Difficulty: **Category:** **Successful Submissions:** 15,351+

Remove Islands

You're given a two-dimensional array (a matrix) of potentially unequal height and width containing only `0`s and `1`s. The matrix represents a two-toned image, where each `1` represents black and each `0` represents white. An island is defined as any number of `1`s that are horizontally or vertically adjacent (but not diagonally adjacent) and that don't touch the border of the image. In other words, a group of horizontally or vertically adjacent `1`s isn't an island if any of those `1`s are in the first row, last row, first column, or last column of the input matrix.

Note that an island can twist. In other words, it doesn't have to be a straight vertical line or a straight horizontal line; it can be L-shaped, for example.

You can think of islands as patches of black that don't touch the border of the two-toned image.

Write a function that returns a modified version of the input matrix, where all of the islands are removed. You remove an island by replacing it with `0`s.

Naturally, you're allowed to mutate the input matrix.

Sample Input

```
matrix =
[
  [1, 0, 0, 0, 0, 0],
  [0, 1, 0, 1, 1, 1],
  [0, 0, 1, 0, 1, 0],
  [1, 1, 0, 0, 1, 0],
  [1, 0, 1, 1, 0, 0],
  [1, 0, 0, 0, 0, 1],
]
```

Sample Output

```
[
  [1, 0, 0, 0, 0, 0],
  [0, 0, 0, 1, 1, 1],
  [0, 0, 0, 0, 1, 0],
  [1, 1, 0, 0, 1, 0],
  [1, 0, 0, 0, 0, 0],
  [1, 0, 0, 0, 0, 1],
]
// The islands that were removed can be clearly seen here:
// [
//   [                ]
```