**Mini Project Requirements**

**Title:** Mastermind Game

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This project is based on the boardgame ‘Mastermind’ and aims to replicate three versions in one – the Kids version, the Classic Version and the ‘Expert’ version

* The game traditionally has two players, the code maker and the code breaker
* In each version the Code Maker sets the four-colour code, choosing from 8 colours.
* In the Kid’s Version the Code Breaker must guess the colours chosen by the Code Maker, the position of colours is not important. The correct colour is indicated in the hints section on the board by a red peg.
* In the Classic Version the Code Breaker must guess the colours set and the position in which they are set by the Code Maker. Correct colours in the correct position are indicated by a red peg while correct colours in the wrong position are indicate by a white peg.
* In the Expert Version the rules are the same as the Classic Version except that the Code Maker may choose to leave a space in the code as ‘blank’. This is treated as another colour.
* The player can choose to play a CPU or human opponent.
* The player can choose the game version.
* The player can choose the number of guesses and games they would like to play, both up to a max of 10 – there will be validation here to ensure a number between 1 and 10 inclusive is input.
* There will be validation to ensure the player enters names for each player, sets the player(s) and has input the number of games and number of guesses desired before being able to continue to the game board.
* The CPU player solution is created by a method call while the human player solution code is created using a GUI interface by selecting coloured buttons.
* The human player makes guesses by selecting coloured buttons. The guess is compared to the solution and the hint buttons are change to reflect what matches if anything.
* The players switch roles each game – the Code Maker becomes the Code Breaker and vice-versa.
* The winner will then be ‘written’ to a leader board which will will be saved to a file and can be loaded when the game starts.
* The game state will be able to be serialised and de-serialised.