Tug of Words

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Problem Statement:

Drawing inspiration from IO games, like Slither.io and Agar.io, we plan to create a server-room based game centered around team-based typing races. Our application will allow a user to create a gaming ID, unique to all others using the game at a given point in time, and allow them to join a random team in a game room. Once joined, the user will be prompted with a random word to type; depending on how fast the user completes the word in comparison to the opposing team, a “rope” will move back and forth in a simulated tug of war. The first team to pull the rope a certain simulated distance wins, and the game terminates. Some other features accompanying Tug of Words will be the ability to create private rooms for play with close friends, hot bonuses for typing words correctly and consecutively, and live user score updates.

Background Information:

This project is inspired by IO games, mainly because of their nature; IO games are easy to pick up. There are no extra screens, no authentication or sign up processes, and no tutorials; you simply type a nickname and start playing. The rules are figured out as you go. Another attractive quality of these games is that you play with a large group of people, who are essentially on the same playing field as everyone else. An expert can be taken out by a new player at any given time. We also drew inspiration for Tug of Words from the popular game called Type Racer. From what we know currently, there is no hybrid version of an IO game and a type racing game on the market or available on the internet for free. We plan to fill this gap in the online gaming market (specifically targeted at users who traditionally aren’t avid video game players).

Following the general format of io games, you aren’t able to pause and restart a Tug of War game session. We don’t require an email address or password to sign up, and we use a similar game flow format. We deviate from traditional games by adding features, specifically private room options, and by establishing a specific game goal and end point.

The members of our team are all fans of famous IO games, such as Slither.IO and Agar.IO. We found them fun and relaxing to play during our small bits of down time last semester. Building games like these, that stimulate thought and skills (specifically typing skills) fulfill a demand for recreational tools on the internet.

Environment and Tech Stack:

Our game will be built in ReactJS. The backend for the app, including serving static html/js files to the user and handling live gameplay via Websockets, will be built in NodeJS which will be deployed to Heroku.

Requirements:

Functional Requirements:

Id	Functional Requirements	Status
1	As a user, I would like to create a private room	Completed in sprint 1
2	As a user, I would like to join a random public room	In progress; moved to sprint 2
3	As a user, I would like to join a private room	Completed in sprint 1
4	As a user, I would like to automatically be assigned to a team in a public room	Incomplete: moved to sprint 2
5	As a user, I would like to earn points for my team for correctly typing a word	Completed in sprint 1
6	As a user, I would like to see my individual points change as I play the game.	In progress; moved to sprint 2
7	As a user, I would like to see my individual points and teams points total after I complete a game.	Planned for sprint 2
8	As a user, I would like to see statistics on my typing speed in a given gamen (Correct words typed per minute).	Planned for sprint 2
9	As a user, I would like to see my opponents lose points for typing a word incorrectly.	Planned for sprint 2
10	As a user, I would like to pick which team to join in a private room.	Completed in sprint 1
11	As a user, I would like to share a link to my private room with friends.	Incomplete: moved to sprint 2

12	As a user, I would like to be identified with a game tag within my room (no account creation)	Completed in sprint 1
13	As a user, I would like to be on teams that may not be equal in size in a private game.	Completed in sprint 1
14	As a user, I would like the game to start automatically after at least two people have joined a room.	Planned for sprint 2
15	As a user, I would like to see the “rope” move towards my team’s side when we are winning.	Planned for sprint 2
16	As a user, I would like to see the rope move towards my opponent when I make typing mistakes.	Planned for sprint 2
17	As a user, I would like the words generated by the game to be sufficiently random.	Completed in sprint 1
18	As a user, I would like to get “hot bonuses” when I have a streak of correctly typed words.	Planned for sprint 2
19	As a user, I would like to access Tug of Words via a public URL.	Planned for sprint 2
20	As a user, I would like to see the correctly typed words of my team displayed on the enemies’ screen.	Planned for sprint 2
21	As a user, I would like to be on teams of relatively equal sizes when playing in a public room	Incomplete: moved to sprint 2

Nonfunctional Requirements:

Security:

Since anyone is allowed to join, there should be a way throttle the amount of users allowed to enter without overloading our servers.

Scalability:

The application should not crash if a large number of users join. The game should be scalable to host a large number of different public/private rooms. The game should be able to effectively sift large influxes of users into a sufficient number of rooms.

