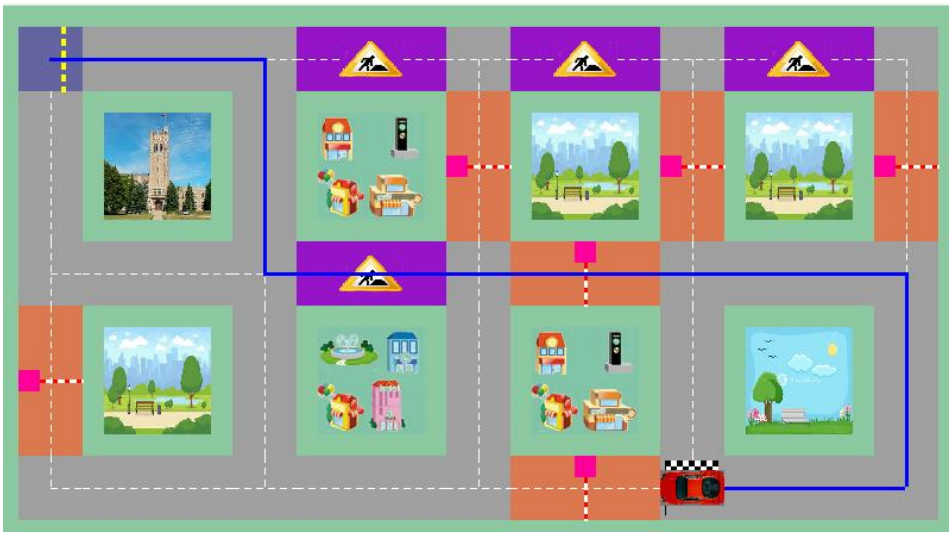
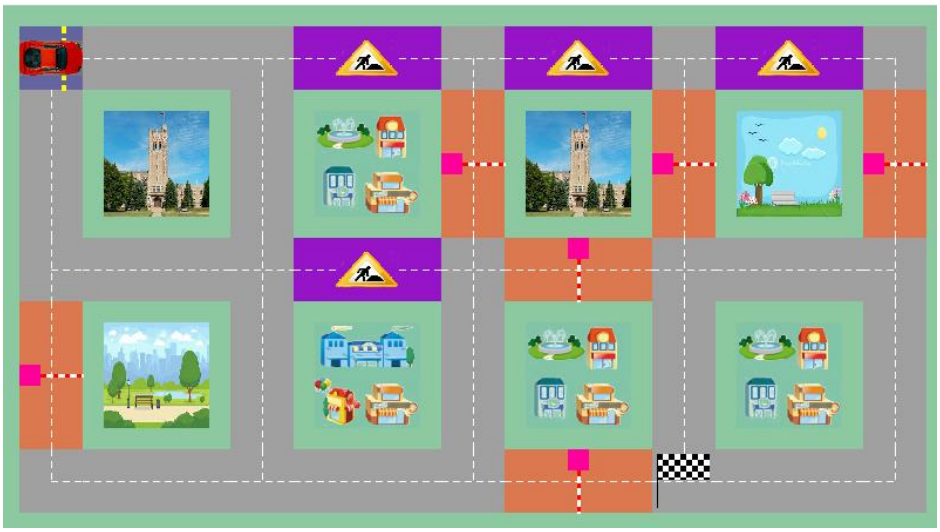
Mark Kiefer's Java Projects

1. This program finds a path between two specified locations in a roadmap under certain conditions. The program utilizes a map data structure with each intersection representing a node and each road representing a road. There are three types of roads: public roads which can always be used and private and construction roads which have a maximum amount that can be used. A plain text file is provided with the start and end, the width and length of the map, the number of construction and private roads that can be used, and the instructions for building the map denoted by symbols. The program will attempt to find any path if any exist using the conditions provided.

