

BoilerJourney

Sprint 1 Planning Document

Team 27

Colin Flynn

Zander Carpenter

Shubhaang Agarwal

Edward Kelley

Kashvi Sahjwani

Charlie Zhang

Sprint Overview

During this sprint, we hope to create a functional prototype of our game that includes the core features needed to learn more about Purdue University.

Throughout this sprint, we plan to make efficient classes and methods that will be used to make our designed 2D RPG into reality providing users with an interesting and effective way to learn more about Purdue and its campus. While the scripts we create during this sprint may need to be optimized and thoroughly debugged during later sprints, they will provide players with the basic functionalities needed to enjoy our game.

Scrum Master:

Colin Flynn

Meeting Plan

Monday and Wednesday at 6:00 pm

Risks and Challenges

There is one major challenge that our group faces while preparing for this sprint, our lack of experience in game development and using Godot Engine. Our group has never previously developed a game or used Godot's game engine. This leads to the threat of a tough learning curve while getting started making our game. We plan to overcome this by spending time outside of the project learning the basics of the game engine and relying on outside resources, like online tutorials, consulting with our TA, or simply discussing with each other if any problems/difficulties arise.

Current Sprint Detail

User Story #1

As a user, I would like to be able to create a new game.

#	Description	Estimated Time	Owner
1	Design the Main Menu Screen	3 Hrs	Edward
2	Build UI for starting a new game	1 Hrs	Edward
3	Create an algorithm for initializing the new game's save file	2 Hrs	Edward
4	Test functionality of previous tasks	1 Hr	Edward

Acceptance Criteria:

- Given the UI is implemented correctly, when a user runs the game, they will be shown a page with the game's title "BoilerJourney", a button titled "Start New Game", and a background displaying an image of Purdue's Campus.
- Given the UI is implemented correctly, when a user presses the "Start New Game" button, they will be shown an avatar selection page, where they will be prompted to name their character and select their starting avatar.
- Given the UI and save file initialization algorithm are implemented correctly, after a user selects their starting avatar and display name, a new file will be created and initialized with default values for all saved data except for their avatar and display name.
 - If the save file already existed prior to clicking the button, it will be overwritten.
- To test this story we will use manual testing to create new games. We will ensure that when the game loads the user has an option to create a new game. We will also use automated testing to make sure the algorithm that initiates the save file works correctly.

User Story #2

As a user, I would like to be able to save and view my progress.

#	Description	Estimated Time	Owner
1	Design a menu screen	1 Hr	Edward
2	Design a screen that displays the player's progress	3 Hrs	Edward
3	Build UI for viewing progress	1 Hr	Edward
4	Build UI for opening menu	1 Hr	Edward
5	Create an algorithm for calculating the player's completion percentage	2 Hrs	Edward
6	Create an algorithm for fetching progress from the saved file to display	2 Hrs	Edward
7	Create an algorithm for updating the game's save file	1 Hrs	Edward
8	Test functionality of previous tasks	2 Hrs	Edward

Acceptance Criteria:

- Given the UI is implemented correctly, while a user is in the gameplay screen, they will see a hamburger button that shows the user a menu page when pressed and a button titled "View Progress".
- Given the UI is implemented correctly, while a user is in the menu screen, they will see a button titled "View Progress" that shows the user a progress page when pressed and a button titled "Save Progress" that saves the user's current progress and state, e.g. position, when pressed.
- Given the UI and completion percentage algorithm are implemented correctly, the progress page will display a percentage indicating how much of the game the user has completed.
- Given the UI and fetching progress algorithm are implemented correctly, the progress page will display below the percentage a list of all objectives in the

game that count towards their progress with a checkmark or x that indicates whether or not the user has completed them.

- Given the UI and save file update algorithm are implemented correctly, after a user presses the “Save Progress” button, the game’s save file will be overwritten with the current values for all saved data.
- To test this story we will use manual and automated testing to view information on saved games. We will manually test by creating a game and completing some actions. We will then exit the game and log back in to view the progress page. We will also write automated tests to ensure that the methods responsible for determining the user's completion percentage and fetching the progress work as expected.

