

## Nth Fibonacci Number

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**Problem Description:** You are given an input integer N, and you have to calculate the Nth Fibonacci number.

For example, if the given number is 7, then the Fibonacci series will be 1,1,2,3,5,8,13,..... Then 13 will be the 7th fibonacci number.

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### How to approach?

The Fibonacci numbers are the numbers in the sequence such that the current number will be the sum of the previous two numbers i.e.  $F(n) = F(n-1) + F(n-2)$

And given that  $F(1)=F(2)=1$

1. Take the number as input from the user.
2. Initialize 1st and second number with 1.
3. Now, start moving iteratively till the Nth number is calculated. To calculate the current number, equate it as sum of the previous two numbers. And continue to move further.

Pseudo Code for this problem:

*Input = N*

*a=1*

*b=1*

*For i=1 till i less than N:*

*c=a+b*

*a=b*

*b=c*

*print(a)*

❑ Let us dry run the code:

N=7

- a=1  
b=1
- i=1  
c=a+b=2  
a=b=1  
b=c=2

- $i=2$   
 $c=a+b=3$   
 $a=b=2$   
 $b=c=3$
- $i=3$   
 $c=a+b=5$   
 $a=b=3$   
 $b=c=5$
- $i=4$   
 $c=a+b=8$   
 $a=b=5$   
 $b=c=8$
- $i=5$   
 $c=a+b=13$   
 $a=b=8$   
 $b=c=13$
- $i=6$   
 $c=a+b=21$   
 $a=b=13$   
 $b=c=21$
- $i=7$ , move out of the loop, so print a i.e. 13.
- So final output: 13