



PROCESS DOCUMENTATION

Team Cyan



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1 Introduction

This Report Documents the process taken by Team Cyan to create a dungeon based Role-Playing Game (RPG) built in Unity. After a shaky start we decided to use our own agile process which was based on scrum with some Kanban and extreme programming elements to it including using a Kanban board to display current tickets in development and user stories and weekly cycles. The output of our efforts was Fading Memories a game with an interesting storyline and range of characters.

2 GitHub Repository and Game Demo Link

Please find the GitHub repository at the following link:

<https://github.com/tsl38/Team-Cyan-Morning-Coursework/tree/Delivery>

Please find the game Demo Link in the following:

<https://uniofbath.cloud.panopto.eu/Panopto/Pages/Viewer.aspx?id=a43bcadd-75f8-40f8-9933-adff002db2dd>

3 Meeting Format

Once we established our final meeting process during the sprints, we had meetings in the following format.

3.1 Sprint Planning

During this meeting we collate and write user stories and use cases for the next set of development we need to do. We then create tickets based on these and add them to the sprint backlog to be completed in the next sprint. The next sprint is then started with the decided sprint backlog.

3.2 Stand-up

During these 15-minute meetings we each answered the following questions:

- What did I do since the last stand up?
- What am I going to do before the next stand up?
- Have I got any issues?

The main outcome of these meetings was:

- Encourage communication across the team
- Clarify any issues with tickets and if there were any questions on what had to be completed.

3.3 Customer Meeting

During the customer meeting we come prepared with what we have produced in the previous sprint in a set of demos for the customer. After we have shown this, we then go onto explaining what next moves are and what we want to achieve in the next sprint. The meeting ends with any questions from the team that need to be asked and feedback form the customer.

3.4 Sprint review

In this meeting there are new feature demos to update the rest of the team on new functionality and the ins and outs of how it works. This allows every team member to be able to have a better understanding of the entire game and hence understand more quickly when starting work on a new area of the game.

3.5 Sprint Retrospective

During this meeting we implemented a mad glad and sad format, where we each fill in one post it notes on a [Miro board](#) with what we were glad about this sprint and mad and sad about. We then discuss each post it notes and create actions out of them if they are created. The following inserts show what occurred.

4 Initial Activities

Prior to the first team customer meeting, Will created a group chat on Microsoft Teams and invited everyone in the team to join. Jack then made a Teams channel where the members of the group can post important information, communicate, and schedule meetings for future sprints. Jack also wrote a detailed document for a [game proposal](#) ready for the team customer meeting. During this time, it was a struggle to get most of the team to attend group meetings as well as the very first customer meeting, but this was resolved later during the next few sprints.

4.1 First Customer Meeting

Date: 03/11/2021

Attendance: JC, TL, KC

The first customer meeting showed Jack and Kaia to present their initial ideas with Jacks being to build a game in RPGmaker and have the game set in a medieval/fantasy-based castle where the player solves puzzles and fight monsters/enemies to reach the treasure. In contrast, Kaia suggested to make the game a relaxing game rather than adventure based. The customer seemed to like both ideas, hinting to us that we have lots of freedom in the way we want to produce this game in technology and genre. The customer however was also unhappy with the attendance and asked it to be improved by the next meeting.

4.2 Team Meeting

Date: 08/11/2021

Attendance: Whole Team Attendance

Days before the second customer meeting, the team had a group meeting discussing the game proposals mentioned during the first customer meeting from Jack, and Kaia, with [Thomas also having a further proposal](#). Thomas' proposal which was more of a level-based challenge game rather than the open world free roam suggested by Jack. In the end, the team agreed to base the game mostly on Jack's story proposal and Thomas's level set up to make a hybrid idea. Further improvements were made to the proposal was altered and improved upon, and the technology that we were going to use was discussed and was decided required need further research. The team member Roles were also established with the following being decided:

Roles	People
Product Owner	Thomas Lawrie
Scrum Master	Will Prior
Development Team	Jack Chang, Thomas Lawrie, Will Prior, Shouqing Li
Documenters/ Game Designers/ Testers	Cambridge Chan, Kaia Cai, Jack Chang, Will Prior, Yanxi Lei, ChengPeng Huang

Team Meeting Notes

Plot ideas

- Huge map of castle which contains four different sections. Each level was locked until game player kills the boss on the current level.
- Making each section of the castle its own individual level. It takes the story into linear progression.
- The goal of the main character is to find the owner of the castle who's able to steal memories of people. Game players get the memories back after killing the final boss at the end of forth levels.
- Each puzzle can also give you some reward like a weapon or Armour piece or something, which are common gameplay elements.
- Each level has different difficulties.
- If a player dies in the level, they will turn into a ghost or go back to the start of the level.
- When player at the beginning of the game, there will be some dialogues and then start a new level.

