



## Sprint 2 Planning Document

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

### **Sprint Overview:**

During this Sprint, our main focus is to iron out the gameplay details that we weren't able to in the last sprint and then begin to implement multiplayer. We also hope to link features such as communication that we implemented in the last sprint to the multiplayer. The last thing we're trying to do is make the menus look better and streamline the roadmap of the game.

**Scrum Master:** Wes Turnbull

### **Meeting Plan:**

Sundays at 2:00pm

Thursday at 9:00pm

### **Risks and Challenges:**

The greatest challenge that we are going to face during this sprint is that portions of our code are going to have to be rewritten to be able to implement multiplayer correctly. Currently our game works for a single player in sandbox mode, but in order to get multiple players into the game we are going to have to rework several functions, which is going to take additional time.

## Current Sprint Detail:

### Player Story #1

As a player, I want to be able to navigate the menus easily.

#	Description	Estimated Time	Owner
1	Main Menu	5hrs	Andrew
2	Options Menu	5hrs	Andrew
3	In-Game Menu	5hrs	Andrew
4	Button Designs	3hrs	Andrew
5	Test: Have a set order of buttons on the testing document to test out every menu selection possible.	1.5hrs	Andrew

#### Acceptance Criteria:

- Given the main menu is implemented correctly, if the game is launched, the menu will open first.
- Given the main menu opens, if a player selects the “start game” button, they can start a match.
- Given the in-game menu is implemented correctly, if the player presses the in-game button during gameplay, a menu will pop up that will allow the player to choose to resume or leave the game.
- Given the in-game menu works correctly, if the player selects the options submenu, the player can see a menu to change game settings.

### Player Story #2

As a player, I want to be able to change the resolution the game runs in.

#	Description	Estimated Time	Owner
1	Set in-game resolution method	2hr	Andrew
2	Drop down in options	2hr	Andrew
3	Test: Change the resolution to each given option using a testing document	1hr	Andrew

#### Acceptance Criteria:

- Given that the method is implemented correctly, if a request is made to change the game resolution, it will change.
- Given that the options menu is implemented correctly, if a user changes the resolution selection, it will change immediately.

- Given that the drop-down menu is implemented correctly, if a player selects the drop down, there will be at least 3 options for resolutions.

### Player Story #3

As a player, I want to be able to swap out key mappings.

#	Description	Estimated Time	Owner
1	Default Mappings	1hr	Andrew
2	Conflicting Mapping Detection	3hr	Andrew
3	Switching Button Mapping	3hr	Andrew
4	Test: Use testing document to change each key mapping while also testing mapping issues from the player	1hr	Andrew

#### Acceptance Criteria:

- Given that the key-mapping menu is opened, if a player is looking at the key-mapping screen, a player can see the default key mappings.
- Given that the menu is implemented correctly, if a player wants to change a button mapping, that button will be given the new purpose in-game.
- Given that button mapping is implemented correctly, if a player makes 2 actions have the same key mapped, the player will be notified.

### Player Story #4

As a user, I want to be able to create an account.

#	Description	Estimated Time	Owner
1	Create UI for account creation	2.5 hrs	Wes
2	Username and Password Fields	1 hr	Wes
3	Linking Accounts to Epic Games	5 hrs	Wes
4	Test: Create test document to go through the process of creating an account	1 hr	Wes

#### Acceptance Criteria:

- Given that a user opens up the game, when a player chooses to create a new account, an account creation UI pops up
- Given that a user types in the username and password fields, when the player clicks the create account button, the information should be saved.
- Given that a user creates an account, when they leave the UI, the account should be saved to the system.

## Player Story #5

As a user, I want to be able to login to my account once I have created it.

