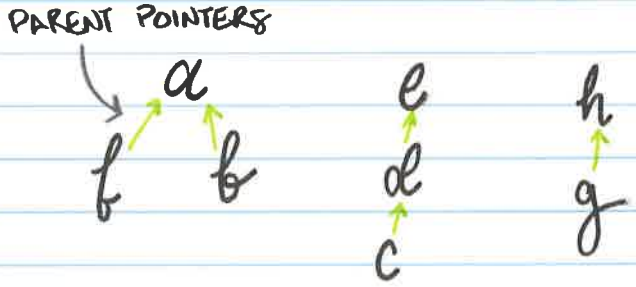
merge find sets



PARENT MAP

a	-1
b	a
c	d
d	e
e	-1
f	a
g	h
h	-1

- STORED IN A MAP
  - ↳ KEY: EACH NODE
  - ↳ VALUE: THE KEY'S PARENT

```
S ← INIT()

FIND(x, S): ∈ O(HEIGHT)
    // finds x in set S
    // returns parent
    p = x
    while S[p] != -1:
        p = S[p]
    elihw
    return p
end

MERGE(x, y, S): ∈ O(HEIGHT)
    c1 = Find(x, S)
    c2 = Find(y, S)

    S[c2] = c1
end
```

NOTE:
AS LONG AS WE POINT THE SMALLER TREE TO THE LARGER ONE, HEIGHT DOESN'T GROW