Technology we are going to use

- Need to ask the customer about technique. Choose RPG maker, Unity, or other kind of tools.
- Jack has experience in unity, not much. It needs to know how unity works before writing the scripts.
- We need find some free resource for technology. And search some resources in RPG and Unity. Get ready for Wednesday's customer meeting.
- When we are using RPGmaker, the collaboration will be a problem as only one person can work on it at a time making it a less appealing technology choice.
- This game should be mainly made for PC instead of mobile phone

Planning

- We can each complete a section of storyline or communicate the story during the stand-up.
- Search some resources in RPG and Unity. Get ready for Wednesday's customer meeting.
- Thomas can find some tutorials for technologies RPG studying. Jack will find Unity's. Yanxi will find some other technologies' resource.
- We'll then start the jira board for planning, daily stand-ups. etc.
- Everyone shared individual team calendars and then agreed on the meeting time.
- The sprint one will start from Wednesday.

Post Meeting Actions

- Will – Look into timetables, set up Jira Scrum Board, set up stand-ups, planning, review and retrospective meetings
- Jack - investigate unity and find some useful tutorials for its basics
- Thomas - investigate RPG maker and find some useful tutorials for its basics
- Cambridge – investigate if we can use RPG maker without paying
- Yanxi - investigate alternative technologies
- Everyone else - Make sure we fully understand the motive of the game ready for Wednesday!
- We also needed to find out if we could use RPG maker as it did not involve a lot of work with code

4.3 Second Customer Meeting

Date: 10/11/2021

Attendance: Whole Team Attendance

During the second customer meeting, the final game proposal was presented to the customer. The plot of the game and the technology that were going to be used were discussed with the customer and came to an agreement. The customer wanted detailed documentation of the whole process as well as a complete game that is playable from beginning to end, even if the middle of the game is not as lengthy as originally planned, the game must have the beginning and the end completed. We also queried whether we could use RPG maker for the project which was not the case due to the lack of code involved with it hence we investigated further alternatives in Unity and Pygame.

Meeting outcomes:

The customer meeting told us we can't use RPG Maker.

Because of this we are going to investigate two main technologies

- pygame
- Unity.

Post-Meeting Actions:

Everyone needs to have a look into both technologies and have an idea of:

- What is possible with each
- Which one you wish to use for the project

Before the first sprint planning so we can decide the final technology, we are going to use and begin the project.

5 Sprint 1 Process Documentation

5.1 Preview

The focus of this sprint was to get all the technology set up including creating a repository and splitting up the character and scene artwork into workable assets which could be used to build and function in the games basic utilities. Once this was complete the basic utilities were to be set up including the maps for levels 1 and 0, the storyline for each as well as basic player and enemy movements and attacks please see the overview section to see the sprint backlog.

5.2 Review

The sprint was largely successful with us being able to complete most of our tickets and bring in one extra in TC-27, which included the collision in the players. However, although the player movement was implemented, the player attack was not, as well as some documentation tasks. The former issue not being completed due to the task complexity and the developer not reaching out early enough in time before the sprint ended.

5.3 Meetings

5.3.1 Sprint Meeting Schedule

Sprint 1 Meeting Schedule		
Date	Meeting	Attendance
11/11/2021	Sprint Planning	Whole Team Attendance
12/11/2021		
13/11/2021	Stand-Up	JC, TL, WP, CC, SL, YL
14/11/2021		
15/11/2021	Stand-Up	JC, TL, WP, KC, SL, YL
16/11/2021		
17/11/2021	Stand-Up	JC, TL, WP, KC, CC, SL, YL
17/11/2021	Customer Meeting	JC, KC
18/11/2021	Sprint Review	Whole Team Attendance
18/11/2021	Sprint Retrospective	Whole Team Attendance

5.3.2 Sprint Planning

SPRINT 1 Planning Meeting Agenda

1. Assign someone to write meeting notes
2. Discuss peoples current coding experiences and what they want to achieve out of this meeting 10 minutes max
3. Discuss the technology we prefer out of pygame and unity 20 mins max
4. Decide the technology we want to use
5. Start making tickets for
 - Familiarising ourselves with the technology using a tutorial (timebox to half day)
 - Designing the setting of the first level
 - Creating the first level setting (pair programming)
 - Further tickets we might require e.g. character design and implementation

Sprint Planning Meeting Notes

Team Member Experience

- Cambridge – not experienced in programming/ wants to focus on storyline
- Jack – some experience in programming and C# - art and storyline
- Kaia – writing user stories – storyline
- Shouqing – experience in coding javascript/ html
- Thomas – C and python programming experience - development git hub experience
- Yanxi – Storyline, not a lot of experience in programming – start with pair programming

Unity Vs Pygame

- Pygame looks limited and harder to test
- Unity has a better tool so looks like it's the technology

Consensus was to use Unity Instead of PyGame.

