MATHS...

video-16

Leetcode - 2849

Medium

Determine If a Cell is Reachable at a given time...

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2849. Determine if a Cell Is Reachable at a Given Time

Hint

Medium

Medium

Companies

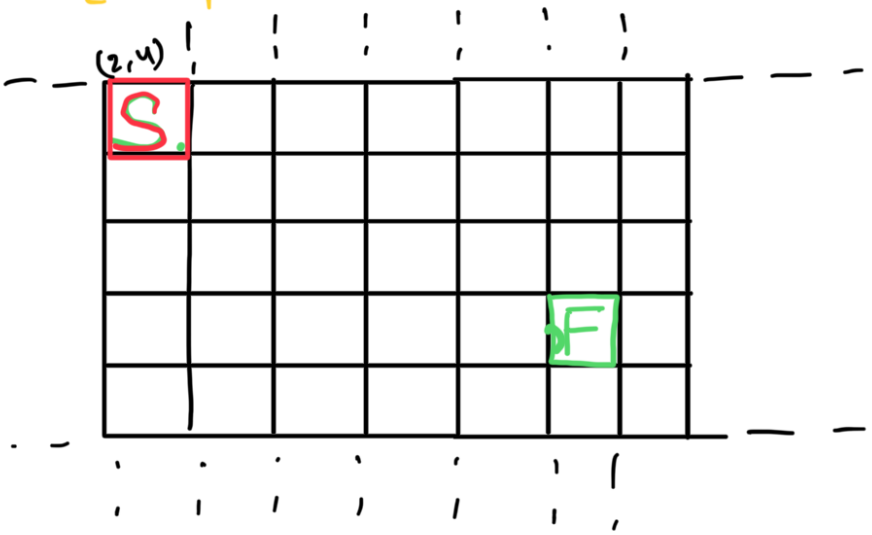
You are given four integers `sx`, `sy`, `fx`, `fy`, and a **non-negative** integer `t`.

In an infinite 2D grid, you start at the cell `(sx, sy)`. Each second, you **must** move to any of its adjacent cells.

Return `true` *if you can reach cell* `(fx, fy)` *after* ***exactly*** `t` ***seconds***, *or* `false` *otherwise*.

A cell's **adjacent cells** are the 8 cells around it that share at least one corner with it. You can visit the same cell several times.

Example:-



$S_x = 2, \; S_y = 4$

$F_x = 7, \; F_y = 7$

$t = 3 \; 4$

True. 5

min_time = 5 >= 5

Brute Force :-

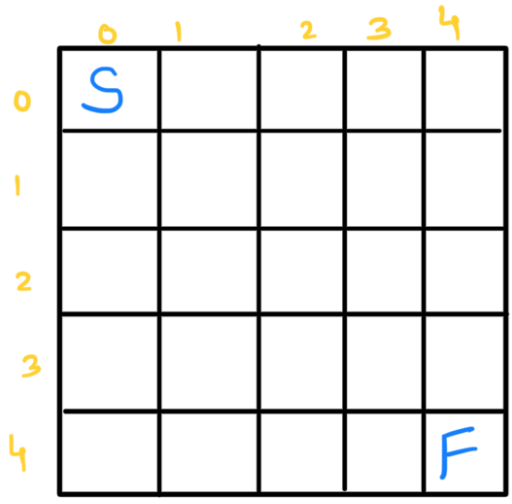
DFS(sx, sy, fx, fy, t) { Simply DFS / BFS

