Straight Line Spiral Pattern (Act 1)

Print a straight line spiral pattern as shown in the example below. Please use the * (asterisk) and . (dot) characters.

Input

You are given *t* - the number of test cases and for each of the test cases one integer: *s*, 3 < s < 100 - the size of the shape.

Output

For each of the test cases output the requested pattern. Use one line break in between successive patterns.

Example

Input:
5
4
5
11
13
78

Output:
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