

Aarush, Gautam, Eric, Victoria, Emily, Srideep, Carl, Mark, Nilay,
Travis

Group 14

Statement of purpose

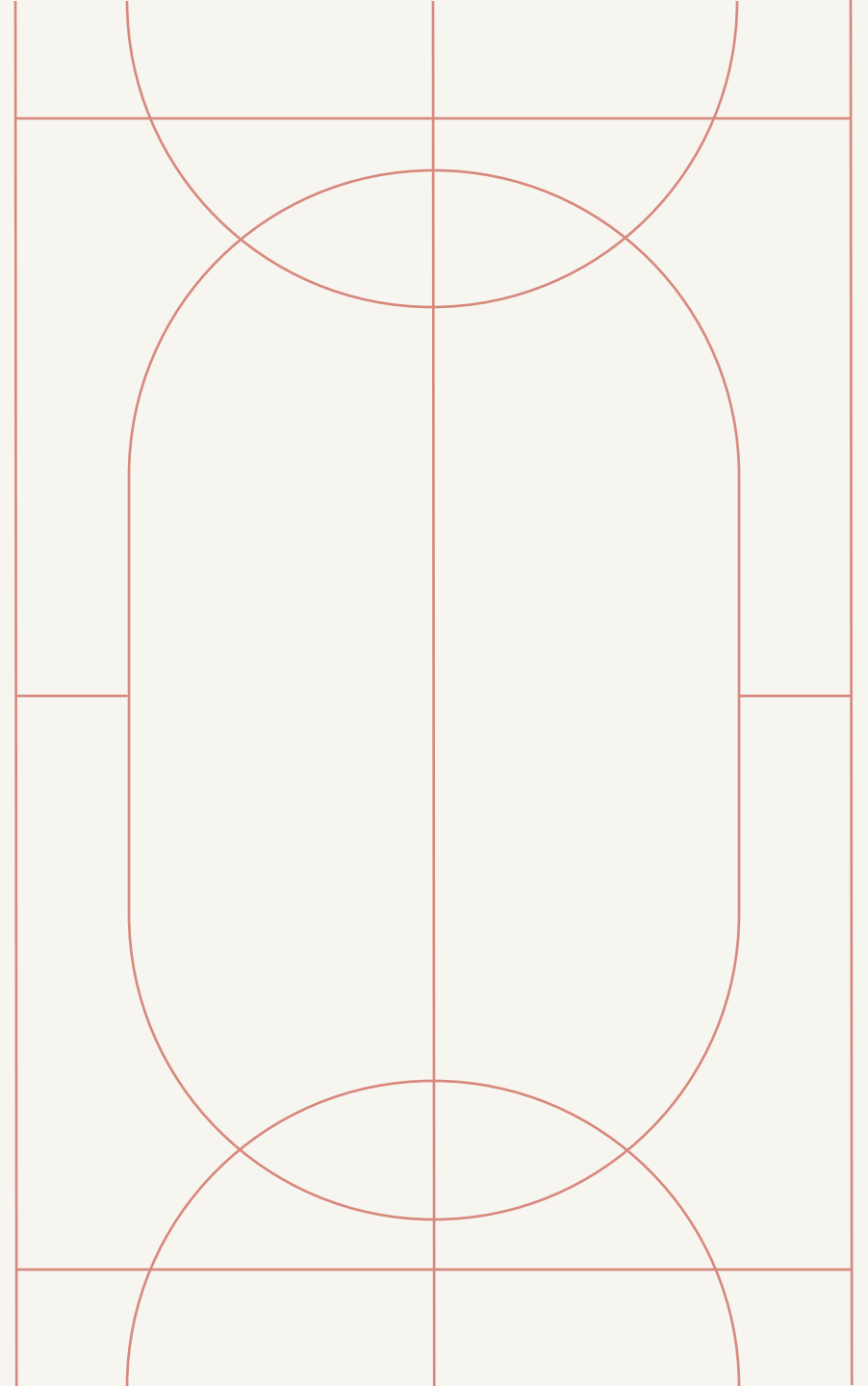
- Create an application that features a collection of games that are both fun and functional
- Design games such as matching card games, sequence memory challenges, and reaction time tests that will not only entertain our users but also provide meaningful benchmarks of human performance
- Our platform will be designed to be accessible for all age groups
- Our platform will be engaging for users with a wide range of interests
- The application will have customization features to allow users to make it the experience they want
- We strive to deliver reliable, smooth gameplay with robust backend logic

Risks and Rabbit Holes



Concurrency

- No one on our team has prior experience in online game development and choosing an idea that will require concurrent sessions and data transfer between users is most likely out of our expertise
- Additionally, this runs the risk of a bad user experience due to our inability to protect against exploits



Solution:

Design the product to be entirely local or turn-based/asynchronous where possible. Focus on single-user or "hot seat" local play. If online features are needed, restrict them to non-critical functions like posting final scores/leaderboard.

