

LAB 1

Problem A: Fibonacci sequence

- Compute the Nth Fibonacci number where:
 - $\text{Fib}(0) = 0$
 - $\text{Fib}(1) = 1$
 - $\text{Fib}(N) = \text{Fib}(N-1) + \text{Fib}(N-2)$ for $N > 1$

Code

```
C Fib.c > Fib(int)
1  #include<stdio.h>
2  int Fib(int n) // Function definition
3  {
4      if (n<=1)
5          return n;
6      return Fib(n-1) + Fib(n-2);
7  }
8  int main()
9  {
10     int x;
11     printf("Please enter a positive number:\n"); //message for the user
12     scanf("%d",&x); // entering the number
13     printf("The Fibonacci series of %d is %d \n", x, Fib(x)); // function call
14     return 0;
15 }
```

output

```
→ COMP-1410 ./a.out
Please enter a number:
10
The Fibonacci series of 10 is 55
→ COMP-1410 ./a.out
Please enter a number:
3
The Fibonacci series of 3 is 2
→ COMP-1410 ./a.out
Please enter a number:
7
The Fibonacci series of 7 is 13
```

Stack (example of 5)

Fib:

$x = 5$

$PA = \text{Fib at line 6}$

Main:

$x = 5$

$PA = 0.5$





