IM3080 Design and Innovation Project (AY2021/22 Semester 2)
Individual Report

Name: _____Yu Yue_____

Group No: _____Group 2_____

Project Title: _____Kopimon_____

Contributions to the Project (1 page)

- Ideated game mechanics and multiplayer mechanics
- Build basic main scene and player
- Battle screen ideation and algorithm
- Programmed basic battle screen and system (physical and special move, critical hit, type effectiveness etc.)
- Battle scene character animation and coded Walkable NPC following designed pattern
- Improve interaction between NPC and player
- Add using items (recovery, TMs and HMs, etc) and Pokeballs in battle
- Add pickup function
- Improve dialog system
- Implement further the quest system
- Transported and converted art assets to Unity sprites ready to use
- Create and help beautify scenes
- Designed quest flow for single and multiplayer interactions (with Sean and Ruokun)
- Add the quest of going back to Hawker center scene
- Add Item drop after battle
- Integrating multiplayer functionality to game
- Add multiplayer character selection function to game
- Implement multiplayer shooting game
- Implement result board and connections
- Consistent Testing and Debugging to ensure program's robustness
- (Build quiz game function with timer for previous ideas which have been discarded)
- Produce promo video
- Presentation

Reflection on Learning Outcome Attainment

Reflect on your experience during your project and the achievements you have relating to at least two of the points below:

(a) Point 1: Engineering knowledge

I gained more advanced programming skills and used many useful tools through this project. I mainly used C # for game development. Although we learned C and java before, we used them only for simple question solving like summing up numbers. But in this project, we should solve real-life problems, which means I cannot get similar solutions from lecture slides. Instead, I should design logic myself. I should have a clear understanding of what I am doing and what each function means. When I need to use others' code, I find it becomes even more difficult. Sometimes, I don't know what variables mean because my teammate didn't name them reasonably. I realized that sometimes I cause the same kind of problems for my teammates too. After that, I started to add more comments and follow naming rules so that my teammates will not be confused by my code. It usually takes a long time to fix bugs. Sometimes, I write codes for only 30 minutes, but keep debugging for more than 2 hours. I found that it's important to read console message carefully and find the line which cause the problem. It's common that the error is caused not only by a single line, so it's important to know the logic well and sometimes should jump between several files to solve it.

At the same time, I think that as an engineer, communication is also very important. Once I uploaded some updated file, although I mentioned in the remarks that it is not needed for other teammates to synchronize, I didn't notify others. So, some of my teammates didn't know, and she built her changes on top of my files. Finally, we need to redo some staffs. After that, I learned to communicate more with teammates.

(b) Point 2: Modern Tool Usage

I used modern tools like Unity3D, Visual Studio, Plastic SCM, GitHub, etc. for the game development, and Photoshop and DaVinci Resolve for video editing.

I know more about Unity with Unity official manual, YouTube videos, etc. I learned how to build scenes and make transition between scenes with local portals and scripts. I also tried to turn PNG assets into tiles that can be used directly in Unity. I built different levels of layers to achieve more possible interactions between player, non-Player Character, and background such as collision, quest etc. I also learned how to implement animation. In addition to the regular animation done in Unity, I also used a plug-in called DOTWEEN to help us achieve scriptable walkable characters and animation inside battle scene.

With this project, I find Visual Studio is quite powerful. When I designed the game using C# script, Visual Studio is able to remind me and give useful instructions. For example, it will perform Intelligent code completion, which helps me save time and avoid some typo

errors. When I want to rename a function, I will be able to replace all function with the same name if I want. So, I don't need to change one by one.

Besides, I used photon PUN2 to implement multiplayer. Photon provides a free server and it's compatible with Unity. After setting up Photon server and connect it with Unity server, it also helps us simplify multiplayer construction.

For cooperation, we used Telegram, Discord, Unity-Collab, Plastic SCM, google drive and GitHub. We send messages and organize polls with Telegram and have regular meetings on Discord. Discord is a convenient app which can text, meet and share screen. Unity-Collab and Plastic SCM are used to keep Unity project synchronized for all team members. GitHub is also used for sharing scripts. We use google drive to save designing assets, meeting documents and presentation slides.

Editing video is a new thing for me. I chose photoshop to edit and produce some images that I need to use in the video. Meanwhile, the video was edited with DaVinci Resolve. DaVinci Resolve is a powerful and free application for video editing. I am able to add and edit video and audio clips, create video transition, add subtitles with it.

With this experience, I am quite confident that in the future, I can use all these modern tools well.

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