



Sprint 1 Planning Document

Team 8: Andrew Thomae, Henry Wellman, Nathan Simon, Alex Bolinger, Wes Turnbull

Sprint Overview:

During this sprint, we want to place a large focus on getting the base gameplay set up. We want to be leaving this sprint with our playable characters, their abilities, and scoring in place, as well as each of those elements corresponding UI. We also want to prepare the components that will be important in the next sprint, like match customization and communication with other players.

Scrum Master: Andrew Thomae

Meeting Plan:

Sundays at 2:00pm
Thursday at 9:00pm

Risks and Challenges:

The main risk of this sprint is being able to start efficiently because none of us have any real game development experience. If we are able to pick up how each part we are working on comes together, we will be very well off. However, if we don't, that could be very damaging to the progress that we need this sprint because everything after this sprint will be built off the core gameplay that we make now. There is also the possibility of a lot of bugs that we haven't had to deal with before, which is definitely a high risk to slow our progress.

Current Sprint Detail:

Player Story #1

As a player, I want to be able to see my in-game abilities and see the cooldowns if I have already used them.

| # | Description | Estimated Time | Owner |
|---|---|----------------|--------|
| 1 | Create ability icons to be displayed on the UI | 5 Hrs | Andrew |
| 2 | Create timer that runs after an ability is used and prevents an ability from being used | 3 Hrs | Nathan |
| 3 | Gray out the ability icon while the timer is running | 3 Hrs | Nathan |
| 4 | Reactivate a players ability when the timer runs out | 2 Hrs | Nathan |

Acceptance Criteria:

- Given that the ability icons are implemented correctly, when a player is in-game they will be able to see what abilities they can use
- Given that an ability icon is colorful, when a player tries to use their ability, then the icon will become gray and the player will be able to use their ability.
- Given that an ability icon is gray, when a player tries to use their ability, nothing will happen.
- Given that the timer is implemented correctly, when the timer ends, then the ability icon will become colorful again.

Player Story #2

As a player, I want to be able to choose the time duration of my games.

| # | Description | Estimated Time | Owner |
|---|---|----------------|-------|
| 1 | Write an algorithm that adjusts the in-game timer | 2 Hrs | Wes |
| 2 | Create a dropdown menu with different selections | 2 Hrs | Wes |
| 3 | Integrate the dropdown menu with the algorithm | 2 Hrs | Wes |
| 4 | Add the dropdown menu into the match setup screen | 2 Hrs | Wes |

Acceptance Criteria:

- Given the algorithm is correctly connected to the timer, when a user selects a time for the duration of the match, the in-game timer will be updated properly when the user gets into a game.
- Given the dropdown menu is added to the match menu, when a user opens up the match setup screen, then they should see an option to adjust the time of a match.

- Given the dropdown menu has been selected, when the user makes a choice, then the dropdown menu should disappear and the selection should be made clear to the user.
- Given the dropdown and algorithm have been integrated properly, when a selection is made, the selection should be saved and it should adjust the time field within the Match class.

Player Story #3

As a player, I want to be able to choose the size of the ball in my games.

| # | Description | Estimated Time | Owner |
|---|--|----------------|-------|
| 1 | Write an algorithm that adjusts the size of a ball with different size presets | 2 Hrs | Wes |
| 2 | Create a dropdown menu with different selections | 2 Hrs | Wes |
| 3 | Integrate the dropdown menu with the algorithm | 2 Hrs | Wes |
| 4 | Add the dropdown menu into the match setup screen | 2 Hrs | Wes |

Acceptance Criteria:

- Given the algorithm is correctly connected to the ball size, when a user selects a size for the ball, the ball size will be updated properly when the user gets into a game.
- Given the dropdown menu is added to the match menu, when a user opens up the match setup screen, then they should see an option to adjust the size of the ball.
- Given the dropdown menu has been selected, when the user makes a choice, then the dropdown menu should disappear and the selection should be made clear to the user.
- Given the dropdown and algorithm have been integrated properly, when a selection is made, the selection should be saved and it should adjust the ball size within the ball class for a given match.

Player Story #4

As a player, I want to be able to choose the size of the field in my games.

| # | Description | Estimated Time | Owner |
|---|---|----------------|-------|
| 1 | Write an algorithm that adjusts the size of a field with different size presets | 2 Hrs | Wes |
| 2 | Create a dropdown menu with different selections | 2 Hrs | Wes |
| 3 | Integrate the dropdown menu with the algorithm | 2 Hrs | Wes |
| 4 | Add the dropdown menu into the match setup screen | 2 Hrs | Wes |

Acceptance Criteria:

- Given the algorithm is correctly connected to the field size, when a user selects a size for the field, the field size will be updated properly when the user gets into a game.
- Given the dropdown menu is added to the match menu, when a user opens up the match setup screen, then they should see an option to adjust the size of the field.
- Given the dropdown menu has been selected, when the user makes a choice, then the dropdown menu should disappear, and the selection should be made clear to the user.
- Given the dropdown and algorithm have been integrated properly, when a selection is made, the selection should be saved, and it should adjust the field size within the field class for a given match.

