Special Square

Loay has won first two contests in AAST training level 3, and he is wondering: Will his competitors fight back hard in next contests? Let's hope they do. While he was thinking, he was drawing a special square.

This special square has unique properties, its sides has length 3ⁿ (i.e if n is 2, it is 9X9 square), and when it divided to 9 equal squares, the middle one is just empty square while the other 8 are special squares too (lsn't it interesting?, see sample input and output for more understanding).

NOTE: 1X1 square filled with '0' is also special square.

Input

just one integer N (1<=N<=7)

Output

print the given special square whose sides of length 3^N

Example

Input:

, ...b.

Output:

000

0 0

000

Input:

2

Output:

00000000

0 00 00 0

00000000

000 000

00 00

000 000

00000000

0 00 00 0

00000000

Input:

3

Output: