Chess Game

1.About

For the OOP project I decided to work on a chess game because it involves logic, math and some graphical user interface elements. Chess is an easy game to understand but hard to master, and the logic

2.Features

The game works just like a regular game of chess, opponents take turns in moving a single piece. If a move is illegal for various reasons, the move is not counted, and the player must pick again.

Some of the implemented features include:

- Out of bounds checking.
- Checking if some pieces are in the way of an otherwise legal move (Rook, Queen, Bishop).
- Error codes for illegal moves displayed on screen (Example: “Move will cause check!” or “"Out of bounds!").
- The cursor changes to the selected piece when making a move.
- The game automatically does score keeping and displays it.
- The game automatically resets when an end condition is reached.
- *Checkmate detector*: The game knows when you no longer have any legal moves when in check and triggers a checkmate, updates the score and resets the game.
- *Stalemate detector*: The game knows when you no longer have any legal moves when NOT in check and triggers a stalemate (a draw), scores are left unchanged, and the game is reset.
- *Special rule*: Pawn can move 2 tiles if it hasn’t moved yet.
- *Special rule*: Promotion/Underpromotion: A pawn that reaches the end of the board will be promoted. A dialogue appears that allows the user to select what piece they want to promote the pawn to.
- *Special rule*: Castling/*Rocadă*: If the king and the rook have never moved, it’s possible to “castle”, i.e., to make the rook jump over the king and the king to move closer to the rook’s initial position in one single move. This move is used often to protect the king. Some restrictions apply: cannot castle when in check, cannot castle into check, cannot castle if the pieces have moved and cannot castle if there are pieces between the rook and king. The game check for all these restrictions before completing the castling move, otherwise an error will be shown.

3.Further implementation

There are some chess features that did not make it into the final version of the game. Those would be more special rules in chess like *en passant*, 50 moves rule and threefold repetition,

moves which require a more complex gamekeeping logic like a full history of all the moves that have happened in the game.