DP-S015 (E042)

Solved Challenges **0/1**

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Pet Store Dogs

ID:11149 **Solved By 477 Users**

There are **N** dogs in a pet store. The pet store wants to keep the N dogs in cages. There can be two dogs in each cage. A dog can be eitheir passive or aggressive. If the dog is passive, it can be clubed with another passive dog. If the dog is aggressive, it has to be alone in a cage. The program must print the number ways W to put the N dogs in the cages as the output.
Note: The number of cages in the pet store is sufficient to keep N dogs according to the given condition.

Boundary Condition(s):
1 <= N <= 1000

Input Format:
The first line contains N.

Output Format:
The first line contains W.

Example Input/Output 1:
Input:
2

Output:
2

Explanation:
Here N = 2.
Way 1: If both the dogs are passive, only one cage is required.
Way 2: If both the dogs are aggressive or one dog is passive or aggressive, two cages are required.

Example Input/Output 2:
Input:
3

Output:
4

Example Input/Output 3:
Input:
10

Output:
9496

Max Execution Time Limit: 500 millisecs

Ambiance

Python3 (3.x)

Reset

```
# import sys
# sys.setrecursionlimit(10**9)
N = int(input())

ways = [0 for i in range(N+1)]
for ctr in range(1,N+1):
    if(ctr<=2):
        ways[ctr] = ctr
    else:
        ways[ctr] = ways[ctr-1] + (ctr-1)*ways[ctr-2]

# def ways(n):
#     if(n==0 or n==1):
#         return 1
#     else:
#         return((ways(n-1) + (n-1)*ways(n-2)))

print(ways[N])
```

Custom test case has passed.

SUCCESS

You have executed a custom test case. Kindly un-check "Run with a custom test case (Input/Output)" to execute challenge test cases.

Save Run

Run with a custom test case (Input/Output)