WORKSHEET 9

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Branch: BE-CSE **Section/Group:** 22BCS_NTPP-602-A

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Subject Name: AP LAB - II **Subject Code:** 22CSP-351

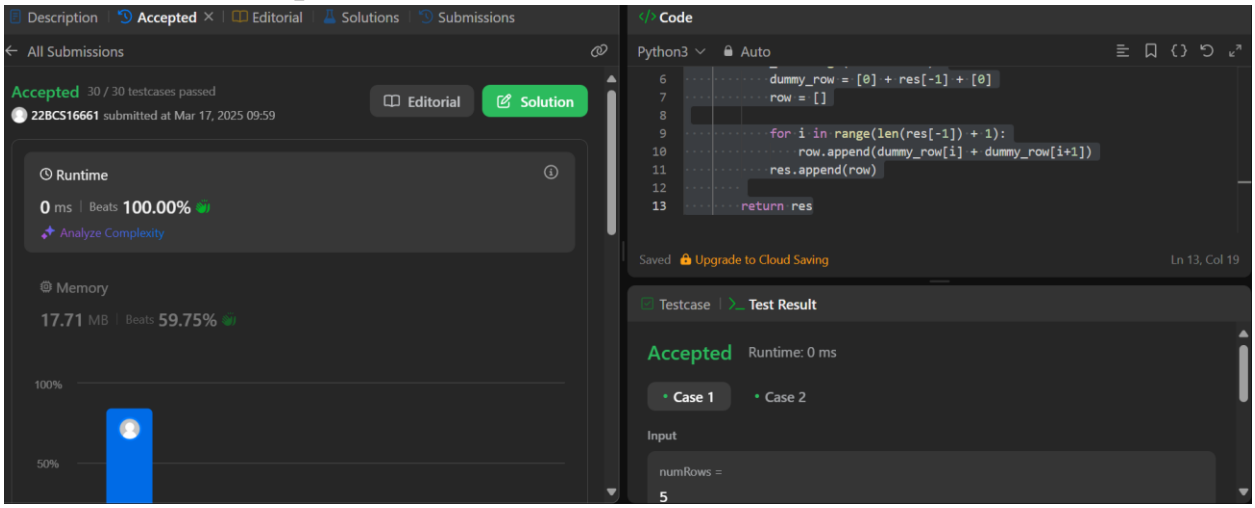
1. **Aim:** Given an integer numRows, return the first numRows of **Pascal's triangle**.

2. **Source Code:**

```
class Solution:
    def generate(self, numRows: int) -> List[List[int]]:
        res = [[1]]
        for _ in range(numRows - 1):
            dummy_row = [0] + res[-1] + [0]
            row = []
            for i in range(len(res[-1]) + 1):
                row.append(dummy_row[i] + dummy_row[i+1])
            res.append(row)

        return res
```

3. **Screenshots of outputs:**



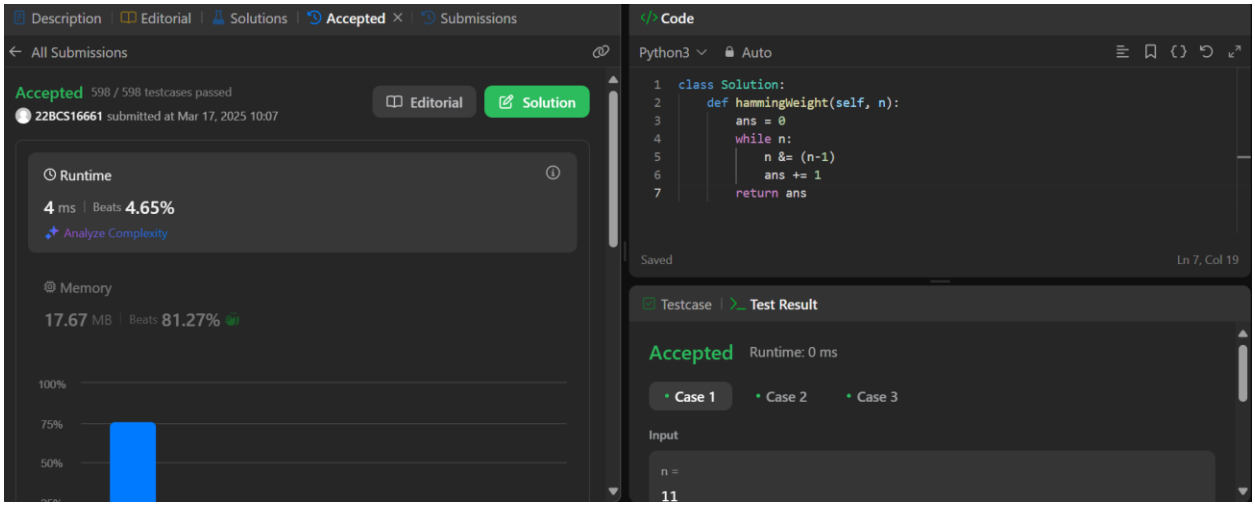
2.

Aim: Given a positive integer n, write a function that returns the number of set bits in its binary representation (also known as the Hamming weight).

Source Code:

```
class TreeNode:
class Solution:
    def hammingWeight(self, n):
        ans = 0
        while n:
            n &= (n-1)
            ans += 1
        return ans
```

Screenshots of outputs:



3.

Aim: Given n non-negative integers representing an elevation map where the width of each bar is 1, compute how much water it can trap after raining.

Source Code:

```
class Solution:
    def trap(self, height: List[int]) -> int:
        n = len(height)
        result = 0
        maxI, waterBlock = 0,0
        for i in range(1,n):
            if height[i] >= height[maxI]:
                result += waterBlock
                waterBlock = 0
                maxI = i
            waterBlock += (height[maxI] - height[i])
        end = maxI - 1
        maxI, waterBlock = n-1,0
        for i in range(n-2,end,-1):
            if height[i] >= height[maxI]:
                result += waterBlock
                waterBlock = 0
                maxI = i
            waterBlock += (height[maxI] - height[i])
        return result
```

4. Screenshots of outputs: