Bai01:

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

int main(){
        int TC; cin >> TC;
        while(TC--){
                int n, m; cin>>n>>m;
                int a[n][m];
                for(int i=0;i<n;i++){
                        for(int j=0;j<m;j++){
                                cin >> a[i][j];
                        }
                }

                int mx =INT_MIN;
                for(int i=1;i<n;i++){
                        for(int j=0;j<m;j++){
                                if(j==0){
                                        a[i][j] += max(a[i-1][j],a[i-1][j+1]);
                                }
                                else if(j==m-1){
                                        a[i][j] += max(a[i-1][j],a[i-1][j-1]);
                                }
                                else{
                                        a[i][j] += max(max(a[i-1][j],a[i-1][j-1]),a[i-1][j+1]);
                                }
                        }
                }
                for(int i=0;i<m;i++){
                        mx = max(mx, a[n-1][i]);
                }
                cout << mx << endl;
        }
        return 0;
}
```
Bai02:
```cpp
#include <bits/stdc++.h>
using namespace std;

int main(){
        int TC; cin >> TC;
        while(TC--){
```

```cpp
        int n, m; cin>>n>>m;
        int a[n][m];
        for(int i=0;i<n;i++){
                for(int j=0;j<m;j++){
                        cin >> a[i][j];
                }
        }
        int dp[n][m];
        for(int i=0;i<n;i++){
                for(int j=0;j<m;j++){
                        if(i==0 && j==0) dp[i][j]= a[i][j];
                        else if(i==0){
                                dp[i][j] = dp[i][j-1] + a[i][j];
                        }
                        else if(j==m-1){
                                dp[i][j] = dp[i-1][j] + a[i][j];
                        }
                        else{
                                dp[i][j] = min(dp[i-1][j],dp[i][j-1]) + a[i][j];
                        }
                }
        }
        cout << dp[n-1][m-1] << endl;
    }
    return 0;
}
```

Bai03:

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

int main(){
    int TC; cin >> TC;
    while(TC--){
        int n, m; cin>>n>>m;
        int a[n][m];
        int b[n][m];
        for(int i=0;i<n;i++){
                for(int j=0;j<m;j++){
                        cin >> a[i][j];
                        b[i][j] = a[i][j];
                }
        }
```

```
                for(int i=0;i<n;i++){
                        for(int j=0;j<m;j++){
                                if(a[i][j]==1){
                                        for(int k = 0;k<m;k++){
                                                b[i][k] = 1;
                                        }
                                        for(int k = 0;k<n;k++){
                                                b[k][j] = 1;
                                        }
                                }
                        }
                }
                for(int i=0;i<n;i++){
                        for(int j=0;j<m;j++){
                                cout << b[i][j] << " ";
                        }
                        cout << endl;
                }
        }
        return 0;
}
#include <bits/stdc++.h>
using namespace std;


int main(){
        int TC; cin >> TC;
        while(TC--){
                int n,m;
                cin>>n>>m;
                int a[n][m];
                for(int i=0;i<n;i++){
                        for(int j=0;j<n;j++){
                                cin >> a[i][j];
                        }
                }
                int c1=0;
                int c2=m-1;
                int h1=0;
                int h2=n-1;
                while(h1<h2 && c1<c2){
                        int pre = a[h1+1][c1];
                        for(int i=c1; i<=c2; i++){
                                int cur = a[h1][i];
```

```cpp
                                                a[h1][i]= pre;
                                                pre = cur;
                                }
                                ++h1;
                                for(int i=h1;i<=h2;i++){
                                                int cur = a[i][c2];
                                                a[i][c2]= pre;
                                                pre = cur;
                                }
                                c2--;
                                if(h1<=h2){
                                                for(int i=c2;i>=c1;i--){
                                                                int cur = a[h2][i];
                                                                a[h2][i]= pre;
                                                                pre=cur;
                                                }
                                                h2--;
                                if(c1<=c2){
                                                for(int i=h2;i>=h1;i--){
                                                                int cur = a[i][c1];
                                                                a[i][c1] =pre;
                                                                pre =cur;
                                                }
                                                c1++;
                                }
                                }
                }
                for(int i=0;i<n;i++){
                                for(int j=0;j<m;j++){
                                                cout << a[i][j] << " ";
                                }
                }
        }
        return 0;
}

Bai04:
#include <bits/stdc++.h>
using namespace std;

int a[105][105];
int n,m;
int dx[8]= {-1,-1,-1,0,0,1,1,1};
int dy[8]= {-1,0,1,-1,1,-1,0,1};
```

```cpp
void dfs(int i, int j){
        a[i][j]=0;
        for(int k=0;k<8;k++){
                int imoi = i + dx[k];
                int jmoi = j + dy[k];
                if(imoi>=0 && imoi<n && jmoi>=0 && jmoi<m && a[imoi][jmoi]){
                        dfs(imoi,jmoi);
                }
        }
}
int main(){
        int TC; cin >> TC;
        while(TC--){
                cin >>n>>m;
                for(int i=0;i<n;i++){
                        for(int j=0;j<m;j++) cin >> a[i][j];
                }
                int dem=0;
                for(int i=0;i<n;i++){
                        for(int j=0;j<m;j++){
                                if(a[i][j]){
                                        ++dem;
                                        dfs(i,j);
                                }
                        }
                }
                cout << dem << endl;

        }
}

Bai05;
#include <bits/stdc++.h>
using namespace std;

int dx[]= {0,0,-1,1};
int dy[]= {-1,1,0,0};
char a[25][25];
int n,m;

void dfs(int i, int j){
        a[i][j] ='*';
        for(int k=0; k<4;k++){
                int imoi = i + dx[k];
```

```cpp
                int jmoi = j + dy[k];
                if(jmoi>=0 && jmoi <m && imoi>=0 && imoi<n && a[imoi][jmoi]=='O')
                        dfs(imoi,jmoi);
        }
}
int main(){
        int TC; cin >> TC;
        while(TC--){
                cin >>n>>m;
                for(int i=0;i<n;i++){
                        for(int j=0;j<m;j++){
                                cin >> a[i][j];
                        }
                }
                for(int i=0;i<n;i++){
                        if(a[i][0]=='O') dfs(i,0);
                        if(a[i][m]=='O') dfs(i,m);
                }
                for(int i=0;i<m;i++){
                        if(a[0][i]=='O') dfs(0,i);
                        if(a[n][i]=='O') dfs(n,i);
                }
                for(int i=0;i<n;i++){
                        for(int j=0;j<m;j++){
                                if(a[i][j]=='*'){
                                        cout << 'O' <<" ";
                                }
                                else cout << 'X'<<" ";

                        }
                }
                cout << endl;
        }
}
```

Bai array hay

```cpp
#include <iostream>
#include <vector>

using namespace std;

void solve() {
  int n, k;
```

```cpp
vector <int> a;
vector <int> freq;
freq.resize(100005, 0);
cin >> n >> k;
a.resize(n, 0);
for (int i = 0; i < n; i++) {
  cin >> a[i];
}
int numDiff = 0;
int l = -1, r = -1;
for (int i = 0; i < n; i++) {
  freq[a[i]]++;
  if (freq[a[i]] == 1) {
    numDiff++;
  }
  if (numDiff == k) {
    r = i;
    for (l = 0; l <= r; l++) {
      freq[a[l]]--;
      if (freq[a[l]] == 0) {
        cout << l + 1 << ' ' << r + 1;
        return;
      }
    }
    break;
  }
}
cout << -1 << ' ' << -1;
}
```