Non-local processing

- For UX and feasibility purposes, we want to focus on experiences that can run well locally, and only call home to the server or require server computation/load when needed instead of every time
- This allows the user to have a faster, low latency experience
 - This also reduces hosting costs on our side

Solution:

Architect the game so core gameplay logic happens fully on the client. Use the server only for occasional updates like posting leaderboard scores or syncing game saves. Always prioritize fast, responsive local interactions.

Complicated UI

- We have a talented front end team
- We should try not to get too ambitious with our visuals to the point that our backend logic and application stability falls through
- We should also keep the end user in mind, and consider whether our target audience wants the UI features we are capable of developing or not

Solution:

To work around this issue, the UI/UX team will continue to be consistent with the simple, yet neat designs, just like the Warm-Up activity. We will do research to find existing leaderboard and game designs that are simple but also elevate it to cater our project. By combining our own ideas with inspiration we find through research, we can prioritize enhancing the UI/UX experience and allow for a backend that would not be too complicated to develop.

Scalability obsession



Since our idea is more of a platform of multiple card games, we shouldn't become obsessed with making multitudes of games.



This will spread our focus



It will reduce the depth of technical features we can support



It will also take us away from the main goal of creating a game that is flushed out with all its features.



Quality > Quantity

Solution:

Focus on building 1-2 polished games that feel complete and fun. Build the platform with future extensibility in mind but defer adding new games until the core experience is fully stable and enjoyable.

Leaderboards

- One of the features that our group is excited to learn about and work on is leaderboards
- We should keep our expectations realistic.
- None of us have experience in doing this, so there is a high time/effort risk
- We must remember that while simple leaderboards help support the game, complicated leaderboards only add a minimal amount to the user experience

Solution:

Implement a simple leaderboard first (just top 10 scores with basic player names and scores) using server-side storage. Expand features (filters, history, rankings) only if time allows and user need is clear.

A row of white wooden figures, resembling pawns, is arranged on a dark surface. A single red wooden figure stands out in the center. A thin red arch is drawn over the figures, and a thin red crosshair is visible. The background is a light blue gradient.

User personas



Johnny Crawford

🌟 Demographics

- 🚀 **Age:** 60 years old
- 🚀 **Ethnicity:** American
- 🚀 **Hometown:** Los Angeles, CA
- 🚀 **Current City:** Los Angeles, CA
- 🚀 **Family:** Married father of two, grandfather of 4 grandchildren
- 🚀 **Occupation:** Retired

"I want to find ways to easily exercise my memory before it declines even more."

📌 Goals

- Sharpen memory due to age
- Exercise mind to prevent brain fog and memory loss

😡 Frustrations

- Declining memory makes him worry he will not be able to remember details about his family, especially his grandchildren
- Finds existing applications too complicated or too flashy

🎉 Brief Story

After recently welcoming his second grandchild, Johnny found himself babysitting both of his grandchildren often while their parents were working. He does not mind, however, since he is extremely family-oriented and loves his grandchildren. Unfortunately, Johnny found himself forgetting certain details and tasks pertaining to his grandchildren, such as forgetting to bring his oldest grandchild's school lunch. He worries his memory is declining and seeks tasks to sharpen his memory.



**Mina
Chen**

✨ **Demographics**

- 🚀 **Age:** 12 years old
- 🚀 **Ethnicity:** Chinese
- 🚀 **Hometown:** Shanghai, China
- 🚀 **Current City:** San Diego, California
- 🚀 **Family:** Single child
- 🚀 **Occupation:** Elementary Student

“ I want to play pretty card games to pass time when I am not doing homework!”

📌 **Goals**

- Play a fun and pretty game to pass time
- Exercise her memory

😡 **Frustrations**

- Her low attention span makes her feel that recent games often take too long to play
- Does not want to mindlessly scroll on social media

🎉 **Brief Story**

Mina is a hardworking student but often gets scolded by her parents for mindlessly scrolling on Tik-Tok and Instagram Reels. Being Generation Alpha, her attention span is quite short and she does not enjoy lengthy games. She wants to find something to do on her phone other than doom-scrolling or playing those existing games that she finds boring or lengthy.



