Documentation

1. Harry's program comments: ConnectFourAI.java

2. Lucas' program comments: Player.java

● The idea of modular programming was demonstrated by using multiple classes simultaneously in the program, for example, classes used include Player and Pair. The Player class has a separate and distinct functionality from the ConnectFourAI class and the Pair class and hence it was kept separate from the two.

● No additional libraries are needed to run the program.

How the Program Works:

The program's AI is based on the minimax algorithm, with the default searching depth set to 18 (This value can be adjusted based on the computer's processing power at around line 78, but it is best to keep the searching depth higher than 5 to ensure the basic functionalities of the AI). The algorithm recursively goes through all the possible boards of the game within 18 steps. Once the depth reaches 0, or when the game ends, it returns the heuristic value of the board, by calling the boardScore() method. The AI will then compare the scores from different paths, and choose the path that will lead to the highest board score.