Software Requirements for Matching Game

Matching Game

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Overview

This documentation describes the requirements for the software implementation of the classic matching game. This software allows two players to play against each other or for one player to play against the computer. A description of the game and the requirements of this implementation are provided below.

The Game

Two players are presented with a 5x5 grid of 'flipped over cards'. The players take turns choosing 2 cards at a time to see if they have a matching picture. If the 2 cards match, a point is given to the player who chose the cards, and the 'cards' remain with the picture showing. If the pictures are not the same, the 'cards' are flipped back over.

Software Implementation

UI Elements

5x5 Grid of Buttons: Represents the cards.
Toolbar at the Top of the Screen: Includes:
- **Start Button:** To start/restart the game.
- **Option Buttons:** To choose between 2-player mode or against the computer.
- **Label to Display the Score:** Shows the current score for each player.
- **Label to Display Whose Turn it Is:** Indicates which player's turn it is.

Player Modes

There are 2 modes to play:

1. **Two Player**
2. **Against the Computer**

Two Player

In this mode:

- Each player clicks a 'card' to reveal the picture.
- If the two selected cards match, the player earns a point, and the cards remain revealed.
- If the pictures do not match, the cards are flipped back over after a short delay.

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- The turn then passes to the other player.

In this mode the computer will 'pick cards' after the user it will stay on the screen for 3 seconds, if it is a match then the computer will get a point and if not then the cards will be turned over and stay turned over until the player goes.

Game Process and Rules

Game Start:

- The game starts when the player clicks the "Start" button. Until then, all clicks on the card buttons are ignored, and the game status message is "Click Start to begin the game."
- Upon starting, the game status message updates to indicate the current player's turn: "Current Turn: Player 1" (or the player's name if applicable).

Player Turns:

- Players take turns to select cards. Player 1 begins the game.
- The player clicks on a card to reveal the picture underneath.
- The revealed card remains visible until a second card is selected.
- If the two selected cards match, the player earns a point, and the cards remain revealed. The game status message updates with the score and whose turn it is next.
- If the cards do not match, they are flipped back over after a short delay (e.g., 1 second), and the turn passes to the next player.
- The game status message updates accordingly after each turn: "Current Turn: Player 2" or "Current Turn: Computer" if playing against the computer.

Computer Turn (Against the Computer Mode):

- After the player's turn, the computer automatically selects two cards.
- The computer's selections are revealed for 3 seconds.
- If the computer's cards match, the computer earns a point, and the cards remain revealed.
- If the cards do not match, they are flipped back over after 3 seconds.
- The turn then passes back to the player.

Match and Score:

- When a match is found, the cards stay revealed, and the player who found the match earns a point.
- The score is updated immediately, and the game status message reflects the new score.

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End of Game:

- The game ends when all pairs have been matched.
- The game status displays the final score and declares the winner: "Game Over! Winner: Player 1" (or Player 2/Computer).
- If there is a tie, the game status displays: "Game Over! It's a tie."
- In the game state of Win or Tie, all card button clicks are ignored.

Restarting the Game:

- If the user clicks "Start" in the middle of a game, the current game is interrupted, and a new game begins.
- All cards are flipped back over, and scores and turns are reset.
- The game status message reverts to "Click Start to begin the game."

Additional Rules:

- If a player clicks a card that has already been matched and revealed, the click is ignored, with no effect on the current turn.
- Ensure the interface provides clear visual feedback for card selections and matches.
- Do not disable the card buttons to avoid making them look faded out. Instead, ignore clicks as necessary.