Jaden Booher

405-333-407

Homework 2

1. Given the algorithm, main function, and maze shown at the end of problem 1, what are the first 12 (r,c) coordinates popped off the stack by the algorithm?
   1. 4, 3
   2. 3, 3
   3. 5, 3
   4. 5, 2
   5. 5, 1
   6. 6, 1
   7. 7, 1
   8. 8, 1
   9. 8, 2
   10. 6, 3
   11. 4, 4
   12. 4, 5
2. Given the same main function and maze as are shown at the end of problem 1, what are the first 12 (r,c) coordinates popped from the queue in your queue-based algorithm?
   1. 4, 3
   2. 4, 4
   3. 5, 3
   4. 3, 3
   5. 4, 5
   6. 6, 3
   7. 5, 2
   8. 4, 6
   9. 5, 5
   10. 5, 1
   11. 4, 7
   12. 6, 5
3. How do the two algorithms differ from each other? (Hint: how and why do they visit cells in the maze in a different order?)

* Both algorithms are different because of the way they traverse through the maze. Stacks start at the most recently added value whereas a queue starts at the oldest added value. Thus, a stack will follow a singular path until it reaches the end point or dead, then switching to another path following the path until again reaching the end point or a dead end. A queue will swap back and forth between paths the same distance away, as a sort of ripple, essentially searching multiple paths at once rather than one until it finishes.