**Useful Links:**

[http://www.pgnmentor.com/files.html - players](http://www.pgnmentor.com/files.html#players)

<https://en.wikipedia.org/wiki/Evolutionary_algorithm>

<http://www.gamedev.net/page/resources/_/technical/artificial-intelligence/chess-programming-part-iii-move-generation-r1126>

<http://www.cs.nott.ac.uk/~pszgxk/papers/cec2001chess.pdf>

<http://www.aihorizon.com/intro.htm>

**Board**

Keep a history of the moves taken and can save the data of a game

Would be able to load a game from saved data

Would have each of the 64 squares mapped either to nothing or to a piece

A way to visually represent the game

Object or Dictionary?

Should know a list of white and black pieces in play

**Pieces**

Would be able to check its moves

Determine if king is in check

Know what color it is

**Moves**

Perhaps require it to take syntax used by the game data.

Castling, En Passant, first pawn double move, promoting a pawn

**Strategy/AI**

In case we want to go that route I found a database where you can download chess games as PGN files. You can open it with any text editor. Look in the folder titled Modern for an example of this. It is from this URL: <http://www.pgnmentor.com/files.html#players>

1. We can start with a completely random strategy and have it learn by playing itself until it figures out how to be good.
   1. Would require us to make a way for the computer to remember the result of past games
2. We can load in game data from online and have it learn from the test data.
   1. Would use a type of curve fitting to optimize values based on sample we give it. Then it would decide what good and bad board positions are.
3. We might consider having it look n moves ahead to see what would be most ideal position that far down the line.

**GUI**

Create a window where you can click on the square you want to move and where you want to move. Easier than typing in moves.

**Other Features**

Undo and redo

**Future works:**

1. Turn it into an app. So we have practice with app development.
2. Different difficulties and styles of play