2 Production

During the span of this project, you are a game studio. Describe your production culture, communication and pipeline. This chapter drills down on your current process. ***As it changes, update this!!*** *You should have the 1st pass of everything here complete by the end of sprint 1 and then continue to update it throughout the project.*

Note: your analysis of how well the production process worked and changes you made along the way goes into the post-mortem later in this document.

2.1 Overview

Give a brief overview of the constraints you considered, and the approach you took when making production decisions for the project. This is NOT all of the production details in one place. Instead, think of it as defining the context within which your team will be/had to work, how that influenced you, and give some key highlights about what the rest of this chapter will describe in detail.

Going into the development of Libertalia, the main constraint we considered was that the game effectively was made up of interconnected minigames; this presented a unique challenge to effectively produce and manage the team to ensure that the three segments of the game received frequent updates and tied together cohesively. We also recognized that we had no artistic talent on the team, so we knew we had to consider how to work with External Team Members for custom assets while we used temporary assets for rapid prototyping.

We framed a lot of the production decisions around our Core Values of wanting to limit crunch and maintain a healthy relationship with capstone. The process we used to support this value was an agile process informed by Scrum. We elected to use this process as the group had a strong background in it, and our Producer had experience running it for a much larger group and was able to find a way to effectively scale it down for both the Core and External Team.

Also describe your overall development process from both strategic (the overall model: iteration length, overall workflow, etc.) and tactical (how you enacted your process strategy: task management procedures, etc.) perspectives. Be specific and include your rationale for these approaches and their impact on the final product quality.

The process utilized within the internal team is an agile process informed by Scrum, featuring two-week sprints, daily standups during the weekdays, task management through ClickUp, builds and playtests at the end of each sprint, pull requests, and reviews and retrospectives. The workflow for the sprint kicked off with a sprint planning meeting where we devised the questions we'd like the next playtest to answer and populated our sprint backlog with tasks from our product backlog; we also discussed process changes the team wanted to see in a brief retrospective utilizing the Retrospective Starfish method (Patrick, 2009). Throughout the sprint, we maintained daily standups and met with each of our Committee members once per week to provide updates on our progress and discuss feedback specific to their areas of expertise. The Producer also met with the External Team Members twice weekly, one directed toward 3D and art assets, and the other toward audio. On the second Thursday of each sprint, we playtested the game with the cohort, barring other

scheduled playtests. This type of process worked well for the internal team to keep the development of the three phases organized and informed, as well as the fact that each member of the group was familiar with this type of process.

From the tactical perspective, we enacted our process strategy by tracking task management in our standups with our task board in ClickUp open to ensure statuses were properly tracked. We also regularly communicated in Discord and updated the ClickUp items on our own time to reflect the current state of work items. The External Team Members also had access to ClickUp boards that they updated as they progressed through their work items; however, the producer and designers ensured the work items were well defined for the External Team ahead of time so they had a clear sense of direction. These items were also updated during those weekly meetings between the Producer and External Teams. This approach to managing our tasks helped improve transparency between the Core Team, External Team, and Committee members, keeping all stakeholders involved in the development proces and progress.

2.2 Team Organization & Communications

2.2.1 Team Formation

How did you structure your team? What skills did you have available as a combined group and how did that influence your objectives and process? .... Core team and external team members - how did you form and then structure the team? Why?

The team began forming around the idea of Libertalia in Summer 2023. While we formed, we confirmed each member's area of interest in the process of game development and ensured there would be enough work in their areas of interest throughout the development of the game to ensure the project would benefit the individual and the product. The team structure formed around the skills and areas of interest in the Core Team; this resulted in having one producer with additional skills in game design and development, one game designer, two game developers, and one game developer with additional skills in design. This makeup afforded the development for the three different phases, tied together by strong design; however, it lacked artistic ability.

Our strengths in game development and production informed our objectives of what was possible technologically alongside prioritization, while our secondary strength in design informed the development work and the cohesion between each phase. To fill the gap in artistic ability, we reached out to external artists, including concept artists, 3D modelers, and audio engineers, and strengthened our unique design challenges and production challenges by including Committee members with expertise in those areas. Working with External Team Members informed an addition to our process that included weekly meetings with the art team to iron out the aesthetic of the game and the feel that we sought to achieve as well as a weekly meeting targeted toward our audio-oriented External Team Member. We included the External Team Members in our task management system to allow them to take up tasks as they arose

and have total transparency into the work that we were doing and what was on the horizon. This emphasis on radical transparency, both in tools and in principle, helped ensure that everyone was up-to-date with what each team member was working on and also improved the process as members influenced the workflow on a sprint-to-sprint basis by communicating what was and wasn't working well for them.

2.2.2 Core Values & Responsibilities

Combined notes on team expectations regarding communications and creating a productive, inclusive environment. How will you all communicate? What is a reasonable response time expectation? What are the team's overall priorities? How will you handle disagreements? How, as a TEAM, will you make sure everyone has value-added work to do and has a "voice" on the project?