Planning

Made tickets with the following in mind:

- Creating the Repository

- Creating early level story lines
- Created early level Maps
- Implement basic player movement and attack
- Implement basic enemy movement
- Document the process up to the current sprint

Please See the [User Stories and Associated Tickets](#) section to see the task assignment and further ticket detail.

5.3.3 Sprint Review

SPRINT 1 Sprint Review Meeting Notes

- Shouqing's showed his implementation of the level 1 map. It was picked up that there were still some issues with collisions making the game look to have bugs. The kind of colliders used in capsule colliders as opposed to box colliders were also questioned. With the latter being used in all the rest of the development it was suggested by the team to keep consistency in the colliders used and hence change to box colliders.
- Thomas works with the movement of the main characters and its collisions with other objects not allowing it to pass through them led to some discussion on area arrangement about colliders and trees in map level 1 and 0 as already partially mentioned.
- Regarding Kaia's storyline work: Kaia associated PTSD as the reason of losing memory, according to the main premise of the story being the player and villager got the amnesia. Kaia put forward the idea revealed some memories through drinking potions after Tomas suggestion. Kaia wrote and discussed the whole story outline draft with Jack and Cambridge.
- On Cambridge's Storyline work: Thomas suggested that move some villagers so that some dialogue happens in level 0. Cambridge also put forward his idea of the main character reading a letter in a scene that need didn't require any dialogue. With the main premise of the story being the main character losing his memory Cambridge put forward the idea of and family as origination of this memory loss. It was concluded that the interactive dialogue option was a better route and should be written.
- Will shows the main character's work. Two random enemies are chasing. Jack gave suggestions that it could add a speed to enemy

5.3.4 Sprint Retrospective

Sprint 1 Retrospective Meeting Agenda

- Fill in the Miro Mad, sad, and glad board
- Talk through each mad, glad, and sad
- Make some team actions in the way we work to change for the next sprint

Retrospective Meeting Notes

Mad	Sad	Glad
Some team members aren't being vocal enough if they don't fully understand what it is they need to do	Some team members are lacking in initiative	So far, we have managed to merge everyone's work together without too many hiccups
Some team members need to communicate with each other more, so everyone knows what is going on. Otherwise no one will know if you show up for a meeting or not etc.	The customer seems to think we've not done much and is saying we risk failing the course...Just need to attend meetings from now on.	We have made amazing progress so far in just one week of sprint.
Not all team members attending meetings.	Not everyone has a fully understanding of what he/she is doing for the task. Just need more communication.	We made some good progress we just need to implement more and document!
Some team members are not actively involved in stand-up meeting	Lack of experience with unity so a lot of time was spent on the basics	We got a lot done in one week. Next sprint's arrangements will be better
Last customer meeting, I cannot find the entrance of teams meeting	We didn't make connections between associated tickets in the sprint and talk to each other about it	Our overall progress on the coursework is quite smooth. We did a lot for just one week. We could keep it up and hopefully we'll have a nice product to show to the Prof next week
	It seems coherence or that kind of thing in game creation is not so good	we have done much and manage to let everyone be equally more active

From this meeting the following Actions for next sprint were created and to be reviewed next sprint review:

- Communicate and if you are Unsure on what needs to be achieved ask somebody
- Take responsibility for your workload and contribute your fair share
- Contribute to meetings - we want to hear your opinion!
- Make sure we set up teams meeting for customer meeting
- **EVERYONE** attends meetings including stand-up unless good reason
- **EVERYONE** gets to the lab on time when it starts or before at 10
- We all write up our sections about what we have completed during the sprint and add it to the appropriate file on teams for it to be collated easily by somebody the next sprint

5.4 Sprint 1 Individual Accounts

Jack Chang

Tasks worked on: TC-3, TC-12, TC-16

I was assigned to design the level 0 (Village level) map, and make sure all collision layers and sorting layers work with according to the player. Collaborate with Cambridge Chang and Kaia with assisting them writing up the level 0 and level 1 (Castle) story lines.

I immediately started after the planning meeting to split the assets for the village map. There are two png asset files. I split these into 16x16 tiles in Unity. I then used these tiles and started building the first parts of the village map: The ground and one single building.

