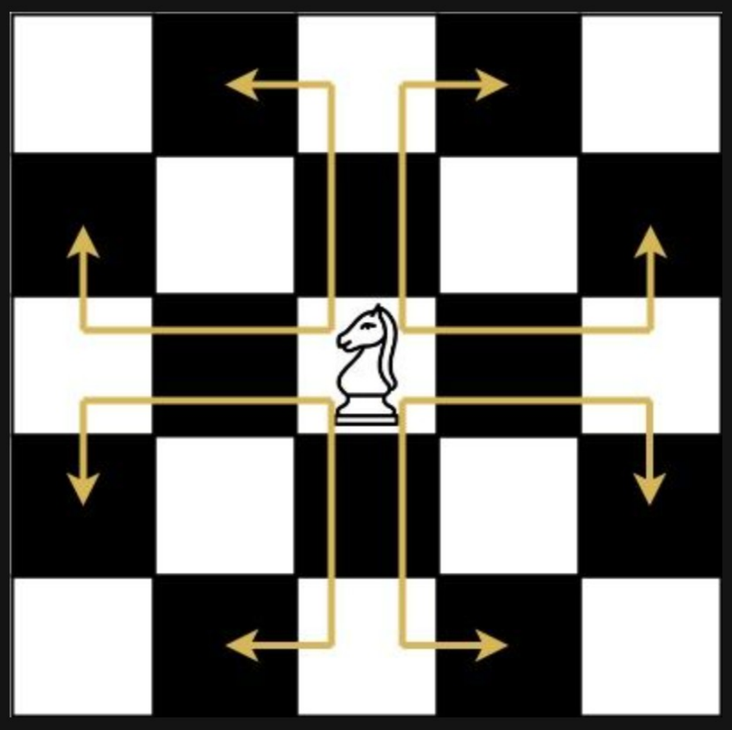
935. Knight Dialer

Description

The chess knight has a **unique movement**, it may move two squares vertically and one square horizontally, or two squares horizontally and one square vertically (with both forming the shape of an **L**). The possible movements of chess knight are shown in this diagaram:

A chess knight can move as indicated in the chess diagram below:



We have a chess knight and a phone pad as shown below, the knight **can only stand on a numeric cell** (i.e. blue cell).

Given an integer `n`, return how many distinct phone numbers of length `n` we can dial.

You are allowed to place the knight **on any numeric cell** initially and then you should perform `n - 1` jumps to dial a number of length `n`. All jumps should be **valid** knight jumps.

As the answer may be very large, **return the answer modulo** $10^9 + 7$.

Example 1:

```
Input: n = 1
Output: 10
Explanation: We need to dial a number of length 1, so placing the knight over any numeric cell of the 10 cells is sufficient.
```

Example 2:

```
Input: n = 2
Output: 20
Explanation: All the valid number we can dial are [04, 06, 16, 18, 27, 29, 34, 38, 40, 43, 49, 60, 61, 67, 72, 76, 81, 83, 92, 94]
```

Example 3:

```
Input: n = 3131
Output: 136006598
Explanation: Please take care of the mod.
```

Constraints:

- `1 <= n <= 5000`