Individual Milestone Report

Milestones 1

Your Name: 민서현
Team Name: Sang Rin
Game Name: MANZO
Milestone: 1
Score: _____/ 63pts

1) Give a 2~5 sentence summary of what you have done for your team since the last milestone. (5 pts)

I rebuilt the engine, using only OpenGL. It was a hard job since there were too many closely linked classes. I thought it would be much better to have some systems in place, so I added them as well. I spent most of the time making tools for the game. Now, the engine can easily manage audio, shaders, rendering, particles, collision, and debug prints using ImGui. After finishing the engine, I made a cool laser effect that follows the mouse. Besides development, I merged features in one when my teammates finished their work, and I also scheduled the development plan so the team could work in unison.

2) Which roles have you had in your team during this milestone? (1 pt)

Producer. Distribution in the works and changing engine.

3) For each discipline, describe in 5~8 sentences what you have done since last milestone for your team: (10 pts)

Debugging

Imgui has been extremely helpful in visualizing variable values. I've listed important information on the Imgui panel for debugging purposes. Currently, I'm working on a feature that allows new variables to be dynamically added and displayed in the Imgui console for real-time tracking. However, it's still challenging to pinpoint the source of errors, as I'm not yet fully familiar with OpenGL functions. Since I've spent most of my time developing and managing the engine, I've also been guiding my teammates whenever they faced difficulties in implementing features with the tools, ensuring they stayed on the right path.

Testing

I believe all of us are really good testers. Testing is essential for finding bugs. For example, after hundreds of tests, we found the perfect values for the ship speed and camera

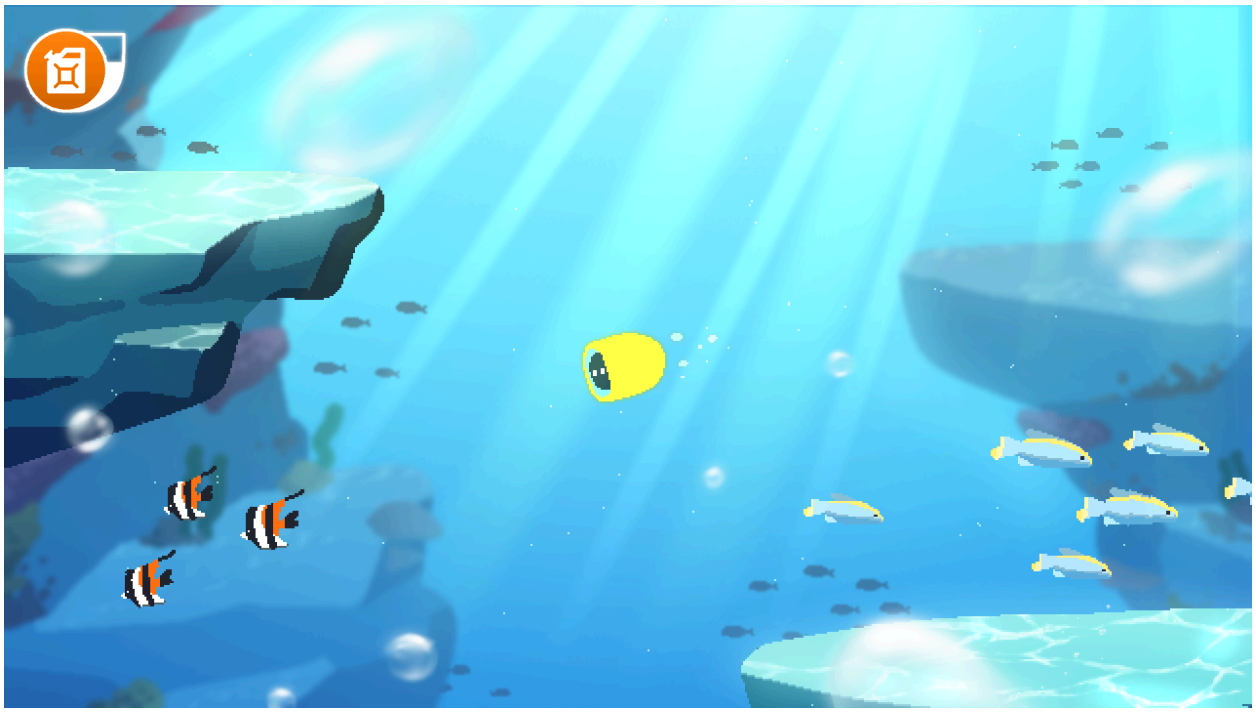
lerp. Whenever the team pushed a new commit, I ran every solution, identified errors or unexpected behaviors, and reported them to the teammates using our bug-error channel.