Before the first standup meeting, I finished my “design” of the village map and started to add more things to the map in Unity. I created several objects under the tile map object and put them on different layers to prepare for when the player is implemented, so that the player can go behind certain object and in front of certain objects.

After the first stand-up meeting, I started adding more things to the map, ensuring all objects and tiles were properly layered with sorting and collision. I added a collision layer to the tile map and adjusted the collision squares on the map. Meanwhile I was in constant communication with Cambridge and Kaia and assisting them with writing the story lines.

During the second stand up it was brought to my attention by Thomas that there were some visual glitches in the village map as some alteration to the collision layer was needed. At this point, I had finished 90% of building the village map, there were some final touches that needed to be made for the village map to be complete.

After the meeting, I started finalizing the map build in Unity by applying the finishing touches. I then started working on fixing the visual glitches/bugs, such as the player’s head clipping through the buildings, tree trunks and workbenches etc. And some other visual bugs where the player would appear behind “loot” items. I continued to communicate with Cambridge and Kaia with story line writing and providing feedback. The village level was completely DONE before the next standup meeting and was pushed to GitHub.

By the final stand up I had achieved everything that was assigned to me in this sprint. And I started planning for what my tasks could be for the next sprint.

Thomas Lawrie

Tasks worked on: TC-4, TC-17, TC-27

I was initially assigned several tickets including initializing the GitHub repository, choosing assets for the project, creating a script for player movement, and creating a script for player collision.

The first thing I did was initialize the GitHub repository as a 2D Unity project with the relevant project settings so that everyone could clone it and start working on the project. I also pointed the other team members to resources that explained how to use GitHub to collaborate in the context of our project.

I then finished adding several free asset packs to an online collection that the entire team has access to so that story writers could write our story around what assets are available to us and developers could start making maps and characters using the assets.

I created a script to implement player movement. It takes input from W A S D keys or the arrow keys on the user's keyboard and translates these movements into the player moving up, down, left, right or diagonally.

I created a script that stops the player character from phasing through objects by detecting, at every frame, if they come into contact with a collider object, and stopping the player's movement in that direction if they do.

During the Sprint I gave regular feedback to Jack concerning the layering of the player in the village level with respect to buildings and tall objects (the player was showing as being either in front of a tree they were supposed to be behind or vice versa) and with respect to the colliders being misplaced in some cases.

I also helped team members with merging their work to the main branch of the GitHub repository, making sure that there are no conflicts and resolving them if there are. I came up with several solutions (with some input from Jack) for formatting data in Unity in a way that allows seamless integration to the project.

Will Prior

Tasks worked on: TC-5

I was assigned the enemy movement ticket. During this ticket the idea was to write a generic script for any enemy to move on its own initially in a patrolling movement between certain 'waypoints' while it waits for the main character to come close enough. When the player is close enough it should then chase and will eventually attack. (The attack will be implemented in a later ticket).

Initially I made a script which used collisions to patrol the area by colliding with other objects before returning in the opposite direction. After some thought this did not seem to be the correct way of implementing the functionality as it made very predictable back and forth movement hence, I went for the waypoint implementation which will be explained next.

There can be any number of waypoints that can be set up in any position, these can be in the form of a box object or anything with a position. The way the enemy patrols between the waypoints can be adjusted to in order or a random course, the speed of the enemy can also be adjusted from the script input. Every time the enemy gets within a certain distance of the waypoints it creates a vector to the next way point in the list or the next randomly picked waypoint. The orientation of the character changes if the character starts moving in the opposite x direction to which it was initially travelling.

During the sprint I also aided Yanxi in understanding what she had to achieve from the ticket, which she flagged during a stand-up meeting. We had a separate call and talked through what we believed she needed to achieve from her tickets. I also set up and ran Stand up, sprint planning, review, and retrospective meetings - providing an agenda, setting up any technology required including Miro and teams.

Shouqing Li

Tasks worked on: TC-8, TC-16

I was assigned to complete the set design for the first level of the dungeon. As it was my first time using unity, I spent quite a lot of time watching the basic tutorials. Thanks to Jack for preparing the asset for me to work on at the beginning. My job was to put the footage into unity and cut them into small 16*16 pixel pieces. Since the dungeon scene needed different layers, I divided the different tile maps according to the main view, floor, walls, transitions, small objects, etc. Then I added 2D colliders to the different tile maps.

Unfortunately, halfway through my sprint plan, I realised that the initial material was too monotonous to design a good-looking scene. So, I searched for and purchased another more detailed asset pack and reworked the layout design. The good thing is that it is almost complete so far. All that needs to be confirmed is the collider setup and how to integrate it perfectly into the main branch of GitHub.

