

10775 Mystical Matrix

It was rumored that the first person who solves the Mystical Matrix will get a free Mystical Chicken dinner from the Mystical Restaurant. Of course, Jack is eager to get that Mystical Chicken dinner.

The Mystical Matrix is a matrix with 3 rows and N columns, with $1, 2, \dots, 3N$ each occupying one cell. Furthermore, all rows have the same sum and all columns have the same sum. Help Jack construct such a Mystical Matrix.

Input

The input contains several lines. Each line contains a single positive integer N . You may assume N is a multiple of 3 and it is less than 1000. The input is terminated by a single integer '0'.

Output

Output a valid Mystical Matrix. If non-exists, output 'IMPOSSIBLE' (without quotes). A valid Mystical Matrix should take 3 lines, with each line consisting of N integers separated by spaces. For example, a 3×9 matrix should look like:

<i>A1</i>	<i>A2</i>	<i>A3</i>	<i>A4</i>	<i>A5</i>	<i>A6</i>	<i>A7</i>	<i>A8</i>	<i>A9</i>
<i>B1</i>	<i>B2</i>	<i>B3</i>	<i>B4</i>	<i>B5</i>	<i>B6</i>	<i>B7</i>	<i>B8</i>	<i>B9</i>
<i>C1</i>	<i>C2</i>	<i>C3</i>	<i>C4</i>	<i>C5</i>	<i>C6</i>	<i>C7</i>	<i>C8</i>	<i>C9</i>

Sample Input

```
3
0
```

Sample Output

```
8 1 6
3 5 7
4 9 2
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