Problem Set 2 Exercise #08: Fibonacci Sequence

Reference: Lecture 5 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^{th} number in the Fibonacci sequence. For example, if *n* is 3, your program will print out the 3^{rd} 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^{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
```