Asking yourselves & each other the following questions can help start this conversation:

- *What styles/forms of communication are most effective for you?*
- *How do you prefer to handle conflict and how does this vary based on the topic/type of conflict?*
- *What would it take for you to feel included in the team? What will you do to help others feel included?*
- *Is there anything else you want the team to know?*

The core value of our team was to avoid crunch and maintain a healthy relationship with capstone to ensure that the team had time to work on other projects and still have downtime. As such, we decided to work primarily on the weekdays; this was reflected through our sprint plans getting designed around weekdays and daily standups and Committee meetings only occurring during weekdays.

The Core Team valued in-person communication and interaction to avoid misconceptions; as such, all of our standups were in-person, barring illness or circumstances that prevented in-person meetings. We utilized Discord to communicate certain items as needed, discussed ideas as they originated if it occurred outside of regular meeting time, asked clarifying questions, and communicated clear deadlines. We tended to answer one another within a few hours if we were tagged in Discord, but otherwise, we debriefed once per day on the weekdays to paint a clear picture of what we were working on. We also used Discord to communicate with our External Team Members and Committee members alongside scheduled in-person meetings with each Committee member and online meetings with External Team Members.

We handled disagreements via radical transparency; we each sought to understand where the other person was coming from and used other believable individuals, either in the Core Team or our Committee members, to help settle disputes within the project by helping advise based on their experiences and expertise. "Radical transparency forces issues to the surface—most importantly (and most uncomfortably) the problems that people are dealing with and how they're dealing with them—and it allows the organization to draw on the talents and insights of all its members to solve them. … If we were handling things well, our transparency would make that clear (provided, of course, that all parties are reasonable, which isn't something you can always take for granted), and if we were handling things badly, our transparency would

ensure that we would get what we deserve, which, in the long run, would be good for us" (Dalio, 2017, pp. 330-332).

To ensure that everyone had a voice in the project, we took part in an idea meritocracy; this means that the best ideas win, regardless of who or where they come from. An idea meritocracy only works with radical transparency, radical truth, thoughtful disagreement, and believability-weighted decision-making. Believability-weighted decision-making is the idea that "it is far better to weight the opinions of more capable decision makers more heavily than those of less capable decision makers. … The most believable opinions are those of people who 1) have repeatedly and successfully accomplished the thing in question, and 2) have demonstrated that they can logically explain the cause-effect relationships behind their conclusions. When believability weighting is done correctly and consistently, it is the fair and most effective decision-making system. It not only produces the best outcomes but also preserves alignment, since even people who disagree with the decision will be able to get behind it" (Dalio, 2017, p. 371).

Something that comes from the idea meritocracy and believability-weighted decision-making is frequent disagreement, where disagreement is not just tolerated, but encouraged. Disagreements can cause dysfunction as debates can take up large segments of time, so it was important to outline ways to disagree efficiently. One being, "know[ing] when to stop debating and move on to agreeing about what should be done." Another, and arguable our most important, being, "when you're responsible for a decision, compare the believability-weighted decision making of the crowd to what you believe. When they're at odds, you should work hard to resolve the disagreement. If you are about to make a decision that the believability-weighted consensus thinks is wrong, think very carefully before you proceed. It's likely that you're wrong, but even if you're right, there's a good chance that you'll lose respect by overruling the process. You should try hard to get in sync, and if you still can't do that, you should be able to put your finger on exactly what it is that you disagree with, understand the risks of being wrong, and clearly explain your reasons and logic to others. If you can't do those things, you probably should suspend your own judgment and go with the believability-weighted vote" Dalio, 2017, pp. 380-381).

This idea meritocracy and all of it's elements went for all segments of the team, including the Core, External, and Committee. Playtesters provided feedback with the highest weight in believability-weighted decision-making as their feedback helped shape the decisions we made regarding the game. The Committee members had the highest weight for internal stakeholders in their areas of expertise. That did not mean we couldn't dissent to the Committee or playtesters' feedback, but we needed strong evidence and sound reasoning to not take the advice in which we received from them, and recognize the effect it would have before executing the decision. Ideally, this meritocracy helped give everyone a voice.

2.2.3 Core Team

For each team member, summarize your background, individual goals, and team role(s) + how their work contributes to the overall production goals.

Adam Fan - *System & UI/UX Designer*

Adam has a background in game design and development, including a minor in game design at NYU and is currently pursuing a master degree at Rochester Institute of Technology. He has participated in designing several board games and educational games, and he has studied various kinds of video games in modern platforms. He joined the team with an interest in game design after Kyle pitched his idea to the capstone.

Adam has development experience with multiple tools including Unity, Unreal, GameMaker, C# and Cocos. He has gained work experience with artists and programmers from an internship in Shanghai Jiliguala Cultural and Communication Co. Ltd.

Adam has earned a Bachelor of Art degree in Philosophy from New York University. The courses have trained him with systematic thinking and openness for adopting new skills, which are essential in the game industry. For this project, his philosophical background demands him to always have reasons backing new design decisions and make systems useful across the three phases in the game. Although there has been little experience designing UI/UX, by studying similar games in the market and across genres, he is able to capture the key features needed for this project and design accordingly.

Kyle James - *Producer, Designer, Exploration Phase Programmer*

Kyle has a background in production, including a recent internship where he was a Production Lead for ChangelingVR (“Changeling,” 2023) for a team of 80 student designers & developers organized into 11 subteams; as such, Kyle took up the role of producer for the Libertalia project and utilized the production workflow he established for ChangelingVR to help inform the initial structure of the Libertalia production process.

