Documentation
CHESS

Introduction:

this Python-based chess program provides an immersive and interactive experience. In addition to choosing sides, setting the depth of alpha-beta pruning, generating the board, and making moves, the program has a command-line interface.

Main Class:

The main class in the program provides the user with the option to choose their side, either white or black, and set the depth for alpha-beta pruning. The depth refers to the number of levels that the algorithm should search for the best move. A higher depth will result in a more accurate prediction but will take longer to calculate. The user can enter the depth value at the beginning, and it will be passed to the AI class.

Board Class:

The Board class is responsible for generating the chessboard and maintaining its state throughout the game. It has functions to make a move and check all the possibilities for the move, including determining whether the move is legal or not. The current state of the board is also evaluated to check whether the current situation is checkmate, stalemate, or if no mating material is present on the board. The Board class plays a crucial role in the functioning of the program.

Piece Class:

The Piece class is a generic implementation of a chess piece and is inherited by other pieces such as Rook, Bishop, Knight, Queen, and King. Each piece has its unique movements and rules, which are implemented in their respective classes. The Piece class provides a common interface for the pieces and is used extensively throughout the program.

AI Class:

The AI class is responsible for generating the best move for the current state of the game. It uses the alpha-beta pruning algorithm to search for the best move to a specified depth. The depth is passed on from the main class, and the AI class

generates the best move using the minimax algorithm. The AI class is the brain of the program and plays a significant role in providing a challenging experience for the player.

Making a Move:

To make a move, the user has to enter the algebraic expression of the move. Algebraic notation is a standard system for recording and describing the moves in chess. It is widely used in chess literature and is an integral part of the game. The program uses algebraic notation to determine the move and update the state of the board accordingly.

Conclusion:

The chess program written in Python provides an immersive and interactive gaming experience for chess enthusiasts of all levels. The program's features, including choosing sides, setting the depth for alpha-beta pruning, generating the board, making moves, and evaluating the state of the board, make it a complete package for chess lovers.