As a member of the software development team, I feel that my technical skills are still greatly lacking. Not being able to use unity well led to a lot of errors. I will try harder to change this in the later stages of the sprint programme.

ChengPeng Huang

Tasks worked on: TC-19

I selected the characters attack ticket and I decided to do it in several parts. Firstly, I created several scripts, which included weapon, enemy, moving, and hitboxes.

Weapon is used by players, because my teammates have created collision script, can be directly inherited from c # class, make its move followed the player, and have an initial value for the weapon damage definition. The types of weapons have been put in the asset list, and as for the elements of time, distance, to decide whether swing the sword for damaging.

Enemy, I set it to be moving and need to be captured, use Boolean logic to determine if it is close to the player's position to form a battle, and when Enemy dies the player will get experience values (this can also be setting by game-manager.) Movers, just like the players' moving that adding some details on it.

As for fighter and “assethitbox” scripts it is designed to the fighting between the player(in this part, the player is the fighter) and enemies, Damage needed to be accounted and when the enemies' hp < 0, and then player would get the relevant xp values.

Cambridge Chan

Tasks worked on: TC-3, TC-12, TC-15

In this week my role is the storyline designer. My main duty is to make up an idea for level 0. Before writing the storyline of level 0, I have been discussing with Kaia and Jack on the important elements to be included in the game. We discussed and chose to make a village that the main character would appear in the beginning of the game. It was meant to be a slightly casual 2D RPG game. I collaborated with Kaia to plan the whole theme of the game and try to make things simple in level 0.

After the planning phase, I went on several gaming websites and get some ideas on the character background, profile, and the stories behind certain RPG games on the market. I got some ideas and discussed with Kaia on some of the details of level 0 so our level 0 and 1 could connect with each other smoothly. I then made a draft of the ideas we got and got some opinions from the team during

the Stand-Up meeting. Several points were made clear enough and I made the second draft, which provided much more details on the plot.

The story of level 0 turns out to be accepted by most of the team members. I then updated the names of the characters and venues that the main character will go through when time passes. Map was initially shown on the screen, but then removed the idea due to the difficulty to code. I got a suggestion by Jack, claiming that adding NPCs at level 0 would be nice. I added two NPCs in the level, adding some dialogues for them to communicate with the main character. I then reduced the length of the dialogue since I was told that it would be hard to code that much of dialogue. The house scene will also be changed into a street market area which is located at the map Jack created.

In general, I communicated a lot with Kaia since we need to be consistent with the levels ahead. We managed to get a whole picture of the idea of how the story goes. We will be working more together in the upcoming week.

Kaia Cai

Tasks worked on: TC-15

During this sprint, I worked as a Game Designer, where I mainly focused on the level 1 plot. Before the game designer role, I sought advice about the most critical needs of the project and suggested an initial idea of a casual, chill game- with the customer (Julian) in the customer meeting. However, after discussing with other team members, we thought Jack's proposal was better, so this idea was abandoned.

When outlining the main story, I consulted with Tomas and Jack about what can or cannot be achieved in the game since the game's plot should be achievable within the timeframe and technology available.

After further research of the game design field, I created and summarized the games main storyline, outlined the major story elements, and included the specific assets we would be using for each part of the story from the list of game artwork provided to me by Jack and Cambridge.

To create a smooth concurrent story flow, I communicated with Cambridge, and Jack to make sure their part of the storyline made sense with mine. Then I created the level 1 main characters, assigned the prominent characters to the main events. Next, I drew a level-1 flow chart of the major story, based on the story outline. Next, I delivered and improved my level-1 draft under Jack and Cambridge's suggestions. Finally, I wrote the second level-1 storyline draft and uploaded it on the team file, hoping to get suggestions from teammates.

To sum up, I conveyed and collaborated ideas on the story outline with Jack and Cambridge and drafted the level 1. Due to the coherence of the storyline, Cambridge and I will work closely in the following sprint.

Yanxi Lei

Tasks worked on: TC-20, TC-26

I chose write up tickets from backlog. The meaning of task is not that clear of me at first. Then I asked Will for help and we arranged and completed one short meeting. I came to recognize that I should write description and criteria points for backlogs. In addition, If I can find some tickets to add for our further work, that can be great. Managing tickets looks like overall and coherent work. During the first

sprint, members are working for foundation including designing the first layout, creating character movement or writing level zero storyline. When they have done a little, I could see the style of their work and find what they need to pay attention in next backlogs. For example, the conflicts happen in dialogue can be more obvious. And in storyline 2, the turns of story or reasons for attack should be sharper. When it comes to design layout. Some elements should be used in the whole game, so try to base on the last layout and use the similar genre. And when creating the moving objects, members should follow the storyline and cover some important items.

