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1 AB 4 Program 3 - No. of Islands using disjoint set.

Algorithm:

- to 10 array (parent []) of length mxn.

  For each mat [i][j], match (i); ) to (nxi+j)

  so index (nxi+j) represents g mat [i][j],

  parent [nxi+j] represents which subset the mat [i][j]

  belongs to
- 2. Lount all islands (int count) > design 1 /
- 3. Loop through the matrix (20) (mat[7[7]),

  if find an island x (points to noot yournt elements),

  check the adjacent neighbours. If any adjacent

  island present, it should be in the same subset of

  X tex the east powert

  41 three is an adjacent island Y and is not in the

  same subset of x, i.e., the noot pount element

  of Y is not S, then merge Y to subset S by

  Setting Y on the parent element of S and

  count -- z (union operation)
- 4. As there are one island is muged to a subset, the number of island will be decremented by 1.

  After we write all the connected islands, we get the ro-of islands.

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        dan Unionfind ?
                         int () pount;
               introunting should prost - smarphing page
                     public Unionfind (int n) ?
                                                                                                                                        malizzed,
Mil 7 Homes Parks Street
                          pount [n];
                                           for (int i=o-rich; itt)
                ( ) + i + a ) + ( ) pount (i) = i) [] ( ) term done sof
                 (indere (in +1) square 2:0= true 3
(17(17 terry with town Lower Edwarder [ ] = in o ] townsy
                        public int kind (int x)?
                                    if ( parent (x)===x), of about the decision
                                        (E) return King Modern entry (2001
        return pount (x) = find (paient (x)).
    public void connect (int x, int y) ; un how
        the war of the second of the s
       manual in state of
              int spotx = find (x)
                                int Rooty = find cy) med
                                  if ( sootx ! = rooty) }
                                                    parent (200+x] = looty;
                        tenter a country; is body in a good
                   of shy paperounis po of it is so origin to winner
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of its on with the consisted following,

snewce Haroj K 18418CS017 public roid set Count (int n) { to a second count=n; = n , i = 1 = n) turnos fu public int count () sil ton & se har sign returniquet; ; in 14 mm . To 3 ( [ 1] [] [] [] John Wing 38 00 [3] 17 of 1xni figura: fu PORTO DE LA CONTRACTOR you mand thank profit of Longe as it proposed. and and supplied the state of the supplied that the supplied to the supplied t int numislands (vertor < vector <int>> mat) 9(14)7[1117 dum PE Masi & masi I (12 february ( 1 x + 1 + 1) ( = thing) this ? (Int m= mat. size () int n= matroj. size(); forlint i=o; i <m., it+) if (matrijej) count ++ ', Union Find uf = new Union Find (m\*n); uf. set (ount (wount); (1) many. an areader for (int i=0, i < m; i++) { for (int j=0; j <n; j++) f if (most (i ](j]) }

(3)

more

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 if (120 22 mat [i-1](j]) & to have solled
      uf. connect (nxi+j, n* (i-1)+j);
 i) [i< m - 80 gr mat [i+1][j]) {
      Uf. connect (nxi +j, nxci+1);
  i) (j=0 22 por mat[i][j-17) {
        uf. connect (nxi+) - n*i+j-1);
  il ljen-1 & l matrissijti) {
       uf connect (n* i+), n* i+j+1).
  if (1:00 80 j. 20 82 mat [i-1][j-1]) {
       uf-connect ( pa *i +j, ne(n-1)+j-1);
    (icm de jen - le mat[iti][jti]){
       uf + wonned ( rxi+j, hx(it)) + it);
   i) (17062 jen-1 && mat [1-17 [j+1]) {
       uf-connect (nxitj, nx(i+)+j+1).
  ij (izm-122 j70 22 mat (i+17[j-17) {
       uf-connect (nxiti), n*(iti)+j-1);
       ask it will war to have
actuar uf. count ();
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