



Instruction Manual - Team 5

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Introduction

Welcome to Battletracks. Put your traditional battleship skills to the test, with a boiler spin on it. Choosing either single player or multiplayer, face our easy and difficult AI or other live opponents. Play the tracks and climb the ranks. This is Battletracks.

Getting Started

Battletracks can be played on any internet enabled device which can access a web browser. You will need a google email in order to be able to create a log in.

U - Up

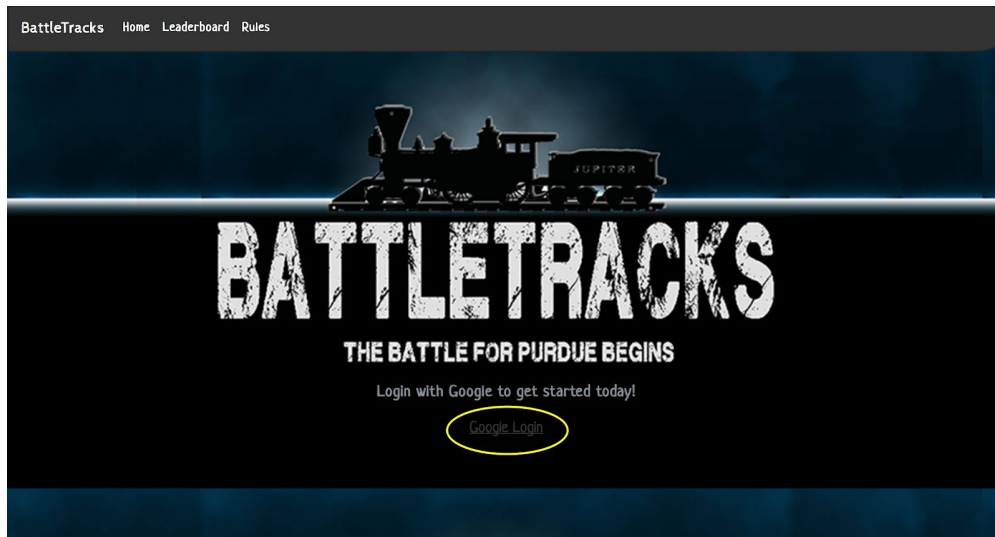
D - Down

L - Left

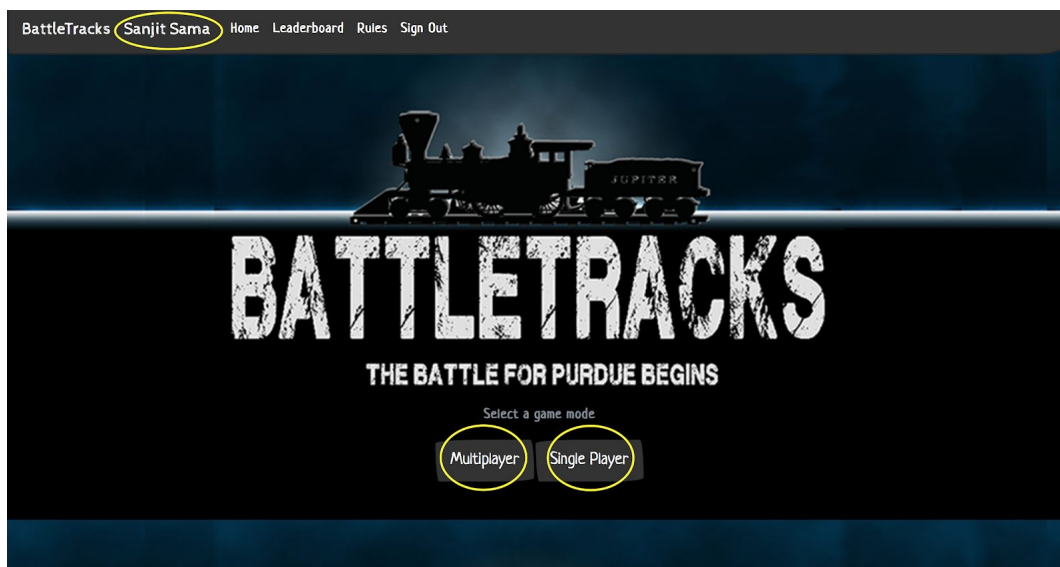
R - Right

Instructions - Basics

1. Please go to the following url: boilergames.com:9006
2. You will then be greeted with the following Home Page. Please click the "Sign In" button to get started.
3. After you have successfully logged in, notice that your name will appear on the top left hand corner. Also, notice how that two options have appeared for game mode: "Multiplayer" and "Single Player".



Before we choose a game board we will familiarize you with the rest of the website.



4. **Leaderboards:** The live leaderboard will update based on your **Total Wins - Total Losses**. It will be populated with the Top 100 Players. There will be fewer players on the board if fewer than 100 players have played any multiplayer matches.