User Story #3

As a user, I would like to be able to load a previous game.

#	Description	Estimated Time	Owner
1	Update the Main Menu screen with a button to load a previous game	1 Hr	Edward
2	Build UI for loading a previous game	2 Hrs	Edward
3	Create an algorithm for loading the save file's data into the game session	2 Hrs	Edward
4	Test functionality of previous tasks	1 Hr	Edward

Acceptance Criteria:

- Given the UI is implemented correctly, when a user runs the game, they will be shown a page containing a button titled "Load Game".
- Given the UI and load save file algorithm are implemented correctly, when a user presses the "Load Game" button, they will be shown options of previously saved games.
- Given the UI and load save file algorithm are implemented correctly, when a user presses on a previous save, they will spawn into the game and all of the player's attributes and progress will be restored to the state they were in when last saved in the previous game session.
- To test this story we will use manual and automated testing to check how changes are recorded. We will manually test by creating a game and completing an action that results in an XP change. We will then exit the game and load back in to see if the XP change took place. We will also write automated tests to ensure that the methods responsible for reading and writing to the database work as expected.

User Story #4

As a user, I would like to be able to have multiple save slots, so that I can play as different characters in the game.

#	Description	Estimated Time	Owner
1	Create algorithm that stores new save files in empty save slots	2 Hrs	Edward
2	Create algorithm that grays out and disables the “Start New Game” button when all save slots are occupied and grays out and disables the save slot selection and deletion buttons when the corresponding save file does not exist	3 Hrs	Edward
3	Design a screen where a user can select a save slot to load from and can select a save slot to delete the contents of	3 Hrs	Edward
4	Build UI for selecting a save file to load and for deleting a save file	3 Hrs	Edward
5	Create algorithm for deleting a save file	2 Hrs	Edward
6	Test functionality of previous tasks	1 Hr	Edward

Acceptance Criteria:

- Given the UI and gray out algorithm are implemented correctly, when a user runs the game and all save slots are occupied by save files, they will be shown the main menu page with the button titled “Start New Game” grayed out and disabled and an annotation below explaining that all save slots are being used and a game save file needs to be deleted before a new one can be made.

- Given the start game algorithm is implemented correctly, when a user starts a new game, their game save will be initialized in a new file rather than overwriting a pre-existing file.
- Given the UI and gray out algorithm are implemented correctly, when a user presses the “Load Game” button, they will be shown the save file selection page that displays n buttons, where selection and deletion buttons corresponding to empty save slots are grayed out and disabled.
- Given the UI is implemented correctly, when a user presses one of the enabled selection buttons titled “Load Save i ” on the save file selection page, all of the player’s attributes and progress will be restored to the state they were in when last saved in the previous game session that was loaded from the corresponding save slot.
- Given the UI and save deletion algorithm are implemented correctly, when a user presses one of the enabled deletion buttons titled “Delete Save i ” on the save file selection page, the corresponding save slot’s save file will be deleted and the save slot will become available to store a new game save file.
- To test this story we will use manual tests. These tests will involve attempting to create new games and ensuring that there are options to pick a save slot. We will also use automated tests to check the algorithms for creating the save files.

User Story #5

As a user, I would like to be able to see the map during the Summer.

#	Description	Estimated Time	Owner
1	Modify the display of the map to simulate summer	3 Hrs	Kashvi
2	Change the behavior of NPCs to reflect summer	2 Hrs	Kashvi
3	Change the appearance of NPCs to reflect summer	1 Hrs	Kashvi
4	Create an icon to switch to and continue the game in the summer map	1 Hrs	Kashvi
5	Test functionality of previous tasks	1 Hr	Kashvi

Acceptance Criteria:

- Given that the modified map is implemented correctly, users will be able to view the map with a changed appearance (brighter colors, greener scenery, etc) that will capture the essence of the campus during the summer season.
- Given that the behavior of NPCs is modified correctly, users will be able to notice NPCs partake in activities that align with the summer weather such as eating ice cream, having picnics, going swimming, etc.
- Given that the appearance of NPCs is modified correctly, users will be able to notice NPCs donning summer centric outfits such as sunglasses, hats, shorts, etc.
- Given that the togglable switch is implemented correctly, users will be able to choose to continue playing their game on the summer map without losing any of their progress.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and using the toggle button to switch to the summer map and subsequently continuing the game.

