

**Link to the repository:**

<https://github.com/Scoop-A-Doop/cs2300-coursework>

**Pseudocode:**

Static Variable: Declare a static variable above main that will keep track of what turn it is.

Main: Asks the user to type out the game file name. Creates the game board and creates an array that will keep track of moves in the last K turns, to check if the current move is valid or not. After this has all been initialized, call playGame to start the game.

createBoard: Looks at the very first number in the game file to determine the dimensions for the board.

findK: Look at the second number in the game file to determine whether or not there is a ban on reusing the same coords in the last k number of turns. This returns what will be the size of the array that keeps track of this.

playGame: Contains all of the game logic. It is here where the game reads from the file and runs through the entire game, checking for valid moves, checking for game overs, and populating the game board accordingly.

shiftArray: For the array that keeps track of lastKTurns, when the array is full, this method will free the oldest coordinate which is now valid moving forward. This allows for the current move to be placed in the beginning of the array and now the second oldest coord becomes the oldest coord.

checkValidMove: This method checks to see if the current move has been played in the Last K Turns. If it is then that means that the turn is invalid, so their turn is forfeit. If it hasn't then that means the turn is valid.

connectLine: Contains algorithm that connects the two ends from a player's turn.

printBoard: Prints the current game board to the console. Also increments the static variable "turn" to keep up with what the current turn number is.

countScore: Counts the total number of X's and O's on the gameboard to determine the current score.

checkGameOver: Checks to see if the board is completely filled with X's and O's. If it is then that means the game is over

writeFinalBoard: Writes the final score and the final board into the file "FinalScoreAndBoard.txt"