Super-Queens on a Chessboard ★

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People on Mars have slightly different pieces on their Chessboard. One of them is a Super-Queen. A Super-Queen is a combination of a Queen and a Knight.

So, any of the following squares are in the "zone of power" of a Super-Queen.

1. A square in the same row or column as the Super-Queen
2. A square lying on a line drawn diagonally through the square on which the Super-Queen is.
3. A square lying in an 'L-Shape' with the Queen: This includes any square which is (2 rows, 1 column) away from the Queen or (1 row, 2 columns) away from the Queen.

So, if the Super-Queen is placed at the position 'q' marked on this chessboard below, the squares marked with hyphens '-' are squares threatened by possible 'attack' from the Super-Queen, and the squares marked by '0' are squares which are safe from the Super-Queen.

```
- 0 0 - 0 0 -
0 - - - - - 0
0 - - - - - 0
- - - q - - -
0 - - - - - 0
0 - - - - - 0
- 0 0 - 0 0 -
```

Task

Your tasks is to compute the number of ways to place N Super-Queens on an N x N Chessboard such that none of the Super-Queens are in conflict with each other. Ignore the fact that some of these arrangements are reflections and rotations of each other: all of them count as unique positionings.

Input Format

One Integer N (which is the number of rows in the chessboard).

Constraint

- $8 \leq N < 15$

Output Format

One Integer W, which is the number of ways to place N Super-Queens in the prescribed manner.

Sample Input

```
10
```

Sample Output

```
4
```

Explanations

These are the various combinations of positions of 10 Super-Queens on a 10x10 Chessboard such that none of them will be in conflict. Assume that the rows as well as the columns are numbered 1 to 10.

Combination 1

```
(10,8), (9,5), (8,2), (7,10), (6,7), (5,4), (4,1), (3,9), (2,6), (1,3)
Explanation: A Super-Queen can be placed on (Row 10, Column 8), the second can be placed at (Row 9, Column 5), th
```

Combination 2

```
(10,7), (9,3), (8,10), (7,6), (6,2), (5,9), (4,5), (3,1), (2,8), (1,4)
```

Combination 3

```
(10,4), (9,8), (8,1), (7,5), (6,9), (5,2), (4,6), (3,10), (2,3), (1,7)
```

Combination 4

```
(10,3), (9,6), (8,9), (7,1), (6,4), (5,7), (4,10), (3,2), (2,5), (1,8)
```

Change Theme Language Haskell

```
1  queenN :: Int -> Int -> [[(Int, Int)]]
2  queenN n 0 = [[]]
3  queenN n i = [(i, j):ps|j <- [1..n], ps <- queenN n (i-1), safe ps (i, j)]
4      where safe [] _ = True
5            safe ps (x, y) = all (f (x,y)) ps
6            f (x1,y1) (x2,y2) = let diffx = abs (x1 - x2)
7                                   diffy = abs (y1 - y2)
8                                   a = if diffx == 2 then diffy /= 1 else True
9                                   b = if diffy == 2 then diffx /= 1 else True
10                                in diffx /= diffy && a && b && y1 /= y2
11
12 main = do
13     n <- read <$> getLine
14     let result = queenN n n
15     print $ length result
16
```

Line: 16 Col: 1

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