This is ungraded examination preparation.

CSCI 4511/6511 - Exam Prep 2

Write your name here:_____

Instructions:
This is exam and prep and is not for credit. You should try to complete it on your own, without references.

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1 A* Search

1.1

Using the Pacman game environment from the homework, for a fully-observed problem where the Pacman starts in a maze and must find a path to a goal point, prove that the "Euclidean Distance" heuristic (straight-line path from start state to goal state) is admissible for use with A* search.

1.2

Propose an *inadmissible* heuristic for this problem, prove that it is inadmissible, and provide an example of where use of this heuristic would result in finding a non-optimal solution.

2 Minimax Search

Consider framing the game of "Tic-Tac-Toe" so that it can be solved with Minimax search.

In Python,[1] define a class `game_state` that:

- Captures the board state as a class variable
- Has a class method `to_move` that returns which player moves next:
  - Max writes Xs, and goes first (return string `'Max'`)
  - Min writes Os, and goes second (return string `'Min'`)

[1] For exams, you won't lose any points for syntax errors, as long as your logic is clear and correct.

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