Lab 2

English draughts, also called American checkers, are a popular game played by two opponents on opposite sides of an 8X8 game board. It is a game on which AI witnessed one of its earliest successes, as best evidenced from a self-learning checkers program written in 1959 by Arthur Samuel [https://medium.com/ibm-data-ai/the-first-of-its-kind-ai-model-samuels-checkers-playing-program-1b712fa4ab96], a pioneer in computer gaming who also popularized the term "machine learning".

In this assignment, you will write a game playing agent capable of playing Checkers. For rules of the game, see https://en.wikipedia.org/wiki/English_draughts.

1. Construct a general alpha-beta game playing agent which takes the current state as input and returns a move/action to be made by the agent. You may use the code for the AIMA book at https://github.com/aimacode. Please cite the source of your code.
2. Implement an evaluation function which takes a state of the game as input and returns an evaluation value.
3. Implement a move generator function which takes a state as input and returns a list of legal moves at that state.
4. GUI is not required. You may print the 8x8 board in the console. (You are allowed to use existing GUI implementation available on the internet. Please cite the source.)
5. Your main function should be able to do the following:
    o Take as input a move from the user.
    o Update the board with the user's move.
    o Output the agent's move from the alpha-beta search.
    o Update the board with the agent's move.
    o Repeat the steps until the end of the game (you don't need to check whether a state is a draw).
6. Compare the effect of increasing search depth (come up with a method to demonstrate your point).
7. Implement at least two evaluation functions with vary quality. Compare the effect of improving the evaluation function.

What to Turn In

Turn in via Canvas a compressed file (.zip .rar or .tar.gz) containing the following:

- All of your source code.
- A README file explaining how to compile and run the program.
- A short lab report in text/pdf containing the answers for questions 6 and 7.