Kyle also has a background in game design and development through years of development experience in C#, Unity, and GitHub, among other development languages, environments, and tools, alongside BS/MS education in Game Design and Development from the Rochester Institute of Technology and Software Engineering experience at KCF Technologies. Kyle contributed the initial concept for Libertalia and worked closely with the other design-oriented Core Team members to iterate on the game's design while keeping scope in mind. He also contributed various programming

skills throughout the implementation of the project but primarily focused on the development of the exploration phase.

Lastly, Kyle worked at the Expressive Communication Center at the Rochester Institute of Technology as a peer consultant for public speaking, which aided the pitching of the project and other speaking engagements necessary for the project.

Sijal Jaradat - *Gameplay & UX Designer, Support Programmer*

Sijal has a background in gameplay programming and design, with much of his game-related experience coming from his years being a student at the Rochester Institute of Technology (RIT). Alongside this, he also has experience applying his knowledge on gameplay programming in more practical settings, such as with his recent internship as an Experience Programmer at Cortina Productions developing interactive museum exhibits within Unity. Most of Sijal's hands-on experience programming has been in more practical environments, and as such he took on the roles of Designer and Programmer to help translate his experience back into the context of games.

Sijal's core experience is within Unity, C#, and C++ among other development environments thanks to his BS and MS studies in Game Design and Development at RIT. He worked alongside other design-oriented members of the team to help flesh out Kyle's initial pitch for Libertalia, reworking its focuses and priorities to line up with the scope set by the team's producer.

Winson Weng - *Combat Phase Programmer*

Winson has a background in game design and development obtained through years of experience at the Rochester Institute of Technology, and some experience in software engineering and UI design in an internship at Yale University. A lot of his experience is tied to working on game mechanics, along with designing and improving user interfaces to allow users to be able to clearly understand the state of the program. Throughout his time at RIT, Winson has gained experience in a variety of different development environments including C#, C++, JavaScript, and Unity.

Winson's primary role on the team was to be one of the developers working on the game's mechanics and functionality. He primarily focused on the combat portion of the game. He added functionality for the characters in the game to allow for movement, selection, and attacking. He also improved the user experience found within the combat sections of the game by taking the feedback obtained from playtests and using them to fix or improve the areas that needed work.

Adam Zaffram - *Gameplay & Systems Programmer*

Adam has a history of working on more technical projects with a passion for system and tool development. This is reflected in his recent experience at Velan Studios where he worked there as a Programmer Intern alongside industry veterans.

Most of his time spent there involved improving the visual scripting feature in their game engine, Viper. This allowed him to get a better understanding of how to debug lower level code and build features to best serve the user.

Adam has an even longer history with the Unity game engine. As a Teaching Assistant for IGME-202, Interactive Media Development, with multiple Unity projects under his belt, he knows how to use many of its capabilities to the full extent.

As someone with this type of knowledge and background, it only makes sense for Adam to join the team of programmers to bring the game design to life, and that is what he is excited to do.

2.2.4 Committee

First, describe, in a general sense, what influenced who you asked to be on your committee. Also discuss how you managed communications with them. Why did you choose this strategy and how did it evolve over time?

The major influences that informed our decisions on needs from our Committee during the initial work on Libertalia were the number of unique needs for the project:

1. Game balance and design
2. Prioritization and production strategies to address the three unique phases of our game
3. Creating a cohesive experience between the phases that focus specifically on user experience.

As such, we requested Committee members with expertise in game design and balancing, process and production, and user experience and design.

With the help of the following three advisors, we addressed a number of our weak points and unique challenges that the project presented; however, it did not address our weak point in how to address designing a meaningful art pipeline, in which we referred to the Lead Capstone Advisor, Elouise Oyzon, given her background in aesthetic and art, as well as a few external consultants as needed.

The process to facilitate communication with our official Committee included a once-weekly meeting with each Committee member individually. We came into each meeting with them with the goal of updating them on new developments for the project and with a series of questions specific to their areas of expertise. We also offered them the opportunity to give other feedback; however, we wanted to be mindful of their time and keep those individual meetings as focused as possible on their areas of expertise and interest. We also scheduled a once-monthly meeting with all of the Committee members to have a brief meeting to ensure that all of the Committee members are on the same page and allow them to riff off each other as needed. We chose this strategy to ensure that each Committee member can focus on their specific areas of interest in our individual meetings and confirm that each Committee member is on the same page in case anything falls through the cracks in the development updates during the individual meetings to improve transparency. We planned to meet with each Committee

member once per week in-person; we came to each meeting with general updates, and specific questions we had for them, and allowed them to offer feedback in other areas that we weren't asking questions on, as they saw fit.

Sean Boyle, Principal Lecturer, IGM

Then describe each committee member's role on the project in terms of their areas of expertise and why advice in this area was important for supporting your team's goals. How often and how did you meet with/get feedback from this committee member?

We recognized that game balance was going to be a significant aspect of Libertalia through the balancing of our wide range of resources throughout the three phases, so we required somebody with knowledge in game balance and game design to help refine and polish the design in our two phases to instill the need to strategize in managing throughout the game; as such, and due to a member's extensive work with him, we pitched to, and invited Sean Boyle to advise us on the areas of game balance and design.

