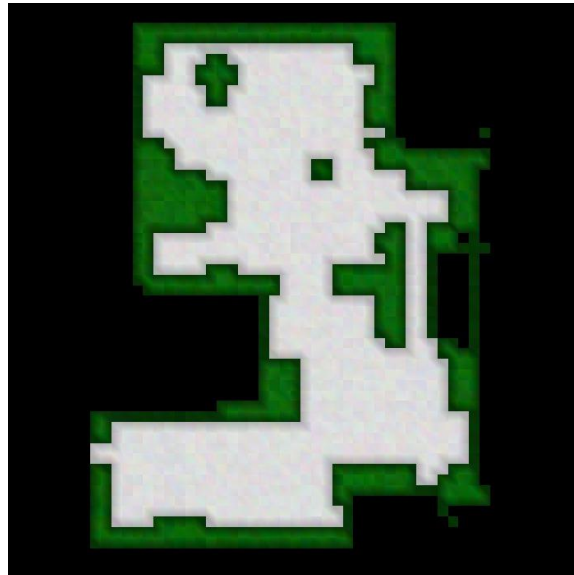


Homework VI Pathfinding

Due Dates: 11/6/17, 10pm (Submission on blackboard)

Points: 15

Assignment Type: Groups of 2 or 3 people



Introduction

In this assignment, you will practice the A* algorithms for pathfinding using two maps from dragon age. The definition of the map is attached as a separate file for this homework. The meanings of the symbols in the map are:

- passable terrain
 - @ - out of bounds
 - T - trees (unpassable)

Requirements

- Create a tile representation of the map
 - Each title should contain more than one “.”
- Create a waypoint representation of the map
 - You can either do this automatically, e.g. corner point, or manually
- Implement A* to work with both the tile representation and the waypoint representation of the map

- Create a GUI which can support the following functions:
 - Toggle between the two world representations
 - When using the tile representations, show the titles and their centers
 - When using waypoints, show the waypoints
 - Change the weight of heuristics in A*
 - Change the heuristics in A*
 - You need to implement at least 2 heuristics
 - Allows the user to choose any point on the map as the start or end point of pathfinding
 - You may implement either a mouse or keyboard control
 - As A* runs, color the nodes being explored while the algorithm is running
 - You need to draw the final path on the map after A* finishes
- Additional points are available:
 - 2 points if you try another way of representing the map, e.g. quad tree
 - 2 points if you allow the user to create and delete additional obstacles in run time
 - You only need to make this work with the tile representation
- A separate readme file is required for explaining your code, how to run it, the major functions in it, etc.