CSC 242: Homework 7 - Othello

Assigned on Apr. 13
Construct your team before Apr. 17
Submission on or before May. 2
Tournament in class on Apr. 28th (the last class)

Requirement

This is a **team** project. Every team is allowed to have up to 3 team members. If the team includes members with different majors (if someone has double majors, only the 1st major counts), this team can receive one bonus point. Please organize your team as soon as possible and notify our undergraduate TA **Jack** (email: jbisnett AT u.rochester.edu) your **team name**, your **team members**, and your **majors** no later than Apr. 17. The total point of this homework is 30. The fail to do that before the Mar. 17 will be considered as quit from this homework and would not receive any points. To use the one day (or two days) free delay coupon, the team should make sure that every member has the corresponding coupon. Every team should submit their code and a report through **blackboard**.

Introduction

Your goal for this assignment is to implement an Othello playing program that can beat you at Othello. Please find more details and rules about this game in `http://hewgill.com/othello/`.

Your program basically performs heuristic minimax or its variations. Your program should be able to play as both the black and white sides. Since in this game, it is impossible to explore all states. Your program should have some additional functions beyond the basic minimax or alpha-beta pruning algorithm. One function is to restrict the depth of the search tree in each move; the other is to restrict the time (you should decide your every move in a certain amount of time, say 4 seconds). Your final report and code due on May 2 will be evaluated based on both functions.

To have more fun in this homework and provide an opportunity for you to earn some extra points, we will have a live tournament on Apr. 28 in class (the last class). The procedure for this tournament, depending on the number of teams, will be announced before Apr. 28. (We might adopt the 2014 World-Cup schedule and rules – group matches first and then final matches.) Each match between two teams play two games for fairness (each team plays first once). If they each win one, then whichever wins by more points is the winner. For the tournament on Apr. 28, all matches only use the time restriction (probably 8 seconds for each move). In this tournament, you are allowed to use any additional algorithms or tricks to maximize the performance.

The participation of the tournament on Apr. 28 is not required. Every team participating it would receive one bonus point. Besides of that, you can receive up to 10 bonus points based on your

performance in the tournament. (The champion's program will be used as the bench mark to test the participators in next year.) To participate this tournament, you need to submit your (runnable) code to blackboard before Apr. 27 and email our TA **Sean** (email: sesterki AT u.rochester.edu) that your team wants to participate this tournament. You have to check with **Sean** to make sure that your code is runnable. Only the runnable code is eligible for this tournament. Note that your can improve the code for this tournament for the final evaluation due on May. 2. Sean will provide an example code to give you an easy starting point. It is not allowed to use this example code to participate this tournament.

   Please submit your code and report via the same team member.

Suggestions

This homework has roughly the equal importance as an exam. You can earn up to $42 = 30 + 10$ (tournament performance) + 1 (team construction) + 1 (tournament participation) points. The following suggestions might be helpful for you:

- Keep all deadlines in your mind;

- Make sure that your program is runnable before participate the tournament;

- Start as early as possible!!! You only have two weeks;

- Since this is a big programing homework, there may be some confusions about the example code and instruction. Ask Sean and Jack for technical questions. (Sean is the TA of this class in last year. He organized this tournament before. So he is very experienced. Jack participated this tournament in last year. So he is very experienced as well.);

- It is always a good idea to use Piazza to organize your team and discuss technical details with other teams;

- Try to enjoy this homework. That makes you more creative.