#	Description	Estimated Time	Owner
1	Create UI for Account Login	2.5 hrs	Wes
2	Username and Password Fields	1 hr	Wes
3	Linking Login with Epic Games Account Login	5 hrs	Wes
4	Test: Create a testing document that logs in many different users, both users that exist and don't exist	1 hr	Wes

### Acceptance Criteria:

- Given that a user is not logged in, when the user opens the game, they will be prompted to login before playing the game.
- Given that a user types in correct login information, they will be logged in properly and will be able to play the game.
- Given that a user types in incorrect login information, they will not be logged in and will receive an error message.
- Given that a user opens the login screen, when they type in data for an Epic Games Account, they will be signed into that account.

## Player Story #6

As a player, I want to be able to see a victory screen that displays game statistics

#	Description	Estimated Time	Owner
1	Victory Screen UI	4 hrs	Wes
2	Properly Integrate Scoring with Match Data	2 hrs	Wes
3	Player Name and Score Fields	4 hrs	Wes
4	Test: Play several games and score different goal amounts via blackbox testing with a testing document	1 hrs	Wes

### Acceptance Criteria:

- Given that a game is in progress, when the timer reaches 0 and the scores are not even, a victory screen should pop up.
- Given that the victory screen pops up, the name and goals scored fields should be updated properly.
- Given that the victory screen pops up, a user will be able to exit a game.
- Given that the victory screen pops up, a user will be able to go back to the character select and match settings screens to play another game.

## Player Story #7

As a player, I want an experience system with different levels to progress through.

#	Description	Estimated Time	Owner
1	Several experience levels, each with a higher amount of experience needed to pass	3 hrs	Nathan
2	Experience level will be stored on epic games	5 hrs	Nathan
3	Increase player level when their experience reaches the max for the current level	2 hrs	Nathan
4	Test: artificially level a player up to make sure that the experience system is working correctly	1 hrs	Nathan

### Acceptance Criteria:

- Given that the experience system is set up correctly, each user will have an experience section on their Epic Games Ball of the Wild account.
- Given that the experience system is set up correctly, each user will be able to progress through several levels.
- Given the experience system is set up correctly, more experience will be required to go from level 2 to level 1 than from level 1 to level 2.

## Player Story #8

As a player, I want to gain experience from completing a game, with extra experience if I win.

#	Description	Estimated Time	Owner
1	Assign different amounts of experience for winning and completing a game	2 hr	Nathan
2	Identify if a player is on the winning team or not when a game ends	5 hrs	Nathan
3	Add experience from game end to players current experience level	3 hrs	Nathan
4	Test: Play a game with two players and make sure the player that wins gets more experience than the player that loses	1 hrs	Nathan

### Acceptance Criteria:

- Given the experience system is set up correctly, when a game ends, a player will receive experience for completing the game.
- Given the experience system is set up correctly, when a game ends, players on the winning team will gain more experience than players on the losing team.

- Given the experience system is set up correctly, when a game ends in a tie, players on both teams will receive an equal amount of experience

## Player Story #9

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.

#	Description	Estimated Time	Owner
1	Identify the last player to touch a ball before it goes in the goal	5 hrs	Nathan
2	Keep track during the game of how many goals each player scored	3 hrs	Nathan
3	Add experience player got in the game to their current level	2 hrs	Nathan
4	Test: Play games with one or more players and make sure that users get experience based on the number of goals scored	1 hrs	Nathan

### Acceptance Criteria:

- Given that the goal experience system is set up correctly, when a player scores a goal, their experience will increase upon completion of the game.
- Given that the goal experience system is set up correctly, if player 1 scored more goals than player 2, the experience of player 1 will increase more than the experience of player 2.
- Given that the experience system is set up correctly, players will be able to see their newly increased experience level in their Epic Games Ball of the Wild Account

## Player Story #10

As a player, I want to be able to pick up the ball and have it move around with the player model.

#	Description	Estimated Time	Owner
1	Bind the ball to the character's hand to pick up the ball	5 hrs	Henry
2	Have the ball move with the character as they move	3 hrs	Henry
3	Be able to drop the ball from the character's hand	3 hrs	Henry
4	Test and debug the passing with testing documents	1 hr	Henry

### Acceptance Criteria:

- Given the pickup function is implemented correctly, when the player pushes a button, the ball appears on the player character's hand.
- Given the pickup function is implemented correctly, the ball moves around with the player character.

