

# **Late to the Stage**

## **Team 2 - Sprint 1 Planning Document**

Chen Kai Chuang, Garner Newton, Evan Dunning, Mitchell Augustin, Lenny Meng, Parker Lawrence

### **Sprint Overview**

In this sprint, we will be working on a simplified down version of our entire application. We plan to have 6 – 7 minigames by the end of the development cycle, but we will be only implementing two for this Sprint. We will also implement a rudimentary main menu board and options board. We will also implement a matchmaking system that considers solo play and party play. We will omit the private function of party games until a later date.

- Main Menu Design
- Options Page
- Party Screen
- Racing Game
- Battle Royale Game

**Scrum Master:** Chen Kai Chuang

**Meeting Plan:** MWF 6:00PM

#### **Risks and Challenges:**

Many of our team members have little experience with game development beyond tutorials and other heavily guided development environments, so much of the first sprint will likely involve a considerable amount of trial and error that could result in a slower development cycle than expected until everyone is thoroughly familiar with the engine and possibly delay our progress.

Furthermore, although the modular nature of our game should prevent most issues that could arise in the process of linking all individual game components together, we still must be prepared for the possibility that certain components will not function together as expected, which could result in delays if handled improperly.

### **High-level Task Overview:**

- Main menu design, with a button to create a party, quickplay, or join a party. There should also be a button that takes the player to an options page. The “join a party” button should create a popup that allows the user to type in the party code that they have received from a friend, to join their party. The “quickplay” button should perform the same functionality as creating a party and instantly checking the ‘ready’ button.
- Options page. For sprint 1, the only accessibility feature necessary is the ability to adjust the game’s volume.
- Party screen. In this screen, there should be a unique party code that other players can enter to be added to the party. It should also display the avatars and chosen usernames of all other players in the party and allow the player to change their username or customize their avatar. For sprint 1, there will only be a few customization options available to the player- probably just a few different animals, a few assorted color pallets, and a few choices of headwear. The user should also be able to select their preferred car, which will become relevant for the demolition derby and racing minigames. There should also be a ‘ready’ button, which should be able to be toggled on or off. When on, the game will indicate to the player that a lobby is being searched for to accommodate them. When a lobby is found, the screen will fade to black, and fade back into whichever minigame was

randomly chosen by the server, and the party will enter the game (possibly with other players, if they were placed into a lobby with other people).

Minigames. For sprint 1, there only needs to be two minigames: a racing game, and the battle royale game.

- **Racing game:** The racing game should have at least one map that can be played on, and it should be able to indicate to the player who is in the top three positions in the race (first, second, third). It should also indicate to the player what position they are in and have a minimap that is presented to the player in the bottom right corner of the screen. The minimap should include the locations of each racer in the match, as well as the shape of the racetrack. Powerups and boosts are not a necessary requirement for sprint 1. There should be a countdown at the beginning of the match indicating when it is ok for the players to begin accelerating. Players will spawn spaced out on the starting line, and after completing some number of laps (most likely 3), they will be removed from the game with a victory screen. There will also be a timer that will count out a certain length of time, to prematurely end the game if a player is taking too long. This timer will not be visible until the time remaining drops below one minute. There will also be a mechanism in place such that if a player is driving backwards for three seconds, their screen will fade to black and they will respawn on the track, facing in the correct direction. Players should be able to bump into one another.
- **Battle royale game:** The battle royale game should also have at least one map that can be played on. Upon starting, each player should be shown a map of all places they could start the game. When the player selects a spot on the map, they will be dropped into that location, with an animation of them falling. There will be a zoomed-out minimap that

shows the advancement of the circle of death. This minimap will be in the bottom right, and it will remain transparent and unobtrusive until the player moves their mouse over it. The player should always be aiming their weapon in the direction of the mouse and shoot their weapon when the mouse is clicked. The projectiles should be able to strike and damage other players. Alternate weapons are not necessary for sprint 1. Each player should also have a health bar that is visible only to themselves, over their head. When that health bar reaches zero, they will be removed from play. Also, if they are touched by the circle of death, they will be removed from play. Once there is one player remaining, they will be removed from the game with a victory screen and await the next session.

