

Given a $m \times n$ matrix, if an element is 0, set its entire row and column to 0. Do it **in-place**.

Example 1:

Input:

```
[
  [1,1,1],
  [1,0,1],
  [1,1,1]
]
```

Output:

```
[
  [1,0,1],
  [0,0,0],
  [1,0,1]
]
```

Example 2:

Input:

```
[
  [0,1,2,0],
  [3,4,5,2],
  [1,3,1,5]
]
```

Output:

```
[
  [0,0,0,0],
  [0,4,5,0],
  [0,3,1,0]
]
```

Follow up:

- A straight forward solution using $O(mn)$ space is probably a bad idea.
- A simple improvement uses $O(m + n)$ space, but still not the best solution.
- Could you devise a constant space solution?