User Story #6

As a user, I would like to be able to see the map during the Fall.

#	Description	Estimated Time	Owner
1	Modify the display of the map to simulate Fall	3 Hrs	Kashvi
2	Change the behavior of NPCs to reflect Fall	2 Hrs	Kashvi
3	Change the appearance of NPCs to reflect Fall	1 Hrs	Kashvi
4	Create an icon to switch to and continue the game in the Fall map	1 Hrs	Kashvi
5	Test functionality of previous tasks	1 Hr	Kashvi

Acceptance Criteria:

- Given that the modified map is implemented correctly, users will be able to view the map with a changed appearance (warmer colors, falling leaves, etc) that will capture the essence of the campus during the Fall season.
- Given that the behavior of NPCs is modified correctly, users will be able to notice NPCs partake in activities that align with the Fall weather such as hiking, having bonfires, celebrating halloween, etc.
- Given that the appearance of NPCs is modified correctly, users will be able to notice NPCs donning Fall centric outfits such as full pants, caps, hoodies, etc.
- Given that the togglable switch is implemented correctly, users will be able to choose to continue playing their game on the Fall map without losing any of their progress.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and using the toggle button to switch to the Fall map and subsequently continuing the game.

User Story #7

As a user, I would like to be able to see the map during the Winter.

#	Description	Estimated Time	Owner
1	Modify the display of the map to simulate Winter	3 Hrs	Charlie
2	Change the behavior of NPCs to reflect Winter	2 Hrs	Charlie
3	Change the appearance of NPCs to reflect Winter	1 Hrs	Charlie
4	Create an icon to switch to and continue the game in the Winter map	1 Hrs	Charlie
5	Test functionality of previous tasks	1 Hr	Charlie

Acceptance Criteria:

- Given that the modified map is implemented correctly, users will be able to view the map with a changed appearance (snowfall , snow covered buildings, trees, and roads, cloudy sky, etc) that will capture the essence of the campus during the Winter season.
- Given that the behavior of NPCs is modified correctly, users will be able to notice NPCs partake in activities that align with the Winter weather such as sledding , skiing , building snowmen, etc.
- Given that the appearance of NPCs is modified correctly, users will be able to notice NPCs donning Winter centric outfits such as Winter coats, scarves, boots, etc.
- Given that the togglable switch is implemented correctly, users will be able to choose to continue playing their game on the Winter map without losing any of their progress.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and using the toggle button to switch to the Winter map and subsequently continuing the game.

User Story #8

As a user, I would like to be able to see the map during the Spring.

#	Description	Estimated Time	Owner
1	Modify the display of the map to simulate Spring	3 Hrs	Zander
2	Change the behavior of NPCs to reflect Spring	2 Hrs	Zander
3	Change the appearance of NPCs to reflect Spring	1 Hrs	Zander
4	Create an icon to switch to and continue the game in the Spring map	1 Hrs	Zander
5	Test functionality of previous tasks	1 Hr	Zander

Acceptance Criteria:

- Given that the modified map is implemented correctly, users will be able to view the map with a changed appearance (upbeat colors, blossoming flowers, raining, etc) that will capture the essence of the campus during the Spring season.
- Given that the behavior of NPCs is modified correctly, users will be able to notice NPCs partake in activities that align with the Fall weather such as gardening, riding bikes, playing in the rain, etc.
- Given that the appearance of NPCs is modified correctly, users will be able to notice NPCs donning Spring centric outfits such as floral shirts, floral pants, waterproof shoes, etc.
- Given that the togglable switch is implemented correctly, users will be able to choose to continue playing their game on the Spring map without losing any of their progress.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and using the toggle button to switch to the Spring map and subsequently continuing the game.

User Story #9

As a user, I would like to be able to see Purdue during the day and night.