Erika S. Mesh, Senior Lecturer, IGM

Then describe each committee member's role on the project in terms of their areas of expertise and why advice in this area was important for supporting your team's goals. How often and how did you meet with/get feedback from this committee member?

Another unique problem that came with our game was that we had multiple unique phases; this required a certain focus on how we needed to approach production and prioritization, especially as our team lacked artistic ability. As such, we reached out to Erika S. Mesh to help with the refinement of our production process, both internally and externally, as well as how we should prioritize elements in our project to best convey what we're seeking to accomplish.

Ben Snyder, Visiting Lecturer, IGM

Then describe each committee member's role on the project in terms of their areas of expertise and why advice in this area was important for supporting your team's goals. How often and how did you meet with/get feedback from this committee member?

We recognized that we had a unique challenge with tying the user experience together between the three phases so that they felt cohesive; we also recognized that both of our other advisors were less experienced with the games in this genre. To address these challenges, we reached out to Ben Snyder who had a background in experience design, game design, and had a wealth of knowledge in games of this genre.

2.2.5 External Team Members

Describe, in a general sense, what influenced your selection of external team members (e.g., artists, animators, composers, etc.). Also discuss how you managed communications with them. Why did you choose this strategy and how did it evolve over time?

Before considering External Team Members, we considered the needs for the project based on the talents of the Core Team. The Core Team lacked any real

aesthetic and art talent in a game where the environment and feel are important; as such, we sought out a variety of artists with backgrounds in 3D modeling, texturing, art, animation, and sound and music design. We connected with these External Team Members through a Core Team member's experiences and relationships with them.

The communication process with the External Team Members featured a once-weekly meeting with our External Team, although the External Team Members were invited to attend any of our daily standups as desired. We also included the External Team Members in our Discord for communication outside of these meetings, as well as granted them access to our Shared Drive, and aesthetic task management board in ClickUp to improve transparency. We chose this strategy to ensure that the External Team Members were up-to-date with our developments and vision, as well as create the opportunity to contribute to the aesthetic goals of the game.

This strategy functioned well throughout the first semester of development; however, at the beginning of the second semester, our External Team Members became too busy to continue producing the content as their course loads were heavier for that semester. As such, we severed our External Team efforts at the beginning of the Spring semester and gathered assets via purchases through the Unity store and other external sources to create the desired aesthetic for our experience. We still communicated with our concept artist for game posters and promotional materials as they expressed interest in continuing collaboration on a smaller scale; this communication strategy was more informal as our Production Lead met informally with her in passing following class periods that he shared with her as a graduate assistant.

Max Adams, Berklee College of Music, BM Game and Interactive Media Scoring - *Sound & Music Design*

Then describe each external team member's role on the project in terms of their areas of expertise and why their contributions in this area was important for supporting your team's goals.

Max Adams has a background in sound and music design from Berklee College of Music, which made him an excellent fit to work on the audio in Libertalia. We found Max through his connection with Core Team member Sijal Jaradat.

His contributions in this area were especially important to our project because audio design in casual games similar to Libertalia creates a pleasing experience for players, especially as they construct their bases, which was crucial for us to make the outpost construction a good experience.

Kaelyn 'Gil' Beeman, RIT, BS/MS Game Design and Development - *Concept Art*

Then describe each external team member's role on the project in terms of their areas of expertise and why their contributions in this area was important for supporting your team's goals.

Kaelyn 'Gil' Beeman has a Game Design and Development background from the Rochester Institute of Technology and extensive experience creating concept art for different projects and games. Kaelyn has a diverse portfolio of concept art. We found

Kaelyn while discussing the Libertalia project at an RIT Interactive Games and Media event during the first semester of Libertalia's development. Core Team member Kyle James was also Kaelyn's graduate assistant throughout the two semesters of development in other courses.

Her contributions to concept art were significant in helping us achieve the visual aesthetic in Libertalia and help maintain consistency in our aesthetics and color palette as the art got handed off to our artists.

Lucas Corey, RIT, BS/MS Game Design and Development - *3D Modeling*

Then describe each external team member's role on the project in terms of their areas of expertise and why their contributions in this area was important for supporting your team's goals.

Lucas Corey has a background in Game Design and Development from the Rochester Institute of Technology and has experience modeling a variety of props. We found Lucas through his connections with Core Team member Kyle James; Lucas was a team lead on the Changeling project ("Changeling," 2023) and worked directly with Kyle throughout the Summer of 2023. Kyle was also Lucas' graduate assistant throughout the two semesters of development in other courses.

Lucas contributed concept art renditions of the tavern building and prototyped an early 3D model. While the model ultimately didn't make it into the game due to the lack of textures, we utilized the concept art and initial prototype to inform the design of our tavern model using assets from our resource packs, helping us achieve the desired visual aesthetic.

Dariel Ramos, RIT, BS Game Design and Development - *3D Modeling*

Then describe each external team member's role on the project in terms of their areas of expertise and why their contributions in this area was important for supporting your team's goals.

