Partner 1: Charlie Norgaard
Partner 2: Zuo Wang

Assignment 3 for CSE 415, Winter 2023, University of Washington

Deterministic Simplified Backgammon Agent

- Who did what for this agent
    - We came up with the static evaluation together
    - Zuo did the minimax algorithm and other minor function implementations
    - Charlie did the alpha beta pruning, code clean up, and testing
- How the static evaluation function works. Explain each component in detail.
    - Each white checker off the board counts as 100 points
    - Each red checker off the board counts as -100 points
    - Ecah white checker on the bar counts as -5 points
    - Each red checker on the bar counts as 5 points
    - Each white checker on the board counts as (its' point number) points
        - For instance, if a white checker is on point 6, it is worth 6 points
    - Each red checker on the board counts as (it's distance from point 24) * -1 points
        - For instance, if a red checker is on point 8, it is worth (24 - 8) * -1 = -16 points
- Any special considerations for Alpha-Beta pruning, such as ordering of successors best-first.
    - I would argue that the most significant consideration when implementing Alpha-Beta pruning was the expectation that the opposing player will always choose the move that has the lowest evaluation score; a score which would benefit the opposing player the most. In doing so, it made our implementation much easier because we could use this assumption to prune our tree at a node where the alpha value was less than the beta value.

Stochastic Simplified Backgammon Agent

- Who did what for this agent
    - We came up with the static evaluation together
    - Charlie did the expectimax algorithm and other minor function implementations
    - Zuo did code clean up and testing

Partnership retrospective

- What issues you faced or didn't face related to the partnership.
  We didn't face any issues related to our partnership for this assignment.

- Lessons you learned as a result of working in this partnership -- Partner 1. (Give Partner 2's name and 2 to 10 lines describing AT LEAST ONE lesson.)

  Through my partnership, I learned the value and importance of spending time going through the source code of a project in order to fully understand and conceptualize the external classes and methods that you're using. I realized that I was too quick to try and call object methods without fully understanding how they worked. Zuo demonstrated that it's much easier to take time understanding all of the utilities before trying to use them.

- Lessons you learned as a result of working in this partnership -- Partner 2. (Give Partner 1's name and 2 to 10 lines describing AT LEAST ONE lesson.)

  I learned the importance of communication. Charlie and I both have busy schedules and it was easier for us to just work on things separately after our initial meeting. I believe we did a good job communicating when and what we are going to do and our expectations of each other. Charlie would say something like "make sure you don't do this part so that we don't have a merge conflict" before starting working, which I believe is a really good practice. And after making progress, we would push to git promptly and briefly mention what we did during the session and what the next steps are. Even though we didn't have a clear workload distribution, we were able to collaborate on the assignment efficiently because of our communication.