<center>**Pairs Game - Design Plan**</center>

Game Overview

The Pairs Game is a level-based card-matching game where users advance by correctly identifying matching cards within a set time. The game includes penalties for wrong attempts and exceeding the allotted time while rewarding correct matches with points.

Game Mechanics

- **Base Score:** Players start with a base score of **500 points**.

- **Timer:** Each level has a designated time limit. Once exceeded, a **penalty of -10 points** is applied for every **10 seconds lost**.

- **Matching Rules:**

  - **Levels 1-5:** Match **2 cards**.

  - **Levels 6-10:** Match **3 cards**.

  - **Levels 11-15:** Match **4 cards**.

  - **After Level 15:**

    - Card count increases by **2** per level.

    - The game mode (3-card or 4-card match) depends on the **divisibility of the total number of cards**.

    - If the total number of cards for a level is not divisible by either 3 or 4, an adjustment of ±1 will be applied to ensure divisibility. This ensures the game remains scalable and progresses smoothly without irregular card distributions.

    - Example: Level **16** has **52 cards**, which is divisible by **4**, making it a **4-card match** round. Another example is, at level 25, the initial total card count is calculated as 52 + (25 - 16) * 2 = 70. Since 70 is not divisible by 3 or 4, it is adjusted to 69, which is divisible by 3.

Penalties & Bonuses

Level Range	Wrong Attempt (-)	Right Attempt (+)
Levels 1-5	-10	10
Levels 6-10	-10	15
Levels 11-15	-15	25
Level 16+ (3-match)	-10	15

Level 16+ (4-match)	-15	25

Timer System

Fixed Timer for Levels 1-15:

Level	Time (Seconds)
Level 1	20s
Level 2	30s
Level 3	40s
Level 4	50s
Level 5	60s
Level 6	120s
Level 7	135s
Level 8	150s
Level 9	165s
Level 10	180s
Level 11	190s
Level 12	210s
Level 13	230s
Level 14	250s
Level 15	270s

Dynamic Timer for Levels 16+:

The time is calculated based on the following formula:

(Base Time + (Total Cards * Time per Card)) * Difficulty Factor

Time Calculation Factors:

- **Base Time:**
  - **3-card match:** Total cards * 6
  - **4-card match:** Total cards * 7

- **Time per Card:**
  - **3-card match: 5 seconds per card**
  - **4-card match: 7 seconds per card**

- **Difficulty Factor:**

- 3-card match: 1.0

- 4-card match: 1.5

Game Limitations

- **Not scalable for many users** as the game relies on **session variables** and a **JSON string** to store game data.

- Two users can have the same name. The username uniqueness is not checked for, in the input validation or any other stages of the game.

- Users **cannot replay a level once submitted.** They automatically progress to the next level without the option to go back.

- **During an ongoing game, users cannot pause or restart**. To stop and restart, they must reload the page. However, a replay button is available once the game is completed.

- Once a user logs in, there is no option to log out during the session. The username and avatar are set at login and cannot be modified or changed afterward.

Credits and acknowledgements

- The avatar images used in register.php, located in the /images directory, are sourced from Freepik.