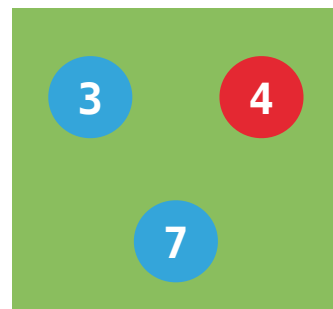
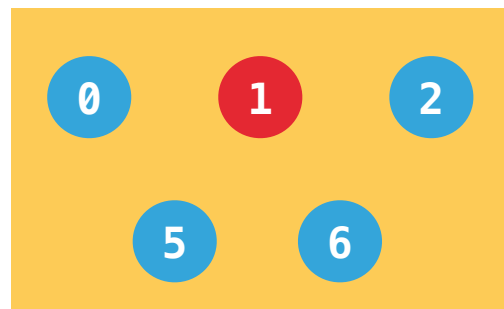


QUESTION 5.1.1 UNION-FIND: QUICK-FIND

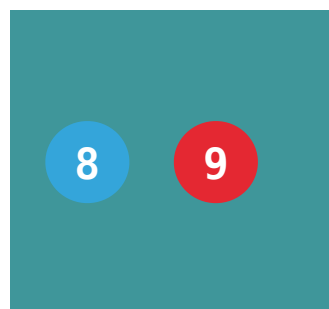
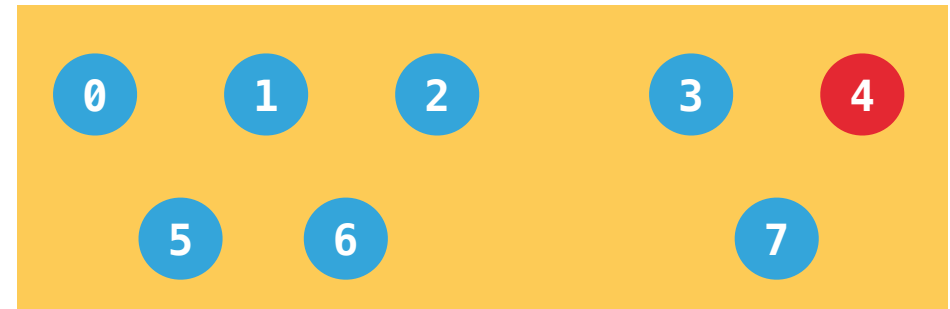
Val 0 1 2 3 4 5 6 7 8 9

Rep 1 1 1 4 4 1 1 4 9 9

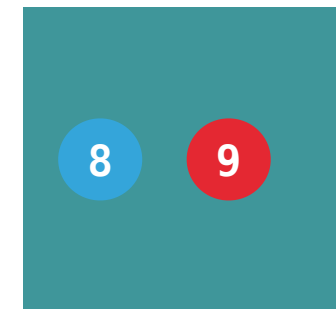


Val 0 1 2 3 4 5 6 7 8 9

Rep 4 4 4 4 4 4 4 4 9 9



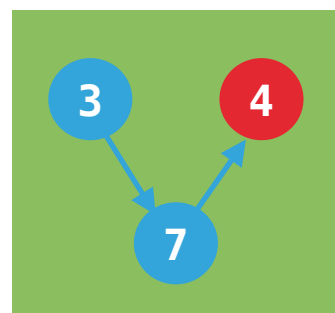
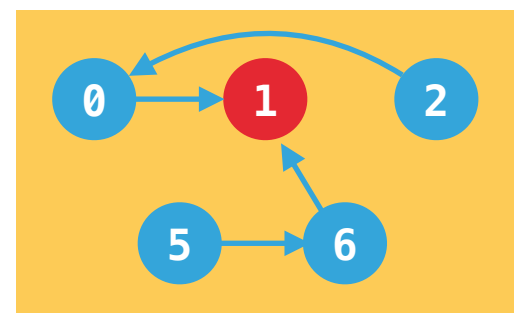
```
int find(int a) { //O(1)
    return tab[a];
}
void union(int a, int b) {
    //O(n)
    a=find(a); b=find(b);
    for(int i = 0; i < n; i++)
        if(tab[i] == a)
            tab[i] = b;
}
```



QUESTION 5.1.1 UNION-FIND: QUICK-UNION

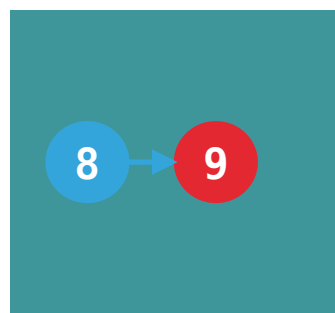
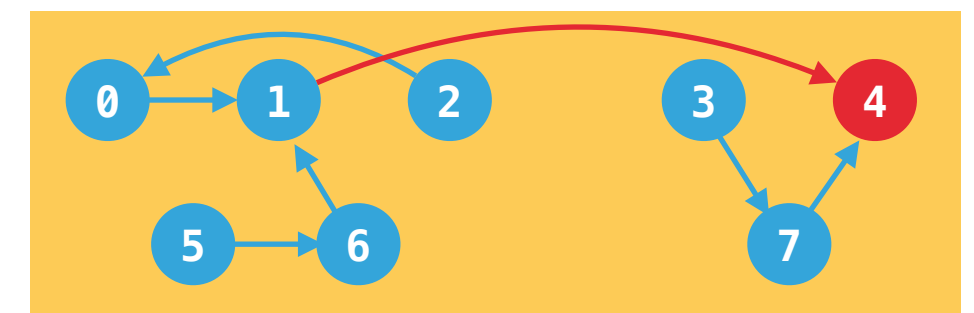
Val	0	1	2	3	4	5	6	7	8	9
-----	---	---	---	---	---	---	---	---	---	---

Rep 1 1 0 7 4 6 1 4 9 9



Val	0	1	2	3	4	5	6	7	8	9
-----	---	---	---	---	---	---	---	---	---	---

Rep 1 4 0 7 4 6 1 4 9 9



```
int find(int a) { //O(n)
    if(tab[a] != a)
        return find(tab[a]);
    return a;
}
```

```
void union(int a, int b) { //O(1) ?
    int i = find(a);
    int j = find(b);
    tab[i] = j;
}
```