As the game moves on, we then should concern about win and fall in each attack and each level. We will add game state tickets and some mechanisms if character fall in attack.

During the first sprint, it seems we were separately working and a little lack of communication. But maybe it just because it's foundation period of our work. We'll be more comprehensive in the next sprints.

5.5 Backlog

<input checked="" type="checkbox"/> TC-15 Writing Level one Storyline - Entering the castle and section 1	TO DO	X
<input checked="" type="checkbox"/> TC-26 Create a Word Doc and document	TO DO	YL
<input checked="" type="checkbox"/> TC-3 Writing Level Zero Storyline the village	TO DO	PC
<input checked="" type="checkbox"/> TC-8 Design the layout of level 1	TO DO	S
<input checked="" type="checkbox"/> TC-20 Write up Tickets from Backlog	TO DO	YL
<input checked="" type="checkbox"/> TC-12 Design Layout of level 0	TO DO	PC
<input checked="" type="checkbox"/> TC-17 Create the repository in GitHub	TO DO	TL
<input checked="" type="checkbox"/> TC-4 Create Character Movement	TO DO	TL
<input checked="" type="checkbox"/> TC-27 Create Collision for Player Sprite	TO DO	TL
<input checked="" type="checkbox"/> TC-5 Create Enemy Movement	TO DO	WIP
<input checked="" type="checkbox"/> TC-16 Split Scenery Artwork into Assets	TO DO	PC
<input checked="" type="checkbox"/> TC-19 Create Main Character Attack	TO DO	CH
<input checked="" type="checkbox"/> TC-28 Implement an Inventory System	TO DO	
<input checked="" type="checkbox"/> TC-14 Writing Level Two Storyline	TO DO	
<input checked="" type="checkbox"/> TC-9 Design layout of Level 2	TO DO	
<input checked="" type="checkbox"/> TC-10 Design layout of level 3	TO DO	
<input checked="" type="checkbox"/> TC-11 Design layout of level 4	TO DO	

5.5.1 Complete Backlog Tasks

Sprint 1 Backlog	
Ticket Code	Ticket Title
Completed	
TC-3	Writing Level Zero Storyline the village
TC-4	Create Character Movement
TC-5	Create Enemy Movement
TC-8	Design the layout of level 1
TC-12	Design the layout of level 0
TC-15	Writing Level one Storyline - Entering the castle and section 1
TC-16	Split Scenery Artwork into Assets
TC-17	Create the repository in GitHub
TC-27	Create Collision for Player Sprite
Carried Over	
TC-20	Write up Tickets from Backlog
TC-26	Create a Word Doc and document
TC-19	Create Main Character Attack

5.6 Exception Handling

The main issues we faced this sprint was mostly to do with the customer meeting. Will misread the time we were meant to be attending, leading to most of the team missing the meeting. This left us unable to show the customer our progress and get any constructive feedback on the product itself. In future we have said that we will be more prepared for the meetings and get to the lab on time with several laptops ready one with the game ready to do demonstrations, one for the meeting agenda which will be created and finally the last one for dialling in our remote team members.

We also dealt with teething problems in using new technologies in Jira and Unity leading to a rather slow start on the development side, but we believe it was a good sprint of learning making us hopefully faster in the next – with all assets now split for map making and character insertion.

We also faced an issue at merge time where a team member did not update their branch in git before trying to merge leading to lots of conflicts this took several hours to resolve. Once it was merged, inconsistencies in sprite pixels per Unit (PPU) values between the village (PPU 100) and dungeon map (PPU 16) led to issues with character sizing when transitioning between them. The solution was to scale the dungeon map's PPU down so that it was uniform between the two and set a president standard PPU value of 100 for any new future maps being developed.

6 Sprint 1 Product Documentation

6.1 Customer Meeting

After some initial confusion as to when the meeting was taking place due to a mistake from the scrum master the attendance of the meeting was very low due to the team believing it was at a different time. However Jack and Kai were available, and the meeting went as follows:

At the beginning of the meeting, Kaia talked about the level 0 and level 1 story description and how it will fit in to the game. Jack then summarised what everyone did during the first sprint

The customers response to all of this was:

- The team needs to communicate more with each other and get our act together. He was not impressed that we missed another meeting.
- Documentation needs to be done by multiple people (at least 2 or 3), but everyone contributes their ideas to the documentation.
- Pair programming needs to happen to solve the disconnect between team members.
- we need to work extra hard to catch up with everyone else.

