CSE 415 Assignment 4 Report: Agent

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1 Introduction

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Agent Name: Reporter TicTacTimes

1.1 Description

Reporter TicTacTimes is a reporter that gives commentary on a k-in-a-row game in an exciting and snarky manner.

1.2 Twin Difference

The agent's twin is different from the original because he is Reporter TicTac-Times' brother, Reporter TicTacTimes the II. He has a different introduction and opening phrase.

1.3 Alpha-beta Pruning

Alpha beta pruning is implemented regularly. It does seem to work well, with the statistics report we could see that nodes were being pruned off, and since we have a default depth of 3, the ratio of nodes pruned is pretty good. The prunning is done inside of the recursive minimax function.

1.4 Detailed Description

Our agent is a reporter from world renounced newspaper: "The Daily Grid". He takes the persona of a snarky but good natured journalist. He likes reporting, and even when playing a casual game with another agent, he explains the game like a professional journalist. He does not like to loose and would publish himself on the headline of "The Daily Grid" if he wins. As a professional he is dedicated to reporting the most accurate and exciting k-in-a-row story ever.

Our agent's utterances are split into different Utterance banks. There is a "happy" bank for when the game goes in the favor of the agent, a "sad" bank for when the game goes in favor of his opponent, and a nuetrual bank for when the game seems like a tie. Since our agent is an excitable person, the threshold of being neutral on a game is quite low, but it is adjustable.

How we developed out diaglogue capablities is by thinking about how the bot playing the game should respond to the other player playing. I feel that when we did story there were more to work with than just plain playing.

1.5   Extra Credit

Describe each extra credit option you implemented, with a separate subheading and subsection for each one.

1.6   Extra Credit

1.7   Real statistics reporting option

Our agent can report it's statistics for the current move

Example:

Move is by X to (2, 2) TicTacTimes says: Statistics Report: Score of Last Move: 0 Number of States Evaluated: 1 Time Spent: 0.00013499998021870852 second(s) Number of cutoffs: 0

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Move is by X to (0, 1)
TicTacTimes says:
 Statistics Report:
 Score of Last Move: 0
 Number of States Evaluated: 11
 Time Spent: 0.00018060000002151355 second(s)
 Number of cutoffs: 3
+---------+
| O  X  O |
| O  X  X |
| X       |
+---------+
It is O's turn to move.
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Figure 1: Real statistics reporting option

1.8 Story response to "What's your take on the game so far?" with prediction

Our agent can tell a story with its past moves and the opponent's past moves. To get the opponent's past moves we scanned the board for differences between the current state and the last state to know where the opponent put its piece. The story dialog is told according to the past minimax values of the moves. (If the move is good or bad, it will generate response from the corresponding utterance bank.)

Example:

Our Tic-Tac-Toe story:

I placed my mark in the center with (1, 1) —— textbook dominance. It's super effective! In a masterful display of strategy, I placed my mark at (1, 2). Analysts agree: this was a stroke of genius. TicTacTimes II made a misstep at (1, 0)—this could be the turning point I needed. Observers can only marvel at my brilliance. My move at (2, 0) reinforces my dominance over this game. TicTacTimes II made a critical error at (0, 2). I see an opportunity! With calculated precision, I secured (0, 1), shifting the momentum in my favor. This is my current move.

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Move is by X to (2, 2)
TicTacTimes says:
 Our Tic-Tac-Toe story:

 I placed my mark in the center with (1, 1) -- textbook dominance. It's super effective!
 With calculated precision, I secured (1, 2), shifting the momentum in my favor.
 TicTacTimes II made a misstep at (1, 0)—this could be the turning point I needed.
 Observers can only marvel at my brilliance. My move at (2, 0) reinforces my dominance over this game.
 TicTacTimes II made a strategic miscalculation at (0, 2)—I won't let this go unpunished.
 I foresaw the situation unfolding and executed my move at (0, 1) flawlessly. This will surely go down in Tic-Tac-Toe history.
 With calculated precision, I secured (2, 2), shifting the momentum in my favor. This is my current move.

 Win Prediction: The game is close, I think it is going to be a draw.
 +---------+
 | O  X  O |
 | O  X  X |
 | X  O  X |
 +---------+
It is O's turn to move.
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Figure 2: Story response to "What's your take on the game so far?" with prediction

1.9 Competition

We wish to enter the competition.