Dariel Ramos has a background in Game Design and Development from the Rochester Institute of Technology and has experience modeling a variety of models in different games. We found Dariel through his work on the Changeling project ("Changeling," 2023) with Core Team member Kyle James; he made significant contributions to the project's shaders, 3D models, and textures.

Dariel contributed concept art renditions of the flintlock pistol, crewmates, farm, dock, and prototyped models of the crewmates, flintlock pistol, dock, and farm. While none of the models made it into the game due to a lack of textures, Dariel's concept art and early prototypes heavily influenced our decisions on visual aesthetics, and we sought out assets that closely resembled what he developed. Without Dariel's contributions, we would not have had a clear idea of the styles we wanted to implement at the beginning of the spring semester.

Kieran Yates, RIT, BS Animation and Modeling - *Art & Animation*

Then describe each external team member's role on the project in terms of their areas of expertise and why their contributions in this area was important for supporting your team's goals.

Kieran Yates has a background in Animation and Modeling from the Rochester Institute of Technology and has experience modeling a variety of props. We connected with Kieran via External Team Member Dariel Ramos. Between Dariel's recommendation and a brief meeting with Kyle, we happily took Kieran on board in an animator role.

Since we didn't get far enough with our 3D models from the External Team, Kieran didn't end up contributing to the animations of those models. While we moved on and found models from external sources, they came readily scalable to use with pre-determined animation packs that made it easy for us to implement internally. As such, we didn't use Kieran's services, which worked out for both parties, as he also became unavailable in the second semester.

2.3 Resource & Risk Analysis

What skills and roles will you need? Be open to additional team members, keeping in mind that you probably will have more work than you're expecting!

What technology will be required throughout the project, in terms of hardware, software, materials, etc? You might also want to include monetary costs if you will be working in the analog world and expect to do any actual production and purchasing.

Also DISCUSS the major risks your team will have/had to account for during the project. For each, cover:

- *Likelihood – What were the chances of this happening?*
- *Severity – What would the impact have been?*
- *Mitigation – How would/did you respond/minimize the impact of this?*

This is not simply a table with ratings (although formatting as a table can be helpful). Discuss each and how it influenced your decisions and the project overall.

Before the start of the development of Libertalia, we carefully assessed the required skills and roles essential for the project's success. We identified the need for game designers, dedicated developers, UI designers, and audio and 3D modelers that could help tie together the three separate phases of our game. Additionally, we recognized the importance of a producer to coordinate and integrate these elements. Within our Core Team, we successfully secured game designers, developers, and a producer, and our designers took on the responsibility of researching and designing UI layouts. However, we faced a talent shortage in asset production, specifically in 3D modeling, audio, and 2D icons. To address this gap, we formed an External Team of skilled artists and an audio designer. We also expanded our Committee by adding members with expertise in production, design, and user experience.

Technologically, we had access to computers equipped with Unity software in the Game Design and Development Graduate Lab, courtesy of RIT. Additionally, we

obtained a Steam Deck to explore the gameplay experience on handheld touch-screen devices. Recognizing the importance of high-quality art assets, we allocated funds to purchase 3D models and 2D user interface icons. This proactive measure ensured that we could maintain the visual integrity of the game, even if our External Team faced challenges in meeting the growing demands of our asset list.

RISK	LIKELI-HOOD	SEVERITY	PREVENTION & MITIGATION
Illnesses / Injuries / Absences	High	Medium	Throughout the school year, there was a good chance that somebody got sick, injured, or had to be absent at one point or another. To mitigate the effects of these absences, we maintained high levels of communication in our process. We also performed frequent code reviews and documentation updates to break down knowledge silos and ensure that everyone on the team knew what others were working on and where to find their work so that anybody could pick up each other's work to some degree if they had to be out for extended periods.
GitHub Issues (Submitting Broken Project)	Low	High / Catastrophic	Given the process requirement of feature branches, code reviews from other members, and the pull-request procedure that required said reviews before merges, the odds of submitting completely broken project code were reasonably low; it was especially low when looking at merges from the development branch into the release branch as the development branch saw extensive testing and review before merges.
Requesting Art/Audio Assets Too Early	Low	High	While working with External Team members, it was crucial that we didn’t request assets too early as their workload couldn’t handle significant changes or scrapped content as

			they're also students and have less time to produce these assets. The risk was pretty low as we only requested assets once we were guaranteed to have the asset in the game to some degree; we started by ordering the necessities that were very unlikely to change, which allowed us to refine our asset list moving forward to prevent this risk from occurring.
Receiving Negative Playtest Results	High	Medium	Receiving "negative" playtest results was inevitable at some point or another; still, our goal was to ensure that we didn't have content that distracted from the main questions that we were trying to answer in our playtest. We weren't able to completely mitigate this risk as we experienced it in the fourth sprint as we missed some significant dialog issues in the playtest build that distracted from the main focus; however, we shifted our process following this mistake to incorporate code freezes with internal playtests with the team and two of the Committee members to catch the distracting content before moving into the playtest for the associated sprint moving forward.
Member Cannot Attend Meeting	High	Low	There was a good chance that somebody on the team wouldn't be able to attend a meeting throughout the year. Generally, this wasn't a severe risk as long as it wasn't a long-term absence. If someone were to miss a standup, members provided their updates in-text on the Discord server. If someone missed a meeting with a Committee member, we took notes and dispersed the information between one another following the discussion in our next standup. We