BattleTracks	Sanjit Sama	Home	Leaderboard	Rules	Sign Out
Top 100 Players					
#	Username	Wins	Losses	Win Rate	
1	David Wood	1	0	100%	
2	Ayush Patel (ayushspark11)	2	2	50%	
3	Eric Vondrak	1	2	33%	

5. **Rules:** The Rules page will greet you with the formal rules to play the game. Please take a few minutes to brief yourself with the instructions.

GAME RULES

Game Objective

The object of Battletracks is to try and destroy all of the other player's trains before they destroy all of your trains. All of the other player's trains are somewhere on his/her board. You try and hit them by entering the coordinates of one of the squares on the board or clicking it. The other player also tries to hit your trains by selecting coordinates. Neither you nor the other player can see the other's board so you must try to guess where they are. The board on the left side is your board, and the board on the right is the opponent's board.

Starting a New Game

Each player places the 5 trains somewhere on their board. The trains can only be placed vertically or horizontally. Diagonal placement is not allowed. No part of a train may hang off the edge of the board. trains may not overlap each other. No trains may be placed on another train.

Once a train is placed, the players may not move the trains.

The 5 trains are: Electric-Train (occupies 5 spaces), Diesel-Engine (4), Coal-Hauler (3), Caboose (3), and Steam-Locomotive (2).

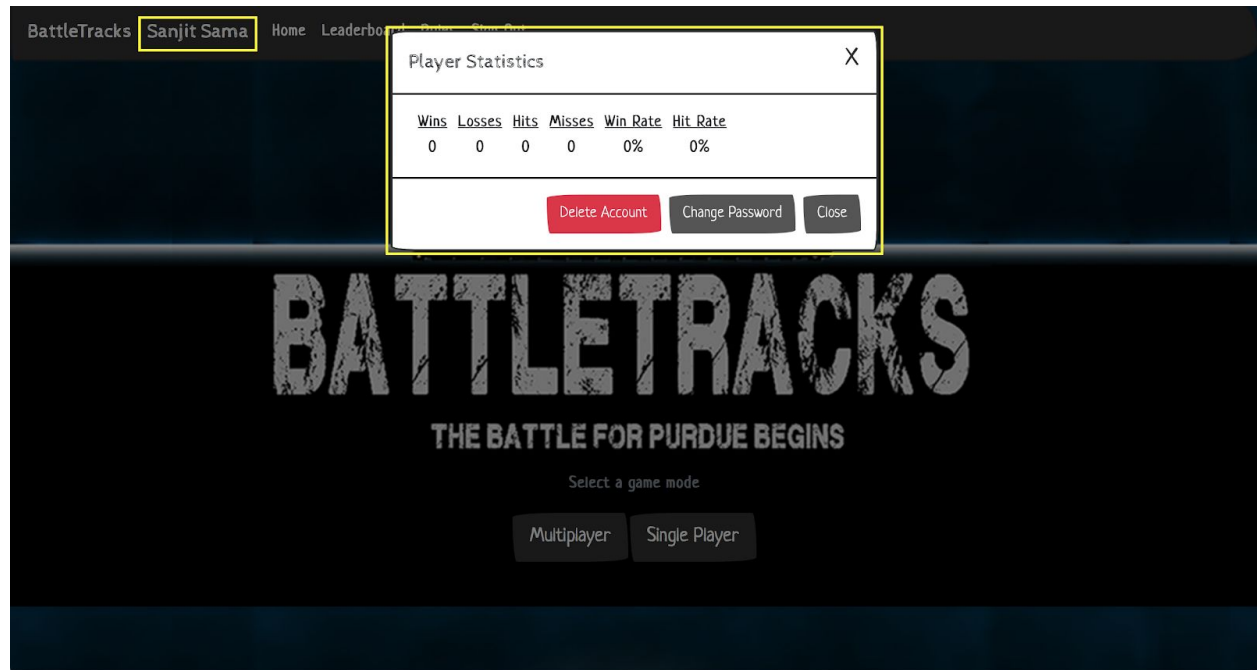
Playing the Game

Player's take turns guessing by selecting coordinates. The opponent or the UI responds with "hit" or "miss" as appropriate. The board will be marked accordingly for both players: explosion for hit, broken tracks for miss.

When all of the squares that one your trains occupies have been hit, the train will be destroyed. The player who destroyed it will be notified that a train has been destroyed.

