Matthew Johnson

ITCS 3146

path.c Documentation

1. Main Function
   1. Declarations
      1. An array of characters is declared with a size of 100 by 100. This is the master array that has enough space for the maximum possible maze size. It is defaulted with 0s.
      2. Variables from Dr. Cukic’s code are left alone for retrieving information from a file.
      3. Two integers, x and y, are declared to find the dimensions of the maze the user will supply from a file. This will set the bounds on the master array to only include the top left portion that holds the maze.
   2. Execution
      1. The main function will print the maze and then call the solveMaze function to traverse the maze.
2. solveMaze Function
   1. Execution
      1. The solveMaze function will begin by searching the outer top and bottom rows, and the rightmost and leftmost columns to find the entrance and exit, if they exist. Coordinate variables are used to save the index location of the entrance, exit, and current position for traversing the maze. The entrance is marked and the direction variable will give the program a sense of direction to use a right-wall algorithm to traverse the maze. The maze is then traversed using the priority of right move, top move, left, or turn back move. If a move to the right is available it takes it, if not, the top is taken if available. If there is no top move, the left move is taken if available. If the program cannot move forward in any direction, it will turn back. Regardless of move, the direction is updated. As the program traverses, it will replace 0s with Xs. Once the program either solves the maze or returns to the entrance, the maze is reprinted and a success or failure message is printed to the user.