Player Story #5

As a player, I want to be able to play as multiple different player classes.

| # | Description | Estimated Time | Owner |
|---|--|----------------|--------|
| 1 | Create character selection menu and character icons | 2 Hrs | Andrew |
| 2 | Develop an algorithm to set a users character to the one they click on | 3 Hrs | Nathan |
| 3 | Make each character icon a button that a user can click on | 2 Hrs | Nathan |

Acceptance Criteria:

- Given that the player is in a lobby, they should see an icon for each of the playable animals.
- Given that the character selection algorithm is implemented correctly, when a player clicks on an animal, then that player's character will be set to the animal they clicked on.
- Given that a player has already chosen their character, when that player clicks on another animal, that player's character will be changed to the animal that they clicked on.

Player Story #6

As a player, I want different classes to have different stats and abilities.

| # | Description | Estimated Time | Owner |
|---|---|----------------|--------|
| 1 | Come up with specialized abilities to give each animal | 2 Hrs | Nathan |
| 2 | Give each animal specific stats | 2 Hrs | Nathan |
| 3 | Create getter and setter functions that abilities will use | 3 Hrs | Nathan |
| 4 | Create algorithm to identify if an ability has been used recently | 3 Hrs | Nathan |
| 5 | Create function to activate an ability | 2 Hrs | Nathan |

Acceptance Criteria:

- Given that the abilities are implemented correctly, each animal should have a unique ability that gives it certain buffs.
- Given that the abilities are implemented correctly, when a player uses their ability, the buff is applied to the animal they are using.
- Given that the abilities are implemented correctly, when a player uses their ability, it will not last forever and will stop after a certain amount of time.

Player Story #7

As a player, I want to be able to easily see a scoreboard with a timer during gameplay.

| # | Description | Estimated Time | Owner |
|---|--|----------------|--------|
| 1 | Develop an algorithm to count down and display the remaining game time | 2 hrs | Henry |
| 2 | Develop an algorithm to keep track of goals, who scored the goal, and who assisted the goal. | 5 hrs | Henry |
| 3 | Develop a UI Panel to hold the scoreboard and timer | 2 Hrs | Andrew |

Acceptance Criteria:

- Given the goal tracking algorithm functions properly, a player will be able to see the score of the match, and who scored and assisted a goal when it occurs.
- Given the game time algorithm functions properly, the game will end when the timer runs out.
- Given that the score and time can be anything, the player will not see the numbers breaking the bound of the scoreboard

Player Story #8

As a player, I want to see who scored a goal in the game.

| # | Description | Estimated Time | Owner |
|---|--|----------------|--------|
| 1 | Develop an algorithm to update the match data about a goal being scored | 3 hrs | Wes |
| 2 | Develop an algorithm that updates the game statistics to add a goal to the player that scored the goal | 3 hrs | Wes |
| 3 | Develop a UI to pop up that has the name of the player who scored the goal | 2 Hrs | Andrew |

Acceptance Criteria:

- Given that the match data is updated as goals are scored, when a goal is scored, then the score data field within the Match class should be updated accordingly.

- Given that the goal stat algorithm is functioning properly, when a goal is scored, then a user's goal field within their game stats should be updated if they scored the goal.
- Given that the goal tracking is completed properly, when a goal is scored, every player will see the name of the player that scored the goal.
- Given that all tasks are completed properly, when a game is finished, then each user's goal and assist fields should reflect the results of the match correctly.

Player Story #9

As a player, I want to have a sandbox mode to train my skills offline

| # | Description | Estimated Time | Owner |
|---|--|----------------|--------|
| 1 | Develop an algorithm to create an offline game and allow players to practice continuously. | 3 hrs | Alex |
| 2 | Create a menu that allows players to change game settings before the enter the game | 3 hrs | Alex |
| 3 | Debug and test the algorithms using unit tests | 3 hrs | Alex |
| 4 | Create a modified UI for sandbox mode | 2 Hrs | Andrew |

Acceptance Criteria:

- Given the sandbox mode works properly, the player will be able to practice offline for as long as they want.
- Given the sandbox mode works properly, the player should respawn with a new ball after each time they score a goal.
- Given the sandbox mode works properly, players will be able to customize sandbox mode in the same ways they can customize a normal game.

