

## 542. 01 Matrix

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Given an  $m \times n$  binary matrix `mat`, return *the distance of the nearest 0* for each cell.

The distance between two adjacent cells is 1.

Example 1:

0	0	0
0	1	0
0	0	0

```
Input: mat = [[0,0,0],[0,1,0],[0,0,0]]
```

```
Output: [[0,0,0],[0,1,0],[0,0,0]]
```

Example 2:

0	0	0
0	1	0
1	1	1

```
Input: mat = [[0,0,0],[0,1,0],[1,1,1]]
```

```
Output: [[0,0,0],[0,1,0],[1,2,1]]
```

```

class Solution:
    def updateMatrix(self, mat: List[List[int]]) -> List[List[int]]:
        queue = []
        for i in range(len(mat)):
            for j in range(len(mat[0])):
                if mat[i][j]==0:
                    queue.append((i,j))
                if mat[i][j]==1:
                    mat[i][j]=-1

        directions = [(-1,0),(0,1),(1,0),(0,-1)]
        while len(queue):
            x,y = queue.pop(0)
            for dx,dy in directions:
                dxx = x+dx
                dyy = y+dy
                if dxx>=0 and dyy>=0 and dxx<len(mat) and dyy<len(mat[0])
and mat[dxx][dyy]<0:
                    queue.append((dxx,dyy))
                    mat[dxx][dyy] = mat[x][y]+1

        return mat

```