

Assignment 6

Topics:

1. Dynamic programming
2. Graphs
3. BFS/DFS

(Maximum marks -15)

Q-3) Pascal's Triangle (5 marks)

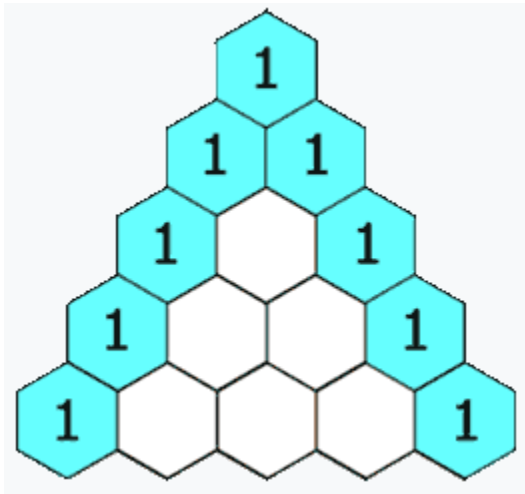
<https://leetcode.com/problems/pascals-triangle/>

(5 marks)

(Easy)

Given an integer `numRows`, return the first `numRows` of Pascal's triangle.

In Pascal's triangle, each number is the sum of the two numbers directly above it as shown:



Example 1:

Input: `numRows = 5`

Output: `[[1],[1,1],[1,2,1],[1,3,3,1],[1,4,6,4,1]]`

Example 2:

Input: `numRows = 1`

Output: `[[1]]`

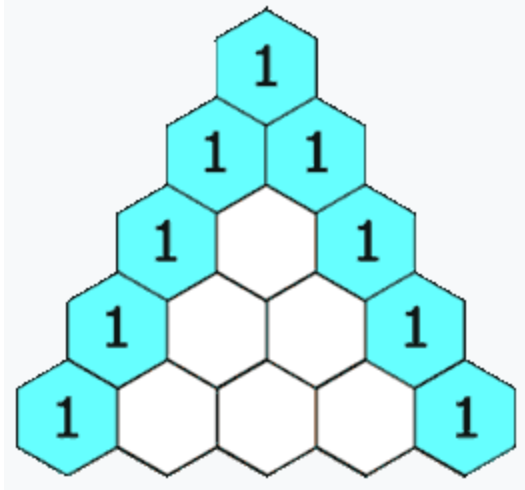
Q-2) Pascal's Triangle II (5 marks)

<https://leetcode.com/problems/pascals-triangle-ii/>

(Easy)

Given an integer `rowIndex`, return the `rowIndex`th (0-indexed) row of the Pascal's triangle.

In Pascal's triangle, each number is the sum of the two numbers directly above it as shown:



Example 1:

Input: rowIndex = 3

Output: [1,3,3,1]

Example 2:

Input: rowIndex = 0

Output: [1]

Q-3) Best Time to Buy and Sell Stock (5 marks)

<https://leetcode.com/problems/best-time-to-buy-and-sell-stock/>

You are given an array `prices` where `prices[i]` is the price of a given stock on the `i`th day.

You want to maximize your profit by choosing a single day to buy one stock and choosing a different day in the future to sell that stock.

Return *the maximum profit you can achieve from this transaction*. If you cannot achieve any profit, return 0.

Example 1:

Input: `prices = [7,1,5,3,6,4]`

Output: 5

Explanation: Buy on day 2 (price = 1) and sell on day 5 (price = 6), profit = $6 - 1 = 5$.

Note that buying on day 2 and selling on day 1 is not allowed because you must buy before you sell.

Marks distribution:

Questions 1,2 and 3 carry 5 marks each.