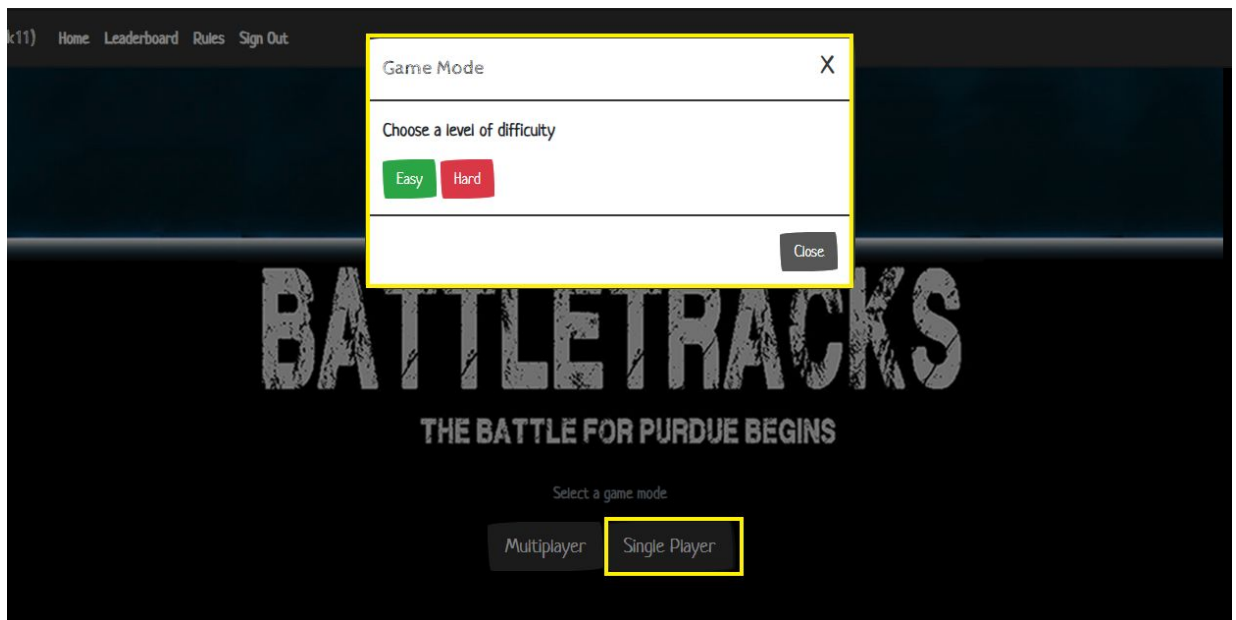
As soon as all of one player's trains have been destroyed, the game ends.

6. **Player Statistics:** Once you click on your profile name you will notice that a new modal pops up. Here you can that your personal statistics will appear. Here you can also delete your account and change your password. Deleting your account will only remove your data from our server and database, not Google's. Since we are using Google accounts, attempting to change your password will take you to your google profile to change your password there instead. Beside the player name in the navigation bar are the home and "Battletracks" buttons. These buttons should both take you back to the homepage.

