For our disjoint set structure, every element has an associated *parent*, *rank* and *size*. The functions below are part of the disjoint set structure itself.

```
procedure MAKE_SET(x)
    if x not present in structure then
        add x to structure
        x.parent ← x
        x.size ← 1
        x.rank ← 0

Path compression find
procedure FIND(x)
    if x ≠ x.parent then
        x.parent ← Find(x.parent)
    return x.parent

Union by Rank
procedure UNION(x, y)
    xRoot ← Find(x)
    yRoot ← Find(y)

    if xRoot ≠ yRoot then                ▷ Only union if sets are different
        if xRoot.rank < yRoot.rank then
            xRoot, yRoot ← yRoot, xRoot  ▷ Swap roots so that x is largest

        yRoot.parent = xRoot
        if xRoot.rank = yRoot.rank then
            xRoot.rank ← xRoot.rank + 1
```