

Documentation



HERCULIAN CHESS



TEAM MEMBERS

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OBJECTIVES

- ▣ Chess is a two player strategy board game . Chess is a 2D/3D game played between two humans or among virtual machines having artificial intelligence.
- ▣ This game code is written in C programming language . Basic developed in unix / linux environment.

Game Model ...

Chess is played on a square chessboard , consisting of 64 squares alternating color namely black and white arranged in an eight by eight grid. Each player begins the game with sixteen pieces namely one king, one queen, two rooks, two knights, two bishops, eight pawns. Each of these pieces move directly. One player controls the white and other player controls the black. The player who controls the white pieces moves first. The player takes turns moving pieces; certain moves involve “capturing” of an opponent’s piece, removing a piece from the chess board. The objective of the game is to checkmate the opponent’s king. This occurs when the king is under immediate attack (check) and there is no way in which the check can be removed in the next immediate move.

... Game Model

In addition to checkmate , the game can be won by voluntary resignation of one's opponent, which may occur when too much material is lost or checkmate is unavoidable. A game may result in a draw in several ways, and neither player wins. The course of the game is divided in three phases. The beginning of the game is called the opening (development of pieces). The opening yields to the phase called middle game. The last phase is called the end game. Generally characterized by the disappearance of the queens. Theoreticians have developed extensive chess strategies and tactics since the game's inception.

History

- ▣ The current form of the game emerged in South Europe in the second half of the fifteenth century after evolving from similar, much older games of Asian origin. The tradition of competitive chess began in 16th century. The first official World Chess Champion equivalent was Wilhelm Steinitz, claimed his title in 1886; his modern equivalent is Vishwanathan Anand from India. He is the 15th champion in the lineage. There are also biennial team events called the Chess Olympiads. Since the 20th century two organizations namely World Chess Federation and the International Correspondence Chess Federations have organized all top chess competitions and chess events.
- ▣ One of the goals of earlier computer Scientists was to create a chess playing machine. Today's chess is deeply influenced by current chess programs. In 1997 the then world Champion Gary Kasparov played against IBM's Deep Blue Program which proved that computers are able to beat strongest human players.

CHESS RULES ...

- ▣ Chess game is played on a 8x8 chess board. It has eight rows called Ranks (denoted by numbers 1 to 8) and eight columns called Files (denoted by alphabets a to h).The color of the squares alternate between light and dark referred to as “ light squares” and “dark squares”. The chessboard is placed such that each player has a white square to his right hand corner with each queen on a color which matches its color.
- ▣ Each player begins the game with sixteen pieces: each players pieces comprises one king, one queen, two rook, two bishop, two knights, eight pawns. One player White controls the white pieces whereas the other player controls the black pieces. White is the first player to move. The colors are chosen by a friendly argument or by a tournament decider. The player move piece alternatively (with the exception being Castling when two pieces are moved simultaneously). Pieces are either moved to unoccupied place or to an opponent's piece when the piece is moved to the place which the opponent's piece occupies.

King ...

- ▣ When the king is under attack of either one or possibly two of the opponents pieces, the player is said to be under check. When in check only moves that remove the king from check are permissible. The player must not move any piece which will bring his king under check. The objective of the game is to bring the opponent's king under checkmate; it means that the opponent's king is under check and there is no move which will remove the King from the attack.
- ▣ The king can move only one piece horizontally, vertically or diagonally. Once in game each king is allowed to do a special double move of castling.

... King

- ▣ Castling consists of moving the King two squares towards a rook, then moving the rook over the square which the king has already crossed. Castling is only permissible if the following condition holds:
 - The player must have never moved both the king and rook even once.
 - There must be no pieces between the king and the rook.
 - The king may not currently be in check, nor may the king pass through squares that are not currently in check. As with any move castling would be illegal if it would place the king in check.
 - The king and the rook must be of the same rank that is to include castling with a promoted pawn.

Rook ...

The rook moves any number of vacant squares vertically or horizontally .(It is also involved in kings special move of castling)

Bishop ...

The Bishop moves any number of vacant squares in any direction diagonally. Note that a bishop never changes square color, therefore players speak about “light-squared” and “dark-squared” bishops.

Queen ...

The queen can move any number of squares horizontally, vertically or diagonally.

Knight ...

The knight can jump over occupied squares and move two squares horizontally and one square vertically or vice versa, making a “L” shape.

Note that every time a knight moves it changes square color.

Pawns ...

Pawns have the most complex rules of movement. A pawn can move one square forward if it is unoccupied. If it has not moved yet it can move 2 squares forward if they are unoccupied. A Pawn cannot move backward. When such an initial two square advance is made and if it gets horizontally placed to an opponent's pawn, the opponent's pawn can capture that pawn "enpassant" as if it moved forward only one square rather than two but only on immediately subsequent move. Pawns are the only coins that capture differently than they move. They can capture an enemy piece in either of the front two diagonally placed squares, but cannot if they are vacant. If a pawn advances all the way to the eighth rank it is promoted to queen, rook, bishop or knight of same color. In practice pawn is almost always promoted to queen. In certain situations if it is promoted to some other coin then it is "inferior promotion".

Miscellaneous Rules ...

When the exception if knight pieces cannot jump over each other. One's own pieces cannot be passed if they are in the line of movement and a friendly piece cannot replace another friendly piece. Enemy pieces cannot be passed but they can be "captured". When a piece is captured it is replaced by an enemy piece.

(enpassant being the only exception) The captured coin is removed from the game and may not be returned to play for remainder of the game. The king may not be removed from the board it can only be given check. If a player is unable to remove the king out of check checkmate results leading to loss of game.

Chess games do not have to end with a checkmate – either player may resign if the situation seems hopeless. Game may also end in draw (tie). A draw can occur in several situations, including draw by agreement, stalemate, three fold repetition , fifty move rule , or a draw by impossibility of checkmate.

Draw Game Scenarios ...

A draw is a game that ends without victory for either player. Most draw games are drawn by agreement based upon the rules. The other ways in which a game can end in a draw are stalemate, three fold repetition, insufficient coins, fifty move rule. A position is said to be a draw (or a drawn position) if either player can through correct play, if it eventually force the game into a position where the game must end in a draw regardless of the moves the player makes.

▣ STALEMATE:

A stalemate is a situation in which the player whose turn is to move has no legal moves and his king is not in check. A stalemate results in an immediate draw.

... Draw Game Scenarios

- ▣ Three fold repetition:

The game is drawn if the same position occurs three times with the same player having the same set of legal moves each time. (the latter includes the right to take en passant and right to castle)

- ▣ Fifty Move Rule:

The fifty move rule states that the game is drawn after fifty moves from each side without a pawn move or capture.

... Draw Game Scenarios

▣ Insufficient Material:

An endgame scenario in which all pawns have been captured, and one side has only its king remaining while the other side has just a king or a king and a bishop or a rook. The position is draw because it is impossible for dominant side to deliver a checkmate regardless of play. Situations where checkmate is possible if the inferior side blunders are covered by the fifty move rule.