			recognized that members would occasionally miss meetings, and this mitigation strategy made the absences low-impact.
Core Member Not Doing / Faking Work	Low	Catastrophic	Given that the project's development was the principal item in our graduation requirements from the graduate program, the likelihood that somebody flaked on their work was very low; however, the chance was never zero. We devised the prevention strategy at the core of our team's values, ensuring we had time off during the weekends and breaks to help prevent burnout. We communicated regularly about where we were at and were transparent about things in our personal lives blocking work from getting done. This level of transparency helped keep members on the same page and build a sense of camaraderie that ensured that members were involved throughout the process.
Scope Creep	High	High / Catastrophic	It was easy to continue to add ideas to the project since each of the three phases lent themselves to different styles of gameplay that could generate new mechanics or systems that affect the mechanics of the phases. We ensured that items that were in our sprint backlogs aligned with our goal of getting the gameplay loop conveyed while showing off the unique elements of the game. We discussed the item in the scope of the game as a team and only included it in the scope if all team members agreed upon its relevance. While some of the ideas that we added to the Minimum Scope originated from the Core Team, many of them originated from the Committee and

			playtesters as the critical elements to address became clear.
Collaboration & Communication Issues	High	Medium	Communication issues pop up in long-term projects at one point or another. Depending on the severity of the communication problems, the severity is dependent; as such, we assumed the severity to be somewhere in the middle. We mitigated communication issues by having daily standups internally and weekly updates with our Committee members and External Team Members. As problems arose, we committed to discussing them internally and informed our Committee of the issues as needed to receive guidance where applicable.
Burnout	High	High	Burnout throughout the academic year seemed likely, and there could have been severe impacts on team members' ability to contribute. Again, to our core values, we devised the mitigation strategy at the core of our team's values, ensuring we had time off during the weekends and breaks to help prevent burnout. We communicated regularly about where we were at and were transparent about things in our personal lives blocking work from getting done.
Lack of Documentation	Low	High	Maintaining documentation was an essential facet of the development process for each team member, as we discussed with each other before beginning development. As such, we determined the risk to be relatively low; however, it could have had high severity impacts if it fell off, as it would have affected our ability to communicate our project's development with our advisors. Apart

			from having this facet core to our values, we mitigated the risk by incorporating it in our task estimation and task card completion.
Inconsistent Aesthetic	High	High / Catastrophic	Given that we didn't have any aesthetic or artistic-driven members on our Core Team, there was a good chance that we overlooked the aesthetic of the game and provided an inconsistent aesthetic; this could have proved pretty severe in this style of game, as aesthetic, especially in sound design, could have significant impacts on the reception. We mitigated these problems by assembling an External Team to produce consistent assets and aesthetics. We also asked them to consider the placeholder assets we found as to whether or not they fit the aesthetic before we committed to purchasing them.
Incohesive Gameplay	Medium	Catastrophic	Our primary focus for the development of the vertical slice was to create a cohesive gameplay loop so that players could understand what the feel of the game would be at the base level. Given the challenge of juggling three distinct phases of the game, we noted that this was a potential risk that would have catastrophic effects on how players received our game. We mitigated this risk by having regular playtests and regularly checking our design with our Committee and playtesters while ensuring that the feel of the flow of the game was clear and concise.
External Team Doesn't Produce	High	High	Our External Team was made up of other students, many at RIT, while our audio producer was out of the Berklee School of Music; with that in mind,

			our External Team would have trouble producing some assets for specific deadlines. We determined this a fairly costly risk, and we decided to mitigate the issue by looking into placeholder and paid assets that could suffice to convey our aesthetic. In collaboration with the External Team, it was vital that they okayed these assets and helped curate them to align with what we requested from them.

2.4 Planning & Scope

2.4.1 Overall Priorities

Describe the overall priorities and rationale that guided your development plans (this should add depth and context to the goals you introduced in the Introduction). While the detailed scope plans may change, these overall priorities should be more stable. ***If, via playtesting & research, you discover your guiding priorities do need to change, make sure to discuss it with your faculty!***

The overall priority for Libertalia that we settled on at the beginning of the development of the project was to create a cohesive experience between the three phases that emphasized the goal of constructing the outpost or pirate utopia while creating a dominant crew. What it means to be cohesive in the context of our game is that each phase feels relevant and impactful on the others while sharing similar control schemes and UI/UX.

For the eight months that we had on capstone, we sought to create a vertical slice that encapsulates the gameplay loop of construction management, exploration, and combat simulation. We wanted to ensure that outpost construction was satisfying, provided a strong sense of progression, and allowed the player to effectively manage their resources and crew. We also wanted to implement a simple combat system as a means to supply their outpost. At a larger level, we wanted to innovate within the genre to move away from time-gated activities and work toward our proposed action point system by implementing it at a base level.