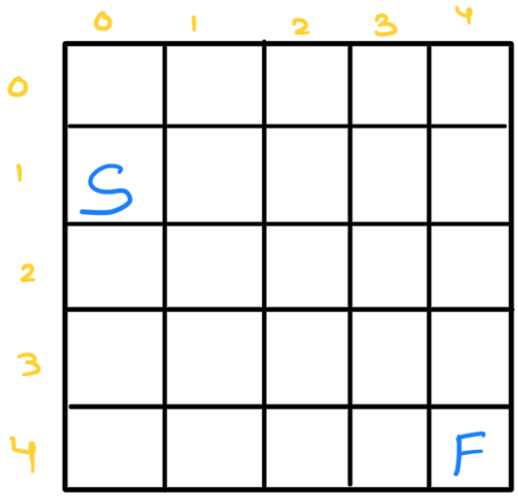
if (t == 0) {

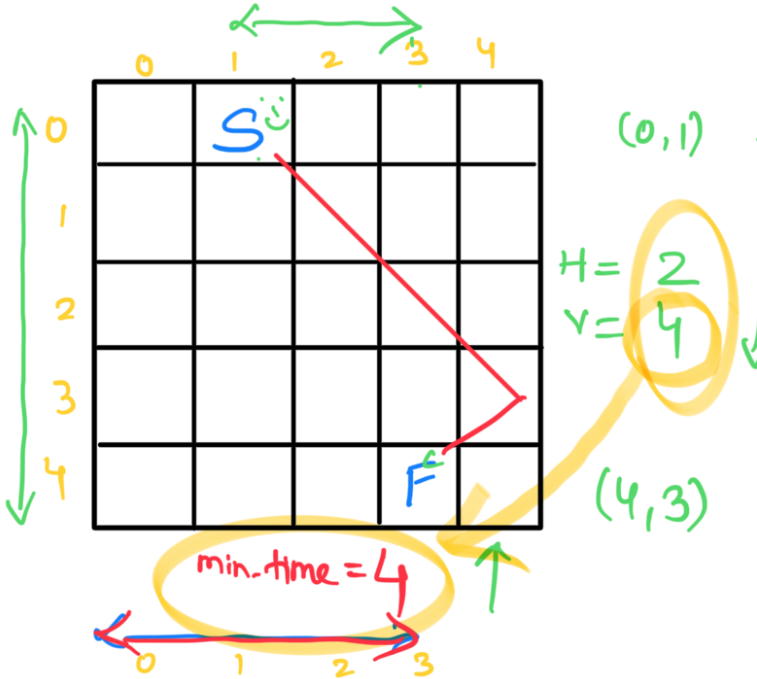
```
if (Sx == Fx && Sy == Fy) return;
}
```

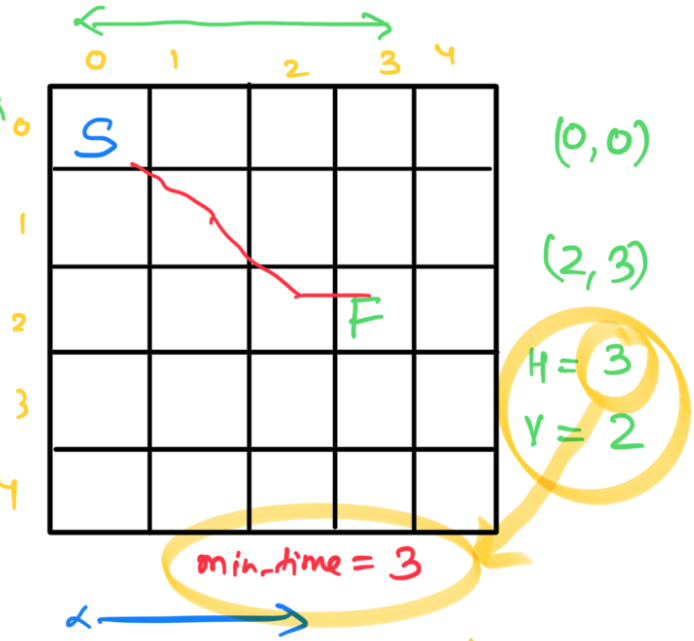


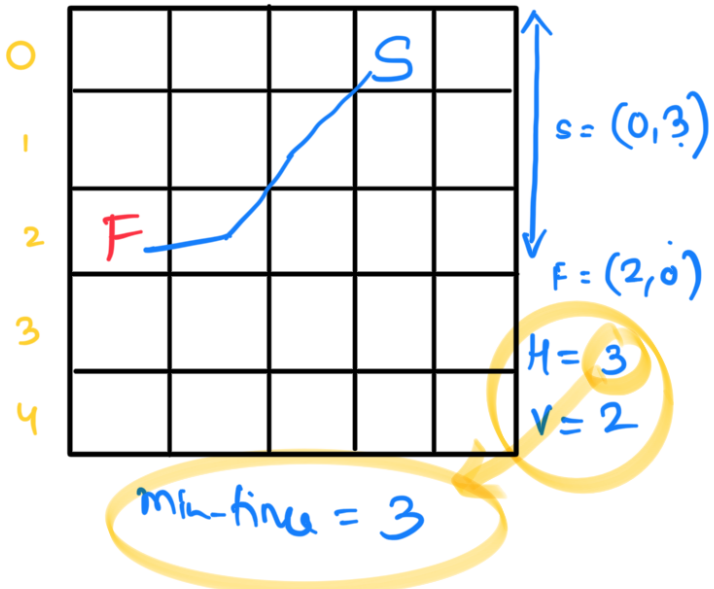
```
DFS(Sx+0, Sy+1, Fx, Fy, t-1);
DFS(Sx-1, Sy
DFS(Sx+1, Sy
    (Sx, Sy-1)
```

