Hermann Yepdjio 40917845
Fernando Barajas

CS-301
Fall 16
November 28, 2016
Project 03

Program CheckMateIn3P3

Program Description: reads a file position.fen that contains a few chess positions using with W(White) to move using the Forsyth-Edwards notation (FEN). The program then copies a diagram of the position, and either all the possible 5 moves leading to black being mated or the expression "No 3-move mates found," in a text file named "solutions.txt". The program will also display the diagram position and all those possible 5 moves or "No 3-move mates found" on the screen.

Use of the Program: The user must provide an input file named "position.fen" containing few chess positions with W to move
- The positions should be formatted using the Forsyth-Edwards notation (FEN);
- The positions should be consistent;
- The input file should contain all the necessary information;
- The first string in the file should be a string representing the position of pieces on the board;
    When the program starts, it will read the positions from a file named position.fen present in the same directory as the java files. Please make sure this file exists before running the program and that it contains the appropriate information.

Additional Notes:
    For this project, we chose to use arrayLists as data structure. We also used one simple array at the beginning just to hold the characters representing the different columns on the board to make it easier to attribute positions to pieces when reading the file.

The project is composed of 3 classes and one interface. the interface application is implemented by the class CheckMateIn3 to access some of its important methods such as the ISOK method that checks if a position is valid or not before moving a point to that position.

The Class CheckMateIn3 is where the string in the file representing the chess positions is interpreted. This class has a method called getPositions that returns an arrayList containing all the current positions on the chess board. It also has a method called getPossibleMoves that returns an arrayList containing all the possible moves from the current positions. This method determines what moves is possible based on the piece to be moved and the pieces that can be captured.

The class Position has a constructor, and other interesting methods such as getRow that returns the row number of a given position, or getPosition that returns a string representing a chess position.

The class CheckMateIn3P3 is the class that contains main and a Backtracking method.

The Backtracking method is where all the chess moves are made. It checks for the validity of a position before operating a move to that position and checks after each move if b is mated. It also updates the current positions on the board and the possible moves after a move is made.

Bugs: N/A.