

C. Magic Grid

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Let us define a *magic grid* to be a square matrix of integers of size $n \times n$, satisfying the following conditions.

- All integers from 0 to $(n^2 - 1)$ inclusive appear in the matrix **exactly once**.
- Bitwise XOR** of all elements in a row or a column must be the same for each row and column.

You are given an integer n which is a **multiple of 4**. Construct a *magic grid* of size $n \times n$.

Input

The only line of input contains an integer n ($4 \leq n \leq 1000$). It is guaranteed that n is a multiple of 4.

Output

Print a *magic grid*, i.e. n lines, the i -th of which contains n space-separated integers, representing the i -th row of the grid.

If there are multiple answers, print any. We can show that an answer always exists.

Examples

input	Copy
4	
output	Copy
8 9 1 13 3 12 7 5 0 2 4 11 6 10 15 14	

input	Copy
8	
output	Copy
19 55 11 39 32 36 4 52 51 7 35 31 12 48 28 20 43 23 59 15 0 8 16 44 3 47 27 63 24 40 60 56 34 38 6 54 17 53 9 37 14 50 30 22 49 5 33 29 2 10 18 46 41 21 57 13 26 42 62 58 1 45 25 61	

Note

In the first example, XOR of each row and each column is 13.

In the second example, XOR of each row and each column is 60.

Manthan, Codefest 19 (open for everyone, rated, Div. 1 + Div. 2)

Finished

Practice



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You can clone this contest to a mashup.

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Language: GNU G++11 5.1.0

Choose file: [选择文件](#) 未选择任何文件

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

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Submission	Time	Verdict
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- Tutorial (en) ☐

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