Q. Climbing Stairs: (26/04/2024)

Input: Let suppose the input is an integer 'n'

n → no. of steps

Base case

if n = 1
return 1
(only one case)

if n = 2
return 2
(1+1, 2) cases

if n > 2 then
steps = i
(possibilities)
step 1
step 2
] no. of ways to reach that output.

When n is greater than 2 we start a loop to see the no. of ways to climb the staircase

→ make a new variable of data type int to store the no. of ways.

```
int solution
for (int i = 3; i <= n; i++)
    solution = step1 + step2
```

Dry run: n = 4

Since n=1, n=2 already handled

Iteration 1 (i = 3)

solution = step1 + step2

= 1 + 2

= 3 ⟵ ways to reach step 3

Updating step 1 = 2
step 2 = 3

⇒ Iteration 2 : (i=4)

solution = 2 + 3 = 5 → ways to reach step 4

step 1 = 3 , step 2 = 5

→ Since, n = 4 is reached, loop is done. and the solution = 5

step 1 = step 2 → Updating since step 1 will become the prev. step 2.

step 2 = solution
(Since it now represents the no. of ways to reach the step. two steps back.)

After the iteration is complete print the result through:

return solution;