Day2 (Arrays)

1.set matrix zero-

make another vector of pair<int,int> to save the row and column number of the index wich is zero because if we do 0 operation at the time of traversal then it will change the whole matrix to 0 so first save index then make row and column of that index zero explicitly.

#include<bits/stdc++.h>

using namespace std;

void setmatrix(vector<int>a[],int n,int m)

{

    vector<pair<int,int>>c;

    for(int i=0;i<n;i++)

    {

        for(int j=0;j<m;j++)

        {

            if(a[i][j]==0)

            {

                c.push\_back({i,j});

            }

        }

    }

    for(auto x: c)

    {

        for(int k=0;k<m;k++)

        a[x.first][k]=0;

        for(int k=0;k<n;k++)

        a[k][x.second]=0;

    }

}

int main()

{

    int n,m;

    cin>>n>>m;

    vector<int>v[n];

    for(int i=0;i<n;i++)

    {

        for(int j=0;j<m;j++)

        {

            int x;

            cin>>x;

            v[i].push\_back(x);

        }

    }

    setmatrix(v,n,m);

    for(auto x:v)

    {

        for(auto y:x)

        {

            cout<<y<<" ";

        }

        cout<<endl;

    }

}

2.pascal triangle

In pascal triangle we have given a number n and we have to print a pascal triangle of n rows and n columns. In 1st row we have 1 column and in 2nd row we have 2 column and so on.

To find a pasal value of i th row and j th column we have to find a combination of (i-1)c(j-1).

So basically pascal triangle is a triangle of combinations of rows and columns(i-1 and j-1).

#include<bits/stdc++.h>

using namespace std;

int combination(int n,int r) // this function will return the combination of the 2 given number

{ // nCr

    int count=1;

    for(int i=n;i>n-r;i--)

    {

        count\*=i;

    }

    int count1=1;

    for(int i=1;i<=r;i++)

    count1\*=i;

    return count/count1;

}

vector<vector<int>> pascal(int n)

{

    vector<vector<int>>v;

    for(int i=1;i<=n;i++)

    {

        vector<int>f;

        for(int j=1;j<=i;j++)

        {

            f.push\_back(combination(i-1,j-1));

        }

        v.push\_back(f);

    }

    return v;

}

int main()

{

    int n;

    vector<vector<int>>v=pascal(7);

    for(auto x:v)

    {

        for(auto y:x)

        {

            cout<<y<<" ";

        }

        cout<<endl;

    }

}