APCS Final: Super Othello

In this APCS Final Project, Charlie and Patrick will be writing a super Othello game. The game must be a super Othello game because they have already coded an Othello game using a “stupidComputer” for the artificial intelligence. With this new Othello game, Charlie and Patrick will implement different artificial intelligence through basic priority queue and minimax algorithms.

Along with the different difficulty levels, the user who plays the game will also be able to choose the difficulty level as well as play multiplayer through the means of networking—meaning Charlie and Patrick will have to implement networking as well. Aside from implementing networking, Charlie and Patrick will also implement a way to create accounts and save user data as well as the state of a game so that the user can return to a saved game at any time.

Basic Priority Queue artificial intelligence will involve finding the best region for the computer to place a piece. The computer will base the area on which it places a piece based on areas known as “risk regions” which show where the computer has a good advantage. The computer will also see how many pieces it obtains from placing a piece there and multiply both values to get the final priority.

Design:

The Othello game will be really similar to that of what Charlie and Patrick coded in class. They will have an abstract OthelloPlayer class which both the human player and the artificial player will be based on. They will also have a Piece class which will constitute the pieces for the game. They will also have different classes for the different players—human and computer. In order for the game to run, they will have an OthelloWorld class which creates the game, and finally the OthelloRunner class which runs the game. This streamlined design helps ensure proper debugging and easy updates for when Charlie and Patrick decide to update or need to debug.

Testing:

In order to test the game, Patrick and Charlie will play the game several times to ensure that the artificial intelligence is working as specified. They will also write a JUnit tester class in order to test every method individually and ensure that it works as intended.