Programming Assignment-1: Lower Triangular Matrix

**Due on 2020-03-19, 23:59 IST**

A **Lower triangular matrix** is a **square matrix** (where the number of rows and columns are equal)  where all the elements above the diagonal are zero.  
For example, the following is an upper triangular matrix with the number of rows and columns equal to 3.

1 0 0

4 5 0

7 8 9  
  
Write a program to convert a square matrix into a lower triangular matrix.  
  
**Input Format:**The first line of the input contains an integer number **n** which represents the number of rows and the number of columns.  
From the second line, take **n** lines input with each line containing **n integer** elements. Elements are separated by space.  
  
**Output format:**  
Print the elements of the matrix with each row in a new line and each element separated by a space.  
  
Example 1:  
  
Input:  
3  
1 2 3  
4 5 6  
7 8 9  
  
Output:  
1 0 0  
4 5 0  
7 8 9  
  
Example 2:  
  
Input:  
4

12 2 5 6

10 11 4 1

32 1 4 10

1 2 10 9  
  
Output:

12 0 0 0

10 11 0 0

32 1 4 0

1 2 10 9

Explanation:  
In both the examples, elements which are above the diagonal are zero.  
  
**NOTE: There should not be any extra space after the elements of the last column and no extra newline after the last row of the matrix.**

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You may submit any number of times before the due date. The final submission will be considered for grading.

**This assignment has Public Test cases. Please click on "Compile & Run" button to see the status of Public test cases. Assignment will be evaluated only after submitting using Submit button below. If you only save as or compile and run the Program , your assignment will not be graded and you will not see your score after the deadline.**

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Sample Test Cases

|  |  |  |
| --- | --- | --- |
|  | **Input** | **Output** |
| Test Case 1 | 3  2 3 4  5 6 7  7 6 5 | 2 0 0  5 6 0  7 6 5 |
| Test Case 2 | 4  1 2 3 4  5 6 7 8  9 10 11 12  13 14 15 16 | 1 0 0 0  5 6 0 0  9 10 11 0  13 14 15 16 |
| Test Case 3 | 3  7 47 17  48 46 9  16 28 46 | 7 0 0  48 46 0  16 28 46 |

Programming Assignment-2: Symmetric

**Due on 2020-03-19, 23:59 IST**

Given a square matrix of N rows and columns, find out whether it is symmetric or not.  
  
**Input Format:**The first line of the input contains an integer number **n** which represents the number of rows and the number of columns.  
From the second line, take **n** lines input with each line containing **n integer** elements with each element separated by a space.  
  
**Output Format:**  
Print 'YES' if it is symmetric otherwise 'NO'  
  
Example:  
  
Input:  
2  
1 2  
2 1  
  
Output:  
YES

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Sample Test Cases

|  |  |  |
| --- | --- | --- |
|  | **Input** | **Output** |
| Test Case 1 | 2  1 2  2 1 | YES |
| Test Case 2 | 3  1 2 3  4 5 6  7 8 9 | NO |
| Test Case 3 | 2  1 2  2 3 | YES |

Programming Assignment-3: Binary Matrix

**Due on 2020-03-19, 23:59 IST**

Given a matrix with N rows and M columns, the task is to check if the matrix is a Binary Matrix. A binary matrix is a matrix in which all the elements are either 0 or 1.  
  
**Input Format:**The first line of the input contains two integer number **N** and **M** which represents the number of rows and the number of columns respectively, separated by a space.  
From the second line, take **N** lines input with each line containing **M** integer elements with each element separated by a space.   
  
**Output Format:**  
Print 'YES' or 'NO' accordingly  
  
Example:  
  
Input:  
3 3  
1 0 0  
0 0 1  
1 1 0  
  
Output:  
YES

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Select the Language for this assignment.                                     

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Sample Test Cases

|  |  |  |
| --- | --- | --- |
|  | **Input** | **Output** |
| Test Case 1 | 2 2  1 0  0 1 | YES |
| Test Case 2 | 3 3  1 0 0  2 0 0  1 1 1 | NO |
| Test Case 3 | 4 4  1 1 1 1  0 0 0 0  1 1 1 1  0 0 0 0 | YES |