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Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

week 4

Week 5

Week 6

Week 7

- Snakes and Ladders - Not on the Board (unit? unit=121&lesson=122)
- Snakes and Ladders - Not on the Board -

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
```

Part 01 (unit? unit=121&lesson=123)
 Snakes and Ladders - Not on the Board - Part 02 (unit? unit=121&lesson=124)

Output:
 1 0 0
 4 5 0
 7 8 9

Snakes and Ladders - Not on the Board - Part 03 (unit? unit=121&lesson=125)

Example 2:
Input:
 4
 12 2 5 6
 10 11 4 1
 32 1 4 10
 1 2 10 9

Snakes and Ladders - Not on the Board - Part 04 (unit? unit=121&lesson=126)

Output:
 12 0 0 0
 10 11 0 0
 32 1 4 0
 1 2 10 9

Snakes and Ladders - Not on the Board - Part 05 (unit? unit=121&lesson=127)

Explanation:
 In both the examples, elements which are above the diagonal are zero.

Snakes and Ladders - Not on the Board - Part 06 (unit? unit=121&lesson=128)

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.

Sample Test Cases

Spiral Traversing - Let's Animate (unit? unit=121&lesson=129)

Test Case 1

Input	Output
7 16 9 16 15 7 42 47 17 39 14 28 48 4 1 29 36 5 13 13 45 50 34 34 13 18 20 27 41 37 23 16 24 32 35 19 28 13 40 1 29 36 50 37 22 42 22 43 40 48	16 0 0 0 0 0 0 17 39 0 0 0 0 0 29 36 5 0 0 0 0 34 34 13 18 0 0 0 37 23 16 24 32 0 0 28 13 40 1 29 36 0 37 22 42 22 43 40 48

Spiral Traversing - Let's Animate - Part 01 (unit? unit=121&lesson=130)

Test Case 2

3 7 0 0 48 46 0 16 28 46	7 0 0 48 46 0 16 28 46
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Spiral Traversing - Let's Animate - Part 03 (unit? unit=121&lesson=132)

Test Case 3

4 1 0 0 0 5 6 0 0 9 10 11 0 13 14 15 16	1 0 0 0 5 6 0 0 9 10 11 0 13 14 15 16
---	--

Spiral Traversing - Let's Animate - Part 04 (unit? unit=121&lesson=133)

Test Case 4

3 2 3 4 5 6 7 7 6 5	2 0 0 5 6 0 7 6 5
------------------------------	-------------------------

- Spiral Traversing - Let's Animate - Part 05 (unit? unit=121&lesson=134)

Test Case 5

```
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
```

- Spiral Traversing - Let's Animate - Part 06 (unit? unit=121&lesson=135)

Test Case 6

```
3
7 47 17
48 46 9
16 28 46
```

```
7 0 0
48 46 0
16 28 46
```

- Spiral Traversing - Let's Animate - Part 07 (unit? unit=121&lesson=136)

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.
Sample solutions (Provided by instructor)

- GPS - Track the route (unit? unit=121&lesson=137)

```
1 a = int(input())
```

```
2
```

```
3
```

```
4 m = []
```

```
5 for i in range(1,a+1):
```

```
6     l = list(map(int, input().split()))
```

```
7     m.append(l)
```

```
8
```

```
9 for i in range(a):
```

```
10     for j in range(a):
```

```
11         if(i>=j):
```

```
12             if(j==a-1):
```

```
13                 print(m[i][j], end=" ")
```

```
14             else:
```

```
15                 print(m[i][j], end=" ")
```

```
16
```

```
17         else:
```

```
18             if(j==a-1):
```

```
19                 print(0, end=" ")
```

```
20             else:
```

```
21                 print(0, end=" ")
```

```
22
```

```
23 if(i!=a-1):
```

```
24     print()
```

- GPS - Track the route - Part 01 (unit? unit=121&lesson=138)

- GPS - Track the route - Part 02 (unit? unit=121&lesson=139)
- GPS - Track the route - Part 03 (unit? unit=121&lesson=140)
- GPS - Track the route - Part 04 (unit? unit=121&lesson=141)
- Quiz : Assignment 7 (assessment? name=277)
- Programming Assignment-1: Lower Triangular Matrix (/noc20_cs35/progassignment? name=299)**

- Programming Assignment-2: Symmetric (/noc20_cs35/progassignment? name=300)

- Programming Assignment-3:

Binary Matrix
(/noc20_cs35/progassignment?
name=301)

Week 7
Feedback
(unit?
unit=121&lesson=302)

Week 8

Week 9

Week 10

Week 11

Week 12

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