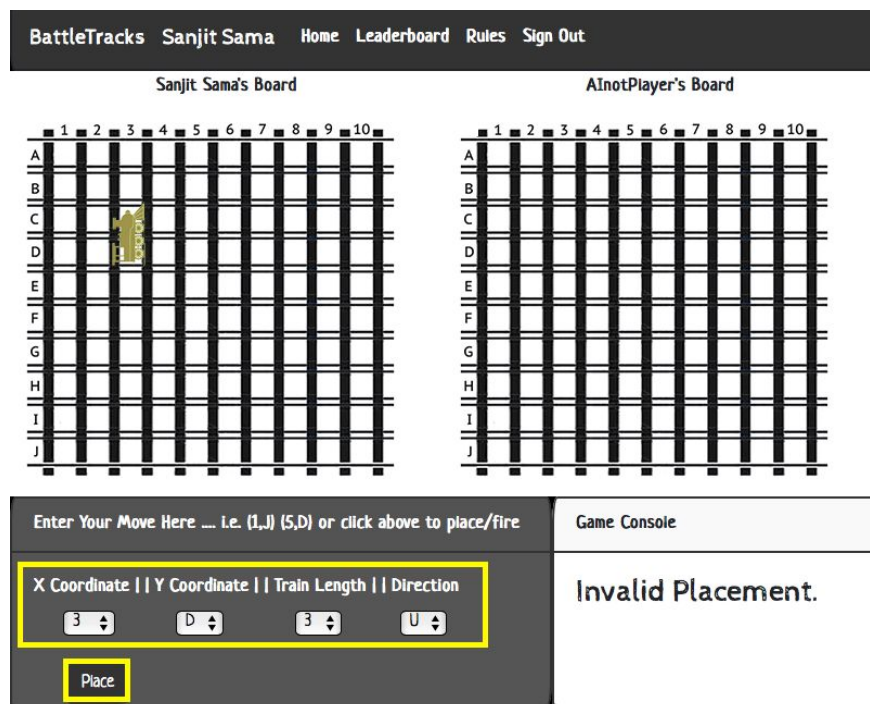


Instructions - Single Player

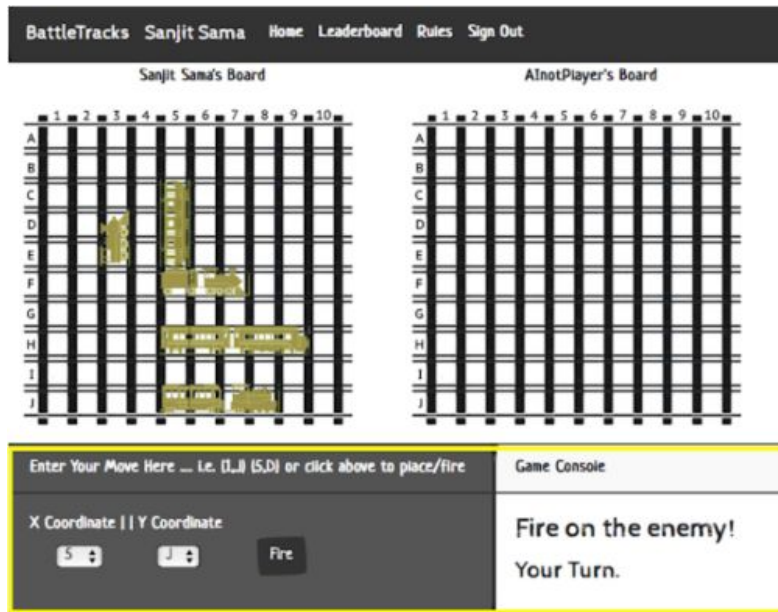
1. **Single Player:** Once you click on single player you will be greeted with either "Easy" or "Hard" option for difficulty.



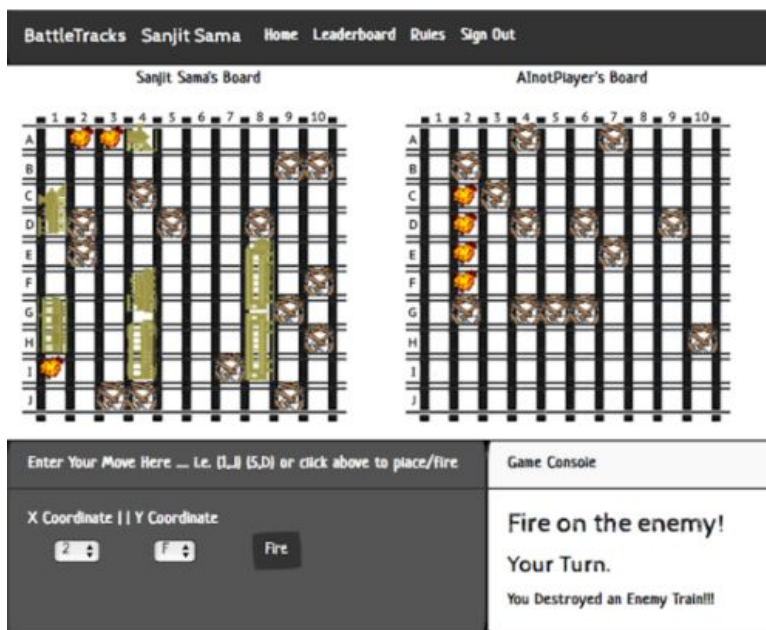
2. You will then be taken to the game page. You must first begin by populating your board with trains. To do so, please choose the appropriate x,y coordinates, the length of your train, and finally the direction. Once you have chosen the desired inputs please click place for the train to be placed on your board. There are five trains of varying length that you must place: 2,3,3,4,5.