2.4.2 Minimum Scope

*Given the priorities, what is/was your bare minimum scope? This section WILL change over time as you refine the game design. That's fine. This is a living document! **WHY** are these things important?*

The minimum scope of the project included creating an outpost island that allows the player to place a couple of buildings and manage resources, an exploration that acts as a bridge between the outpost and combat phases with random encounters, and a combat phase that allows the player to direct their crew to areas on an island to fight enemies. This was our bare minimum scope because we knew we needed to try to convey the cohesiveness between the three phases and signify the significance of resource management and progression in the game. To get more pointed, below is a more fleshed-out list of what each zone will encapsulate at a bare minimum.

2.4.2.1 General / Overall

- Crewmates w/ attributes
- Action points
- Four resources
    - Food
    - Loyalty
    - Doubloons
    - Wood

2.4.2.2 Outpost

- Ability to place three buildings (each with one upgrade tier)
    - Farm
    - Tavern
    - House
- Ability to select "pre-built" buildings
    - Dock
    - Ship
- Ability to assign crewmates to placed buildings & the Ship
- UI to display amount of resources & resource change rate
- UI for a build menu

2.4.2.3 Exploration / Overworld Map

- Two islands/settlements to click on to start settlement combat
- Ship-to-ship combat in FTL style
    - Ship combat against pirates, colonialists, or skeleton crews
- Fog-of-war exploration
- Action point addition

2.4.2.4 Settlement Combat

- One enemy type w/ meaningful decision making
- Ability to select crewmates & send them to an area of the settlement

- Automatically fighting crewmates & enemies in an area
- Resource addition

2.4.3 Stretch Goals

List any features that you want to accomplish but aren't deemed essential. If you get to them, great.

2.4.3.1 General / Overall

- Additional crewmate attributes
- Inventory system for weapons and relics

2.4.3.2 Outpost

- Additional types of buildings
- Additional upgrade tiers
    - Some tiers locked behind the need to pillage certain islands
- More in-depth upgrade tree for ships
- Invasions / need to defend
- Building decay if not able to afford upkeep

2.4.3.3 Exploration / Overworld Map

- Random encounters
    - Ship combat or negotiation with merchant ships
    - Ship combat against sea monsters
- More islands to pillage
- Non-traversable areas of the map dependent on ship upgrades
- Items that affect visibility of the map
    - Maps from settlement combat that show other island locations
- Procedural generation of islands
    - Includes repopulation of islands after pillaging

2.4.3.4 Settlement Combat

- Using resources in combat
    - Food to heal combatants; adds a layer of needing to make sure you have enough food to get home
- The ability to return to an uncompleted island to finish pillaging it
- Single-use items to use during combat
- Crewmate abilities to use during combat
- Cannons ability

2.5 Task Management

Given the priorities and target scope + your team organization and communication strategies, how are you tracking what needs to be done? How do you know who is doing what, when? How are dependencies managed and progress assessed? Describe this from both strategic (the overall model: overall workflow, etc.) and tactical (how you enacted your process strategy: task management procedures, etc.) perspectives. Be specific and include your rationale for these approaches and their impact on the final product quality and how your priorities and risks motivated your process decisions. (Use an appendix for detailed task management procedures, etc. as needed to keep this section from getting cluttered.)

We used the following strategies and tools as members of the Core Team were familiar with this style of workflow from previous coursework, and because we needed a somewhat more rigid task management workflow for the number of different phases that Libertalia lent itself to. This workflow kept the team focused and organized throughout the project's development, also providing a clear picture of what each team member was working on for the Core Team, External Team, and Committee. The structure also helped us organize and prioritize tasks to better convey our core experience and mitigate the risks associated with poor communication and the risks of creating an incohesive experience as we put too much focus into specific areas of the game.

In order to manage our work in the two-week sprints, we kept an organized product backlog, and moved items from the product backlog to a sprint's backlog during sprint planning meetings. The types of tasks we used to distinguish between types of work items were epics, stories, bugs, and spikes. We filled out the work items in detail when we populated the product backlog, which included marking other work items as dependencies when applicable. We decided to use ClickUp as our task management tool to support this process given its capabilities to meet this process. We used ClickUp due to the number of features that it offered for free, as well as the fact that it had a high level of integration with our key virtual communication tool, Discord.

We tracked who was doing what throughout the sprint by updating the status of the tasks.

1. At the beginning of the sprint, an item would start in the sprint backlog.
2. We assigned members to work items during the sprint planning meeting, and they would be responsible for updating the status of their tasks throughout their work on the project; however, we also kept ClickUp open during the daily standups to ensure work items were set with the correct status.
3. Once a work item was started, the member would move the task to the in-progress status, and once they completed it, they would move it to the under review status for review.
4. Once another member reviewed the work item, they would check off the review and move it to the completed status for the sprint.
5. Once the sprint ended, we moved incomplete tasks to the next sprint in whatever status they were left in.

As a general rule, we did not add or subtract work from a sprint in the middle of a sprint and stuck to our original workload from sprint planning; however, as we were discovering our workload limits early in the project, we pulled some items off the product backlog if individuals finished their original sprint work items early. We got better at estimating the workload as the project progressed, but continued to pull from the product backlog as needed to ensure members always had something to work on.

While this task management strategy worked for the Core Team, we also created a separate task board in the ClickUp for the External Team to use, which followed a similar workflow, but stuck to the aesthetic elements that we needed from the External Team.

2.6 Version Control

Summarize how you're storing/managing ALL product artifacts (not just code!). Why are you using these approaches/tools? Are there key features of the tools you are leveraging? (e.g. pull requests).