Player Story #10

As a player, I want an overtime match if the timer runs out and the score is tied.

| # | Description | Estimated Time | Owner |
|---|--|----------------|-------|
| 1 | Develop an algorithm to reset the timer when the time runs out and the score is tied. | 2 hrs | Alex |
| 2 | Develop an algorithm that resets the timer and makes the next score win if the game goes into double overtime. | 2 hrs | Alex |
| 3 | Develop an algorithm that makes the game a tie if the game goes past double overtime | 2 hrs | Alex |
| 4 | Debug and test the algorithms using unit tests | 2 hrs | Alex |

Acceptance Criteria:

- Given the overtime algorithm works properly, the timer will reset after the timer runs out and the score is tied
- Given the overtime algorithm works properly, if there is still a tie after the overtime timer runs out, the timer resets and the next score will win.
- Given the overtime algorithm works as intended, If no player scores during double overtime, the game is a tie.

Player Story #11

As a player, I want a way to communicate with my teammates

| # | Description | Estimated Time | Owner |
|---|--|----------------|-------|
| 1 | Develop an algorithm to send preset messages from a user to the rest of their team | 3 hrs | Alex |
| 2 | Create key-mappings that allow users to select messages to send using their keyboard | 3 hrs | Alex |
| 3 | Create a UI that a player can open with their keyboard or mouse and then select a message to send with their mouse | 4 hrs | Alex |
| 4 | Debug and test the algorithm using unit tests | 3 hrs | Alex |

Acceptance Criteria:

- Given the messaging algorithm functions as intended, the player will be able to select messages to send to their teammates using keyboard shortcuts
- Given the key-mappings work correctly, the player will be able to press a key or click an on-screen button that will display a menu of available messages to send to their teammates.
- Given the messaging algorithm works correctly, a message should be displayed on all of a player's teammates' screens after a message is sent.

Developer Story #1

As a developer, I want characters to be modular so they can be added, removed, or edited later.

| # | Description | Estimated Time | Owner |
|---|---|----------------|--------|
| 1 | Determine which animals we want in the initial game | 1 hr | Nathan |
| 2 | Create individual classes for each animal | 4 hrs | Nathan |
| 3 | Panda Assets | 3 Hrs | Andrew |
| 4 | Lion Assets | 3 Hrs | Andrew |

| | | | |
|---|-----------------|-------|--------|
| 5 | Kangaroo Assets | 3 Hrs | Andrew |
| 6 | Penguin Assets | 3 Hrs | Andrew |
| 7 | Monkey Assets | 3 Hrs | Andrew |

Acceptance Criteria:

- Given correct implementation of the class system, each animal has its own class.
- Given correct implementation of the class system, when an animal is removed or added, other animal classes are not affected.
- Given correct implementation, when an animal's traits are edited, other aspects of the game will not change as a result.
- Given the implementation of each animal class, there will be a basic model designed. There will be at least three animal classes that will have completed animations.

Developer Story #2

As a developer, I want a time limit on how long a player can hold the ball to encourage teamwork.

| # | Description | Estimated Time | Owner |
|---|--|----------------|--------|
| 1 | Develop an algorithm to detect if the ball is being held, and for how long. | 3 hrs | Henry |
| 2 | Make a visual indicator on the player's screen when the time limit is about to be met. | 2 hrs | Henry |
| 3 | Debug and test the algorithms using test documents. | 2 hrs | Henry |
| 4 | Make an asset for the ball when it has reached the time limit. | 2 Hrs | Andrew |

Acceptance Criteria:

- Given the visual indicator works as intended, the indicator will become apparent on the user's screen when they only have about 5 seconds left on the timer.
- Given the passing algorithm functions properly, the timer will be reset each time the ball is passed or changes player possession.
- Given the passing algorithm functions properly, the player will be stunned for a couple of seconds if they have not passed the ball when the time limit is met.
- Given that the indicator works as intended, the ball will have a visual element as it jumps out of the player's hands

Developer Story #3

As a developer, I want shots with the ball to be more powerful if consecutive passes were recently made.

| # | Description | Estimated Time | Owner |
|---|---|----------------|--------|
| 1 | Develop an algorithm to detect if a pass has occurred and if it was caught by a teammate or an opponent. | 5 hrs | Henry |
| 2 | Develop an algorithm to calculate the successful pass count and increase the pass strength with each successful pass. | 2 hrs | Henry |
| 3 | Debug and test the algorithms using unit tests.. | 2 hrs | Henry |
| 4 | Make an asset for the ball when the pass strength is at its maximum value. | 1 Hr | Andrew |

Acceptance Criteria:

- Given the passing algorithm functions properly, each successful pass a player makes will get faster and more powerful until it reaches its maximum speed/power.
- Given the passing algorithm functions properly, the pass counter will be reset if the ball is intercepted or a pass between teammates is unsuccessful.
- Given the passing algorithm functions properly, the counter is reset if a goal is scored, or the ball was passed once the max speed/power was reached.
- Given the passing algorithm functions properly, the ball will highlight itself brighter and brighter as the counter increases so the player can visually see the pass level.