Outcomes of the meeting were:

- The team needs to focus on documentation and assign 2-3 people to the task
- we all need to get the meeting time slot correct next time, so we can all attend the meeting and show the customer our game so far.

6.2 User Stories and Associated Tickets

User Stories	Acceptance Criteria
TC-3 Writing Level Zero Storyline: The Village Completed by: Jack Chang, Cambridge Chan	<p>AS A Game Player</p> <p>I WANT to follow an interesting plot line on level 0</p> <p>SO THAT I find playing the game an interesting and enjoyable experience</p> <p>Background: Character goes into the forest to gather supplies for family, when he or she returns they find everyone in the village has forgotten about them. He/she realises what happens and heads off to the castle to regain his memory.</p> <p>This Story is complete when:</p> <ul style="list-style-type: none">• The plot that occurred while the protagonist was in the forest has been created• The plot that let the protagonist know what happened has been created• A dialogue script has been written for the level 0 interactions.
TC-4 Create Character Movement Completed by: Thomas Lawrie	
AS A Game Player <p>I WANT to be able to move around the map</p> <p>SO THAT I can explore the maps and complete the games storyline.</p>	This Story is complete when the main character can move: <ul style="list-style-type: none">• up• down• left• right

	around the map using Keyboard inputs.
TC-5 Create Enemy Movement Completed by: Will Prior	
AS A Game Player I WANT enemies to patrol different areas of the game and chase me when I get close SO THAT it can add challenge to the game	This story is complete when the enemies can: <ul style="list-style-type: none">• autonomously patrol a given area• be reactive and automatically chase the main character when it comes within a certain radius• after chasing player and being outrun return to patrol area
TC-8 Design the layout of level 1 Completed by: Shouqing Li	
AS A Game Player I WANT a visually interesting map SO THAT I can explore and complete tasks inside it	This story is complete when: <ul style="list-style-type: none">• a unity scene has been created based in a castle/dungeon which can be used to deploy the story line
TC-12 Design Layout of level 0 Completed by: Jack Chang, Cambridge Chan	
AS A Game Player I WANT a visually interesting map SO THAT I can explore and complete tasks inside it	This story is complete when: <ul style="list-style-type: none">• a unity scene has been created based in a village which can be used as a backdrop for the story line
TC-15 Writing Level one Storyline - Entering the castle and section 1 Completed by: Kaia Cai, Cambridge Chan	
AS A Game Player I WANT to follow an interesting plot line on level 1 SO THAT I find playing the game an interesting and enjoyable experience	This story is complete when: <ul style="list-style-type: none">• a plot has been established for level 1 when the main character enters the castle/dungeon• A dialogue script has been written for the level 1 interactions.
TC-16 Split Scenery Artwork into Assets Completed by: Shouqing Li, Jack Chang	
AS A Developer I WANT the assets to be split and labelled well SO THAT I can more quickly and efficiently deploy them into the game's development	This story is complete when: <ul style="list-style-type: none">• The online artwork that we have found for scenery artwork has been split into useful sized assets
TC-17 Create the repository in GitHub Completed by: Thomas Lawrie	
AS A Development Team Member I WANT A main game codebase source SO THAT I can collaborate with team members and access the most up to date code whenever I need it.	This story is complete when: <ul style="list-style-type: none">• A GitHub repository has been created• Everyone in the team is able to access and know how to use it

TC-27 Create Collision for Player Sprite Completed by: Thomas Lawrie	
AS A Game Player I WANT to not be able to run through objects in the map SO THAT the game feels more realistic	This story is complete when the player can no longer run through solid objects such as: <ul style="list-style-type: none"> • Trees • Non player character's (NPC's) • Buildings • Walls • The edge of the map

6.3 Requirement Use cases

Use Case: Main/Create Character Movement	Scope: Start of the game
Reference Ticket: TC-4	
Level: Nope	
Context: When opening the game, the player will enter the main menu of the game. The player will enter the first scenario and showing its fundamental functions. Making sure it can move around in the game scenario. Moving up, down, left and right if pressing W, S, A, D on the keyboard.	
Frequency of occurrence: Always if the player moves	
Open Issues: Can we provide some extra movement for main character except only walking?	

Use Case: Create Enemy Movement	Scope: Main scene except village start level
Reference Ticket: TC-5	
Level: Nope	
Context: The player enters the level 1 dungeon, initially stand outside the gate of dungeon. After the player entering the gate, enemies able to move toward the main player when the main player move to various directions. And enemies play as enemies following the storyline, wandering on the level ground.	
Frequency of occurrence: Every level except village	
Open Issues: Can enemies walk out of the gate? If the player run from inside out to the gate.	

