Problem A. Easy Problem

Problem Description

KCW is an algorithm enthusiast. Today, he came up with an easy problem. Here's the problem statement:

There is a grid of size $2^n \times 2^n$, and KCW wants you to fill in the numbers from 1 to 2^{2n} into the cells of the grid.

The numbers are filled into the grid following a specific rule: if the size of the grid is greater than one, divide it into four quadrants: top-left, top-right, bottom-left, and bottom-right. Place the first quarter of the numbers in the top-left quadrant, the next quarter from $\frac{1}{4}$ to $\frac{1}{2}$ in the top-right quadrant, the subsequent quarter from $\frac{1}{2}$ to $\frac{3}{4}$ in the bottom-left quadrant, and the rest in the bottom-right quadrant. If the size of the grid is 1×1, fill it with the corresponding number.

KCW will give you the initial size of the grid, represented by n. He wants to know how the numbers will be placed in the grid in the end.

Input Format

- line 1: n

Output Format

- line i ($1 \leq i \leq 2^n$): the 2^n numbers in the i^{th} row of the grid.

Constraints

- $0 \leq n \leq 10$.
- All the inputs are integers.

Subtasks

1. (10 points) $n \leq 2$.
2. (30 points) $n \leq 5$.
3. (60 points) No additional constraints.

No.	Testdata Range	Time Limit (ms)	Memory Limit (KiB)
Samples	1-2	1000	262144
1	1-3	1000	262144
2	1-6	1000	262144
3	1-11	1000	262144

Samples

Sample Input 1

```
1
```

This sample input satisfies the constraints of all the subtasks.

Sample Output 1

```
1 2
3 4
```

Sample Input 2

```
2
```

This sample input satisfies the constraints of all the subtasks.

Sample Output 2

```
1 2 5 6
3 4 7 8
9 10 13 14
11 12 15 16
```