

```
[["John", "j1@mail.com", "j2@mail.com"],
 ["John", "j2@mail.com", "j3@mail.com"],
 ["Mary", "j4@mail.com", "j5@mail.com"],]
```

① union find to group emails. ② a map from email to name

roots \Rightarrow j1 j2 j3 j4 j5
 j j1 j2 j4 j4

```
{ j1: "John",
  j2: "John",
  j3:   ,
  :
  j4: "Mary",
  : }
```

③ iterate over roots to create group ④ transform roots in group to names with map created at ②.

```
{ root1: [...],
  root2: [...], }
```

```
{ root1: [...],
  root2: [...], }
```

\Downarrow

```
[ [map[root1], ... value1],
  [map[root2], ... value2],
  ...
  ].
```