CSE 259 - Logic in Computer Science Fall 2024

Recitation-7

Project 2: Chess - Part 1

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Project 2

- Implement a Chess program
- 3 Tasks
 - Visualize the chess board
 - Write codes for playerA so that it can move on its own. PlayerB codes are already there!
 - 3. Use PlayerA's code to play against PlayerB

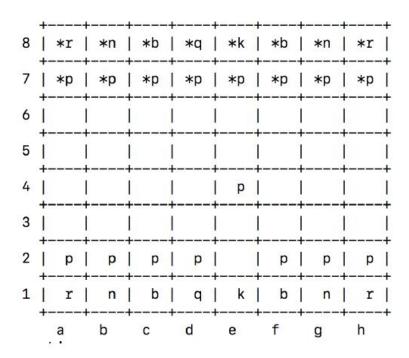
Project 2

- We will call main. from the console
- If the template is ran, the following output is seen: It asks for whites move and the black moves on it's own

```
| ?- main.
white move -> e2e4.
Working...
black move: e7e5, Rating: bookB
[state(white,_94,_95,_96),state(black,_99,_100,_101),piece(a-8,black,rook),piece(b-8,black,night),piece(c-8,black,bishop),piece(d-8,black,que)
white move ->
```

Project 2 - task 1

Write codes so that the chase board is drawn visually

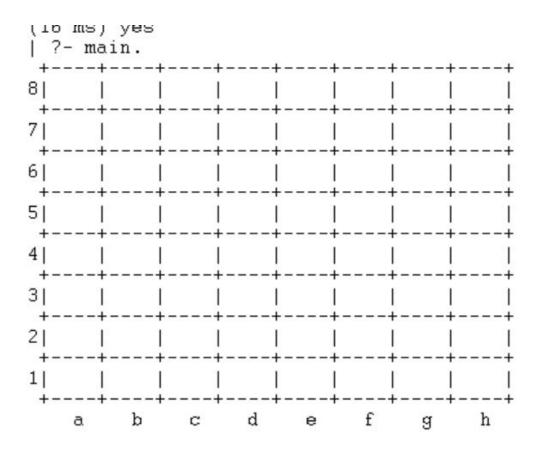


Project 2 - task 2

Implement playerA's code. Mimic the code for playerB.

Project 2 - task 3

Use playerA's code to play against playerB. no need to write much code here.
 The challenge is to understand the main process of the chess program



```
drawSymbol(Symbol, 0).
drawSymbol(Symbol, N) :- N > 0, write(Symbol), N1 is N - 1, drawSymbol(Symbol, N1).
```

Draws a characters for N times

Draws the borders of the chess board

```
drawBorderLine(0) :- drawSymbol('+', 1), nl.
drawBorderLine(Col) :-
   Col > 0,
   drawSymbol('+', 1), drawSymbol('-', 4),
   NewCol is Col - 1,
   drawBorderLine(NewCol).
```

```
| ?- drawBorderLine(8).
+----+---+---+
```

Draws the cells where we will have the chess pieces

```
drawContentCell(Row, 0) :- drawSymbol('|', 1), nl.
drawContentCell(Row, Col) :-
   Col > 0,
   drawSymbol('|', 1), drawSymbol(' ', 4),
   NewCol is Col - 1,
   drawContentCell(Row, NewCol).
```

Does the numbering of cells

```
drawPair :-
  drawSymbol(' ', 4), drawSymbol('a', 1), drawSymbol(' ', 4), drawSymbol('b', 1),
  drawSymbol(' ', 4), drawSymbol('c', 1), drawSymbol(' ', 4), drawSymbol('d', 1),
  drawSymbol(' ', 4), drawSymbol('e', 1), drawSymbol(' ', 4), drawSymbol('f', 1),
  drawSymbol(' ', 4), drawSymbol('g', 1), drawSymbol(' ', 4), drawSymbol('h', 1).
```

```
| ?-drawPair.
a b c d e f g h
```

The rule to draw the board

```
drawBoard(0, Col) :- drawSymbol(' ', 1), drawBorderLine(Col), drawPair.
drawBoard(Row, Col) :-
 Row > 0,
 drawSymbol(' ', 1),
 drawBorderLine(Col),
 drawSymbol(Row, 1),
 drawContentCell(Row, Col),
 NewRow is Row - 1,
 drawBoard(NewRow, Col).
```