- Given the pickup function is implemented correctly, when the player pushes a button, the ball is dropped onto the field near the player.

## Player Story #11

As a player, I want to be able to pass around the ball during the game.

#	Description	Estimated Time	Owner
1	Implement a catch ball/steal ball button	4 hrs	Henry
2	Implement the pass ball button and ball passing physics	4 hrs	Henry
3	Add proper collisions for the ball and other objects	3 hrs	Henry
4	Test and debug the passing with testing documents	2 hrs	Henry
5	Create throwing animations for each class	8 hrs	Andrew

### Acceptance Criteria:

- Given the passing mechanics are implemented correctly, when the player pushes a button, the ball is passed in the direction they are facing.
- Given the passing mechanics are implemented correctly, when the player is in range of the ball and pushes the catch/steal ball button, the ball is bound to their hand.
- Given the passing mechanics are implemented correctly, the ball maintains its' physics from the air when it touches the walls and ground after a pass if it is not caught by a player.

## Player Story #12

As a player, I want to be able to challenge my friends to private games.

#	Description	Estimated Time	Owner
1	Add online capability.	6 hrs	Alex
2	Rewrite sandbox mode code to work for online play	3 hrs	Alex
3	Test and debug with testing documents	2 hrs	Alex

### Acceptance Criteria:

- Given the online functionality is implemented correctly, a user should be able to create a lobby that their friends can join and play with them.
- Given the online functionality is implemented correctly, a user should be able to easily control who is able to join their game.
- Given the online functionality is implemented correctly, the gameplay should function similarly to the sandbox mode, but with additional players.

## Player story #13

As a player, I want controller support

#	Description	Estimated Time	Owner
1	Add controller mappings to existing controls	2 hrs	Alex
2	Test and debug with testing documents	1 hr	Alex

*Acceptance Criteria:*

- Given the controller support is added correctly, the player should be able to use a controller or keyboard and mouse to play the game.
- Given the controller support is added correctly, the player should be able to use all of the same controls on the controller as they can on mouse and keyboard.
- Given the controller support is added correctly, the button mappings on controller should be re-mappable in the same way that key bindings are.

## Player story #14

As a player, I want to be able to play online with strangers.

#	Description	Estimated Time	Owner
1	Create dedicated game server	8 hrs	Alex
2	Adapt previous code to work with a dedicated server	4 hrs	Alex
3	Test and debug with testing documents	2 hrs	Alex

*Acceptance Criteria:*

- Given the server is implemented correctly, the player should be able to join a game that is hosted on a server that is not attached to the game client.
- Given the server is implemented correctly, the player should be able to have random people join their lobby to fill the game.
- Given the server is implemented correctly, the player should be able to have their friends join the game as well as random players.



## Developer Story #1

As a developer, I want developer tools built into the game (frame rate, usage, etc.) to monitor performance.

#	Description	Estimated Time	Owner
1	Display frame rate counter on the screen	3 hrs	Henry
2	Display memory usage chart on the screen	4 hrs	Henry
3	Display GPU usage chart on the screen	3 hrs	Henry
4	Debug and test the charts using testing documents	2 hrs	Henry

### *Acceptance Criteria:*

- Given the tools are implemented correctly, when the user pushes a button, the frame rate counter will appear on the screen and adjust in real time.
- Given the tools are implemented correctly, when the user pushes a button, the memory usage chart will appear on the screen and adjust in real time.
- Given the tools are implemented correctly, when the user pushes a button, the GPU usage chart will appear on the screen and adjust in real time.
- Given the tools are implemented correctly, the user will be able to toggle the frame rate counter, GPU usage chart, and memory usage chart by pushing each respective button a second time for on/off.

# 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.~~
- ~~48. As a player, I want to be able to see a victory screen that displays game statistics.~~
- ~~49. As a player, I want to be able to pick up the ball and have it move around with the player model.~~
- ~~50. As a player, I want to be able to pass around the ball during the game.~~

#### **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.