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CS4200 Project 3 Game

For project 3, our task is to create a simple AI that plays a game similar to connect 4, but diagonals are not counted, and we can also place our spot anywhere on the board. This is a 2-player game against a simple alpha beta pruning bot, that you can choose how long they have to decide. Due to the time constraints of the project, there are some bugs that I would have liked to fix, and after lots of testing, we have an almost fully functional game. One bug that I could not figure a fix for would be that the A row and H row do not detect wins horizontally, but all columns can detect wins vertically, and B-G rows can detect both. With this in mind I made it so the bot will prefer spots in the middle, away from the top and bottom rows. This does not completely ruin the game, as most games are played around the center as they have a larger advantage of winning. A more crucial bug that I tried fixing would be the decision-making algorithm itself, in that the best move is much different than what is actually chosen to be played. The computer will try to win on the G row, but not try to block off a player potential win, and sometimes misses its own win. This makes the game completely one sided for the player can win even if they only try to block the computers moves. This leads me to believe something is very off course on the algorithm I wrote, but I would need more time to see where the issue lies. After some speculation, this could be an issue with the heuristic itself, in that the best cost is not the true best cost. One thing I learned about this project, is that it is better to follow the algorithm first, and make sure its decisions are accurate, and something to keep in mind is that if an algorithm uses state tree’s it is better to implement them as a whole to avoid complexity in the algorithm itself.

What I enjoyed about this project is my use of color coding the different players and board, as well as input error checking, and even with a bug, the method of checking to see any winners on the board.

