

2397. Count Number of Ways to Place Houses

Difficulty : Medium

<https://leetcode.com/problems/count-number-of-ways-to-place-houses>

There is a street with $n * 2$ **plots**, where there are n plots on each side of the street. The plots on each side are numbered from 1 to n . On each plot, a house can be placed.

Return *the number of ways houses can be placed such that no two houses are adjacent to each other on the same side of the street*. Since the answer may be very large, return it **modulo** $10^9 + 7$.

Note that if a house is placed on the i^{th} plot on one side of the street, a house can also be placed on the i^{th} plot on the other side of the street.

Example 1:

Input: $n = 1$

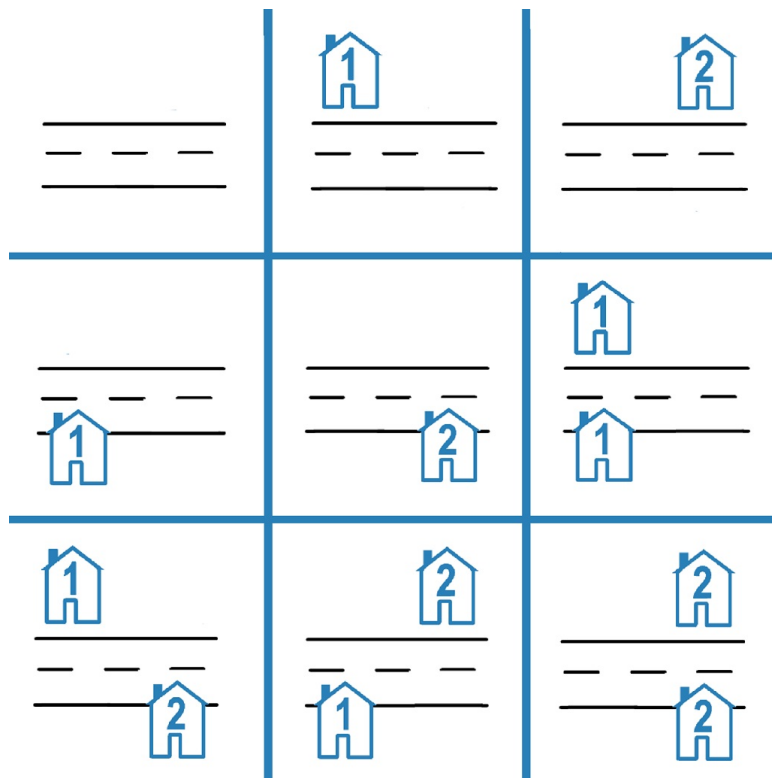
Output: 4

Explanation:

Possible arrangements:

1. All plots are empty.
2. A house is placed on one side of the street.
3. A house is placed on the other side of the street.
4. Two houses are placed, one on each side of the street.

Example 2:



Input: $n = 2$

Output: 9

Explanation: The 9 possible arrangements are shown in the diagram above.

Constraints:

- $1 \leq n \leq 10^4$