#	Description	Estimated Time	Owner
1	Create a functional day/night cycle.	2 Hrs	Charlie
2	Modify the display of the map to simulate daytime.	4 Hrs	Charlie
3	Modify the display of the map to simulate nighttime.	4 Hrs	Charlie
4	Implement lighting systems.	5 Hrs	Charlie
5	Test functionality of previous tasks	1 Hr	Charlie

Acceptance Criteria:

- Given that the day/night cycle is implemented correctly, users will be able to see the game transition from daytime to nighttime and vice versa.
- Given that the modified map for daytime is implemented correctly, users will be able to view the map with a daytime appearance, such as students walking around campus, plenty of cars on the streets, green grass, and flowers.
- Given that the modified map for nighttime is implemented correctly, users will be able to view the map with a nighttime appearance, such as fewer students on the streets and multiple students late-night studying in academic buildings.
- Given that the lighting system is implemented correctly, users will be able to tell the difference between daytime and nighttime, and experience more realistic gameplay. For example, during nighttime, lampposts will illuminate the surrounding area allowing users to see more clearly.
- This story will be manually tested by loading into a game and observing that there is a consistently changing day and night cycle.

User Story #10

As a user, I would like to be able to travel around Purdue's Campus.

#	Description	Estimated Time	Owner
1	Design Purdue Engineering Quad	10 Hrs	Kashvi, Zander, Charlie
2	Design upper left Quadrant of Campus (Elliot to Pharmacy)	10 Hrs	Kashvi, Zander, Charlie
3	Design the PMU area (Gate to Recitation)	8 Hrs	Kashvi, Zander, Charlie
4	Design Purdue West Campus Dorms	10 Hrs	Kashvi, Charlie, Zander
5	Design Central Academic Area of Campus (Buildings around Walc)	10 Hrs	Kashvi, Charlie, Zander
6	Design Lower Left Portion of Campus (Buildings left of memorial mall to University Street)	10 Hrs	Kashvi, Zander, Charlie
7	Implement locations notification	1 Hr	Kashvi
8	Add transitions for switching locations (indoor to outdoor, region)	1 Hrs	Charlie
9	Implement map collision detection system by creating collision shapes, layers, and masks.	5 Hrs	Charlie
10	Add pop-up text that displays the location name entering a different location.	1 Hr	Charlie

11	Test functionality of previous tasks	1 Hr	Charlie
----	--------------------------------------	------	---------

Acceptance Criteria:

- Given that the Purdue Campus Map (Engineering Quad, PMU area, West Campus Dorms, Academic area) is created, users will be able to understand the layout of the campus, recognize and identify different buildings, explore various regions of the campus, interact with different objects, experience environmental details that are accurately represented within the map, and enjoy immersive gameplay that reflects life at Purdue University.
- Given that the locations notification system is implemented correctly, users will be notified through a pop-up about details of a new location.
- Given that the transition for switching locations is implemented correctly, users will be able to know when they have entered a new location. This transition will involve a cut scene representing a transportation method to represent traveling locations.
- Given that the collision detection system is implemented correctly, users will collide with solid objects and entities.
- Given that the pop-up text is implemented correctly, users will be able to quickly access the name of the new location they have just entered, which can be useful for looking up additional details of that location in the locations tab.

User Story #11

As a user, I would like to be able to view information about important locations.

#	Description	Estimated Time	Owner
1	Write descriptions for each location.	2 Hrs	Colin
2	Implement UI for the locations tab.	4 Hrs	Colin
3	Implement exit button	1 Hr	Colin
4	Create an algorithm to sort by location type.	2 Hrs	Colin

Acceptance Criteria:

- Given that the description for each location is complete, users will be able to read and understand details about the location, such as its history, size, type, and dining options.
- Given that the locations tab UI is implemented correctly, users will be able to interact with different UI components in order to use the functionalities of the system.
- Given that the exit button is implemented correctly, users will be able to exit out of the tab successfully and return to gameplay.
- Given that the filtering system is implemented correctly, users will be able to sort information by location type, allowing them to look-up and access what they intend to look for.

