

## Problem Set 2 Exercise #08: Fibonacci Sequence

**Reference:** Week 5 Lecture notes

**Learning objective:** Repetition statements

**Estimated completion time:** 30 minutes

### Problem statement:

The Fibonacci sequence is given below.

1, 1, 2, 3, 5, 8, 13, 21, 34, 55 ...

The first two Fibonacci numbers  $F_1$  and  $F_2$  are both 1, and subsequent numbers are formed by adding its preceding two values, i.e.,  $F_n = F_{n-1} + F_{n-2}$  for  $n > 2$ .

Write a program **fibonacci.c** that accepts a positive value  $n$  ( $n < 47$ ) from the user and displays the  $n^{\text{th}}$  number in the Fibonacci sequence. For example, if  $n$  is 3, your program will print out the 3<sup>rd</sup> number in the Fibonacci sequence, i.e. 2.

Your program should contain a function `int fib(int n)` that takes  $n$  and returns the  $n^{\text{th}}$  number in the Fibonacci sequence.

### Sample run #1:

```
Enter n: 1
1
```

### Sample run #2:

```
Enter n: 3
2
```

### Sample run #3:

```
Enter n: 10
55
```