## Current Sprint Detail

# GENERAL PLATFORM

### User Story #1

As a user, I would like the game to place me (and my party, if applicable) into a game lobby when I press "PLAY".

#	Description	Estimated Time	Owner
1	A matchmaking algorithm will need to be implemented that creates a new party large enough for a full match consisting of the players of n smaller parties who are also matchmaking.	2 Hours	Lenny
2	Once a sufficiently sized party is ready for a match, the coordinator should start a session with that party and initiate the match flow.	3 Hour	Lenny
3	Server-side checks should be implemented to prevent matches from starting if the party is of an invalid size. If failed, these checks should prompt the server to continue matchmaking.	3 Hour	Lenny
4	A client-side fade to black should be implemented during the transition between game states.	2 Hours	Lenny
5	Testing	3 Hours	Lenny

#### Acceptance Criteria:

- Players should always be combined to form a lobby of appropriate size. For example, a game should not be able to start until enough players for every minigame are in the lobby.
- The automatic team matcher should not combine parties if the combination of both parties would result in a lobby size greater than the maximum lobby size (20).
- If enough players leave the lobby mid-match to reduce the number of total players to below the minimum for any minigame, the match should end.
- Game lobbies should not be considered valid if they do not have the correct number of players.
- No user action or input into the player's name box should result in a game crash.
- Duplicate usernames should be properly handled.

#### User Story #2

As a player, I should be able to customize my character.

#	Description	Estimated Time	Owner
1	Create a character customization scene that allows for customized characters.	3 Hour	Garner
2	Create a system that stores all customizations locally and updates with the server upon join.	2 Hour	Garner
3	Testing	2 Hour	Garner

#### Acceptance Criteria:

- The character customization scene needs to be scalable and allow for easy addition of other customization options.
- Although it will initially be built for local storage, the system should be built to allow locally stored customization options to be transferred online if such a system is implemented in the future
- Character customization should not result in any functional differences between characters during gameplay or initialization stages

#### User Story #3

As a player, I should be able to see a scoreboard that shows each player's scores.

#	Description	Estimated Time	Owner
1	The game scoreboard should be formatted as a table, with the player's name, stats in the current game and score.	3 Hours	Lenny
2	The game scoreboard should include each player in the lobby, sorted by game score in descending order.	2 Hours	Lenny
3	After the match, the game scoreboard should show, followed by the match scoreboard.	1 Hour	Lenny
4	The match scoreboard will include each player in the lobby, showing the player's name and total score across all minigames.	2 Hours	Lenny

5	The players in the match scoreboard will be sorted in descending order by their total scores.	1 Hour	Lenny
6	Testing	2 Hours	Lenny

#### Acceptance Criteria:

- Pressing “tab” should show the scoreboard overlay to the user when in a game, displaying the game scoreboard.
- The match scoreboard should be updated after every minigame, with player positions on the scoreboard being adjusted as necessary.
- Players should be able to see who is leading the match at any time.

#### User Story #4

As a user, I would like the system to pick a minigame for me randomly.

#	Description	Estimated Time	Owner
1	Server randomly selects a minigame from list of minigames.	1 Hour	Lenny
2	Inform all Clients in the lobby the selected minigame.	1 Hour	Lenny
3	Verify the Client and Server expect the same selected minigame.	1 Hour	Lenny
4	After the client and server agree on the minigame, the client should start loading the minigame.	2 Hours	Lenny
5	Testing	2 Hours	Lenny

#### Acceptance Criteria:

- Each game should have an equal probability of being chosen.
- The same game should not be chosen twice.
- This should be performed server-side, and be communicated to clients along with the lobby they are in.
- All clients and the server should agree on the minigame being played.

#### User Story #5

As a user, I would like for other players to join my party.