Optimization

I use data instancing to draw textures. Even though the engine renders hundreds of textures, only one model is drawn. The same applies to collision and mouse laser effects. These are drawn using my own Drawline function, and all of this requires just one line model to render.

Artwork

During Milestone 1, we decided to halt progress on artwork because there were more important tasks, like engine changes and the map generator. Additionally, we had already completed crucial artwork, such as the in-game concept art. I only made a small but cute laser effect that follows the mouse and drew one more piece of concept art. We will focus on artwork once our core game logic is complete.



Research

I can confidently say that our game is not just another existing genre but a groundbreaking one that charts a new path. Because of that, to successfully design the in-game play view, mostly about art, ample data was needed. Using pinterest and youtube, each of us searched for references to explain our in-mind ideas to others.

Game Design

Seokhwa had laid out the basic framework when he took on the role of game planner, but there were still gaps that needed to be addressed for development. As the producer, I needed to fully understand the plan in order to efficiently assign tasks to the team and organize

the schedule. Since I also enjoy rhythm games, which are the foundation of our game, I was constantly thinking about how to make it more fun and whether there were any unnecessary features. Seokhwa and I met even on weekends, discussing and finalizing the essential plans for the game, such as the boss battle, movement mechanics, skill types, and shop system, which had previously only existed as rough ideas.

Music, SFX

No touch was applied without just counting the beat sound. It is not urgent now.

Level Design

We are not yet at the point. Level design should be started after the game logic completion.

Environment Design

Gyuwon, Seokhwa and won are taking this part.

Physics

No physics are implemented yet.

Tool Development

I made some manager classes and changed our old raylib functions into openGL.

Building Pipeline

Using GitHub for version control, collaboration, and continuous integration. Code is regularly pushed to the repository, and pull requests are used for reviewing and merging.

4) For each of the above, give a breakdown of how much time, in hours, you spent per week (on average). (5 pts)

The project requires a long time to meet the schedule. Right after class, I start coding for GAM200, which will take about 35 hours in total over the week.
Debugging takes much more time than I expected—maybe around 20 hours? Finding out why errors occur is like solving a find-the-difference puzzle. However, the time taken is getting shorter since the errors are repetitive and some of them are quite similar.
Designing doesn't take much time at all, and we often consider design time as break time. It might take about 1 hour in a week.
For others:
Testing: 5
Optimization: 1
Tool Development: 7
Building Pipeline: 1

5) Please describe the 2~3 biggest issues you had during this milestone in 3~5 sentences, each. In 3~5 sentences, please describe how you've solved those issues if you've solved them. (10 pts)

I cried in the lecture room at 3 AM because I felt so incompetent. At that time, I was trying to draw an object on the screen, but nothing was working properly, and I had been staring at countless errors and black empty screens for almost four days. I spent day and night working on the engine and couldn't sleep more than three hours a day. I was so tired that day... so I played a round of League of Legends with my friend. I'm really bad at League of Legends, but that day, we managed to win easily. I happily went home, slept well, and woke up feeling refreshed. I went straight to school and asked the TA and Rudy for help, fixing everything step by step, and it all worked out well. To code effectively, it's important to get enough sleep, and I think relieving stress when it becomes overwhelming is essential.

Most of the issues during this milestone were related to matrices. That day, I became a bit more familiar with matrices and experimented with various types, which helped me gain a better understanding. As a result, I was able to fix problems related to mouse position and camera position relatively easily.

6) What were your 2~3 biggest accomplishments you've had during this milestone with 3~5 sentences for each. (10 pts)

Matrix: I am really clumsy at math and all things related to matrices. However, calculating and modifying my matrix friends while changing the engine is an inevitable destiny. I learned this knowledge by force, which has been really beneficial for me. Now, I understand concepts like camera to NDC and model to NDC. For problems that always make me anxious (like math), I believe that repetitive practice and real-world experience are crucial.

