Mathew Partin

CMPEN 351

Final Project

Writeup: Part 1

Visualization of the Depth First Algorithm for Solving Mazes

In order to run this project, several steps must first be taken. First, there are 40 txt files associated with the project. These files contain the actual mazes for the project. For this project to run, make sure the files are in the same directory as the MARS jar file. This will allow for the mazes to be read into the program. Next, within MARS, open up the bitmap display, and configure it in the following manner. Unit width and height should both be set to 16 pixels. Display width and height should both be set to 512 pixels. The base address should be set to that of the heap. Finally make sure to click the connect to mips button. Once this is done, the project is fully configured, and can be assembled and run.

After the project is run a maze will be chosen at random, the file for that maze will read into memory, and displayed to the user. Then, the program will visualize solving the maze via the depth first algorithm. This will be done on the bitmap display. There will be three colors shown on the display. Yellow means that there is a potential for that that location to be part of the final solution, red means there is no potential for it to be part of the final solution, and green means that is the final solution to the maze. After the final solution has been displayed, a prompt will be shown asking if the user wants to solve another maze. The appropriate responses are Y/N/y/n. Anything else will be rejected. If the user selects Y/y then the program will clear the display, and repeat the entire process. If the user enters N/n, then the program will exit.