Program-3

pseudo code:-

```
countIslands(int a[0.....n][0...m])
// i/p: 2d matrix
// o/p: No. of Islands present in 2D matrix

for j←0 to n-1
    for i2←0 to m-1
        if j+1<n and a[j+1][i2]==1
        disjoint← Union(j+(m)+i2, (j+1)*m+i2)

        if j-1>=0 and a[j-1][i2]==1
        disjoint← Union(j*(m)+i2, (j-1)*m+i2)

    if i2+1<m and a[j][i2+1]==1
        disjoint ← Union(j*(m)+i2, (j)*(m)+i2+1);

    if i2-1>=0 and a[j][i2-1]=1
        disjoint ← Union(j*(m)+i2, (j)*(m)+i2-1)

    if j+1<n and i2-1>=0 and a[j+1][i2-1]=1
    disjoint← Union(j*(m)+i2, (j+1)*(m)+i2-1)

    if j-1>=0 and i2+1<m and a[j-1][i2+1]=1
    disjoint← Union(j*m+i2, (j-1)*(m)+i2+1)

        if j-1>=0 and i2-1>=0 and a[j-1][i2-1]=1
        disjoint← Union(j*m+i2, (j-1)*m+i2-1)
```