# Fibonacci Numbers

*The Fibonacci Sequence*

The Fibonacci sequence appears in nature all around us, in the arrangement of seeds in a sunflower and the spiral of a nautilus for example.

The Fibonacci sequence begins with fibonacci(0)=0 and fibonacci(1)=1 as its first and second terms. After these first two elements, each subsequent element is equal to the sum of the previous two elements.

Programmatically:

* fibonacci(0)=0
* Fibonacci(1)=1
* Fibonacci(n)=fibonacc(n-1)+Fibonacci(n-2)

Given n, return the n^th number in the sequence.

As an example, n=5. The Fibonacci sequence to 6 is fs=[0,1,1,2,3,5,8]. With zero-based indexing,fs[5]=5 .

**Function Description**

Complete the recursive function fibonacci in the editor below. It must return the n^th element in the Fibonacci sequence.

fibonacci has the following parameter(s):

* *n*: the integer index of the sequence to return

**Input Format**

The input line contains a single integer, n.

**Constraints**

* 1<= n<=30

**Output Format**

Locked stub code in the editor prints the integer value returned by the fibonacci function.

**Sample Input**

3

**Sample Output**

2

**Explanation**

The Fibonacci sequence begins as follows:

 Fibonacci(0)=0  
  Fibonacci(1)=1  
 Fibonacci(2)=(0+1)=1  
 Fibonacci(3)=(1+1)=2  
 Fibonacci(4)=(1+2=3  
 Fibonacci(5)=(2+3)=5  
 Fibonacci(6)=(3+5)=8...

We want to know the value of Fibonacci(3). In the sequence above, Fibonacci(3) evaluates to 2.

using System;

using System.Collections.Generic;

using System.IO;

class Solution {

public static int Fibonacci(int n) {

// Write your code here.

if(n<2)return 0;

int[] f=new int[n+1];

f[0]=0;

f[1]=1;

for(int i=2;i<=n;i++){

f[i]=f[i-1]+f[i-2];

}

return f[n];

}

static void Main(String[] args) {

int n = Convert.ToInt32(Console.ReadLine());

Console.WriteLine(Fibonacci(n));

}

}

**Congratulations**

You solved this challenge. Would you like to challenge your friends?

[Next Challenge](https://www.hackerrank.com/challenges/ctci-recursive-staircase?h_l=interview&playlist_slugs%5B%5D=interview-preparation-kit&playlist_slugs%5B%5D=recursion-backtracking&h_r=next-challenge&h_v=zen)

* **Test case 0**
* **Test case 1**
* **Test case 2**
* **Test case 3**
* **Test case 4**
* **Test case 5**
* **Test case 6**
* **Test case 7**
* **Test case 8**
* **Test case 9**