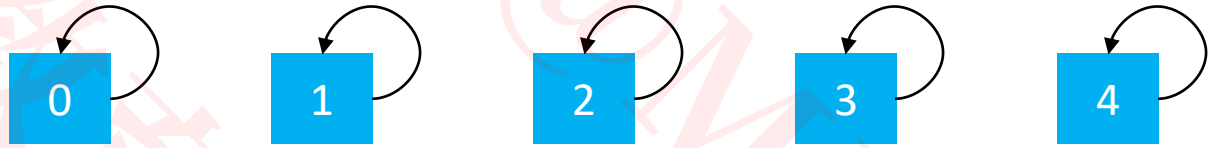
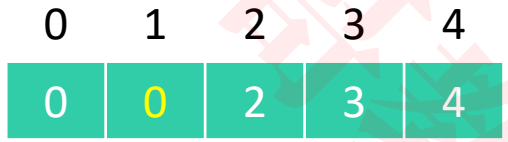
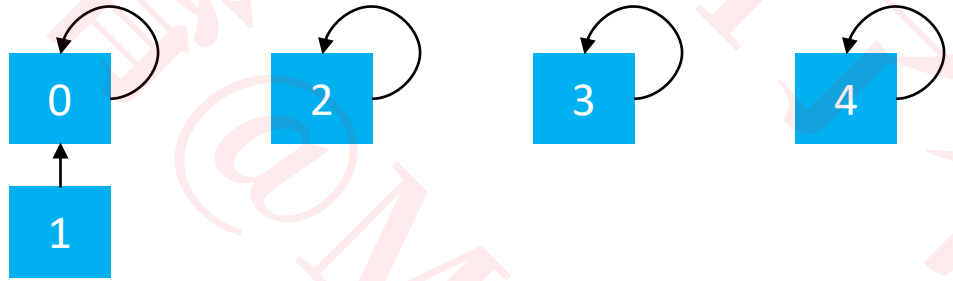
Quick Find – Union

- Quick Find 的 union(v1, v2)：让 v1 所在集合的所有元素都指向 v2 的根节点

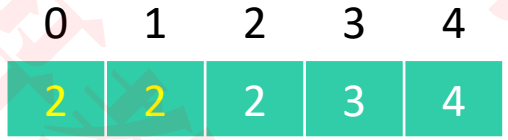


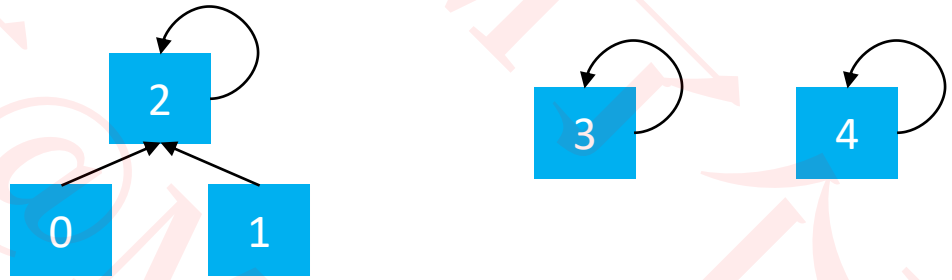
union(1, 0)



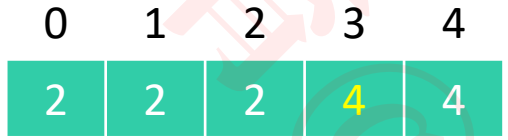


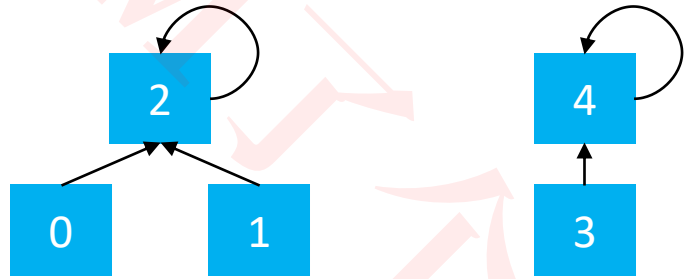
union(1, 2)



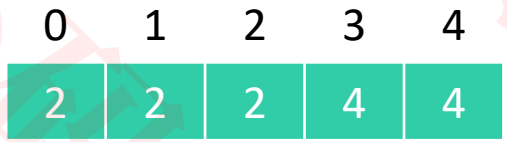


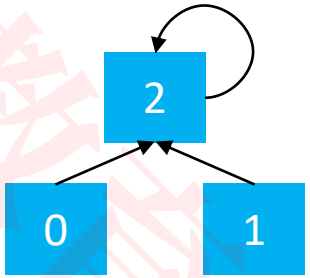
union(3, 4)

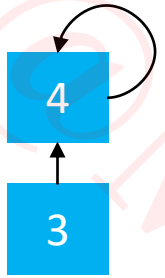




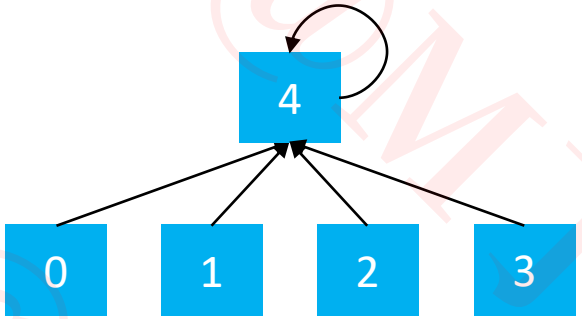
Quick Find – Union







union(0, 3)



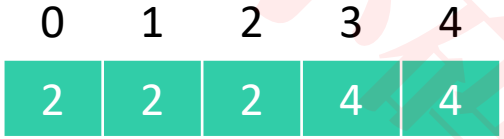
Quick Find – Union

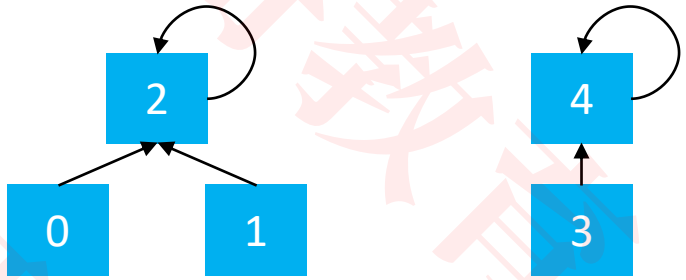
```
public void union(int v1, int v2) {
    int p1 = find(v1);
    int p2 = find(v2);
    if (p1 == p2) return;

    for (int i = 0; i < parents.length; i++) {
        if (parents[i] == p1) {
            parents[i] = p2;
        }
    }
}
```

- 时间复杂度：O(n)

Quick Find – Find






```
public int find(int v) {
    rangeCheck(v);
    return parents[v];
}
```

- find(0) == 2
- find(1) == 2
- find(3) == 4
- find(2) == 2
- 时间复杂度：O(1)