Assignment one

Names:

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BFS:

Path: [Up, Left, Left]
CostOfPath: 3
Num of nodes expanded: 10
Search depth: 3
Run time: 61 milliseconds.

DFS:

Path: [Left, Left, Down, Right, Right, Up, Left, Left, Down, Right, Right, Up, Left, Left, Down, Right, Right, Up, Left, Left, Down, Right, Right, Up, Left, Left, Down, Right, Up, Right, Down, Left, Left, Up, Right, Right, Down, Left, Left, Up, Right, Right, Down, Left, Left, Up, Right, Right, Down, Left, Left, Up, Right, Right, Down, Left, Left, Up, Up, Right, Right, Down, Left, Left, Down, Right, Right, Up, Left, Left, Down, Right, Right, Up, Left, Left, Down, Right, Right, Up, Left, Left, Down, Right, Right, Up, Left, Left, Down, Right, Up, Right, Down, Left, Left, Up, Right, Right, Down, Left, Left, Up, Right, Right, Down, Left, Left, Up, Right, Right, Down, Left, Left, Up, Right, Right, Down, Left, Left, Up, Up, Right, Right, Down, Left, Left, Down, Right, Right, Up, Left, Left, Down, Right, Right, Up, Left, Left,

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CostOfPath: 431
Num of nodes expanded: 438
Search depth: 431
Run time: 17 milliseconds.

A* with Manhattan distance cost:

Path: [Up, Left, Left]
CostOfPath: 3
Num of nodes expanded: 3
Search depth: 3
Run time: 1 milliseconds.

A* with Euclidean distance cost:

Path: [Up, Left, Left]
CostOfPath: 3
Num of nodes expanded: 3
Search depth: 3
Run time: 1 milliseconds.

DataStructures:

Custom Priority Queue: used for A* Algorithm.
Custom Queue: used for BFS Algorithm.
Custom Stack: used for DFS Algorithm.
State: represent the state as a 2d int array.

Algorithms:

BFS, DFS, A* with Manhattan Distance Heuristic cost, A* with Euclidean
Distance Heuristic cost.