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CS32 Lecture 1

Homework 2

2. stack: (3,5) (3,6) (3,4) (2,4) (1,4) (1,3) (1,2) (1,1) (2,1) (3,3) (4,5) (5,5)

4. queue: (3,5) (4,5) (3,4) (3,6) (5,5) (3,3) (2,4) (6,5) (5,4) (1,4) (7,5) (5,3)

The two algorithms differ in that they traverse the maze in different patterns because of the different data structures they use. With a stack, the program travels along one possible path until it reaches a dead end. Once it reaches a dead end, the program goes back to the position the path started on and tries another direction. This continues until the end location is found, or every open spot has been visited. This is because the stack has before based on the “Last In First Out”, or LIFO, principle. On the other hand, queues are based on a “First In First Out”, FIFO, principle. Because of this principle, the program that utilizes the queue travels through the maze radially. It visits each location directly next to the starting point and then each location directly next to those points until the end point is found.