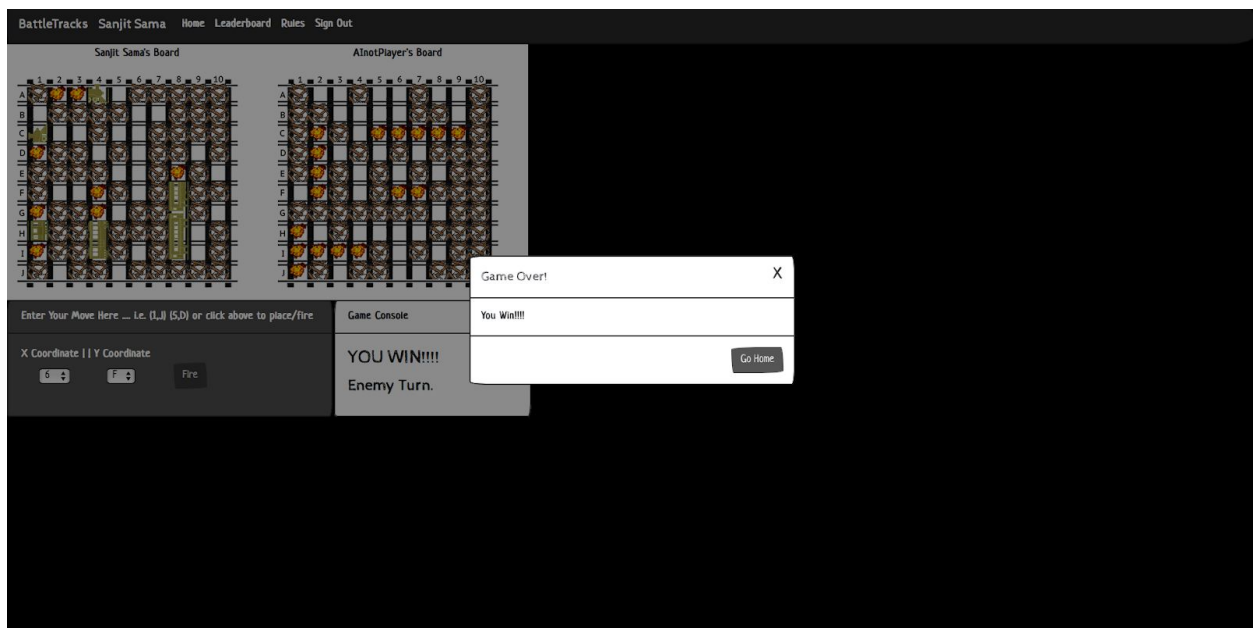
3. Once all the trains have been placed you will notice the Game Console change. The Game Console will indicate when it is your turn, as well as whether you've made an invalid attack. In the event of an invalid attack, you will be allowed to pick another location. To fire, you may click on the opponent's board on the square that you would like to target. Alternatively you may input an X and Y coordinate then click "Fire".



4. Notice that when an enemy train is hit you will see a small image of a blast which indicates that your move was a successful hit. Otherwise, the other symbol, resembling a broken set of train tracks, represents a "miss" on the game board.



5. Finally, if you successfully win or lose the game, you will be greeted with a “you win” or “you lose” modal. This will also update your personal statistics. This modal should also appear in the event that your opponent disconnected in the middle of your game if you were playing multiplayer. If both players have already joined the match, then the player who leaves will be awarded a loss, and the remaining player will be declared the winner. This will also affect the stats of the players involved. You can view the changed statistics by clicking on your name once you leave the game page. Clicking the Go Home button should return you to the home screen.

