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** 109 + 7.

Note that if a house is placed on the ith plot on one side of the street, a house can also be placed on the ith 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:**

Graphical user interface, diagram

Description automatically generated

**Input:** n = 2

**Output:** 9

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

**Constraints:**

* 1 <= n <= 104