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CSC 180 A2

Program Name: Many Ticks (“Politics: Poli- meaning ‘many’ in Latin and Ticks being bloodsucking creatures.”)

Many Ticks is written in C++. To install and run, navigate to ManyTicks/Release in Putty and run the .exe fil ManyTicks.exe. To begin playing, type ‘y’ or ‘n’ to indicate whether you would like to play first. Input can be made in a number of ways. Letter, number, letter, number is always the order, but you may space or enter at any point throughout that so long as there are 4 digits by the end. Letters may be uppercase or lowercase and must be between A-H while the numbers are 1-6.

The board is perhaps the most unique part of this particular game, as I implemented 4 different colors: red for the right and blue for the left with different shades for player side and computer side of the board. This allows you to more easily see when your pieces have gained seniority or when they will change from knights to bishops.

I used minimax to write the program, but could not get any implementation of optimization to work, so the program works to a max depth of 6 and evaluates everything. This means it is not an unbeatable program, but it does make for a fun, challenging match against an intermediate player. It typically takes a full 5 seconds to get to max depth in the beginning of the game, but towards the end decisions are made instantaneously.

For terminal evaluation, Many Ticks checks to see if either player has remaining moves and also checks the remaining number of Kings for each player. Interim evaluation for the minimax implementation also checks number of remaining pieces each player has and prioritizes captures, particularly those of kings.

As stated above, Many Ticks is not the strongest of all programs – it will likely lose fairly early in the competition, certainly losing once it matches against someone with Alpha Beta Pruning or another form of optimization working. Having said that, it beats me 80-90% of the time and regularly demolishes beginner players. Its weakness is simply other, more advanced AI.

There are no bugs causing the game to crash or make illegal moves, however sometimes the “no moves remaining” indicator seems to not work correctly and you may have to close the program if you have no valid input. While the program never makes moves that are abysmal, it will occasionally pass up a King capture in order to set up a different King Capture, suggesting that there is a bug in my depth calculation for the interim minimax evaluation that causes multiple branches to have equivalent values even though one may take longer. I did, however, fix the bug that caused it to pass up king captures entirely, so I have only rarely encountered the aforementioned “no moves remaining” bug as it generally beats me before we get to that point.