

## 1. **Desired Needs**

- a. The program should be able to overload any player cognitively and should be nearly impossible to win in single-player mode.
- b. Have multiplayer functionality that is activated by verbal requests to teammates.

## 2. **Constraints**

- a. Cost: Making a free game limits server usage and does not allow for LLM API calls.
- b. Physicality: Web applications limit physical interaction with the device.
- c. Manufacturability: Must be functional on multiple operating systems.
- d. Marketability: Do not constrain tasks to surgical tasks only.
- e. Safety: If user data is stored, it must be protected.

## 3. List the major **Engineering Standards** on your design/project

- a. IEC 62304: software development life cycle requirements for medical device software.
- b. IEC 62366-1: usability engineering for medical devices.
- c. ISO 9241-210: human-centered design for interactive systems.

## 4. **Ethical, Environmental, and Societal concerns**

- a. Ethical: A web application built to induce stress could be harmful for players who are highly susceptible to stress or anxiety.
- b. Environmental: Incorporation of LLMs in future game iterations would have negative environmental impacts due to the energy usage from LLMs.
- c. Societal: Competitive teams may have the inverse of the desired effect due to personal competitiveness.

## 5. **Active Teamwork and Leadership**

- a. We sought out opinions from each other and others outside of the group, such as a former CIO of Henry Mayo Hospital, for project insights.
- b. Delegated tasks based on teammate strengths, for example, I focused more on back-end programming and my partner focused more on front-end development.
- c. We clearly defined goals and micro-deadlines for the project to stay on schedule.
- d. We often critiqued and tested each other's work to perfect our product.

## 6. **Motivating Factors: New Knowledge, Self-Initiating, and Persistence**

- a. Viewing the web application from the user's perspective led to the incorporation of multiple features, such as a home button, that were not originally in the defined "needs" of the project.
- b. Knowing the project could have a positive impact on patient outcomes made me excited to continue progressing it.
- c. The sense of duty to contribute to better medical practices and patient outcomes kept me motivated and persistent during major roadblocks.