User Story #12

As a user, I would like to be able to experience a storyline, so that I can understand how the game flows.

#	Description	Estimated Time	Owner
1	Develop a detailed outline of the storyline including locations, and plots	2 Hrs	Colin
2	Design scripts for character dialogues, including conversations between users and NPC's	2 Hrs	Colin
3	Test the functionality of previous tasks	1 Hr	Colin

Acceptance Criteria:

- Given the script is implemented correctly, when the player clicks on NPC's then they should encounter dialogues.
- Given the storyline is implemented correctly, when the player plays the game, then they should encounter quests and levels around the map that advance the storyline.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and checking if the storyline is being implemented properly and that the players can advance in the storyline..

User Story #13

As a user, I would like to be able to complete various quests and sidequests that reward xp.

#	Description	Estimated Time	Owner
1	Create different quests and side quests which are less time consuming than the quests	4 Hrs	Zander
2	Add a corresponding XP to each quest or sidequest	2 Hrs	Zander
3	Add an XP tracker that saves the XP accumulated to the dataset	2 Hrs	Zander
4	Test the functionality of previous tasks	1 Hr	Zander

Acceptance Criteria:

- Given the quests and side quests are implemented correctly, when a user selects “Start Quest” or “Start Sidequest”, they will be able to play the quest
- Given the quests and side quests are implemented correctly, when they achieve the objectives outlined within the quest, then they will receive experience points (XP) as a reward
- Given the player's progress through the game, when they complete multiple quests and side quests, then they will be able to track their accumulated XP.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and trying out different quests and side quests and checking if the Xp is being tracked properly.

User Story #14

As a user, I would like to be able to interact with non-playable characters (NPCs) around campus.

#	Description	Estimated Time	Owner
1	Create different NPCs around the campus	5 Hrs	Shubhaang
2	Implement the NPCs in a way that users can interact with them	5 Hrs	Shubhaang
3	Design dialogues for different NPCs that help the players to learn about campus	5 Hrs	Shubhaang
4	Test the functionality of previous tasks	1 Hr	Shubhaang

Acceptance Criteria:

- Given that the NPCs are implemented correctly, when the user is walking around the campus, then they will be able to see different NPCs
- Given that the NPCs are implemented correctly, when the user clicks on the NPCs, then they will be able to interact with those NPCs
- Given that the NPCs are implemented correctly, when the user tries to interact with the NPCs, then they will be able to have a conversation with them that helps them move further in the game and understand about the campus.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and interacting with the NPCs.

User Story #15

As a user, I would like to be able to choose a virtual avatar.

#	Description	Estimated Time	Owner
1	Create/choose art of several different avatars the user can choose from	5 Hrs	Shubhaang
2	Implement in UI a way for users to select their avatar from these options	5 Hrs	Shubhaang
3	Add the user's selected avatar to UI	3 Hrs	Shubhaang
4	Test the functionality of previous tasks	1 Hr	Shubhaang

Acceptance Criteria:

- Given the UI is implemented correctly, when a user presses "Select Avatar", they will be shown all the possible avatars.
- Given the UI is implemented correctly, when a user selects one of the possible avatars, this will make it their current avatar.
- Given the avatar is saved correctly, when a user logs off and then goes back on the game, their current avatar should be the same.
- Given the UI is implemented correctly, when a user has an avatar, they should be able to see this avatar on their profile and other places in the game.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and trying out different avatars and checking if it is being added to the UI properly.

User Story #16

As a user, I would like to customize my in-game appearance.

#	Description	Estimated Time	Owner
1	Create/choose art of several different character customizations	5 Hrs	Shubhaang
2	Implement in UI a way for users to customize different aspects of their in-game character	4 Hrs	Shubhaang
3	Match these user choices to the character shown in-game	4 Hrs	Shubhaang
4	Test the functionality of previous tasks	1 Hr	Shubhaang

Acceptance Criteria:

- Given the UI is implemented correctly, when a user presses “Change Appearance”, they will be shown different options of how they can change their character.
- Given the UI is implemented correctly, when a user selects any of these changes, that will change their character’s appearance.
- Given the appearance is saved correctly, when a user logs off and then goes back on the game, their in-game appearance should be the same.
- Given character appearance is implemented correctly, a user’s character appearance should match what they see while playing the game.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and checking if the characters are being customized properly.

