DP-S004 (E004)

Solved Challenges 2/3

Back To Challenges List





Stair Climbing - Slippery stairs

ID:10535 **Solved By 483 Users**

There are **N** stairs to be climbed in a building. A robot can take only **S** different leaps each containing certain distinct steps which are passed as the input. But **T** stairs are slippery and hence the robot will slip to the bottom stair if it lands on a slippery stair. The slippery stair numbers are passed as the input. The program must print the number of ways **C** of steps the robot can take to climb N stairs.

Boundary Condition(s):

1 <= N <= 50

1 <= S <= 10

1 <= T <= N

Input Format:

The first line contains N, S and T separated by a space.

The second line contains S integer values separated by a space.

The third line contains T integer values separated by a space.

Output Format:

The first line contains the value of C.

Example Input/Output 1:

Input:

521

23

2

Output:

2

Explanation:

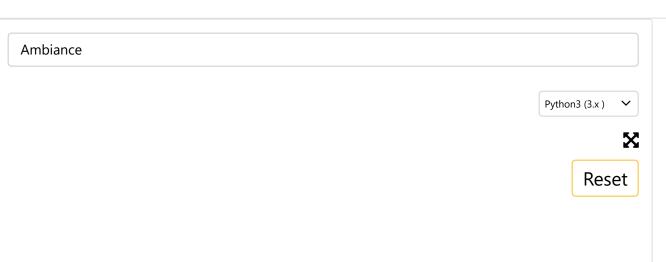
There are 5 steps. The robot can take 2 or 3 steps at a time.

So the possible ways are

3 2

1 2 2 (as the robot will slip to step 1 when it lands on step 2 which is slippery)

Example Input/Output 2:
Input:
621
23
2
Output:
Explanation: The possible ways are 1 2 3 (as the robot will slip to step 1 when it lands on step 2 which is slippery) 1 3 2 (as the robot will slip to step 1 when it lands on step 2 which is slippery) 3 3
Max Execution Time Limit: 400 millisecs



```
_ = list(map(int, input().strip().split()))
 2 n = [0]
   leaps_count = _[1]
 3
   slippery_count = _[2]
 4
   leaps = list(map(int, input().strip().split()))
 6
 7
   slippery = list(map(int, input().strip().split()))
 8
9
   ways = [0]*(n+1)
10 ways[0] = 1
   lastNonslippery = 0
11
   for step in range(1,n+1):
12
        for leap in leaps:
13
14
            if(step>= leap):
                ways[step] += ways[step - leap]
15
16
        if(step in slippery):
17
            lastNonslippery = step-1
18
19
            while((lastNonslippery in slippery) and lastNonslippery>
20
                lastNonslippery -=1
21
22
            if(lastNonslippery>0):
                ways[lastNonslippery]+=ways[step]
23
24
            ways[step] = 0
25
26
27
   print(ways[n])
28
```

