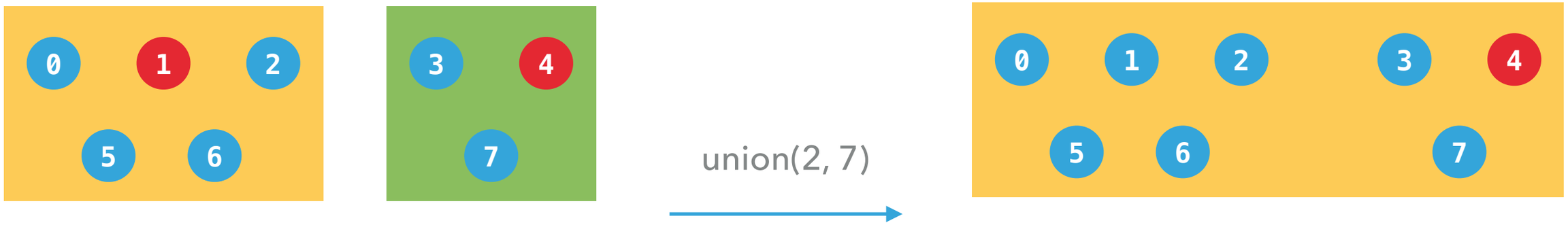
QUESTION 5.1.1 UNION-FIND

Union-find est une structure de donnée qui, étant donné n éléments, les assigne chacun à un ensemble.

- find(a) retourne le représentant de l'ensemble auquel appartient a
- union(a, b) fait l'union des ensembles auxquels appartiennent a et b.



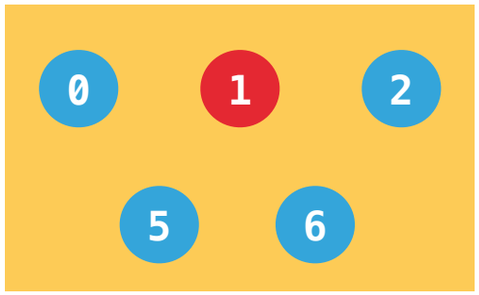
find(0) = 1 find(1) = 1
find(5) = 1 find(3) = 4
find(9) = 9

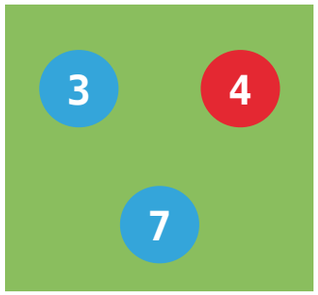
find(0) = 4 find(1) = 4
find(5) = 4 find(3) = 4
find(9) = 9

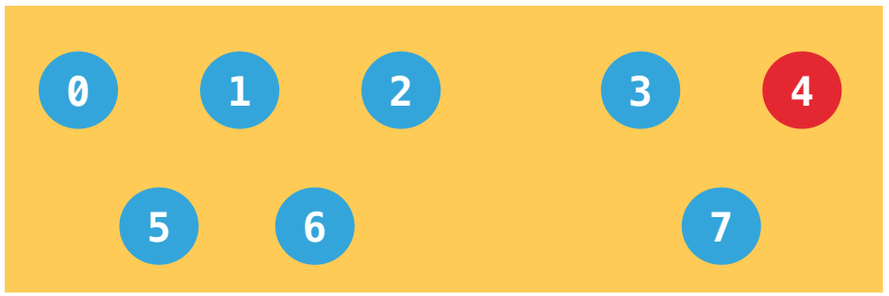
QUESTION 5.1.1 UNION-FIND: QUICK-FIND

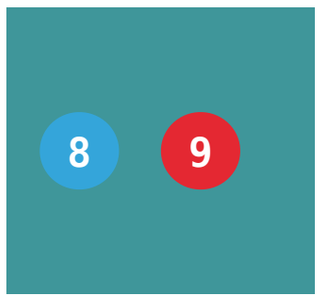
Val	0	1	2	3	4	5	6	7	8	9
Rep	1	1	1	4	4	1	1	4	9	9

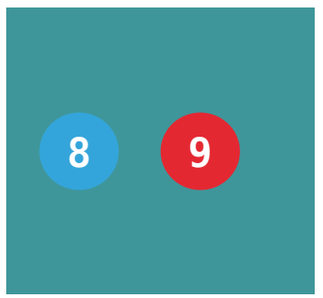
Val	0	1	2	3	4	5	6	7	8	9
Rep	4	4	4	4	4	4	4	4	9	9












```
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;
}
```