Version Control was necessary for a wide variety of artifacts, including code, documentation, tasks, and art assets.

For the project artifacts, we used GitHub as our tool for Version Control and sharing, partially due to the team's familiarity with GitHub and Unity's easy integrations with it. We utilized a main branch for "official" releases, which included playtest builds, a dev branch as our staging branch for work leading up to the "official" releases, and feature branches that got created and deleted for each work item outlined in the ClickUp task management board; feature branches would merge into the dev branch upon a successful pull request that required at least one reviewer who did not work on the item, and the dev branch would merge into the main branch upon a successful pull request that required at least one reviewer who did not work on the item. We merged and deleted feature branches upon item completion and merged the dev branch into the main branch for "official" releases.

While merging the development branch into the main branch was relatively easy, we needed more structure for the code reviews, pull requests, and merges into the development branch. We initiated pull requests with each task card in our task management board once its primary developer documented the feature and moved it to the "Under Review" status in ClickUp. From there, someone who did not work on the feature or pair program the feature performed the code review with for the pull request via GitHub's "Files Changed" feature that requires reviewers to check off each reviewed file from the pull request; code reviewers were also required to open the game in the Unity editor and run through the game at least once to ensure that all functionality remained intact. Once the reviewer finished the review, they approved it through GitHub's "Review" feature and alerted the primary developer that it was approved. The primary developer would then complete the pull request into the

development branch and test their feature in the development branch. Once they ensured the development branch was stable, they deleted their feature branch and updated their task card from “Under Review” to “Completed,” marking a successful merge. While merging, dependencies tended to get merged into a separate staging feature branch to resolve merge issues via pair programming before performing the pull request into the development branch.

For written design and playtest documentation, we utilized the Shared Drive for Google Docs, Google Sheets, and other supported documentation types to maintain a log of version history that Google applications automatically compile.

Lastly, for art assets, we maintained our assets in the Shared Drive with a certain naming convention to reflect the version as artists tweak and add new versions of their models. The models folder in our Shared Drive had each model as a subfolder with the models name, with those subfolders holding the different versions of the model.

2.7 Asset Pipeline

Summarize how you store, manage, and incorporate assets into your game. Include any strategies for coordinating with external team members here as well.

For the asset pipeline, we utilized a similar structure from our Task Management model, alongside communication with our External Team Members to generate custom assets in models, art, and sound. We allowed our External Team Members access to our Shared Drive so that they could upload models and art utilizing our process for Version Control. From there, we would implement the assets into the game as needed. We coordinated with the External Team Members frequently via a weekly in-person meeting and Discord communication. We maintained the asset product backlog to ensure that assets were prioritized appropriately, that they had clear descriptions of what we were looking for, and that we didn’t leave unnecessary asset orders in there if we pivoted away from that concept.

We coordinated with the art portion of our External Team Members to outline specifications for assets in the game. Between our outlined expectations for the game and our External Team’s experience, we defined the model specifications. We measured the produced assets against the model specs while approving assets in review. To get a clear picture of our asset specifications, check out the defined Libertalia Model Specifications sheet.

We also incorporated asset packs as needed, especially early in the development process so that we could convey buildings, crewmates, and other aesthetic elements of our game how we intended. Using pre-made assets made the iteration process in our game significantly easier early on, and also helped us define the

we assets we needed from our External Team Members based on feedback from playtesters on the assets.

2.8 Playtesting

What were the overarching questions and challenges you needed to address with all playtests? What specific aspects of your game were always going to need more playtesting? What made this hard? ...

Throughout the playtesting sessions, the overarching questions that we wanted to address were “do the various phases feel cohesive and does the outpost construction feel satisfying?” These questions aligned with our main challenges of trying to create a cohesive experience that centered around the construction of the outpost while providing the player with a clear sense of progression. We had more pointed questions and research questions for each playtest, where each came with its own unique challenges; however, the questions that we focused on for each playtest were in service of our overarching questions.

The aspects of our game that needed more playtesting included the outpost construction, combat simulation, and the balance of resource management. The main issue that made the testing of these things difficult was that individually testing each feature would disservice the focus on answering whether or not the game was cohesive; however, it would help us iron out bugs that appeared in each section. Again, it was also difficult to playtest the game balance of our resource management feature as we needed each section of the game to get a clear sense of whether or not the outpost construction, exploration, and combat were able to sustain resources effectively. The other issue is that, while we could calculate the balance of our game via Google Sheets and knowledge from the Game Balance course offered at the Rochester Institute of Technology, there is still the possibility that the player views it as unfair, forcing us to need to tweak the management of those resources to appear more player friendly, rather than being truly fair.

To briefly explain our methodology, we were largely hands-off during the playtests; this means that we focused on observational note taking, and asked our playtesters to use a talk-aloud approach during the playtests to get a better sense of what they were thinking or feeling. We gave very limited information to the playtesters and tried to let the game speak for itself, noting the points where we felt pain if the playtesters weren’t doing something we expected. We allowed the playtesters to offer final thoughts and ask questions after the playtest concluded. We only asked a question or two related to the pointed question we wanted to answer if the playtester hadn’t already addressed it.