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Project 2 Report

The program takes a matrix of digits contained in a txt file and transfers it into a matrix of integers. The matrix of integers is then run through a loop and creates a node pointer array containing the data of all valid points within the matrix. Those pointers are used as input for a function that connects them into a linked list that serves as our adjacency list. Each node contains an array of node pointers that points to each node corresponding neighbors. Finally, every time the player moves, a for loop runs the enemy move function for the array of enemies, which runs the shortest path algorithm that returns the data for the next node in the path that leads to the player. The game is initialized by using the ‘n’ key. The goal of the game is to reach the chest at the end of the maze without having the enemies reach the player or to kill all the enemies. The player starts with 4 arrows and the player can create their own 20x20 matrix and play their own levels as long as they are in the txt file format and stored in the proper “txtfile” folder. The “fire mode” is activated by hitting the ‘z’ key. In this state the player is given an orange tint to differentiate from the “move state” and cannot move, but can choose a direction to face and fire an arrow at the enemy which kills them. Arrows are fired by using the spacebar. Arrows cannot be fired through walls and can only kill the first enemy that the arrow comes into contact with. Along the way to the chest in the maze, there are bundles of arrows that will grant the player an extra arrow to use and fire at the enemies. When the game is won it will display a victory image and it will take the player to the menu to play again or the player can quit using the ‘q’ key or the ‘esc’ key.