



```
1 Initialise an empty queue, q
2 Initialise an  $n \times n$  2D distance array with  $\infty$  everywhere
3 Initialise an  $n \times n$  2D parent array with  $(-2, -2)$  everywhere
4 Enqueue (source_r, source_col) to q
5 while q is not empty and the goal is not visited do
6     curr  $\leftarrow$  front of q
7     dequeue from q
8     foreach neighbour  $\in \{down, left, up, right\}$  do
9         if neighbour is a valid move and is unvisited then
10             distance[neighbour]  $\leftarrow$  distance[curr] + 1
11             parent[neighbour]  $\leftarrow$  curr
12             enqueue neighbour to q;
13         end
14     end
15 end
16 if q is empty and we haven't visited the goal then
17     return No Path
18 else
19     Initialise output list
20     curr  $\leftarrow$  goal
21     while curr  $\neq$  start do
22         add curr to the front of output
23         curr  $\leftarrow$  parent[curr]
24     end
25     add start to the front of output
26     return output
27 end
```