Day 4-Week 2- 8th April

1. **Wave Array**

```
class Solution{
   public:
   // arr: input array
   // n: size of array
   //Function to sort the array into a wave-like array.
   void convertToWave(int n, vector<int>& arr)
   {

      sort(arr.begin(),arr.end()) ;
      for(int i=0;i<n-1;i+=2)
      swap(arr[i],arr[i+1]) ;

   }
};
```

2. **Roof Top**

```
class Solution
{
   public:
```

```
    //Function to find maximum number of consecutive steps
    //to gain an increase in altitude with each step.
    int maxStep(int arr[], int n)
    {
      int max_no=0;
     int count=0;

     for(int i=0;i<n-1;i++){
        if(arr[i]<arr[i+1])
         count++;
         else{
           max_no=max(count,max_no);
           count=0;
         }
      }
     max_no=max(count,max_no);
     return max_no;

    }
};
```

3. **Count Sorted Rows**

```
// { Driver Code Starts
// Initial Template for C++

#include <bits/stdc++.h>
using namespace std;

 // } Driver Code Ends
// User function Template for C++

class Solution {
  public:
    int sortedCount(int N, int M, vector<vector<int>> m)
    {
        if(M==1){
            return N;
        }
        int count=0;
        for(int i=0;i<N;i++){
            int inc=0;
            int dec=0;

            for(int j=0;j<M-1;j++){
```

```
            if(m[i][j]<=m[i][j+1]){
                inc=1;
            }
             if(m[i][j]>=m[i][j+1]){
                dec=1;
            }
        }
        if((inc==1 && dec==0) || (inc==0 && dec==1)){
            count++;
        }
    }
    return count;
  }
};

// { Driver Code Starts.

int main() {
  int t;
  cin >> t;
  while (t--) {
    int N, M;
```

```
        cin >> N >> M;
        vector<vector<int>> Mat(N, vector<int>(M));
        for (int i = 0; i < N; i++)
            for (int j = 0; j < M; j++) cin >> Mat[i][j];
        Solution ob;
        cout << ob.sortedCount(N, M, Mat) << "\n";
    }
} // } Driver Code Ends
```

4. **Rotate by 90 degree**

```
class Solution
{
    public:
    //Function to rotate matrix anticlockwise by 90 degrees.
    void rotateby90(vector<vector<int> >& matrix, int n)
    {
        for(int i=0;i<n;i++)
        {
          for(int j=i+1;j<n;j++)
          swap(matrix[i][j],matrix[j][i]);
        }
```

```
        for(int i=0;i<n;i++)
        {
            int low=0,high=n-1;
            while(low<high)
            {
                swap(matrix[low][i],matrix[high][i]);
                low++;
                high--;
            }
        }
    }
};
```