#	Description	Estimated Time	Owner
1	Implement a random party code generator for party creation.	2 hours	Mitchell
2	Create a Join Party screen that asks for a code, verifies it, and places players into the correct party.	2 hours	Mitchell
3	Synchronize and propagate usernames and profile pictures to everyone in the party.	1 hour	Mitchell
4	Testing	3 hours	Mitchell

Acceptance Criteria:

- The random party code generator should not generate other party's codes.
- "Join Party" should be able to detect invalid codes and valid codes quickly.
- "Join Party" should put users into the party with the matching Party ID, and not others.
- "Join Party" should not be exposable to abuse, such as batch attacking Party IDs.
- It should not take long to synchronize and propagate usernames and profile pictures in the party.
- The party needs to keep players together when joining a match.

### User Story #6

As a player, I would like to choose a player name to play as.

#	Description	Estimated Time	Owner
1	A text box should be added to the appropriate scene to allow users to input a username. This textbox should only allow alphanumeric input.	1 Hour	Garner
2	In addition to the client-side username format checks, the server should prohibit usernames from being submitted to a session if they contain invalid characters.	2 Hour	Garner
3	A submission button should be added that will submit the specified username to the server to be used in the current match session.	1 Hour	Garner
4	Testing	1 Hour	Garner

Acceptance Criteria:

- Usernames should be propagated to all clients.
- Usernames should be visible above the characters.
- Players should be prompted to enter another username if theirs is invalid.

### User Story #7

As a player, I would like my game to continue working if individual players leave the match.

#	Description	Estimated Time	Owner
1	A user disconnection should be propagated across to all users related (parties / minigames).	1 hour	Mitchell
2	Disconnected users need to be removed from party screen, finalist's consideration, scoreboard, minigames, and match.	1 hour	Mitchell
3	Matches below the player limit should skip directly to the finalist's screen.	1 hour	Mitchell
4	Users who disconnect too often should be handed a penalty.	2 hours	Mitchell
5	Testing	2 hours	Mitchell

Acceptance Criteria:

- Disconnected users should not leave any trail behind in their game (score, physical character, etc.)
- User disconnection history should not be modifiable client side.
- Individual player disconnection should not affect the game state if enough players are still in the session for the game to finish.

**User Story #8**

As a player, I want to see a finalist's scene at the end of the game showing who won first, second, and third.

#	Description	Estimated Time	Owner
1	The top 3 players need to be shown on top of podiums of differing heights.	2 Hour	Garner
2	The top 3 players' usernames should be shown above them.	1 Hour	Garner
3	An animated congratulations message should appear at the top.	1 Hour	Garner
4	Testing	2 Hour	Garner

Acceptance Criteria:

- The correct usernames and avatars should be shown.
- The correct winners need to be evaluated considering all factors such as disconnection.
- The correct winners need to be evaluated quickly.



# BATTLE ROYALE

## User Story #9

As a player in the Battle Royale minigame, I would like to be able to shoot a gun.

#	Description	Estimated Time	Owner
1	On fire, the bullets will be created and rendered in front of the gun.	2 hours	Parker
2	Bullets will travel at a set speed in a straight line in the direction it was fired at.	2 hours	Parker
3	Bullets that reach the maximum range of the gun without colliding into anything will be removed from the game.	2 hours	Parker
4	Bullets that collide together should both be removed.	2 hours	Parker
5	Bullet sprites, velocity, range, damage, and direction should vary with the stats of the gun being held.	2 hours	Parker
6	Bullet positions need to be stored in an authoritative central game state. All clients are to follow this state, with no exception.	2 hours	Parker
7	Testing	2 hours	Parker

Acceptance Criteria:

- Bullet data should be quickly communicated upon impact with little to no latency.
- Clients should follow the authoritative central game state on bullet positions, velocities, etc., and smoothly integrate them.
- Bullet sounds should be properly synchronized across clients.

## User Story #10

As a player shooting a gun, I would like my bullets to strike and injure opponents.

#	Description	Estimated Time	Owner
1	When struck by a bullet, the opponent should take damage.	2 hours	Parker
2	Getting struck causes a short visual animation on the player	2 hours	Parker
3	Bullet damage amount and effects should be applied to the opponent.	2 hours	Parker
4	Testing	2 hours	Parker

Acceptance Criteria:

- It should be possible to reduce the health of another player to zero through bullets.
- It should feel satisfying and quick to fire the equipped weapon
- There should be no doubt whether a player was struck with a bullet.

