

Rotten Oranges

Given a grid of dimension **$n \times m$** where each cell in the grid can have values 0, 1 or 2 which has the following meaning:

0 : Empty cell

1 : Cells have fresh oranges

2 : Cells have rotten oranges

We have to determine what is the minimum time required to rot all oranges. A rotten orange at index $[i,j]$ can rot other fresh orange at indexes $[i-1,j]$, $[i+1,j]$, $[i,j-1]$, $[i,j+1]$ (**up**, **down**, **left** and **right**) in unit time.

Example 1:

Input: `grid = {{0,1,2},{0,1,2},{2,1,1}}`

Output: 1

Explanation: The grid is-

0 1 2

0 1 2

2 1 1

Oranges at positions $(0,2)$, $(1,2)$, $(2,0)$

will rot oranges at $(0,1)$, $(1,1)$, $(2,2)$ and $(2,1)$ in unit time.

Example 2:

Input: `grid = {{2,2,0,1}}`

Output: -1

Explanation: The grid is-

2 2 0 1

Oranges at $(0,0)$ and $(0,1)$ can't rot orange at $(0,3)$.

Your Task:

You don't need to read or print anything, Your task is to complete the function **orangesRotting()** which takes grid as input parameter and returns the minimum time to rot all the fresh oranges. If not possible returns -1.

Expected Time Complexity: $O(n*m)$

Expected Auxiliary Space: $O(n*m)$

Constraints:

$1 \leq n, m \leq 500$