David
Martinez

🌟 Demographics

🚀 **Age:** 9 years old

🚀 **Ethnicity:** Hispanic

🚀 **Hometown:** Durango, Mexico

🚀 **Current City:** San Diego, California

🚀 **Family:** Has older brother

🚀 **Occupation:** Elementary Student

“ I want to play games in class and beat my friends”

📌 Goals

- Play a fun game
- Be able to compare results with friends

😡 Frustrations

- Other games are blocked by the school
- Does not like boring games

🎉 Brief Story

David does not enjoy doing his school work and would rather be playing games when the opportunity presents itself. He likes to play games that are fun and competitive so that he can compete with his friends.



Cindy
Carson

✨ Demographics

- 🚀 **Age:** 23 years old
- 🚀 **Ethnicity:** American
- 🚀 **Hometown:** Chicago, IL
- 🚀 **Current City:** Atlanta, GA
- 🚀 **Family:** Single recent graduate
- 🚀 **Occupation:** Early career

"I want to stay mentally fit and connect with other people"

📌 Goals

- Keep mental skills intact after graduation
- Have a fun but engaging way to relax

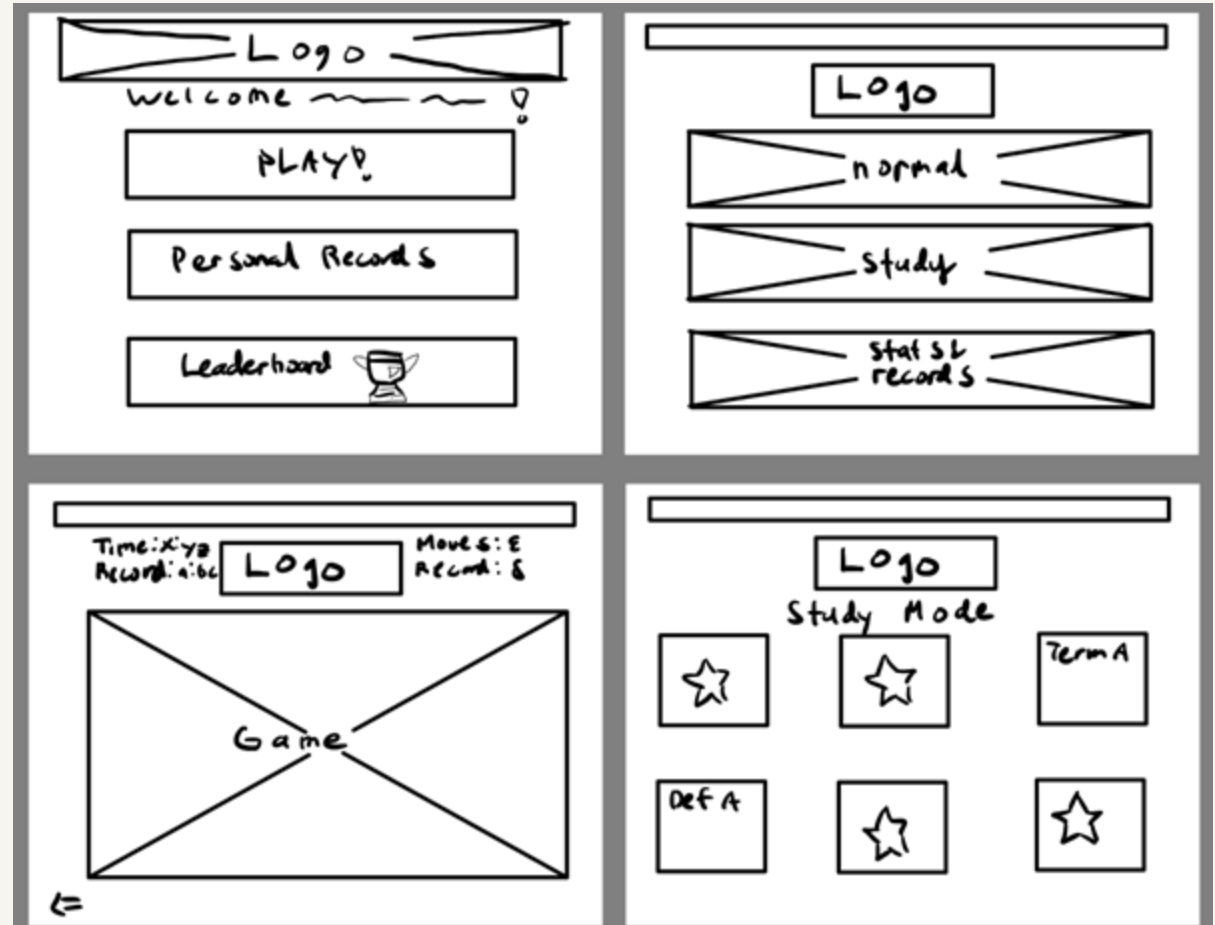
😡 Frustrations

- Would appreciate social features to stay connected with people now that she doesn't live on campus anymore
- A mobile layout would be the easiest to use or chill with, instead of a desktop layout

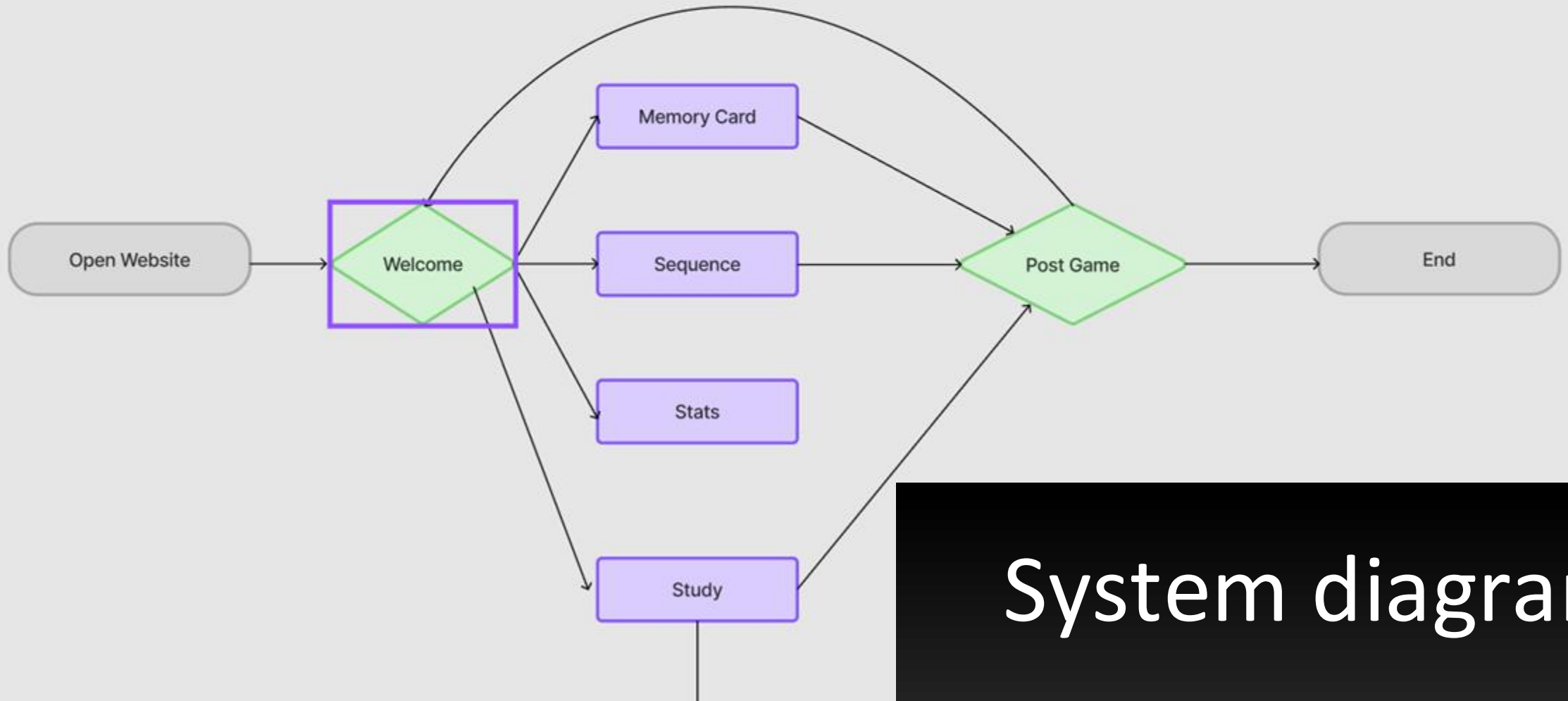
🎉 Brief Story

Cindy is a recent college graduate who started her first job. She is looking for this game as a way to keep her brain active after graduation and keep her mental skills intact as she progresses through her career. She appreciates a light mode, approachable and friendly design so that she can relax in her downtime and treat this as a partial form of entertainment.

