

Late to the Stage

Team 2 - Project Backlog

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Problem Statement

Our game aims to fill the void of lackluster social gatherings (in-person and virtual) by providing an entertaining arena-style game where players can compete in a wide variety of fast-paced minigames to see who will come out with the highest overall score. Unlike many other party games that test players' ability in a single skill like trivia knowledge or drawing ability, our game offers a more diverse space of entertainment by presenting players with many different game styles.

Background Information

Our project's focus on a "party game" style is similar to that of the Jackbox Party Pack, a suite of party games where the game owner hosts a lobby for up to 10 players who join for free via a mobile-optimized web application. We will be marketing our game towards general audiences of all ages rather than a specific demographic and intend to provide a fun activity for groups lacking entertaining pastimes during gatherings. Although our game will be structurally similar to Jackbox in that it will have a similar client-host model, the actual gameplay will be oriented more toward a keyboard and mouse style, with many requiring more precision than would be appropriate for a mobile game. Unlike Jackbox, which limits lobbies to 10 players, our game will allow for larger lobbies, making our game ideal for bigger gatherings and online sessions involving many players.

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 ranks of a full game.
 - 3. As a user, I would like the system to pick a minigame for me randomly.
 - 4. As a user, I would like to select a unique avatar provided by the system.
 - 5. As a user, I would like the game to place me (and my party, if applicable) into a game lobby when I press "PLAY".
 - 6. As a user, I would like to be able to request to add other accounts.
 - 7. As a user, I would like to be able to request to invite other accounts to a party.
 - 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 game lobby to choose a random order of games for all players in the game lobby to compete in.
 - 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 finalists 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:
 28. As a player in this game, I would like the ability to throw down bombs.
 29. As a player, if I eliminate an opponent, I should see my points increase on the scoreboard.
 30. As a player, if I eliminate an opponent, I should see a death animation for that player.
 31. As a player, I would like to be able to get powerups from the barriers I destroy.
 32. As a player, I would like my bombs to be able to remove barriers when they explode.
 33. As a player, if I were to grab a speed powerup, I would like to my character to move faster.
 34. As a player, if I were to grab a power powerup, I would like my bombs to have a larger area of effect.
 35. As a player, if I were to grab an invincibility powerup, I would like to be immune to explosions.
 36. As a player, if I were to grab a boots powerup, I would like to jump over barriers.
 37. 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.
 38. 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:
 39. 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.
 40. 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.
 41. As a player, I would like to decode a string of randomly generated numbers and letters in a warped fashion faster than other players.
 42. As a player, I would like one (or more) of the captchas to involve complex math.

43. 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:
44. As a player in this minigame, I would like to be able to shoot a gun.
 45. As a player shooting a gun, I would like my bullets to strike and injure opponents.
 46. As a player near a gun, I would like to be able to pick up a gun.
 47. As a player in the game, I would like to be able to find a rocket launcher.
 48. As a player in the game, I would like to be able to find a precision rifle.
 49. As a player in the game, I would like to pick up an SMG.
 50. As a player who has shot an explosive, I would like my explosive to be able to damage other players.
 51. As a player playing the game, I would like a map to walk around in.
 52. As a player starting the game, I would like to choose a spot on the map to drop into.
 53. As a player starting the game, I would like to be protected against choosing an invalid location.
 54. As a player walking behind a prop, I would like to visually appear to go behind it.
 55. As a player who has reached 0 health, I would like to have a death animation and be removed from the game.
 56. 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.
 57. 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:
58. As a player of this game, I would like to have shortcuts that would possibly put me in front of other players.
 59. As a player of this game, I would like a grassland themed racetrack to possibly play on.
 60. As a player of this game, I would like a volcano themed racetrack to possibly play on.
 61. As a player of this game, I would like an oceanic themed racetrack to possibly play on.
 62. As a player of this game, I would like a dessert themed racetrack to possibly play on. (If time allows)
 63. As a player of this game, I would like a desert themed racetrack to possibly play on. (If time allows)
 64. As a player of this game, I would like to be able to see who is in the first three positions.
 65. As a player of this game, I would like to see the position I'm in reported in big, fun, stylized numbers.
 66. As a player of this game, I would like there to be checkpoints that I am to drive through.

- 67. As a player of this game, I would like to be able to collide with the other drivers and spin them out.
- 68. As a player who has been spun out, I would like a mechanism that gets me turned the right way around again.
- 69. 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.
- 70. 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.
- 71. As a player in the race, I would like to be able to pick up powerup boxes.
- 72. 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.
- 73. 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.
- 74. As a player who has been selected a missile, I would like to be able to fire said missile forward onto the track.
- 75. As a player who has been selected a trap, I would like to be able to place the trap behind me.
- 76. 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:
 - 77. As a player in this game type, I would like a health bar that depletes when struck by another car, a missile, or trap.
 - 78. 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.
 - 79. As a player in this game type, I would like to have an arena-style map to play on.
 - 80. 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:
 - 81. As a player, I would like there to be multiple maps.
 - 82. As a player, I would like there to be traps in each map that prevent players from reaching the goal.
 - 83. As a player, I would like there to be various types of platforms (static, moving, large, small, destructible) to use to move forwards.
 - 84. 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)
 - 85. As a player in this game, if I fall off the platform, I would like to be removed from the game. (If time allows)
 - 86. As a player in this game, if everyone else is removed from the game, I would like the game to end. (If time allows)
 - 87. 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)