

Software requirements for a Memory Game

MEMORY GAME

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Overview

This document outlines the requirements for the software implementation of a classic memory game. The software aims to provide a platform for two players to compete against each other or for a single player to challenge the computer. The following sections provide a description of the game and the necessary requirements for its implementation.

The Game

The game involves a deck of 20 cards placed face down. The objective is to uncover pairs of matching cards from the shuffled deck. Players rely on memorization and recall to locate matching cards, aiming to make successful matches and accumulate sets. The first player selects two cards, and if they match, the player collects them. If they do not match, the cards are replaced face down, and the second player takes their turn. Once all cards have been matched, the player with the most cards wins.

Software Implementation

UI ELEMENTS

The software will present the user with the following UI elements, arranged from the top of the screen:

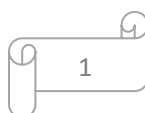
- A toolbar featuring:
 - A start button
 - Two radio buttons for selecting either two-player or solo mode
 - Two labels to track the number of sets earned by each player
- A message bar showing if the game is solo or 2 player, and the status of the game (if playing it will show whose turn it is).
- Five rows of four orange-colored cards

PLAYER MODES

There are two player modes available:

Two Player

In this mode, two players compete to find the most sets. Turns alternate between the players, and each player can flip over two cards per turn.



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Play against the computer

In this mode, the player competes against the computer. During the computer's turn, it follows these steps::

1. Tries to select a set of matching cards if they have been exposed already.
2. If no matching cards have been exposed, it randomly selects a card and checks if it matches any previously exposed cards.
3. If there is a match, it selects that match.
4. Otherwise, it randomly selects another card.

GAME PROCESS AND RULES

The game follows the following process and rules:

- The game starts when the player clicks the "Start" button. Before that, all card clicks are ignored, and the game status message displays "Click Start to begin the game."
- After the "Start" button is pressed:
 1. The text on the start button changes to "New Game."
 2. The radio buttons are deactivated
 3. The first box in the message bar indicates the player mode
 4. The second box in the message bar indicates whose turn it is
- The first player selects two cards, flipping them over to reveal their contents. If the cards match, they remain flipped, and the player's set count increases by one. If the cards do not match, they flip back after a few seconds, and it becomes the next player's turn.
- Clicking on an already exposed card has no effect
- Once all the cards have been matched, the message box displays the winner or declares a tie
- If the user clicks "New Game" in the middle of a game, all cards should be covered, and the card positions should be shuffled, resulting in a different order of pictures.