Software Requirements for Mastermind

Mastermind

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Overview

This document describes the requirements for the software implementation of the classic game of Mastermind. This software will allow the player to guess the pattern generated by the computer. A description of the game and the requirements of the implementation are provided below.

The game

The computer generates a pattern of 4 digits randomly chosen from the numbers 1-6. The player has 10 chances to guess the winning pattern. The player is presented with 4 grayed out squares which cover the generated pattern, and another 10 rows of 4 for the player to guess in. After each guess, the numbers will change color to indicate if it is correct. If the player correctly guesses the generated pattern before the 10 tries are up, then the player wins.

Software Implementation

UI Elements

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

- Toolbar on top of the screen with two buttons:
    o   New game button
    o   Check answer button
- 1 row of 4 gray textboxes
- 10x4 grid of textboxes
- Label on the bottom of the screen to display game status

Game Process and Rules

- The game starts when the player clicks New Game. Until then, all clicks or typing is ignored. The game status label displays "Click New Game to begin"
- After New Game is clicked, the computer generates a random pattern of 4 digits from 1-6. Numbers can be used more than once. Each textbox in the row for the computer's pattern displays a question mark until the game is over.
- The player has 10 chances to guess the correct pattern. The player can now type in the first empty row. The player types a number from 1-6 in each textbox. When ready, the player should click Check Answer. Once Check Answer is clicked, that row can no longer be changed, but it should not look faded out.

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- When Check Answer is clicked, the numbers will change colors to indicate if it is correct.
  - Green-the number is in the correct place
  - Orange-the number is used in the pattern, but is in the wrong place
  - If the number is not used at all, it will stay the same.
- The player continues guessing until either the pattern is guessed correctly or the player runs out of guesses.
- When the game is over, the row of textboxes at the top change to display the correct pattern. The game status label displays "Game Over". If the pattern was guessed correctly, the label displays "You win!" Otherwise, it displays "Try again next time".
- If the player clicks New Game at any point during the game, the game should interrupt and begin a new game.