

Graphical user interface, text

Description automatically generated

So I need to:

Explain the problem

Explain how solving it with a computer would be more suitable than solving it without

**The problem:**

People pay chess casually for entertainment. My system will provide a way for users to play chess against a computer

**What features make it solvable by computational methods:**

* Using a website that can be used on a device that people carry around with them normally means 2 players don’t need a (physical) chess board or chess pieces in order to play chess
* Being able to play against a computer eliminates the need for a second opponent and allows for users to play on demand and not only when they are able to find someone to play with in person. For example this allow people to play late in the evening or even if none of there friends play chess.

Already pretty happy with my abstraction and decomposition parts

Thinking ahead:

What are the inputs?

* Button, dropdown and tick box inputs allow to select the appropriate difficulty settings for the chess game that they want or a challenge option
* In game the player will need to select a piece and a square to move it to. This will be done with a mouse click input or a touch screen input

The will need to do this once on each of their turns

Outputs:

* + The main output is the move the computer makes in response to each of the user’s moves. This will be shown visually by an indication that is the computer’s turn, a piece that the computer owns will move to a new square on the chess board displayed to the user and it will be indicated that it is the users turn
  + Another output is ‘the game has finished’ and who won at the end of a game.

What are the preconditions?

This program only works if:

* The user must select a square that contains a piece: not empty and it must be a piece that they own
* The must select a square to move to that is one of the possible legal moves.

In order to follow convention in order to make the program intuitive I will solve this with validation and sanitisation without giving the user a popup to tell them that they cannot take this action.

When they select a square I will check that it is a valid choice (they own a piece on this square). If not nothing will happen. If they select a valid square dots will be shown on all the possible squares where this piece can move in over to indicate intuitively which squares are valid choices to move to. The user can then select another piece, select an invalid square in which case nothing will happen or select a valid square in which case their turn is finished and they have made a valid move.