

```

1
2 import Game.*;
3 import Pieces.*;
4 import java.util.Arrays;
5 import java.util.Scanner;
6 import java.util.regex.Pattern;
7
8 /**
9  *
10  * @author E
11  */
12 public class Main {
13
14     public Main() {
15         Scanner sc;
16         String[] columnSplit, rowSplit;
17         String columnsA, columnsB, rowsA, rowsB;
18         int cStart, rStart;
19         int startR, startC, nextR, nextC;
20         int searchDepth = 1; // need user input to change
21         Colour player, opponent;
22         sc = new Scanner(System.in);
23         // Get start values for game
24         while (true) {
25             System.out.print("Input Player Colour (w/b): ");
26             String playerColour = sc.next();
27             if (playerColour.equalsIgnoreCase("w")
28                 || playerColour.equalsIgnoreCase("white")) {
29                 player = Colour.White;
30                 opponent = Colour.Black;
31                 break;
32             } else if (playerColour.equalsIgnoreCase("b")
33                 || playerColour.equalsIgnoreCase("black")) {
34                 player = Colour.Black;
35                 opponent = Colour.White;
36                 break;
37             } else {
38                 System.out.println("Invalid Input");
39             }
40         }
41
42         // Get the depth
43         while (true) {
44             System.out.print("Input Search Depth (Minimum 1): ");
45             String depth = sc.next();
46             int depthVal = 0;
47             try{
48                 depthVal = Integer.parseInt(depth);
49             }catch(Exception ex){
50                 System.out.println("Invalid Depth");
51             }
52             if(depthVal > 0){
53                 searchDepth = depthVal;
54                 break;
55             }
56             else{
57                 searchDepth = 1;
58                 break;
59             }
60         }
61         // create game
62         Game game = new Game();
63
64         game.getBoard().printBoard();
65         while (!game.isGameEnd()) {
66             // could have ai determine next move first on a separate thread
67             // get player input
68             if (game.getCurrentTurn() == player) {
69                 System.out.println("Player Making Move");

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70         // Get input from the user
71         while (true) {
72             System.out.print("Input Position: ");
73             String userInput = sc.next();
74             /*
75             String columns = userInput.replaceAll("[^a-g]", "");
76             String rows = userInput.replaceAll("[^1-8]", "");
77             */
78             columnSplit = userInput.split("[^a-z]+");
79             rowSplit = userInput.split("[^0-9]+");
80             cStart = columnSplit[0].equals("") ? 1 : 0;
81             rStart = rowSplit[0].equals("") ? 1 : 0;
82
83             try {
84                 if (columnSplit.length == 1) {
85                     columnsA = columnSplit[cStart].replaceAll("[^a-h]", "");
86                     rowsA = rowSplit[rStart].replaceAll("[^1-8]", "");
87
88                     startC = Board.boardToIndexC(columnsA.charAt(0));
89                     startR =
90                         Board.boardToIndexR(Character.getNumericValue(rowsA.charAt(0)
91 ));
92                     nextC = Board.boardToIndexC(columnsA.charAt(1));
93                     nextR =
94                         Board.boardToIndexR(Character.getNumericValue(rowsA.charAt(1)
95 ));
96                     System.out.println("Start Position: " + columnsA.charAt(0)
97 + " " + rowsA.charAt(0));
98                     System.out.println("Next Position: " + columnsA.charAt(1) +
99 " " + rowsA.charAt(1));
100                 } else {
101                     columnsA = columnSplit[cStart].replaceAll("[^a-h]", "");
102                     columnsB = columnSplit[cStart + 1].replaceAll("[^a-h]", "");
103                     rowsA = rowSplit[rStart].replaceAll("[^1-8]", "");
104                     rowsB = rowSplit[rStart + 1].replaceAll("[^1-8]", "");
105
106                     startC = Board.boardToIndexC(columnsA.charAt(0));
107                     startR =
108                         Board.boardToIndexR(Character.getNumericValue(rowsA.charAt(0)
109 ));
110                     nextC = Board.boardToIndexC(columnsB.charAt(0));
111                     nextR =
112                         Board.boardToIndexR(Character.getNumericValue(rowsB.charAt(0)
113 ));
114                     System.out.println("Start Position: " + columnsA.charAt(0)
115 + " " + rowsA.charAt(0));
116                     System.out.println("Next Position: " + columnsB.charAt(0) +
117 " " + rowsB.charAt(0));
118                 }
119                 // Set the next board and change turn, if move is valid
120                 Board next = game.nextBoard(startR, startC, nextR, nextC);
121                 if (!next.equals(game.getBoard())) {
122                     System.out.println("Changing Turn");
123                     game.setBoard(next);
124                     game.changeTurn();
125                 }
126                 game.getBoard().printBoard();
127                 break;
128             } catch (Exception e) {
129                 System.out.println("Invalid Input");
130             }
131         }
132     } else {
133         System.out.println("AI Making Move");
134         // game.setBoard(game.getBoard());
135         // GAME TREE ALGORITHM
136         // ai determines next move to perform (may be slow)
137         GameTree gameTree = new GameTree(game, searchDepth);
138         Node bestMove = gameTree.findBestMove(opponent, opponent,

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127         gameTree.root, null);
128         System.out.println("Move: " + bestMove.move.getMove());
129
130         Board next = game.nextBoard(bestMove.move);
131         if (!next.equals(game.getBoard())) {
132             game.setBoard(next);
133             game.changeTurn();
134         }
135         game.getBoard().printBoard();
136     }
137
138 }
139
140 public static void main(String args[]) {
141     Main m = new Main();
142 }
143
144 }
```