

Software Requirements for Mastermind

Mastermind

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Overview

This document describes requirements for the software implementation of the classic game of Mastermind. This software will allow one player to play against the computer. A description of the game plus the requirements of this implementation are provided below.

The Game

At the start of the game, the computer will generate a random code with a series of 4 colors chosen from a list of 6 colors. The player will have ten tries to crack the code. Each turn, the player will guess a series of four colors, and then click a button. A black label will appear for every guessed color that is correct and in the right position, and a white label will appear for every guessed color that is correct and in the wrong position. This repeats itself up to ten times until the code is cracked or the game is lost.

Software Implementation

The software will present the Mastermind game with the UI elements listed below:

- Grid with 10 rows of 4 buttons for guesses
- Grid with 10 boxes of 2x2 grids alongside aligned with main grid for computer response to guesses
- 2 buttons in the bottom right corner of the form:
 - Start/new game button
 - Check code button
- Textbox in the top left corner of the form for displaying game status
- Radio buttons for beginner or advanced

Game Levels

This game will have an option of two levels- beginner and advanced. In the advanced level, the computer can generate a code with repeating colors, while in the beginner level, each color cannot appear more than once in the code.

Game Process and Rules

- Before the game starts, a message will say "click start to begin". All buttons will be disabled besides level and start buttons.
- Player will select a level and press start to enable the first row of buttons. Clicking on the buttons will change the back color from red to yellow to green to blue to black to purple. When start is clicked, a random 4 color code will be generated. The goal is to guess which colors are in the code and in what position. Players will click the four buttons to make their guess.
- When player is satisfied with their guess, they will click the check code button. In the 2x2 grid alongside the row with the current guess, a black label will appear for every guessed color that

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is correct and in the right position, and a white label will appear for every guessed color that is correct and in the wrong position.

- When check code is clicked, if the code is not correct, the next row of buttons becomes enabled so the player can make another guess. The textbox will display the amount of turns left.
- If the code is guessed before the ten turns are up the payer wins, otherwise the game is lost. Game status will show in the top left corner of the form.