### User Story #11

As a player playing the shooter, I would like a grassland map to walk around in.

#	Description	Estimated Time	Owner
1	The map should have various objects such as trees, plants, and houses that serve as obstacles and cover.	5 hours	Parker
2	Objects should either be destructible or indestructible.	2 hours	Parker
3	Bullets that hit objects should disappear and deal damage to the object if it is destructible.	2 hours	Parker
4	If objects are destructible and have their health reduced to 0 then they should be removed from the map.	2 hours	Parker
5	Testing	2 hours	Parker

Acceptance Criteria:

- When a player collides with a map prop, they should not be able to phase through it.
- Changes to the map need to be propagated across all clients.
- The map should be large enough to provide adequate gameplay opportunities before the game ends.

### User Story #12

As a player starting the game, I would like to choose a spot on the map to drop into.

#	Description	Estimated Time	Owner
1	There should be an interactable image of the map that the player is shown at the start of the game.	1 hour	Kai
2	The player should be able to click the location that they want to drop onto in the map. An animation should play of them dropping into the map.	4 hours	Kai
3	There should be a time limit for selection. If they wait more than 5 seconds, a location will be randomly chosen for them.	2 hours	Kai
4	Choosing an invalid location on the map, such as outside of the map, should place the user into a nearby valid location.	4 hours	Kai
5	It should be impossible to spawn inside of a building or a prop.	1 hours	Kai
6	Testing	3 hours	Kai

Acceptance Criteria:

- If a user attempts to select an invalid drop location, the user should still be placed on the map, just in the nearest valid location. (In other words, the invalid selection should not be prevented, just immediately corrected.)
- If a player waits longer than 5 seconds to press the “drop” button, they should be shown dropping into a random map location and subsequently placed there.
- If a starting location for a player would force them to spawn inside a building, they should instead be spawned at the nearest valid location.

### User Story #13

As a player who has reached 0 health, I would like to be removed from the game.

#	Description	Estimated Time	Owner
1	After death, the player should not be able to interact with any objects on the map or other players.	2 Hour	Garner
2	The player will convert into a spectator character who will be able to move around the map in the same way as they did before.	3 Hour	Garner
3	Spectator players should be invisible to all other non-spectator players.	2 Hour	Garner
4	Testing	1 Hour	Garner

#### Acceptance Criteria:

- Non-spectator players should not be able to see the name, avatar or any other parts of spectator players.
- Spectator characters should retain the same control scheme and movement as when they were alive.
- Collision should still occur with obstacles and props, but not bullets or other players.
- Spectator characters should not be able to influence the game state in any way.

### User Story #14

As a player in the game, I would like myself and my fellow players to be corralled towards the center of the map over time by a shrinking habitable zone.

#	Description	Estimated Time	Owner
1	The habitable zone and the inhabitable zone should be separated by a visible, circular shape.	2 hours	Evan
2	The habitable zone should decrease in radius over time from the entire map and converge onto the center of the map.	3 hours	Evan
3	When players are outside of the habitable zone, they will repeatedly take damage.	2 hours	Evan
4	The player should see a warning sign and an arrow pointing to the closest location inside the habitable zone, when they are outside of the habitable zone.	4 hours	Evan
5	Testing	2 hours	Evan

#### Acceptance Criteria:

- The inhabitable zone needs to show up in the minimap as well as the game and be synchronized in position.
- Players should not be credited for kills by the inhabitable zone.
- Players who successfully escape the inhabitable zone should not be dealt damage.

# RACING

## User Story #15

As a user playing the racing game, I would like to control my car and move around.

#	Description	Estimated Time	Owner
1	Player keyboard buttons should accelerate, decelerate, turn left, turn right, the amount of which depends on the car stats.	2 hours	Mitchell
2	Cars will not accelerate or decelerate faster than a speed limit.	4 hours	Mitchell
3	Turning speed should decrease as velocity increases.	3 hours	Mitchell
4	Testing	3 hours	Mitchell

Acceptance Criteria:

- Car position should be synced with the Server and all other Clients with little to no latency.
- Car controls should be simple to understand and easy to control.
- All clients should always agree on the positions of every car.

