**CS-171 Checkers Final AI Report**

**Team name:** NotCSMajors

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**I. In about 1/2 page of text, describe what you did to make your Final AI agent “smart.”**

For our game strategy, we used the minimax algorithm with a depth of four so we could observe four moves into the future. As for our heuristic, we used a simple heuristic where pawns were worth 5 + number of rows from their initial position, and kings were worth 7 + number of rows in the board. Our agent was “smart” due to the intuition provided through our depth first minimax algorithm; the move it would eventually make was the one that had the best score complying with our heuristic’s priorities. The goal was to find the move that resulted in the highest score and had the biggest number of kings or pawns.

**II. In about 1/4 page of text, describe problems you encountered and how you solved them.**

We tested multiple heuristics until we settled on our final heuristic for AverageAI. When we increased our minimax tree depth, our AI seemed to ignore our heuristic goals, even though that was from the AI’s thought process being more complex. We overcame this by reverting the minimax tree depth to be lower to make sure that in simple situations, it was following our heuristic function. We also had problems with running our code on UCI Openlab through PyCharm, with difficulties with deploying our code and using the correct compiler. We overcame those challenges by going to the coding clinics and asking for help directly from the TAs.

**III. In about 1/4 page of text, provide suggestions for improving this project.**

In future projects, having a more customizable method to run the project would make it easier for students to debug. If we were allowed to set up our own virtual environment and debug our projects there, the testing process would be more linear and much less rigid. Instead, we have to run our code through OpenLab and deploy our files every update, and PyCharm comes with its own set of issues, causing disruption due to compiler issues and version errors throughout the process.