Islands

Ajay Mittur
1BM17CS006

```
dsu = UnionFind (n)
for (i ← 0 to n)
  for (j ← 0 to n)
      ~~grid[i][j] dsu join~~
      if (grid[i][j] == 1)
      dsu. join (i, j, i+1, j)
      dsu. join (i, j, i, j+1)
      dsu. join (i, j, i-1, j)
      dsu. join (i, j, i, j-1)
          components
print (dsu. size )

class UnionFind {
pair  root[][], int size[][];
    int     components;
    UnionFind ( int n) {
      assign each root from 1 → nxn its indices
      size = 1 for each value
      components = n
    }
    void join (i, j, x, y) {
        r₁ = find (i, j), r₂ = find (x, y)
        if (r₁ == r₂) return.
        root[i][j] = r₂
        components -- ;
    }
    find (i, j) {
        if (i, j == root[i][j]) return i, j
        else root[i][j] = find (root[i][j])
    }
```