User Story #17

As a user, I would like to be able to view ratings from Google on important buildings and locations around campus.

#	Description	Estimated Time	Owner
1	Add an option to the UI of locations to view their rating	2 Hrs	Colin
2	Implement pulling a location's rating from the database and outputting it to the UI page	2 Hrs	Colin
3	Test the functionality of previous tasks	1 Hr	Colin

Acceptance Criteria:

- Given the UI is implemented correctly, when a user is at a location, they should be given an option to “View Rating”.
- Given the UI is implemented correctly when a user presses “View Rating”, the rating of the location as seen on Google.
- Given the database is implemented correctly, when a user selects to view the rating of a location, the correct rating should be pulled from the database.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and visiting the important locations on campus. Once near these locations, we will test that the user can click on the location and view information and ratings related to them.

User Story #18

As a user, I would like to be able to view information on Clubs.

#	Description	Estimated Time	Owner
1	Create a system to pull information on Purdue's club from the internet	3 Hrs	Colin
2	Develop UI page so the user can logically and efficiently view the info in our Social Hub	1 Hr	Colin
3	Implement a refresh for information so that new listings are added regularly	1 Hr	Colin

Acceptance Criteria:

- Given that the UI page is correctly implemented, users should be able to enter the social hub at PMU and click on an icon to view information on clubs.
- Given that our information system is correctly implemented, players will be able to see basic information such as when clubs are meeting.
- Given that our refresh system is correctly implemented, players will be able to see up-to-date information on new listings every time they access the club's page.
- This story will be tested by manual and automated tests. The manual testing will be done by actually launching the game and visiting the Memorial Union. Once at the union, they should be able to click a button to view the clubs' page. The automated tests will be based on the scripts to check if the data is being refreshed regularly.

User Story #19

As a user, I would like to be able to view information on upcoming games.

#	Description	Estimated Time	Owner
1	Create a system to pull information on Purdue's upcoming games from the internet	3 Hrs	Colin
2	Display the information to the user logically and efficiently in our Social Hub	1 Hr	Colin
3	Implement a refresh for information so that new games are added regularly	1 Hr	Colin

Acceptance Criteria:

- Given that the UI page is correctly implemented, users should be able to enter the social hub at PMU and click on an icon to view information on sporting events.
- Given that our information system is correctly implemented, players can see basic information such as when and where the games are occurring.
- Given that our refresh system is correctly implemented, players will be able to see up-to-date information on new games every time they access the games page.
- This story will be tested by manual tests. The manual testing will be done by actually launching the game and visiting the Memorial Union. Once at the union, they should be able to click a button to view the games page. The automated tests will be based on the scripts to check if the data is being refreshed regularly.

Remaining Backlog

Functional Requirements:

1. As a user, I would like to be able to view my current class rank.
2. As a user, I would like to be able to rank up from freshman to senior.
3. As a user, I would like to be able to view my current experience and how much is needed to rank up.
4. As a user, I would like to be able to view a leaderboard that ranks all users by their experience points (xp).
5. As a user, I would like to be able to complete tasks that teach me more about Purdue so that I can better understand the university.
6. As a user, I would like to be able to enter Purdue's Memorial Union as the social hub of campus.
7. As a user, I would like to be able to view a global chat with everyone on the current server.
8. As a user, I would like to be able to send messages to other users.
9. As a user, I would like to be able to create chat groups with multiple users.
10. As a user, I would like to be able to join groups centered around various topics.
11. As a user, I would like to be able to find people with similar interests.
12. As a user, I would like to be able to get suggestions about things to do around campus.
13. As a user, I would like to be able to leave public reviews for different places.
14. As a user, I would like to be able to view reviews of restaurants around campus.
15. As a user, I would like to be able to create and/or join a study room with multiple people.
16. As a user, I would like to be able to personalize my in-game dorm room.
17. As a user, I would like to be able to find collectibles around campus.
18. As a user, I would like to be able to display my collectibles.
19. As a user, I would like to be able to use transportation services at Purdue, so that I can travel to different locations faster.
20. As a user, I would like to be able to have a quest log, so that I can keep track of pending and completed quests/sidequests.
21. As a user, I would like to be able to have an inventory, so that I can store and view all my collectibles.
22. As a user, I would like to be able to view item descriptions of the collectibles in my inventory, so that I can know specific details about an item.
23. As a user, I would like to be able to have a togglable UI.

