Memory Match Game

Abstract

This project implements a simple **Memory Match Game** in C. The player flips two cards at a time to find matching pairs in a 4x4 grid. The game demonstrates arrays, loops, conditional statements, file handling, and basic game logic.

Features

- 4x4 memory grid
- Random card placement
- Turn-based matching system
- Tracks attempts and matches
- Stores game results in a data file
- Menu-driven interface

Technical Requirements

- **Programming Language:** C
- **Compiler:** GCC or any standard C compiler
- **Operating System:** Windows, Linux, macOS
- **Dependencies:** None
- **Data File:** `game_data.txt` (created automatically)

Functional Requirements

- **Program Menu:** Start Game, View Game Records, Exit

- **Game:** Randomize board, flip 2 cards, check match, track attempts, end game when all pairs matched

- **Data Storage:** Save total attempts in `game_data.txt`

How to Run

1. Save the C code as `memory_match.c`

2. Open terminal/command prompt in the folder containing the file

Compile the program:

gcc memory_match.c -o memory_match

3.

Run the program:

./memory_match

4.

Data Storage File

The program creates/updates `game_data.txt`.
Example content:

Attempts: 12
Attempts: 15
Attempts: 10

1. Program Menu Screen

====== MEMORY MATCH GAME ======
1. Start Game
2. View Game Records
3. Exit
Enter choice:

2. Start Game Input

Enter first card (row col): 1 2
Enter second card (row col): 0 3

3. Board Output

```
   0 1 2 3
0 | * * * *
1 | * 3 * *
2 | * * * *
3 | * * * *
```

4. After Match

Match found!

```
   0 1 2 3
0 | * * * *
1 | * 3 * 3
2 | * * * *
3 | * * * *
```

This README provides all the instructions and details to run the Memory Match Game.