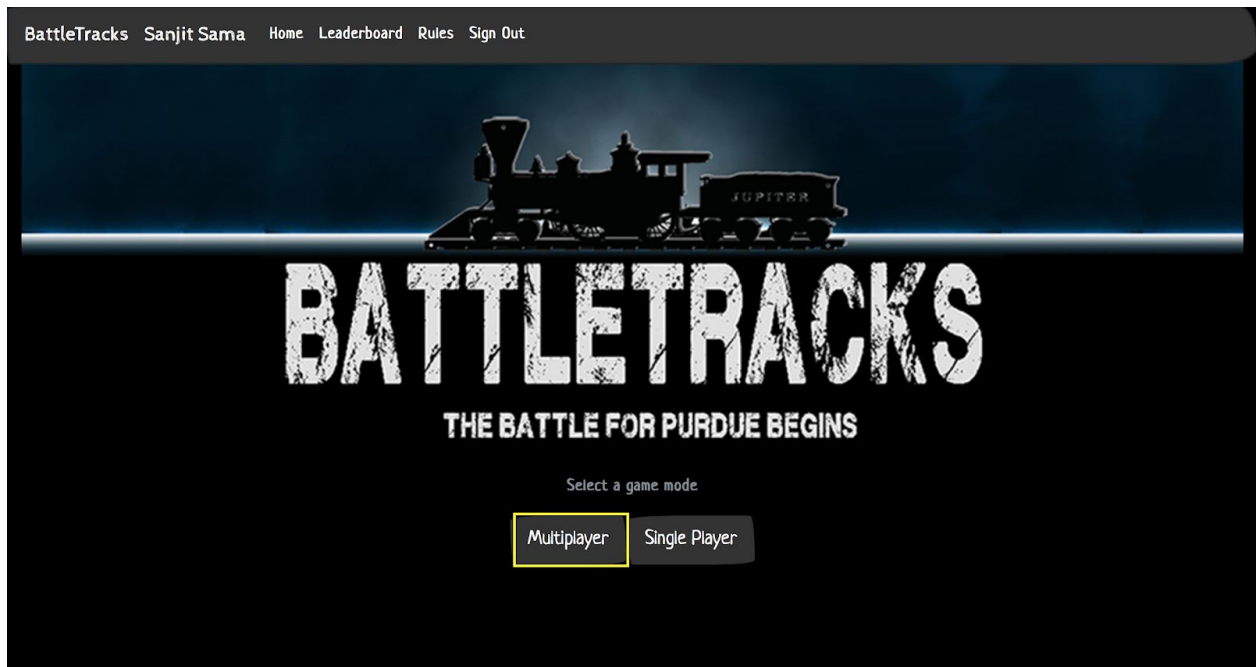


Easy Vs. Hard

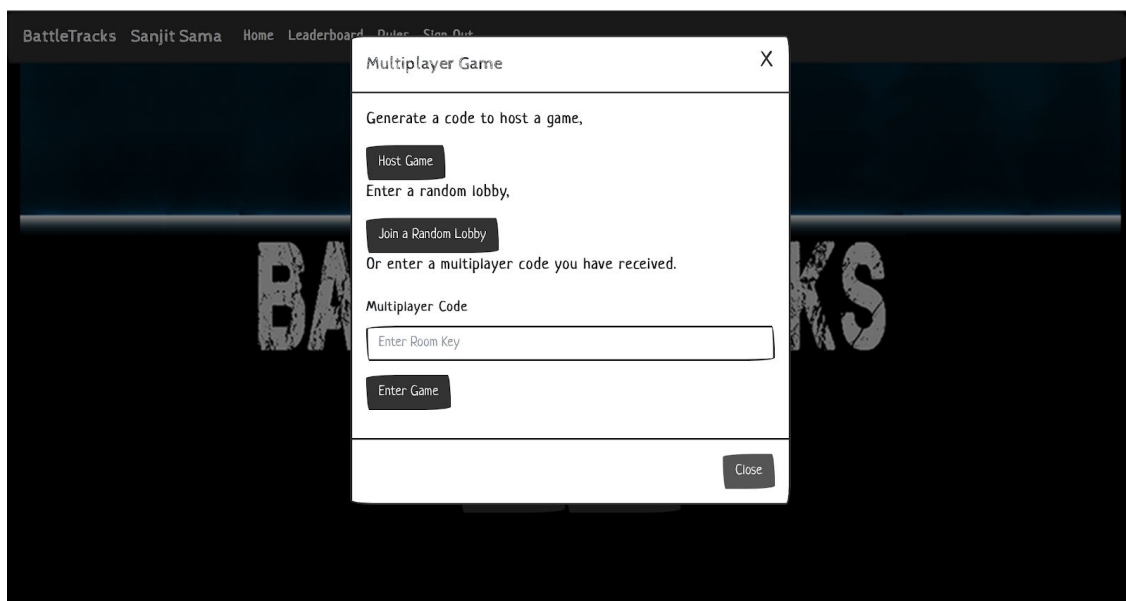
For placing, both the Easy and Hard AI randomly place their trains in an empty map so that every train fits without issue. When it is ready to fire, the Easy AI's algorithm selects an X and Y at random and attempts to fire there. If the shot is invalid, it fires again until a valid shot is fired. This is the sum of the Easy AI's decisions. The Hard AI differs from the Easy AI in that after it hits a train, it will shoot around the train in an attempt to destroy the entire train. Once every square around the hit train squares have been fired upon, the Hard AI will resume firing randomly.

Instructions - Multiplayer

1. If you would like to play Multiplayer, please select the multiplayer button on the homepage when you first arrive at the website.