Tool Design: The reason I became an engine person is my huge interest in shaders. To play with shaders, I thought about making a shader manager and understanding how objects and OpenGL functions are generated. And that was the right approach. Now, I have a deep understanding of how my engine works and how it integrates with OpenGL functions. As I continued to develop the engine, my ambition grew. Reflecting on the uncomfortable experiences I had while using the engine during GAM150, I aimed to improve everything. I gained a deep understanding of how to achieve effective encapsulation, what structure makes a tool efficient, and how inheritance and structs can be utilized. I take pride in the fact that our engine is cleaner and has more features than any other team's engine.

Successful scheduling: As a producer, I always strive for the best possible results. I hoped that our team members would always have goals and be engaged in coding, so I assigned tasks in areas they were interested in, ensuring it wasn't overwhelming for them. By using Notion together, I kept track of what each team member was working on, their progress, and any issues they encountered. I also made it a point to consider the importance of each task,

ensuring that no one simply waited for another team member's work. Thanks to this approach, we achieved 100% of the targeted workload for Milestone 1, and Milestone 2 seems to be progressing smoothly as well.

7) How did this milestone go? In general, I want to know how you're feeling about the progress of your team. Do you think your team is moving in the right direction? (5 pts)

I'm very satisfied and happy with our progress. We successfully implemented all the features we wanted to showcase for milestone 1, and I'm really proud of my teammates. Everything has progressed in the right order, and the code is well thought-out, with a forward-looking design. It's adaptable for the entire game development process and flexible for future use. This is possible because everyone clearly understands the project's goals. And whenever someone needs help, those who have finished their tasks step in and assist each other effectively.

8) What could your team do to be better during the next milestone? Please go into great detail about this. (10 pts)

I believe that once again, our team is walking the best and most optimal path. We completed Milestone 1 successfully without any shortcomings, and no one shirked their responsibilities. Everyone finished their tasks by the deadline, and if there was something they couldn't do, they were honest about it, allowing the rest of the team to help effectively. However, one concern is that we haven't fully utilized Gyuwon's abilities. He's an excellent coder and was chosen as the tech lead, but he didn't have many opportunities to contribute during Milestone 1. Jiyeop and Won also completed the necessary game logic on time, but because I was fixing the engine by myself, they ended up wasting some time waiting for me to finish. Now that the engine is complete, I'm planning to distribute tasks more efficiently so their time and skills can be fully utilized. On a side note, I feel like if I played league a little less, I could probably get more done... Anyway, if we can maintain this pace, I'm confident we can successfully achieve our goals for Milestone 2 and even Milestone 3. Now that the engine is polished, the rest of the team can work smoothly, and we might even have time for some extra features!

9) On a scale of 1~10, how vital are you to your team's project? Do you think that you're a major contributor to the team? (1 pts)

I was 10 vital especially for milestone 1. The goal of milestone1 is removing raylib from the engine and I was the one who changed.

10) Did anyone on your team do something exceptional or very helpful that you'd like to brag about? Please let me know! (0 pts)

Won and Seokhwa helped a lot with all the mathematical calculations. Which is my weak part. Thank you.

11) On a scale of 1~10, how fun do you think your team's game is? (It's okay if you don't think it's fun!) (1 pt, regardless of rating.)

It's like 3. There is nothing that can be called a 'game'. There is no goal, no risk, no beautiful art. Well, moving on a beat can be fun, so 3 points.

12) How do you feel about the direction of your project? Do you feel fulfilled? Bored? Stressed? Please let me know! (5 pts)

I feel very fulfilled. I don't want to create a typical game that just involves killing monsters or shooting guns. In that sense, our game perfectly meets my expectations. Actually, when Seokhwa first brought up the game idea, I didn't like it because I thought it was just a fishing game. But with the addition of rhythm and the eerie fish designs, I've grown to love it. That said, it's not true that I felt no stress; I worked very hard, and the errors gave me a tough time. However, I successfully built the engine, and now my teammates can work hard using it.