Othello (80%)  

This homework will require you to implement a game playing search strategy for the game Othello. We have created a web-interface (http://reason.cs.uiuc.edu:8080/othello/) which your bot will connect to. You should register on this webpage with your school email address. This information and the key you will be provided must be used to have your client access the othello server. Logging in will give you access to the source code for the framework.

Once you have written your bot you may login with the same user information and challenge your bot to a game. You may also choose to have your bot play against other people and other bots.

When you read the code provided you will see your task is to implement `reset(...)` and `next(...)` functions which will interface with the webserver via the supplied client code. We DO NOT provide any implementation of the board. You will receive information about opponent moves but you are responsible for storing these intelligently. Additionally, it is important to note that taking too long to make a move forces you to resign so your implementation must be thought out.

**Algorithm to implement depending on hours registered for**

3hr: Min-Max

4hr: Alpha-Beta Pruning

Both of these algorithms have heuristic objective functions. In your implementation you must create a heuristic objective function and justify your choice in your writeup. Your grade will be decided based on both the performance of your bot and the write-up/justification you provide.

Please submit both a PDF writeup and your code. If you have created additional files which your client calls or there are any additional details it is important for us to know, please include a readme.txt along with your submission.
Admissible Heuristics (20%)

Given the graph above and traversing in search from the top-left to the bottom-right. Which of the following heuristics are or are not admissible. Assume that you have the coordinates for each node.

1. The Manhattan distance (L1)
2. The Euclidean distance (L2)
3. $||X_{current} - X_{target}||$
4. $(X_{target} - X_{current})^2 + (Y_{target} - Y_{current})^2$
5. $Y_{current} - Y_{target}$