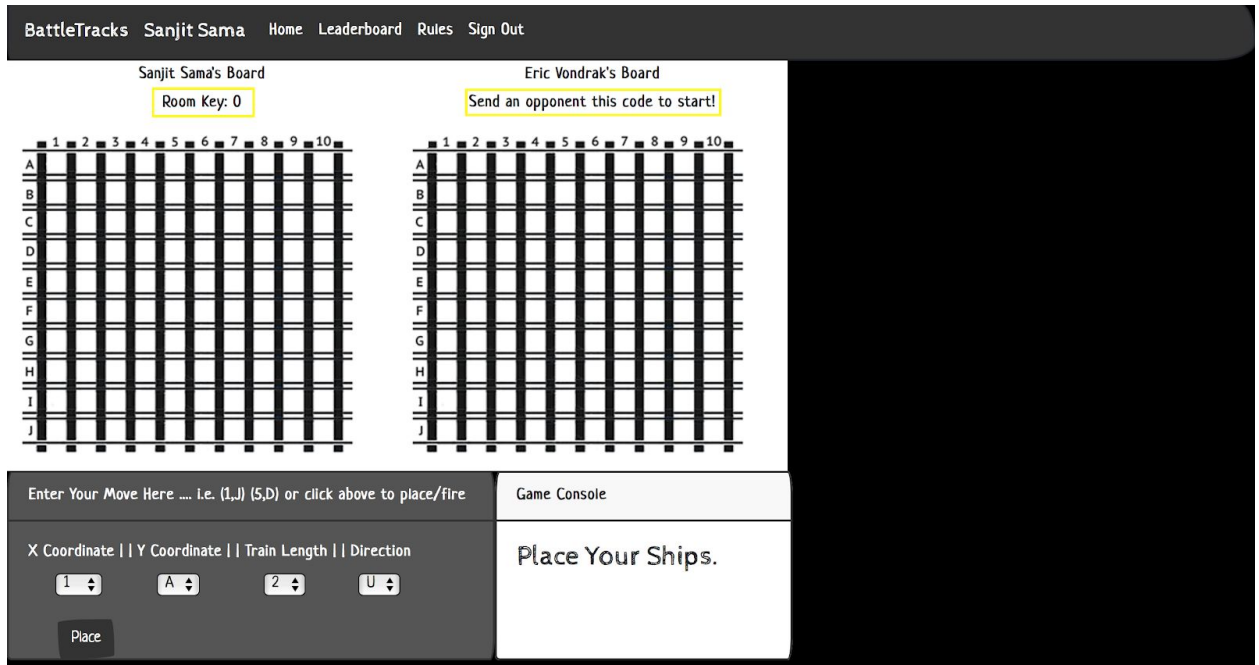


2. You will be greeted with a modal which allows you to either join or host a game. You can choose to host a game, which will be further explained below. You may also join a random lobby which will allow you to play other players who have chosen this option. Finally you can choose to join a game by putting in a Room Key given to you by a person hosting a game.



These links go to /host, /random, and /join?key=ROOMKEY respectively.

3. Below is the multiplayer game mode. If you are hosting a game, the room key will be shown in the highlighted space below. Give this key to a friend and have them input the key in the multiplayer modal, and you two can now face each other in combat! Note that you may leave a multiplayer game without penalty if no opponent has joined your game. Once a game has two players, there will be a penalty for leaving.



4. Multiplayer and singleplayer are played in the exact same way, so see above if you need directions. However, disconnects are additionally handled in multiplayer, detecting when a player leaves a game and giving them a loss if they do so before the end. If your opponent leaves the game, you should be granted a win via forfeit and be notified as such by a modal. Also note that in multiplayer you will not be able to begin firing until both players have placed all of their trains down.



Seeded-Defects Log - Team 5

David Wood, Alexander Ferrard, Ayush Patel, Eric Vondrak, Sanjit Reddy Sama

Seeded-Defects Log

Defect No.	Defect	Output Before Seeding	Output After Seeding	Suggested Correction	Severity
1	Delete User button does not delete the user.	Leaderboard will no longer display user, and the stats will be all zeros when the deleted user signs in again.	Leaderboard will still display user, and the stats will not have changed if the deleted user signs in again.	Update function in gameFunctions to properly delete user from database.	3
2	Trying to join a game that was previously a singleplayer game will allow the new player to join and be unable to play.	Joining via a room key that previously was the key to a singleplayer game will cause the server to return an invalid room key error because the game no longer exists.	Joining via a room key that previously was the key to a singleplayer game will cause the user to join that game and see the person who left as the opponent.	Delete the game whenever the player leaves a singleplayer game.	2
3	Train two's image is placed incorrectly for the down direction	The image is placed correctly where the image is placed vertically downward from the selected starting point	The image is placed vertically upward from the selected starting point	Fix how the image placement handles down for the two length train	3

4	Turn notification does not update when someone fires.	When you fire, turn notification says "Waiting for enemy to fire", when enemy fires, turn notification says "Your turn".	Turn notification always says "Your turn".	Update the sockets to detect each player's turn so the text properly updates.	3
5	Attempting to host a game creates a hard AI game instead.	Clicking host game will send you into an empty lobby to await another player.	Clicking host game will send you to a lobby with a hard AI.	Update the link the front end sends to the server to '/host'.	2
6	Train five's image is placed incorrectly for the left direction.	The image is placed correctly where the image is placed to the left of the selected starting location.	The image is placed to the right of the selected starting location.	Fix how image placement handles left for the five length train	3
7	Player is allowed to attack before enemy is done placing trains but only by using the fire button	Player cannot fire on the opponent's board while either of the players are still placing. Both the fire button and the clickable board are disabled.	Player can fire on the opponent's board before the enemy is done with placing by using the fire button but not the clickable board. It will be made more obvious by the fact that on the first turn both player's boards will appear with the prompt "fire on the enemy"	Use sockets to detect when both players are done with placing, then enable firing.	2
8	Incorrect room keys will cause a server-side error	Invalid room keys will cause an error message to appear and they will have to input a key again.	Invalid room keys cause an undefined game to be checked, creating an error the server that is made visible to the client.	Check for invalid room keys before attempting to use the data, and send an error if it is invalid.	1

