Chess: Shootmenow Edition

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Objectives:

- Develop a simple chess game.
- Use multiple simple data structures to simulate various items in the game.
- Develop working algorithms to evaluate, manipulate, and run the game relatively efficiently but without cutting corners.
- Develop an AI to allow human vs. computer capability.
- Kill ourselves.
Classes Developed:

- Board – vector<vector<Piece> >
- Piece – contains color, name, position and other data members
- None, Pawn, Rook, Knight, Bishop, Queen, and King all derived from Piece
- Player – contains pointer to Board, name, color
- Opponent – derived from Player
Classes Developed:

- DTnode – Decision Tree node, contains pointer to parent, vector of pointers to children and a MOVE struct
- DTree – the Decision Tree contains sets of possible moves and then subsequent sets of possible moves. Children depend on their parent.
Main Algorithms Developed:

- **updateMove()** – reviews a piece’s move list and deletes invalid moves while paying attention to special move cases
- **movePiece()** – moves a piece while ensuring an illegal situation is not created by the move
- **isCheckmate()** – looks over board for a checkmate situation
- **isStalemate()** – looks over board for a stalemate situation
Main Algorithms Developed:

- `makeScore()` traverses the board and scores based upon each piece’s status.
- `makeDecision()` based upon the score of possible moves, chooses the best* one.

*the current algorithm is very aggressive and short sighted, it chooses without considering subsequent moves.
Accomplishments:

- Develop a simple chess game.
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- Develop working algorithms to evaluate, manipulate, and run the game relatively efficiently but without cutting corners.
- Develop an AI to allow human vs. computer capability.
Objectives in Progress:

- Kill ourselves…

Data Structures
Final Exam

?
Future Improvements:

- Implement a relatively good AI
- Create a GUI
- Multi-platform
- Network
Chess: Shootmenow Edition in action

BLACK SIDE (UPPERCASE)

0 1 2 3 4 5 6 7
8 [K][N][N][K][B][B][R][R] 8
7 [P][P][P][P][P][P][P][P] 6
6 [B][Q][P][P][P][P][P][P] 5
5 [K][K][Q][P][P][P][P][P] 4
4 [P][P][P][P][P][P][P][P] 3
3 [K][K][K][P][P][P][P][P] 2
2 [P][P][P][P][P][P][P][P] 1
1 [P][P][P][P][P][P][P][P] 1
0 [P][P][P][P][P][P][P][P] 0

white side (lowercase)

You have touched piece Queen at position 0,3.

Would you like to query this piece <q>, move this piece <m>, or untouch piece <u>? q

This piece is a white Queen at location (0,3) on the board.
Available moves for current piece:

3,0
2,2
1,1

Would you like to query this piece <q>, move this piece <m>, or untouch piece <u>? m

Please enter the coordinates of where you wish to move the current piece.
Row: 2
Column: 0

Invalid destination coordinates possibly (castling when not allowed).
Try again or choose a different piece to move!

Would you like to query this piece <q>, move this piece <m>, or untouch piece <u>? m

Please enter the coordinates of where you wish to move the current piece.
Row: 3
Column: 0