## User Story #16

As a player of this game, I would like a grassland themed racetrack to possibly play on.

#	Description	Estimated Time	Owner
1	The grassland map should include objects such as trees, grass, shrubs, roads.	5 hours	Kai
2	The map should include many shortcuts that can be used.	1 hour	Kai
3	Map needs to be stored on server both server and client, with persistent.	1 hour	Kai
4	Testing	1 hour	Kai

Acceptance Criteria:

- The map should feel comfortable to play on
- There should be no sharp corners that throw users off the road.
- The map should be well-decorated.

## User Story #17

As a player, I would like to see my and other player's positions in big, fun, stylized numbers.

#	Description	Estimated Time	Owner
1	When the people in first, second, and third change, these numbers should visibly swap.	3 hours	Evan
2	The position that I am should be displayed and should change when I am passed or when I pass someone else.	1 hour	Evan
3	Testing	2 hours	Evan

Acceptance Criteria:

- Players should always know who is in the lead in the race.
- Players should always know what position they are in in the race.
- When someone in the top three positions, or when the player is passed, or passes someone else, the user should be immediately notified.

### User Story #18

As a player of this game, I would like there to be checkpoints that I am to drive through.

#	Description	Estimated Time	Owner
1	The number of checkpoints that the player should be able to drive through will be displayed on the player's screen and on the scoreboard.	3 hours	Evan
2	When driving through the last scoreboard, the player should be removed from play and placed into a victory screen.	1 hour	Evan
3	Testing	2 hours	Evan

Acceptance Criteria:

- Players should always know where they are going.
- The game should be able to calculate exactly what position the players are in.
- Failing to pass through a checkpoint should penalize the player by negatively affecting their score.

### User Story #19

As a player of this game, I would like to be able to collide with the other drivers and spin them out.

#	Description	Estimated Time	Owner
1	Other cars should only be spun out if the collision is considered powerful enough, speed and direction wise.	5 hours	Kai
2	Collision will also result in a speed loss for the driver initiating the collision/	1 hour	Kai
3	As a player who has been spun out, I would like a mechanism that gets me turned the right way around again.	3 hours	Kai
4	The player's acceleration and velocity should be set to 0 afterwards.	1 hour	Kai
5	As a player who is driving into the walls of the track, I would like to have a collision with said wall, forcing me back into the road, and possibly spinning me out.	2 hours	Kai
6	Collisions should result in a percentage-based speed loss for the player car.	1 hour	Kai
7	Testing	3 hours	Kai

Acceptance Criteria:

- It should be impossible to glitch through props.
- It should feel like the user is truly in control of the car.
- Players should be motivated to drive correctly, and not hit walls.

## Backlog

### Non-Functional Requirements

- A. The backend should be written to be scalable. The Godot engine documentation provides plenty of information on how to write scalable backends, so this should not be a major concern.
- B. The backend should be written in such a way that all players agree on events and is secure. No individual client should be able to falsely report that other players are colliding their bullets, or ‘teleport’ around the map.
- C. Each game lobby should be able to handle up to 100 players at once, and there should be enough minigames for every player in the lobby to be assigned to one with minimal repetition within the lobby.
- D. Every game that involves movable characters should properly handle physics in a way that is robust and resists collision errors such as objects clipping through walls, or objects obtaining impossible velocities. Collisions that introduce chaos into the physics system should also have agreement between separate clients, even with subtle differences in the starting positions.
- E. Our backend should be able to handle 40 lobbies (since Godot limits each server to 4000 concurrent players) initially. If needed, we can revise the server architecture to handle multiple instances of the server software, allowing for more concurrent players. This should be easy since most game data will only exist for the duration of a session and due to the availability of scalable VPS providers such as DigitalOcean.
- F. Our backend should be performant even when lobbies are full. Players should not notice a slowdown, or any latency, or ‘lag’.
- G. Our frontend should be performant even when there are many actors on the screen at once. The game should be able to be played on a variety of platforms and systems, without gameplay degradation.
- H. Our frontend should be accessible to players of all ages, with simple but expressive controls.
- I. Backend should be robust. It should be impossible for players to crash the server, either by leaving, sending corrupted data, or even by sending malicious data.
- J. Accounts should be secure. A third party should not be able to gain access to an account, or any of the information stored on the account without the user’s password.
- K. The minigames should be easy to learn and understand. A new player should be able to learn the ins and outs of the minigame right as they join, or after one or two games.

