

Intro to Artificial Intelligence

Assignment 2

Due: Next week section.

1. "Connect Four" is a two-player connection game in which the players first choose a color and then take turns dropping colored discs from the top into a seven-column, six-row vertically suspended grid. The objective of the game is to connect four of one's own discs of the same color next to each other vertically, horizontally, or diagonally.



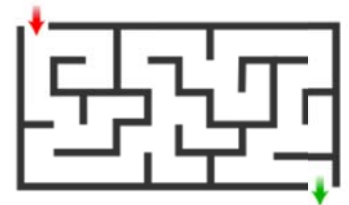
- Is this game Partially or Full observable ?
- Is this game Deterministic or Stochastic ?
- Is this game Continuous or Discrete ?
- Is this game Adversarial or Benign ?

2. "Backgammon" is one of the oldest board games for two players. The playing pieces are moved according to the roll of dice, and a player wins by removing all of their pieces from the board before their opponent.



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- Is this game Continuous or Discrete ?
- Is this game Adversarial or Benign ?

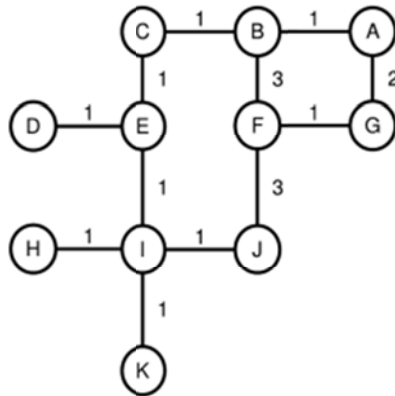
3. A maze is a path or collection of paths, typically from an entrance to a goal. Maze solving is the act of finding a route through the maze from the start to finish.



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4. Write down the tree searching algorithm? Explain why this algorithm can't solve the navigation problem correctly, then modify the algorithm to do so.

5. Consider the following graph where nodes are labeled alphabetically and edges have associated costs. Answer the following questions:



- List the labels in the order they would be visited when performing Breadth first search starting from A. Assume that neighbors of the same node are visited in alphabetical order.
 - List the labels in the order they would be visited when performing Uniform-cost search starting from A. Assume that neighbors of the same node are visited in alphabetical order.
 - List the labels in the order they would be visited when performing depth first search starting from A. Assume that neighbors of the same node are visited in alphabetical order.
6. Write a python program for Breadth first search algorithm. The program takes a graph map as input and return a path as output. Test the program to find a path from A to J in the figure showed with question 5.