



Department of Computer Science and Engineering

Course Code: CSE-3636

Course Title: Artificial Intelligence Lab

Project Title: AI based Chess Game using Python

Project Documentation

Week 6: Pawn promotion & en-passant

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The updated code includes the following special moves:

Pawn Promotion

If a pawn reaches the opposite end of the board, it can be promoted to a queen, bishop, knight or rook. When a pawn reaches the opposite end of the board, the **isPawnPromotion** variable of the **Move** class is set to True, and the piece on the destination square is set to the promoted piece type.

En Passant

If a pawn moves two squares forward from its starting position, and lands next to an opponent's pawn on the same rank, then the opponent's pawn can capture the first pawn as if it had only moved one square forward. This capture is only allowed on the move immediately following the pawn's advance. When an en passant move is made, the **isEnpassantMove** variable of the **Move** class is set to True, and the captured pawn is removed from the board.

En Passant and Pawn Promotion Updates

- The updated code includes the **enpassantPossible** variable which is used to determine if en passant moves are possible. It is set to the position of the opponent's pawn that just advanced two squares, if applicable.
- The **makeMove()** method has been updated to handle pawn promotions and en passant moves. If a pawn reaches the opposite end of the board, it is promoted to a queen. If an en passant move is made, the captured pawn is removed from the board. The **enpassantPossible** variable is also updated accordingly.
- The **undoMove()** method has been updated to undo en passant moves and pawn promotions.
- The **Move** class has been updated to include the **isEnpassantMove** and **isPawnPromotion** variables, which are used to determine if a move is an en passant move or a pawn promotion.