### Functional Requirements

- A. Build the general platform components that coordinate players.
  - 1. As a user, I would like to wait for automatic team matching in the lobby.
  - 2. ~~As a user, I would like to have a scoreboard in the lobby reporting the scores of each player.~~
  - 3. As a user, I would like to select a unique avatar provided by the system.
  - 4. ~~As a user, I would like the game to place me (and my party, if applicable) into a game lobby when I press “PLAY”.~~

5. As a user, I would like to be able to request to add other accounts.
  - ~~6. As a user, I would like for other players to join my party.~~
  - ~~7. As a player, I would like to choose a player name to play as.~~
  8. As a user, I would like to be able to decline or accept friend requests I receive.
  9. As a user, I would like to be able to decline or accept party requests I receive.
  - ~~10. As a user, I would like the system to pick a minigame for me randomly.~~
  11. As a player, I would like to choose a character avatar to play as.
  12. As a player, I would like to choose a hat to wear on my character's head.
  13. As a player, I would like to create an account.
  14. As a player, I would like my account to store all my game progress.
  15. As a player, I would like my account to store the cosmetics that I own.
  16. As a player, I would like to be able to reset my password.
  17. As a player, I would like to party up with others.
  18. As a player, I would like for players to be able to join the game without registering an account.
  - ~~19. As a player, I would like my game to continue working if individual players leave the match.~~
  20. As a user, I want to see transitional, introductory scenes for each minigame.
  - ~~21. As a user, I want to see a finalist's scene at the end of the game showing who won first, second, and third.~~
  22. As a user, I would like to be able to customize my character.
  23. As a user, I would like to be able to purchase cosmetics. (If time permits)
  24. As a user, I would like to be able to apply those cosmetics onto my character. (If time permits)
  25. As a user, I would like to be able to purchase power ups. (If time permits)
  26. As a user, I would like to be able to apply those power ups. (If time permits)
  27. As a user, I would like to be able to message accounts which I've added. (If time permits)
- B. As a user, if I am placed in a bomb elimination game:
1. As a player in this game, I would like the ability to throw down bombs.
  2. As a player, if I eliminate an opponent, I should see my points increase on the scoreboard.
  3. As a player, if I eliminate an opponent, I should see a death animation for that player.
  4. As a player, I would like to be able to get powerups from the barriers I destroy.
  5. As a player, I would like my bombs to be able to remove barriers when they explode.
  6. As a player, if I were to grab a speed powerup, I would like to my character to move faster.
  7. As a player, if I were to grab a power powerup, I would like my bombs to have a larger area of effect.
  8. As a player, if I were to grab an invincibility powerup, I would like to be immune to explosions.
  9. As a player, if I were to grab a boots powerup, I would like to jump over barriers.
  10. As a player, if I were to receive a grenade, I would like to have the option to throw that grenade and have it act like a regular explosive.

