

DFS Lab

August 2, 2017

1 Problems

- Pascal's Triangle
- Sorting
- Prime Number
- Fibonacci Numbers

P1. In mathematics, **Pascal's triangle** is a triangular array of the binomial coefficients. Write a C program to print the Pascal's Triangle upto an **n**, where **n** will be a user input.

Input : $n = 4$

Output :

```
          1
        1  1
       1  2  1
      1  3  3  1
     1  4  6  4  1
```

P2. Given an array of n integers, write a C program to print the array in sorted order. For example:

Input : 3, 5, 7, -1, 2, 0, -4

Output : -4, -1, 0, 2, 3, 5, 7

P3. Write a C program to determine whether a given number is prime or not. For example:

Input: 25

Output: Not Prime.

Input: 2

Output: Prime.

P4. In mathematics, the **Fibonacci numbers** are the numbers in the following integer sequence, called the **Fibonacci sequence**, and characterized by the fact that every number after the first two is the sum of the two preceding ones:

$$1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, \dots$$

In mathematical terms, the sequence F_n of Fibonacci numbers is defined by the recurrence relation

$$F_n = F_{n-1} + F_{n-2}$$

with seed values

$$F_0 = 0$$

$$F_1 = 1$$

Write a C program to print the sequence till F_n where n is the user input.