Developer Story #4

As a developer, I want there to be a limit on how often and how long a player can sprint.

| # | Description | Estimated Time | Owner |
|---|---|----------------|--------|
| 1 | Develop an algorithm to calculate how long a player has been sprinting with a time limit. | 2 hrs | Henry |
| 2 | Develop an algorithm to adjust the player's speed if the time limit for sprinting has been reached and recharge their sprint ability. | 5 hrs | Henry |
| 3 | Debug and test the algorithms using unit tests. | 2 hrs | Henry |
| 4 | Create a visual indicator of how much sprint time the player has left, as well as a recharge indicator. | 1 Hr | Andrew |
| 5 | Create an asset for the animal class when they have reached their sprint limit and must move slowly. | 5 Hrs | Andrew |

Acceptance Criteria:

- Given the sprinting algorithms function properly, the player will move at a reduced speed when the time limit for sprinting is met.
- Given the sprinting algorithms function properly, the player will be able to sprint once more when they have waited for a couple of seconds.
- Given the visual indicators function properly, a player will see when the character cannot sprint.

Remaining Backlog:

Functional Requirements:

1. As a user, I want to be able to create an account.
2. As a user, I want to be able to login to my account once I have created it.
3. As a user, I want to be able to reset my password.
4. As a user, I want to be able to delete my account.
5. As a user, I want to be able to update my information.
6. As a player, I want to be able to navigate the menus easily.
7. As a player, I want to be able to change the resolution the game runs in.
8. As a player, I want to be able to add users as friends to my account.
9. As a player, I want to be able to challenge my friends to private games.
10. As a player, I want to be able to join the same lobby as my friends before a game.
11. As a player, I want to be able to play online with strangers.
12. ~~As a player, I want to be able to choose the time duration of my games.~~
13. As a player, I want to be able to choose the size of the teams in my games.
14. ~~As a player, I want to be able to choose the size of the ball in my games.~~
15. ~~As a player, I want to be able to choose the size of the field in my games.~~
16. ~~As a player, I want to see who scored a goal in the game.~~
17. As a player, I want an assist system to see who helped the player who scored a goal.
18. As a player, I want an experience system with different levels to progress through.
19. As a player, I want to gain experience from completing a game, with extra experience if I win.
20. As a player, I want to gain experience from things like the amount of time I held the ball, or number of goals/assists scored.
21. ~~As a player, I want an overtime match in the game if the timer runs out and the score is tied.~~
22. ~~As a player, I want to have a sandbox mode to train my skills offline.~~
23. As a player, I want to have a digestible tutorial to learn the rules of the game.
24. As a player, I want to be able to unlock achievements.
25. As a player, I want a ranking system when I play online.
26. As a player, I want a way for other players to view my ranking.
27. As a player, I want to enjoy the soundtrack.
28. As a player, I want to be able to unlock new characters and abilities as I get better at the game.
29. ~~As a player, I want to be able to easily see a scoreboard with a timer during gameplay.~~
30. ~~As a player, I want to be able to see my in-game abilities and see the cooldowns if I have already used them.~~
31. ~~As a player, I want different classes to have different stats and abilities.~~
32. ~~As a player, I want to be able to play as multiple different player classes.~~

- ~~33. As a player, I want a way to communicate with my teammates.~~
- 34. As a player, I want customizable game modes with rules like when you miss a shot, you also lose a point.
- 35. As a player, I want to be able to swap out key mappings.
- ~~36. As a developer, I want a time limit on how long a player can hold the ball to encourage teamwork.~~
- ~~37. As a developer, I want shots with the ball to be more powerful if consecutive passes were recently made.~~
- ~~38. As a developer, I want there to be a limit on how often and how long a player can sprint.~~
- ~~39. As a developer, I want characters to be modular so they can be added, removed, or edited later.~~
- 40. As a developer, I want developer tools built into the game (frame rate, usage, etc) to monitor performance.
- 41. (if time allows) As a player, I want to have character customization.
- 42. (if time allows) As a player, I want to play a game offline with AI bots.
- 43. (if time allows) As a player, I want my matches to be made based on player skill.
- 44. (if time allows) As a player, I want to have a challenge mode where I have to complete difficult tasks.
- 45. (If time allows) As a player, I want to gain experience after completing a challenge in challenge mode
- 46. (if time allows) As a player, I want a king of the hill mode, where a team needs to keep the ball within a limited area on the field for a determined amount of time to win.
- 47. (if time allows) As a player, I want controller support.

Non-Functional Requirements:

- 1. Be able to run the game at 720p 30 fps, with ping less than 200ms.
- 2. Be able to play an interactive tutorial from the main menu whenever the user wants.
- 3. Be able to integrate Epic Games authentication and security protocols.
- 4. Be able to keep game files small for the sake of clarity and modularity.