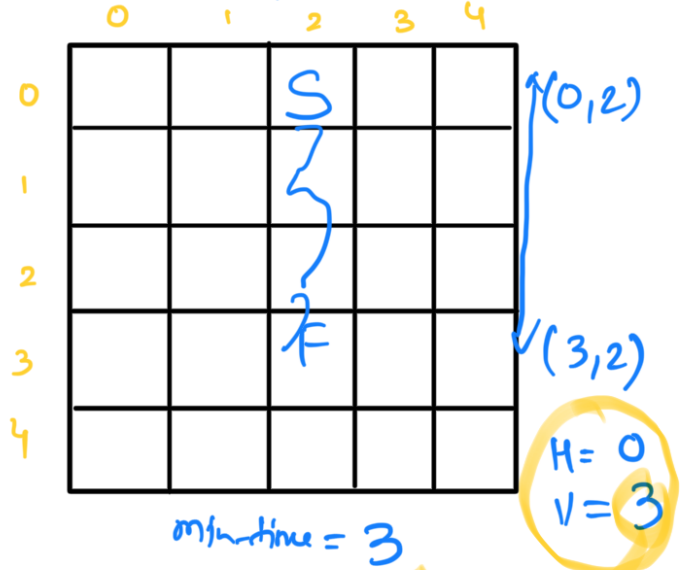












H = abs (Sy - Fy) ; V = abs (Sx - Fx);

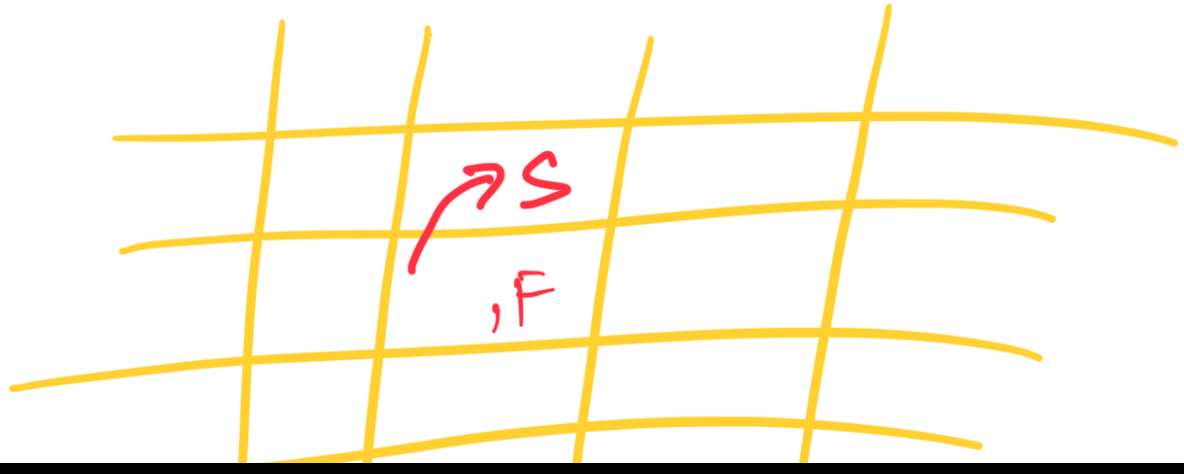
min_time = max (H , V) ;

O(1)

(t < min_time) false.

(t >= min_t) True

```
1  H
2  V
3  if(H==0 && V==0 && t==1)
   min_time = max(H,V);
4  if ( t < min_time) reset Fake.
5  True;
```



$t = 1$

$H = 0$

$V = 0$

$\text{min\_time} = \max(H, V)$

$= 0$