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ADS Lab-3 Write-up (Disjoint Sets) Jelands (int n) & class Islands f parent [n]; tor (i=0; i < n; i ++) int parent [100] as pacent Cil = i; int count; count = 0; } public int findparent (int x) { if (parent [x] == x) return x; else

return parent [x] = findparent(parentles) public void makeunion (intx, inty) {

int xroot = findparent (x); int groot = find parent (y); if (xroot != groot) } parent [xrod] = grood; count -- ; 3

public void countset (int n) { count = w; public int retarn count () { return count;

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noof islands (vector < vector < int >> matrix) {

int count - 0; int a = matimaize();

for (int i=0; i(a; i++) {

int b = matrix [0]. size();

connft+;

Islands il = new Islands (a*b);

} (++ j (~) j (~ j + ~ j)

if (matrix [i][j]:0) {

if (1>0 88 matrix [j-1][j] != 0 €

it (i < a-1 88 matrix [i+1][j]!=0)

(0=! [1][i]xirtam 88 0<{ }

if (j<b-1 && matrix [i][i+1][=0)

if (*i>0 && j>0 && motrix [i-1][j-1][=0)

if (1 > 0 88 j < 12 - 1 88 matria [i-1][j+1]!=0]

il. prakeanion (n*i+j, n*(i-1)+j);}

il. makeanion (n* i+ j, n* (i+1)+j);

il . makeunion (n * 1 + j / n * i + (j-1));

il. makeanion (hxi+j, hxi+(j+1));

il - wake union (nx i+j, nx (i-1)+(j-1)).

il. makeunion (n * i + j , n * (i-1) + (j+1))

il. setutset (count);

for Cint i=0; i<w; i++) {

3

for Cint j = 0; j < b; j ++ > }

if (matrix [i][j] ! = 0)

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if (i < a - 1 88 j > 0 88 matrix lit Ilj - ill = 0)

il. makeunion (n*i+j, n*(i+1)+(j-1));

if (i < a - 1 88 j < b - 1 88 matrix [i+1][j+1][=0)

il. makeunion (n*i+j, n*(i+1)+(j+1));

}

seturn 1. count;