2 and we want to maximize the top left quadrant, a 1×1 matrix. Reverse row 1:

```
1 2
4 3
```

And now reverse column 0:

```
4 2
1 3
```

The maximal sum is 4.

Function Description

Complete the *flippingMatrix* function in the editor below.

flippingMatrix has the following parameters:
- *int matrix[2n][2n]:* a 2-dimensional array of integers

Returns
- *int:* the maximum sum possible.

Input Format

The first line contains an integer q, the number of queries.

The next q sets of lines are in the following format:

- The first line of each query contains an integer, n.
- Each of the next $2n$ lines contains $2n$ space-separated integers $matrix[i][j]$ in row i of the matrix.

Constraints

- $1 \leq q \leq 16$
- $1 \leq n \leq 128$
- $0 \leq matrix[i][j] \leq 4096$, where $0 \leq i, j < 2n$.

Sample Input

```
STDIN           Function
-----           --------
1               q = 1
2               n = 2
112 42 83 119   matrix = [[112, 42, 83, 119], [56, 125, 56, 49], \
56 125 56 49              [15, 78, 101, 43], [62, 98, 114, 108]]
15 78 101 43
62 98 114 108
```

Sample Output

```
414
```

Explanation

Start out with the following $2n \times 2n$ matrix:

$$matrix = \begin{bmatrix} 112 & 42 & 83 & 119 \\ 56 & 125 & 56 & 49 \\ 15 & 78 & 101 & 43 \\ 62 & 98 & 114 & 108 \end{bmatrix}$$

Perform the following operations to maximize the sum of the $n \times n$ submatrix in the upper-left quadrant:

2. Reverse column 2 ($[83, 56, 101, 114] \rightarrow [114, 101, 56, 83]$), resulting in the matrix:

$$matrix = \begin{bmatrix} 112 & 42 & 114 & 119 \\ 56 & 125 & 101 & 49 \\ 15 & 78 & 56 & 43 \\ 62 & 98 & 83 & 108 \end{bmatrix}$$

3. Reverse row 0 ($[112, 42, 114, 119] \rightarrow [119, 114, 42, 112]$), resulting in the matrix:

$$matrix = \begin{bmatrix} 119 & 114 & 42 & 112 \\ 56 & 125 & 101 & 49 \\ 15 & 78 & 56 & 43 \\ 62 & 98 & 83 & 108 \end{bmatrix}$$

The sum of values in the $n \times n$ submatrix in the upper-left quadrant is $119 + 114 + 56 + 125 = 414$.

CANDIDATE ANSWER

Language used: **C++14**

```

/*
 * Complete the 'flippingMatrix' function below.
 *
 * The function is expected to return an INTEGER.
 * The function accepts 2D_INTEGER_ARRAY matrix as parameter.
 */

int flippingMatrix(vector<vector<int>> matrix) {
    int quadrant_size = matrix.size()/2;
    int curr_sum = 0;
    int mat_idx = matrix.size()-1;

    for (int i = 0; i<quadrant_size; i++){
        for (int ii = 0; ii<quadrant_size; ii++){
            curr_sum += max({matrix[i][ii], matrix[i][mat_idx-ii],
matrix[mat_idx-i][ii], matrix[mat_idx-i][mat_idx-ii]});
        }
    }

    return curr_sum;
}
```

TESTCASE	DIFFICULTY	TYPE	STATUS	SCORE	TIME TAKEN	MEMORY USED
Testcase 1	Easy	Sample case	✓ Success	0	0.0066 sec	9 KB
Testcase 2	Easy	Hidden case	✓ Success	15	0.0542 sec	9.18 KB
Testcase 3	Easy	Hidden case	✓ Success	15	0.0657 sec	9.15 KB
Testcase 4	Easy	Hidden case	✓ Success	15	0.0358 sec	8.98 KB

Testcase 5	Easy	Hidden case	✓ Success	15	0.0658 sec	9.27 KB
Testcase 6	Easy	Hidden case	✓ Success	15	0.0563 sec	9.16 KB
Testcase 7	Easy	Hidden case	✓ Success	15	0.0644 sec	9.21 KB
Testcase 8	Easy	Sample case	✓ Success	0	0.0062 sec	8.84 KB

No Comments

PDF generated at: 17 Jan 2024 13:21:43 UTC