Wireframes

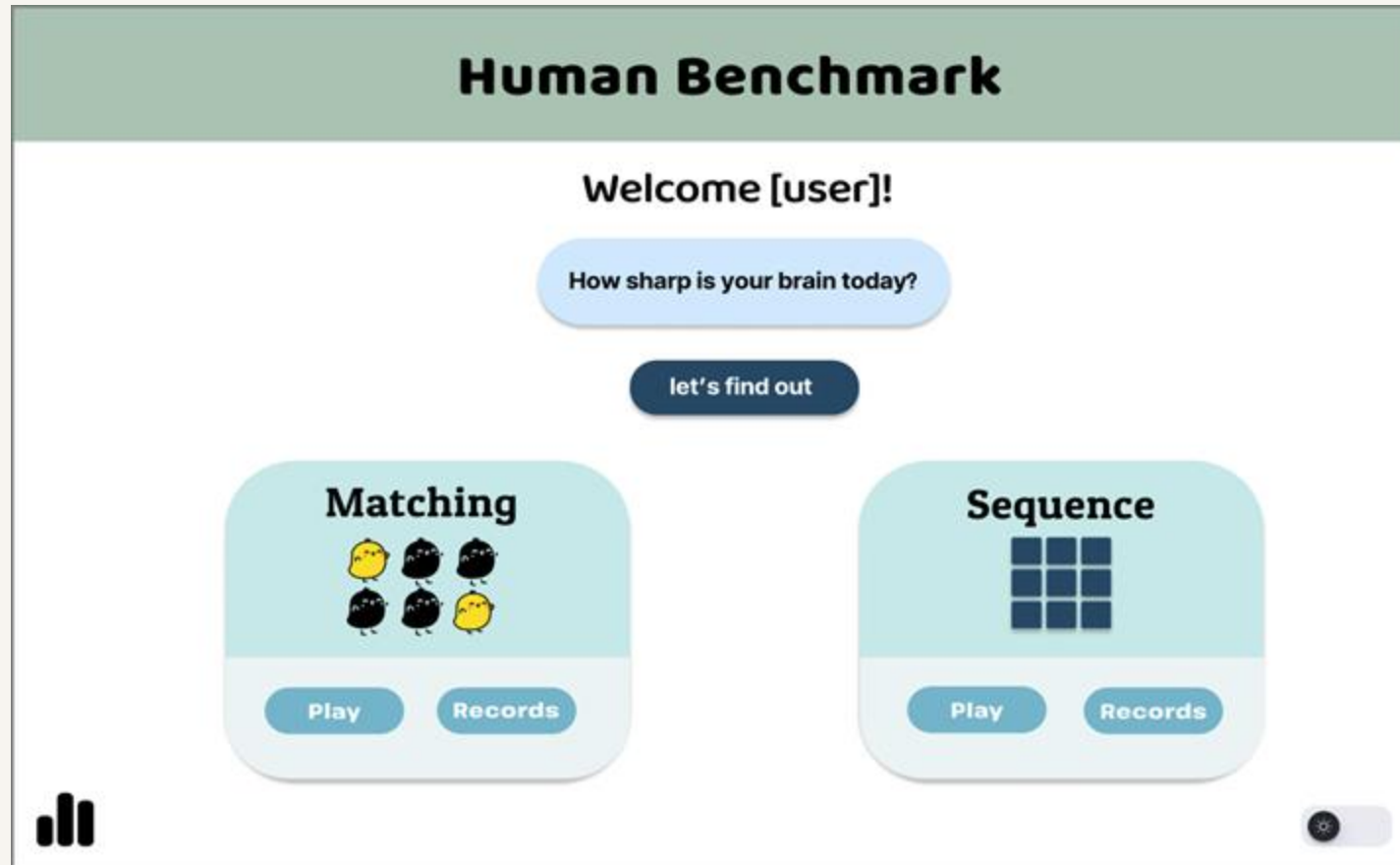


Legend

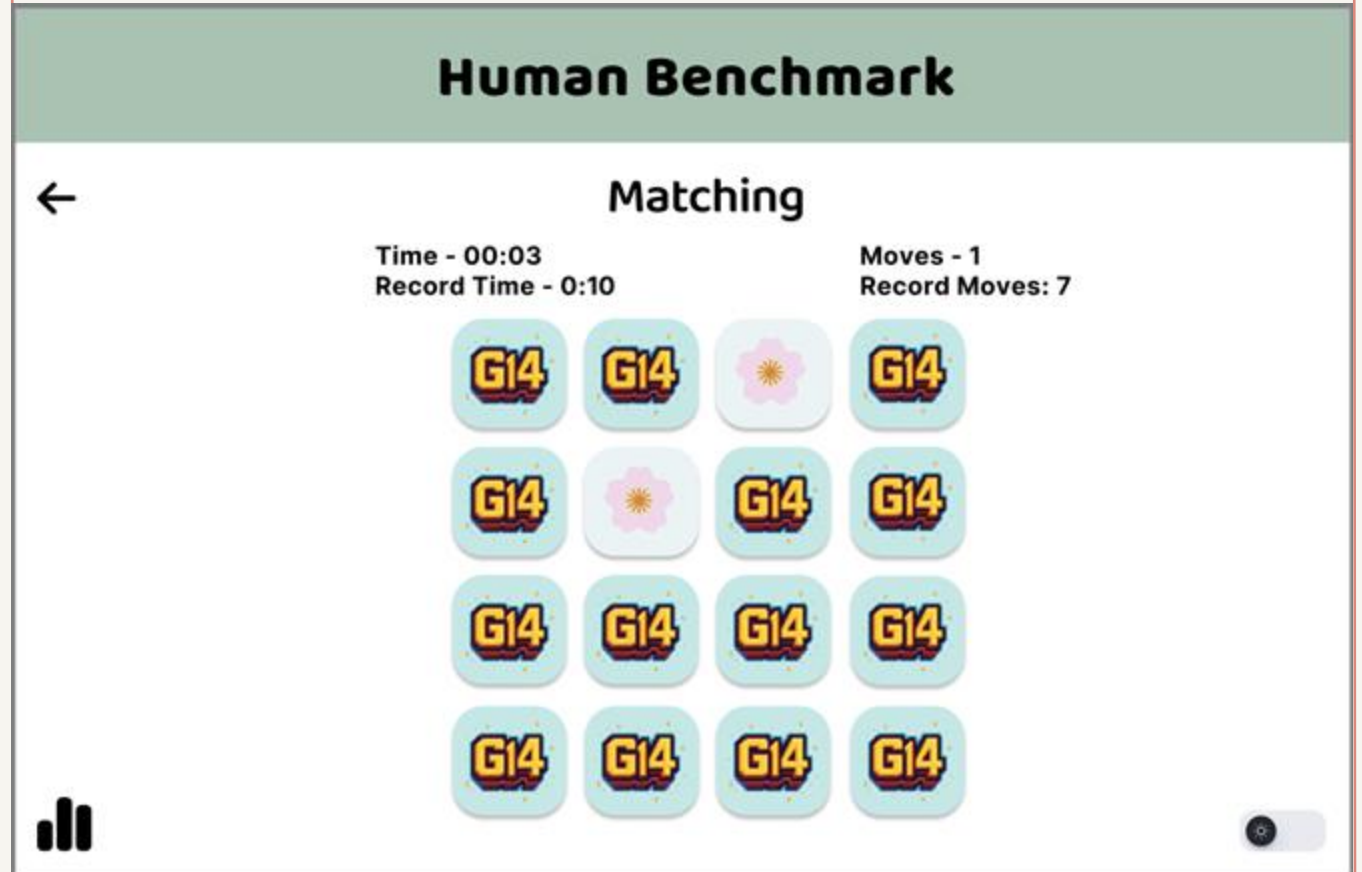


System diagram

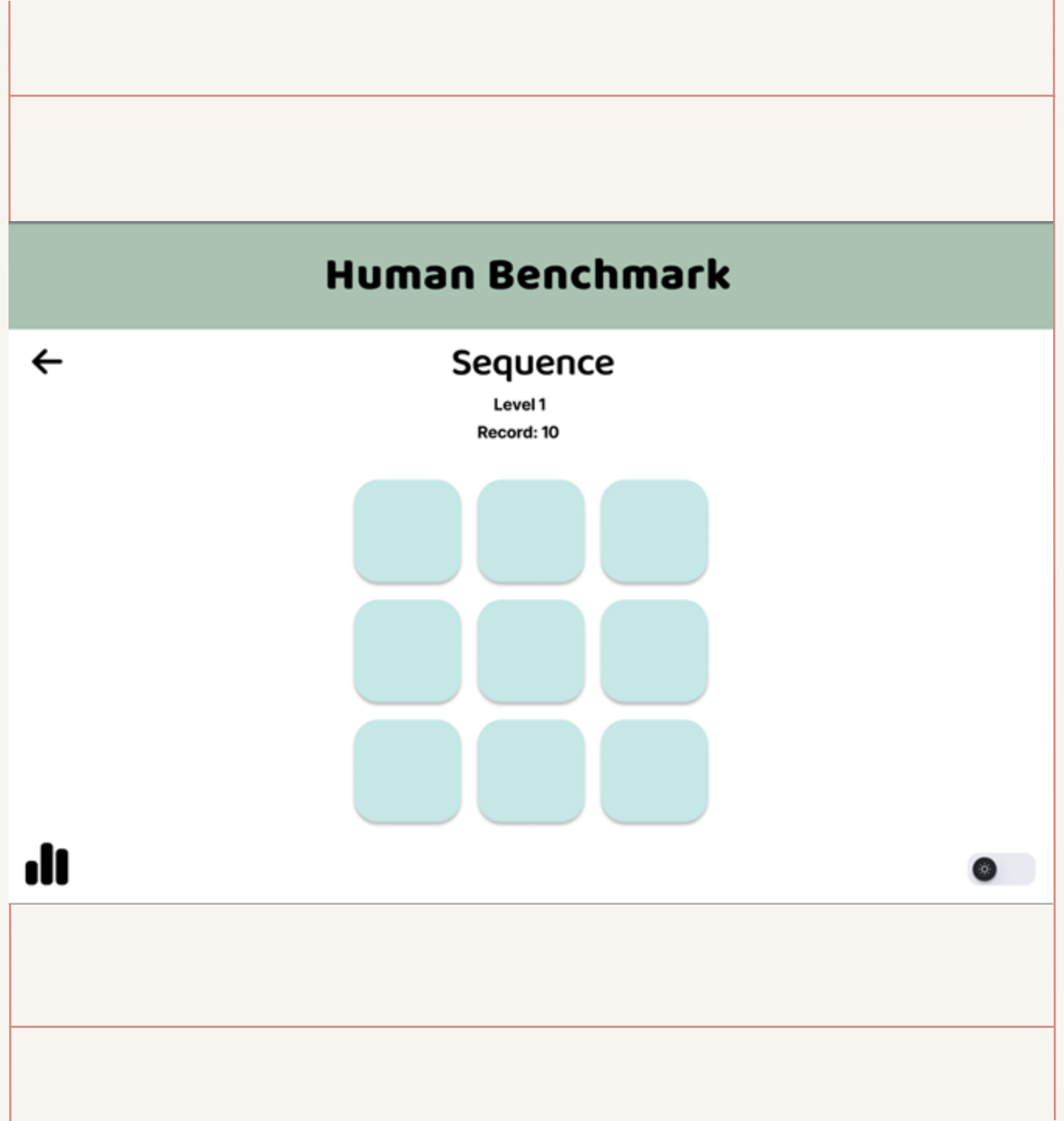
Visual Mock-Up: Homepage



Matching Game and features



Visual Mock-Ups: Sequence memory game



Project roadmap

In Depth Planning and Research Phase (2 - 3 days)

- Select Key Game that we want to implement (Matching Cards Game)
- Research Base Tech Stack for similar games/sites
- Set an MVP
 - Homepage + 1 mini game + records tracking + local leaderboard
- Thorough Front-End leaning into team strengths

Start Developing MVP (1 week)

- Implement Finalized Design of Homepage shown previously
- Focus on page navigation and ease of use
- Develop our Key Game
- Add localized leaderboard once game logic is working

Scale Up # of games once MVP is fully flushed out (2 weeks)

- Sequence Memory Game
- Reaction Time Game
- Joint leaderboard

Conduct Thorough testing from User Personas' perspective (2 days)

Beautify UI and overall Frontend (1 week)

- Start implementing extra features like the customization of cards/themes and dark mode
- Add intricate animations

Overall Testing (remaining time)