Evaluative Lab (4 Marks)

Birla Institute of Technology & Science, Pilani
Data Structures & Algorithms (CS F211)
Lab Assignment – 1 (Pascal's Triangle)

Problem

Creating and storing Pascal's Triangle in a Triangular Array

Description

User will give a whole number N as input. You will have to create a triangular using Dynamic Memory Allocation having just sufficient space to hold the Pascal's Triangle corresponding to N. After this follow the procedure described below to fill the entries in in the triangular array that corresponds to the Pascal's Triangle. Finally, you will have to output the triangular array that looks similar to the Pascal's Triangle corresponding to N.

Creating Pascal's Triangle

First we start with Pascal's Triangle from N = 0:

1

For N = 1, we add a row below having 11:

1 1

For N = 2, we add a row below having first and last numbers as 1 and in between, the numbers are sums of two consecutive numbers in the above numbers.

1
1 1
1 2 1

Similarly, we repeat the process:

N = 3

1
1 1
1 2 1
1 3 3 1

N = 4

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