Reliability:

Game play should also not lag due to a large number of users at any given time. The reliability of the game is based upon the scalability of the website as well, and should be considered at all points of development.

Website Recovery:
In the event of a crash, a user should be able to reload the website and join another game, even if the first game did not successfully finish. In the event of a website crash, all users affected should be notified of the error before being redirected into another game session.

Use Cases:

1. **Case:** Create a private game room

Action	**System Response**
1. Click create room.	2. Goes to create room page
3. Enter room name.	5. Room name gets registered into current room
4. Click create.	6. Loads lobby of that specific room.

2. **Case:** Join a public game room

Action	**System Response**
1. Enter Username	2. Loads lobby of a random public room.
3. Click “Play Now”	4. Game starts.

3. **Case:** Join a private game room

Action	**System Response**
1. Use shareable link	2. Loads lobby of that specific game room
3. Enter Username	4. Registers username into current temp user.

4. **Case:** Automatically be assigned to a team in a public room.

Action	**System Response**
1. When in lobby, click auto join.	2. Puts you on a team based on the sizes of the teams already in the game room.

5. **Case:** Earn points when typing a word correctly

Action	**System Response**
1. Type a word correctly	2. Earn a fair amount of points for the word

6. **Case:** See individual point contributions in-game

Action	**System Response**
1. Join a game	3. Individual point contributions to the team are updated dynamically as the game progresses.
2. Begin the game	
4. Complete the game	

7. **Case:** See individual point contributions post-game

Action	**System Response**
1. Join a game	
2. Successfully complete the game	
	3. System will display the total point contributions that the user made during that game

8. **Case:** Check user typing speed statistics after a game

Action	**System Response**
1. Finish game	2. Automatically view typing speed statistics

9. **Case:** Lose points when typing a word incorrectly

Action	**System Response**
1.Type word incorrectly	2. Lose points

10. **Case:** Pick a team when joining a private room.

Action	**System Response**
1.Visit room	2. Respond with option to pick team
3. Pick Team 1 or 2	4. Add user to selected team for the duration of the game session.

11. Case: Share a link to my private room with friends

Action	**System Response**
1. Create a private room	2. Go to private lobby with shareable link
3. Send shareable link to friends.	

12. As a user, I would like to be identified with a game tag within my room (no account creation)

Action	**System Response**
1. Visit website URL.	2. Prompt user for tag.
3. Input user tag of any kind.	4. Set user id for game session.

13. Case: As a user, I would like to be on teams that may not be equal in size.

Action	**System Response**
1. Join a private game	2. Go to private lobby
3. Pick a team	4. User gets placed into team of their choice.

14. Case: As a user, I would like the game to start automatically after at least two people have joined a room

Action	**System Response**
1. Join a game	2. Check if there are at least 2 member of game.

3. Set timer for game to begin once two members join

15. Case: As a user, I would like to see the “rope” move towards my team’s side when we are winning.

Action	**System Response**
1. Type a word correctly	2. Score increases
	3. Rope moves away from opponent

16. Case: As a user, I would like to see the rope move towards my opponent when I make typing mistakes.

Action	**System Response**
1. Type a word incorrectly	2. Score decrease
	3. Rope moves towards opponent

17. Case: As a user, I would like the words generated by the game to be sufficiently random.

Action	**System Response**
1. Enter a game	2. Prompt user with a word
3. Type word correctly	4. Prompt user with another word
5. Type word (in)correctly	6. Prompt user with another random word

Continue…

18. Case: As a user, I would like to get “hot bonuses” when I have a streak of correctly typed words.

Action	**System Response**
1. User types bonus word correctly	2.User score goes up, and rope gets a boost away from opponent

19. Case: As a user, I would like to access Tug of Words via a public URL.

Action	**System Response**
1. User types in our url into the browser	2. Our webapp is returned and viewable

20. Case: As a user, I would like to see the correctly typed words of my team displayed on the enemies’ screen.

Action	**System Response**
1. Type a word correctly	2. Displays the correctly typed word on the enemy team’s display

21. Case: As a user, I would like to see equal teams in a public room

Action	**System Response**
1. Join a public room	2. Go to public lobby 4. System places user into team automatically in order to keep teams of equal size.