Solving the Mazes using Stacks

Also known as Rat in a Maze Problem

Start

- Right
- Down
- Up
- Left

1	1	1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

Destination
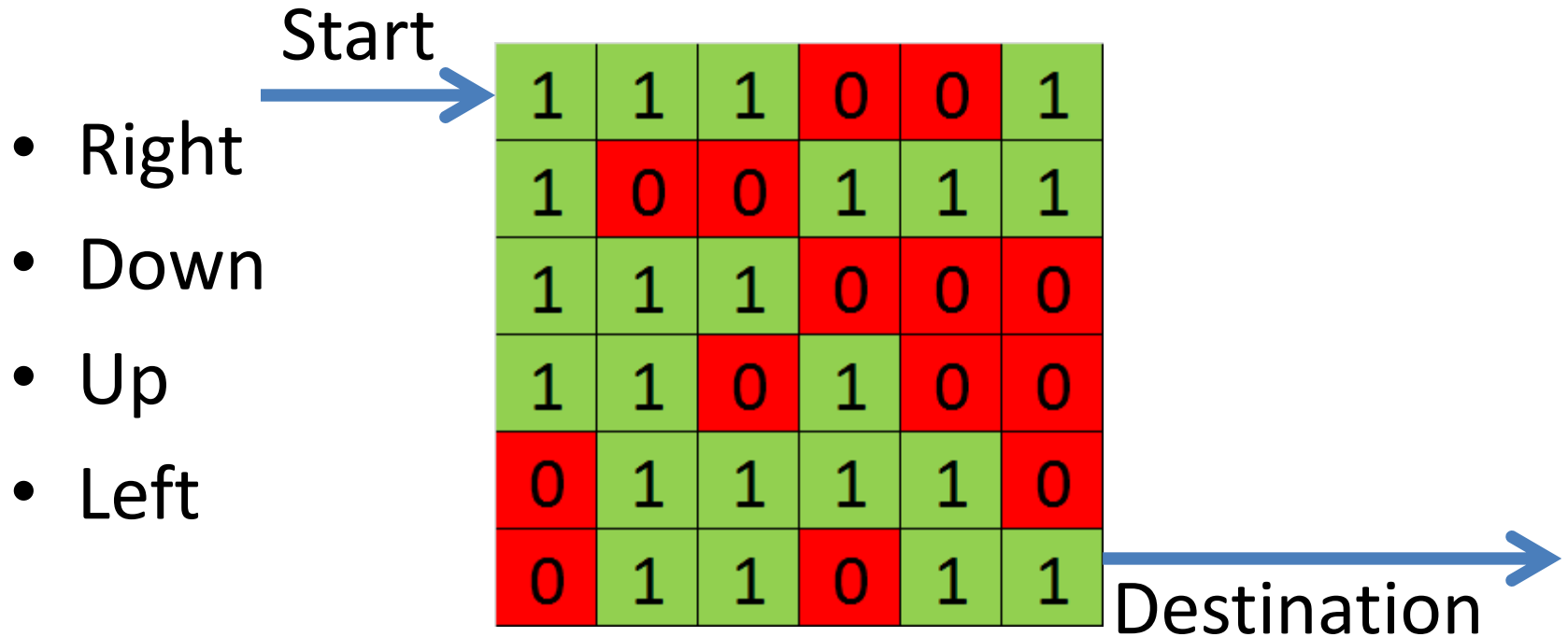
- 1 = movement allowed
- 0 = blockage (movement not allowed)

- **R**
- D
- U
- L

1	1	1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R>

- **R**
- D
- U
- L

1	1	1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R, R>

- **R**
- D
- U
- L

1	1	1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R, R, R>
- Moving to Right, Up and Down not possible
- Now, backtrack (POP) and move in reverse direction

- Stack: <R, R>
- Note that moved in **Left** Direction
- Blocked that position to avoid re-visit

1	1	-1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R, R>
- Moving to Right, Up and Down not possible
- Now, backtrack (POP) and move in reverse direction

- Stack: <R>
- Note that moved in **Left** Direction
- Blocked that position to avoid re-visit

- R
- D
- U
- L

1	-1	-1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R>
- Note that now moving **Right** not possible
- Move **Down** Now

- R
- **D**
- U
- L

1	-1	-1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R, D>

- R
- **D**
- U
- L

1	-1	-1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R, D, D>

- **R**
- D
- U
- L

1	-1	-1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R, D, D, R>

- **R**
- D
- U
- L

1	-1	-1	0	0	1
1	0	0	1	1	1
1	1	1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R, D, D, R, R>

- Stack: <R, D, D, R>

- R
- **D**
- U
- L

- Stack: <R, D, D, R, D>

1	-1	-1	0	0	1
1	0	0	1	1	1
1	1	-1	0	0	0
1	1	0	1	0	0
0	1	1	1	1	0
0	1	1	0	1	1

- Stack: <R, D, D, R, D, D, R, R, R, D, R>