24. As a user, I would like to be able to submit bug reports, so that the developers are aware of game-breaking bugs/glitches in the game.
25. As a user, I would like to be able to have a friend system, so that I can be online friends with players that I enjoy gaming with.
26. As a user, I would like to be able to travel off-campus to nearby towns like Lafayette, so that I can find new collectibles in these locations and expand my gameplay (if time allows).
27. As a user, I would like to be able to trade collectibles with other players.
28. As a user, I would like to be able to view a stats menu, so that I can understand what the stats are, what each stat does, and how many points I have in each stat.
29. As a user, I would like to be able to input and check my class schedule.
30. As a user, I would like to receive reminders for my classes (if time allows).
31. As a user, I would like to be able to visually see on the map where my classes are located.
32. As a user, I would like to be able to view news events occurring around Purdue.
33. As a user, I would like to be able to start a voice chat with another user.
34. As a user, I would like to be able to start a video call with another user (if time allows).
35. As a user, I would like to receive notifications if someone sends me a message (if time allows).
36. As a user, I would like to receive a notification if someone creates a study room (if time allows).
37. As a user, I would like to complete a daily Purdue trivia question to gain XP.
38. As a user, I would like to receive a notification when any of my friends joins the server (if time allows).
39. As a user, I would like to complete an in-game tutorial to understand the game (if time allows).
40. As a user, I would like to customize my controls (if time allows).

Non-Functional Requirements

Architecture:

We plan to develop a mobile application for iOS using the Godot Engine. Using Xcode and the iOS 15 SDK will allow us to test and debug the app as well as distribute it to all devices that run on iOS. We will also implement a separate frontend and backend that will allow us to easily and quickly modify the application i.e., execute continuous delivery.

Scalability:

The game will be split into multiple servers to maximize the quality of the gameplay for each player. We plan to implement this by making the maximum server size to be at most 40 users. We also plan to include server chat cooldowns so that global and individual chats are safe from abuse by high message traffic. Finally, the trading and marketplace system will be player-driven allowing it to scale with a growing player base.

Performance:

The game would run at a minimum of 30 frames per second and respond to touch inputs within 200ms so that players can experience gameplay that is smooth and responsive. We will also ensure that the initial loading screen takes less than 7 seconds so that users can start gameplay shortly after opening the game. We also plan to allow users to switch to a “Low Graphics” mode for faster game performance. We also plan to improve the game performance by implementing Occlusion Culling so that surfaces and objects that are not within the view of the camera are not rendered. Finally, we will allow users to view and switch between servers so that they can join a server with less lag if their device cannot handle the load of the current server.

Usability:

Our game will feature a simple and effective UI that maximizes the options for users while minimizing its difficulty of use. To accomplish this we will place the different UI components in locations so that they do not block important parts of the screen and are reachable for users while holding their phone. Our UI will use simple language that is easy to understand making it suitable for users who may not have played a game of a similar style before. Also, the quests in our game will have a clear objective so that the players can easily understand how to complete the quest. Finally, we will ensure that the map and music do not use any unpleasant or offensive colors or music.

Safety and Privacy:

Users will be protected by Godot’s built-in security functions for networking to protect their personal information. This will result in secure and private messaging for those using the chat and trading systems. We will also use Godot’s provided encryption system to protect the passwords and data for players. Users will be able

to specify what data they want to be hidden from the public to protect their privacy from other players. If time allows we will also implement a system to retrieve accounts in cases of forgotten usernames/passwords and implement anti-cheating measures to ensure a fair gameplay experience for all users.