9	Leaderboard displays top 100 players in the incorrect order.	Leaderboard displays top 100 players in order of best to worst.	Leaderboard displays top 100 players in order of worst to best.	Check the SQL query that gets the users for the leaderboard, and order the users descending instead of ascending.	3
10	User can attack the same position more than once.	User receives an error message and can fire again if they attempt to fire on a spot they've fired on before.	User can fire on the same spot they've fired on before, and they waste their turn to fire.	Receive the error message from the server properly, and notify the user of their mistake.	2
11	Game winning modal does not redirect to the homepage.	Clicking the go home button on the game win modal redirects to the homepage.	The go home button redirects to the leaderboards page.	Change the redirection to the homepage instead of leaderboards.	3
12	If the player attempts to attack before their enemy takes their turn, their attack is not prevented when using the attack button.	Player cannot fire if it is not their turn.	Player can fire as much as they like, even if it is not their turn, but only using the fire button. Board clicking is still restricted.	Disable firing after a player fires, and activate the ability to fire after the enemy takes their turn to fire.	2
13	The player statistics close button does not close.	The close button for stats closes the modal.	The close button for stats does nothing.	Edit the modal data dismiss.	3
14	Reloading the page causes the player to disconnect and forfeit the game.	Attempting to leave the game, either through refreshing or exiting, will give a warning to the user.	Leaving the game in any way will cause the player to forfeit, giving them a loss without warning.	Use onbeforeunload to detect when the player is about to disconnect, and give them a	2

				warning.	
15	Sign out button deletes the user from the database instead of just signing them out.	Sign out removes the user's data from the cookie, preventing them from playing a game.	Sign out will remove the user from the database, removing them from the leaderboard and resetting their stats.	Fix server code so it doesn't call to delete player on logout.	2
16	Player's hit rate in the statistics modal does not display the correct percentage.	If a player hits are 68 and misses are 52, then the hit rate is 57%. $(\text{hits})/(\text{hits}+\text{misses})$	If a player hits are 68 and misses are 52, then the hit rate is 43%. $(\text{misses})/(\text{hits}+\text{misses})$	Check the mathematical statement that calculates the user's statistics.	3
17	Attempting to go directly to a game without logging in first will allow them to join a game as "".	Going directly to a game without logging in first will redirect them to the homepage with a warning.	Going directly to a game without logging in first will allow the player to play a game without being recorded in the database.	Check if the cookie contains a player name, and if it doesn't, redirect the page to the homepage.	2
18	Clicking on easy for a singleplayer game loads a hard game instead of an easy game.	Clicking easy will load an AI with an easy difficulty.	Clicking easy loads an AI with a hard difficulty instead of an easy difficulty.	Change the easy button's link to set eOrH=easy instead of eOrH=hard.	3
19	Clicking on the Change Password button takes the user to the incorrect webpage.	Click on the button takes the user to https://myaccount.google.com/signinoptions/password	Click on the button takes the user to https://www.google.com	Change the href under the Change Password button.	3
20	Clicking the Battletracks button in the	Clicking the Battletracks button takes the	Clicking the Battletracks button takes the	Change the href under the Battletracks	3

	nav bar does not take the user to the correct location.	user to the home page.	user to the rules page.	button.	
21	Resizing the window on the home page once a user is logged in will cause the multiplayer and single player buttons to overlay the Battletracks logo.	Resizing the window on the homepage will hide the multiplayer and single player buttons if the window is small enough.	Resizing the window on the homepage will cause the multiplayer and single player buttons to overlay the Battletracks background image.	Change the CSS styling for the buttons on the homepage so that they are always at a fixed distance from the top of the webpage.	3
22	Wins and losses are awarded incorrectly on a player disconnecting mid-game.	When a player abandons a match, that player is awarded a loss and the remaining player is awarded a win.	Leaving player is awarded a win and the remaining player is awarded a loss.	Check which player is leaving and assign that player a loss. Assign the other player a win.	2
23	Selecting a place to hit on the enemy board does not display a hit in the selected location.	When a player hits on a spot with coordinates (3,7), then a hit is displayed at (3,7) .	When a player hits on a spot with coordinates (3,7), then a hit is displayed at (7,3) .	Switch the x and y when placing a hit.	2
24	Player board displays opponent's name and opponent's board displays your name.	Player board displays your name and opponent board's shows their name.	Opponent's name on your board and your name on the opponent's board.	Swap around the the html code so the names are in the right order.	3
25	Disconnecting from a game	Disconnecting from a game	Disconnecting from a game	Create a boolean if nobody else	3

	before anyone joins counts as a loss.	before anyone joins does not count as a loss.	before anyone joins counts as a loss.	joins a game not to increase the loss count.	
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