Wave Print!

Given a matrix, print it in Reverse Wave Form.

Input Format:

Given integer m (number of rows), integer n (number of columns) and 2d vector.

Output Format:

Return a linear vector of integers in the required order.

Examples :

Input :
1 2 3 4

5 6 7 8

9 10 11 12

13 14 15 16

Output :
4 8 12 16 15 11 7 3 2 6 10 14 13 9 5 1

Input :
1 9 4 10

3 6 90 11

2 30 85 72

6 31 99 15

Output :
10 11 72 15 99 85 90 4 9 6 30 31 6 2 3 1

Solution: wavePrint.cpp

Pascal's Triangle

Pascal's triangle is a triangular array of the binomial coefficients. Write a function that takes an integer value n as input and returns 2D array with first n lines of the Pascal's triangle.

Following are the first 5 rows of Pascal's Triangle.

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

Input Format

In the function an integer N is passed.

Output Format

Return the output as vector of vectors.

Solution: pascalTriangle.cpp

Submatrix Sum

Given a matrix of size M x N, there are large number of queries to find submatrix sums. Inputs to queries are left top and right bottom indexes of submatrix whose sum is to find out.

How to preprocess the matrix so that submatrix sum queries can be performed in O(1) time.

INPUT FORMAT:

Given a matrix (2d vector) and query.. Each query has Starting row, Starting column, Ending row, Ending column.

OUTPUT FORMAT:

A single integer which is the sum of the submatrix.

Example :

```
tli :  Row number of top left of query submatrixtlj :  Column number of top left
of query submatrixrbi :  Row number of bottom right of query submatrixrbj :
Column number of bottom right of query submatrix Input: mat[M][N] = {{1, 2, 3,
4, 6},                    {5, 3, 8, 1, 2},                    {4, 6, 7, 5, 5},
{2, 4, 8, 9, 4} };Query1: tli = 0, tlj = 0, rbi = 1, rbj = 1Query2: tli = 2, tlj
= 2, rbi = 3, rbj = 4Query3: tli = 1, tlj = 2, rbi = 3, rbj = 3; Output:Query1:
11  // Sum between (0, 0) and (1, 1)Query2: 38  // Sum between (2, 2) and (3,
4)Query3: 38  // Sum between (1, 2) and (3, 3)
```

Solution: subMatSum.cpp