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Ada King

Problem Code: **ADAKING**

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as well.

Chef Ada is training her calculation skills. She wants to place a [king_\(\)](#) and some obstacles on a [chessboard](#) (<https://en.wikipedia.org/wiki/Chessboard>) in such a way that the number of distinct cells the king can reach is exactly K .

Recall that a chessboard has 8 rows (numbered 1 through 8) and 8 columns (numbered 1 through 8); let's denote a cell in row r and column c by (r, c) .

In one move, a king can move to any adjacent cell which shares a side or corner with its current cell and does not contain an obstacle. More formally, a king in a cell (r, c) can move to any cell (r_n, c_n) if (r_n, c_n) is a valid cell of the chessboard which does not contain an obstacle and $(r - r_n)^2 + (c - c_n)^2 \leq 2$.

A cell (x, y) can be reached by a king if, after an arbitrary number of moves (including zero), the king is in the cell (x, y) .

Help Ada find any valid configuration of the board such that the king can reach exactly K distinct cells. It is guaranteed that such a configuration always exists. If there are multiple solutions, you may find any one.

Input

- The first line of the input contains a single integer T denoting the number of test cases. The description of T test cases follows.
- The first and only line of each test case contains a single integer K .

Output

My Submissions

(/JULY20B/status/ADAKING, jag20)

All Submissions

(/JULY20B/status/ADA

Successful Submissions



For each test case, print 8 lines describing a chessboard, each containing 8 characters. For each valid i and j , the j -th character on the i -th line should be one of the following:

- 'O' if the cell (i, j) initially contains the king; there should be exactly one such cell
- 'X' if the cell (i, j) contains an obstacle
- '.' if the cell (i, j) is empty

Constraints

- $1 \leq T \leq 64$
- $1 \leq K \leq 64$

Subtasks

Subtask #1 (10 points): $K \leq 8$

Subtask #2 (90 points): original constraints

Example Input

```
4
1
5
9
64
```

Example Output

```
.....
.....
.....
.XXX....
.XOX....
.XXX....
.....
.....

.....
.....
.....
.....
.....
XXX....
..XX....
O..X....

.....
. ....
.X.O...X
.X...XXX
.XXX.X..
...XXX..
.....
.....

.....
.....
.....
...O....
.....
.....
.....
```

Explanation

The descriptions of the chessboard for each test case are separated by blank lines for clarity. Note that these lines should not appear on the output of your submission.

Example case 1: The king is surrounded by obstacles, so it cannot move — the only cell it can reach is its initial cell.

Example case 4: The king can visit all cells of the board.

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Date Added: 16-10-2018
Time Limit: 1 secs
Source Limit: 50000 Bytes
Languages: ADA, ASM, BASH, BF, C, CAML, CLOJ, CLPS, COB, CPP14, CPP17, CS2, D, ERL, FORT, FS, GO, HASK, ICK, ICON, JAVA, JS, kotlin, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYP3, PYPY, PYTH, PYTH 3.6, R, RUBY, rust, SCALA, SCM chicken, SCM guile, SCM qobi, SQL, SQLQ, ST, swift, TCL, TEXT, WSPC

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CodeChef was created as a platform to help programmers make it big in the world of **algorithms**, **computer programming**, and **programming contests**. At CodeChef we work hard to revive the geek in you by hosting a **programming contest** at the start of the month and two smaller programming challenges at the middle and end of the month. We also aim to have training sessions and discussions related to **algorithms**, **binary search**, technicalities like **array size** and the likes. Apart from providing a platform for **programming competitions**, CodeChef also has various algorithm tutorials and forum discussions to help those who are new to the world of **computer programming**.

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