Pascal Triangle

Intuition

Each row contains 1,2,3,4... elements and every row contains 1 on both sides except for 0th row so if we can use an algorithm which initialises a vector of eleemnts equal to row number and contains 1 on both sides and the sum of two elements of previous row is the ans for next row following the initial 1.

Approach

A vector of size row+1 is declared as index starts from 0 and initialised to 1. The observation is middle element occurs from 3rd row onwards so j loop where summation is performed should work from index j=2. So the loop should be --> for(j=1;j<i;j++)

Complexity

- Time complexity:

```
O(N^2)
```

- Space complexity:

```
O(N^2)
```

Code

```
class Solution {
public:
    vector<vector<int>> generate(int numRows) {
    int sum=1;
    vector<vector<int>> res;
    for(int i=0;i<numRows;i++)
    {
```

```
        vector<int> temp(i+1,1);
        for(int j=1;j<i;j++)
        {
        temp[j]=res[i-1][j-1]+res[i-1][j];
        }
        res.push_back(temp);

    }
    return res;
    }
};
```