11. As a player, I would like multiple maps with different obstacles and barriers.
- C. As a user, if I am placed in a confusing captcha game:
1. As a player, I would like to be presented with a set of images on ground tiles that represent the captcha images I am supposed to choose from.
  2. As a player, I would like to be able to jump to a platform in the world and have that movement represent my image selection.
  3. As a player, I would like to decode a string of randomly generated numbers and letters in a warped fashion faster than other players.
  4. As a player, I would like one (or more) of the captchas to involve complex math.
  5. As a player, I would like to rotate images to the correct orientation, but it is not clear what angle is the correct orientation because all the shadows are wrong or missing.
- D. As a user, if I am placed in a battle royale game:
- ~~1. As a player in this minigame, I would like to be able to shoot a gun.~~
  - ~~2. As a player shooting a gun, I would like my bullets to strike and injure opponents.~~
  3. As a player near a gun, I would like to be able to pick up a gun.
  4. As a player in the game, I would like to be able to find a rocket launcher.
  5. As a player in the game, I would like to be able to find a precision rifle.
  6. As a player in the game, I would like to pick up an SMG.
  7. As a player who has shot an explosive, I would like my explosive to be able to damage other players.
  - ~~8. As a player playing the game, I would like a grassland map to walk around in.~~
  - ~~9. As a player starting the game, I would like to choose a spot on the map to drop into.~~
  10. As a player walking behind a prop, I would like to visually appear to go behind it.
  - ~~11. As a player who has reached 0 health, I would like to have a death animation and be removed from the game.~~
  - ~~12. As a player in the game, I would like myself and my fellow players to be corralled towards the center of the map over time by a shrinking habitable zone.~~
  13. As a player outside the habitable zone, I would like to take damage and/or be removed from the game.
- E. As a user, if I am placed in a racing game:
- ~~1. As a player of this game, I would like to control my car and move around.~~
  - ~~2. As a player of this game, I would like to have shortcuts that would possibly put me in front of other players.~~
  - ~~1. As a player of this game, I would like a grassland themed racetrack to possibly play on.~~
  2. As a player of this game, I would like a volcano themed racetrack to possibly play on.
  3. As a player of this game, I would like an oceanic themed racetrack to possibly play on.
  4. As a player of this game, I would like a dessert themed racetrack to possibly play on. (If time allows)
  5. As a player of this game, I would like a desert themed racetrack to possibly play on. (If time allows)



6. As a player of this game, I would like to be able to see who is in the first three positions.
  - ~~7. As a player, I would like to see my and other player's positions in big, fun, stylized numbers.~~
  - ~~8. As a player of this game, I would like there to be checkpoints that I am to drive through.~~
  - ~~9. As a player of this game, I would like to be able to collide with the other drivers and spin them out.~~
  10. As a player who has been spun out, I would like a mechanism that gets me turned the right way around again.
  11. As a player who is driving into the walls of the track, I would like to have a collision with said wall, forcing me back into the road, and possibly spinning me out.
  12. As a player who is driving off the track where there is no wall, I would like to fall off the map into water or the bottomless void and respawn on the track.
  13. As a player in the race, I would like to be able to pick up powerup boxes.
  14. As a player who has picked up a powerup box, I would like to be randomly selected a powerup from a list, with an animation to match.
  15. As a player who has been selected a heat-seeking projectile, I would like to be able to fire said projectile into the next player.
  16. As a player who has been selected a missile, I would like to be able to fire said missile forward onto the track.
  17. As a player who has been selected a trap, I would like to be able to place the trap behind me.
  18. As a player who has been hit by a missile or gotten caught in a trap, I would like to be spun out.
- F. As a user, if I am placed in a demolition derby game:
1. As a player in this game type, I would like a health bar that depletes when struck by another car, a missile, or trap.
  2. As a player who has reached 0 health, I would like to see an animation of my car being destroyed and be removed from the game.
  3. As a player in this game type, I would like to have an arena-style map to play on.
  4. As a player in this game type, I would like an alternative style map to play on in the shape of a giant figure 8.
- G. As a user, if I am placed in a side scrolling speed game:
1. As a player, I would like there to be multiple maps.
  2. As a player, I would like there to be traps in each map that prevent players from reaching the goal.
  3. As a player, I would like there to be various types of platforms (static, moving, large, small, destructible) to use to move forwards.
  4. As a player, I would like there to be a scoring system based on how fast a player got to the goal and whether they died to a trap.
- H. As a user, if I am placed in a platform elimination game: (If time allows)
1. As a player in this game, if I fall off the platform, I would like to be removed from the game. (If time allows)

2. As a player in this game, if everyone else is removed from the game, I would like the game to end. (If time allows)
3. As a player in this game, I would like all tiles to turn a certain color that means that they are about to fall. (If time allows)