Example 1: Using only one construction road and one private road

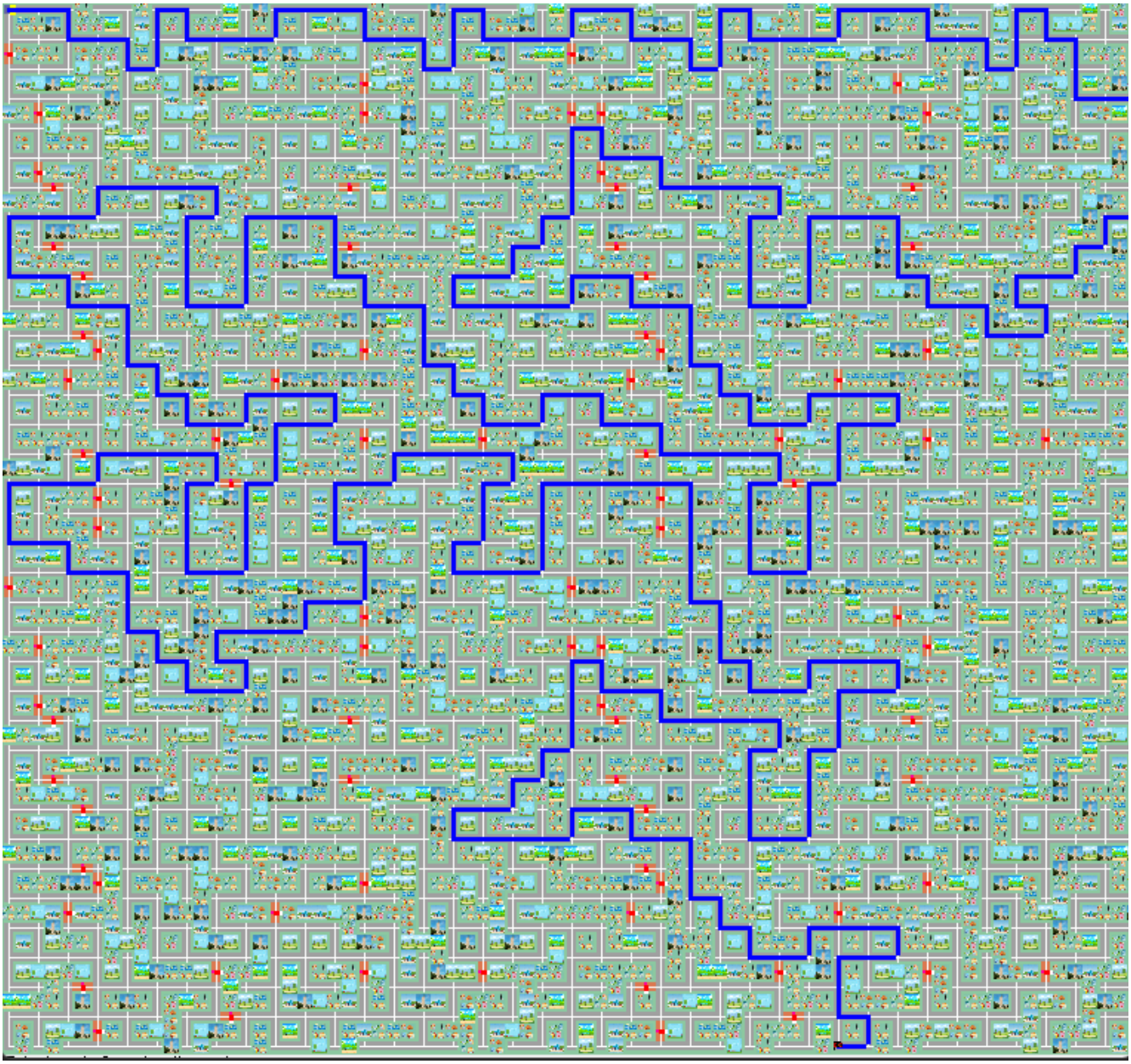


Example 2: Using only one construction road and no private roads



Since no paths exist, a message is displayed in the terminal

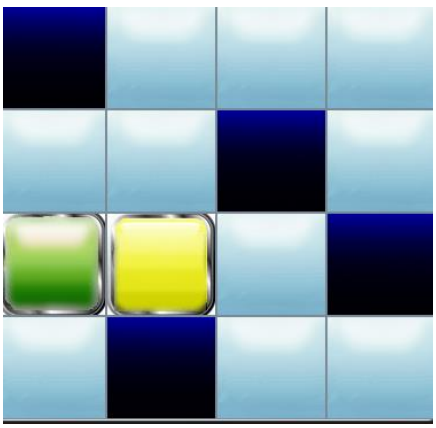
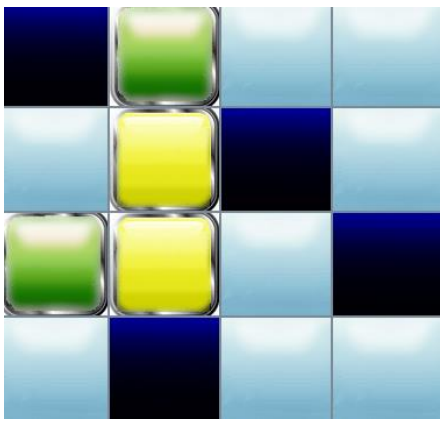
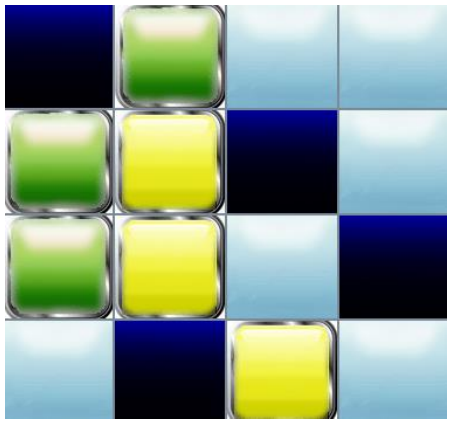
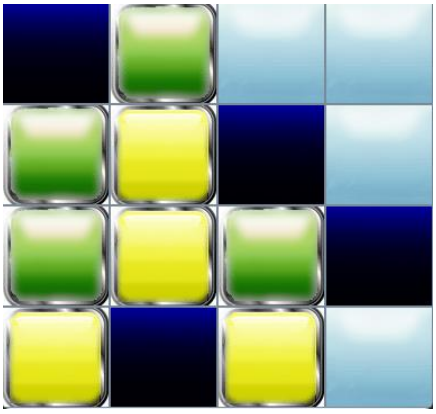
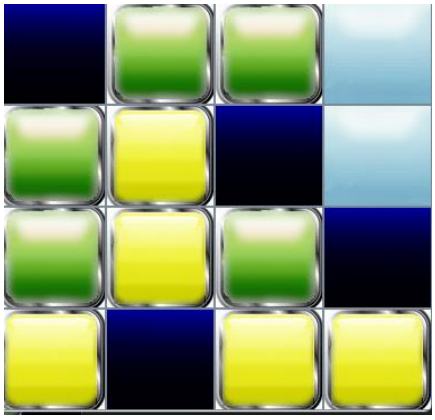
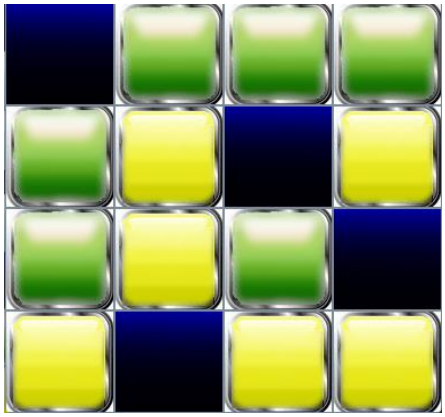
Example 3: Using a larger map



The program is able to build the map and find a path on a larger scale without taking a significantly greater amount of time.

2. This project is essentially a modified version of tic-tac-toe. The board can be any size with unavailable tiles and is played against a computer. The computer uses a tree data structure along with a hash table. The computer will consider where it can place a tile and what the outcome will be (win, lose, draw, nothing). It will look ahead a specified number of moves and use a hash table if certain possibilities have already been processed. The computer will decide the fastest way that it can win from this. The hash table used is not Java's build in hash table.

In this example I go first and I am yellow, the computer is green

I let the computer win in the end, however you can see that the computer is able to make logical moves.