Use Case: Level 0 and level 1 maps	Scope: Main scene
Reference Ticket: TC-8 and TC-12	
Level: Level 0 and level 1	
Context: After entering the level 0, game player presses movement key on keyboard, moving around the village map and see the reaction of the game view. Game turns on and displays player. Show the map of village. At every place game player arrived, there's no	

collider. When transitioned to level 1, game player saw the dungeon. Firstly, the player met the gate of dungeon. When he walking around on this map. There's no collider.

Frequency of occurrence: Always need in level 0 and level 1.

Open Issues: Will NPCs move in village map?

6.4 Testing

6.4.1 Testing Completed

What being Tested?	Testing procedure	Pass/Fail
Player Movement TC-4	WASD Test <ul style="list-style-type: none"> - Press W player moves upwards - Press A player moves left - Press S player moves downwards - Press D player moves right 	Pass
	Pressing WASD together at the same time <ul style="list-style-type: none"> - Press WA player moves towards NW - Press WD player moves towards NE - Press SA player moves towards SW - Press SD player moves towards SE - Press WS player does nothing - Press AD player does nothing - Press WASD player does nothing 	Pass
	Directions Key Test <ul style="list-style-type: none"> - Press Up player moves upwards - Press Left player moves left - Press Down player moves downwards - Press Right player moves right 	Pass
	Pressing Directions Key together at the same time <ul style="list-style-type: none"> - Press Up-Left player moves towards NW - Press Up-Right player moves towards NE - Press Down-Left player moves towards SW - Press Down-Right player moves towards SE - Press Up-Down player does nothing - Press Left-Right player does nothing - Press Up-Left-Down-Right player does nothing 	Pass
Enemy Movement TC-5	Checking whether mobs are moving across the map to chase player (level 1) <ul style="list-style-type: none"> - Place the enemy into the game scene with the appropriate script - Set the way points to patrol through <p>Enemies should be running/walking between the waypoints placed</p>	Pass

	<p>Checking whether the enemy patrol routes are working as intended (level 1)</p> <ul style="list-style-type: none"> - Place the character within chasing distance of the enemy and run away <p>Player should be chased by the enemy</p>	Pass
General Map Testing	Run around the map and look for any collider issues This test passes when there are none	Fail (See Bug List for further information)
	Checking whether there are visual glitches on the map	Pass

6.4.2 Bug Issues

Bug Title and Reference	Steps to Reproduce	Expected Outcome	Actual Result	Solution
The Collider Issue	<p>1/ Go to dungeon game project: Documents/GitHub/Team-Cyan-Morning-Coursework</p> <p>2/ Go to the Scenes assets, click “Main Menu”</p> <p>3/ Press the “play” to start the game as the player</p> <p>4/ Run around the map</p> <p>5/ Look for any collider issues</p>	The player should be conflicted with colliders	<p>1. Collision sometimes would be detected and sometimes wouldn’t</p> <p>2. There were spaces between the player with the collisions</p>	unresolved

6.5 CRC Cards - Version 1

Player Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Player movement left/right/up down • Player speed • Player collisions with the environment • Player attack • Player inventory • Player health • Player death • Player position 	

Patroller Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Enemy patrolling movement between waypoints • Enemy chasing of the player • Enemy collisions with other objects 	

6.6 Design Use Cases

Create Character Movement	Scope: Start of the game
Reference Ticket: TC-4	
Level: Nope	
Primary Actors: Player	
Description: When enter the game, game user will play as the main character in the game. This character can move around the game.	
Dependencies: Key tickets of the game features.	
Assumptions: The mouse clicks properly, the user presses moving character with right direction.	
Preconditions: The user has opened the game and enters the map.	
Main Flow: User opens the game Show main menu Menu with options to enter/exit the game, game background image and music Click to enter the game and start playing Press W, A, S, D to control the main character, making it move.	
Subflows: None.	
Alternative Flows: Some interruption when click start button. If click too quickly and twice, there will no reaction from the game.	

Post Conditions: A start menu is displayed and the user able to click on actions in the menu
Frequency of occurrence: Always if the player moves
Open Issues: What will happen if main player moves by pressing both A and S?

Create Enemy Movement	Scope: Main scene except village start level
Reference Ticket: TC-5	
Level: Nope	
Primary Actors: Player	
Description: Providing the enemy movement. It's one of fundamental functions of game.	
Dependencies: Key tickets of the game features, especially the fight with bosses.	
Assumptions: The mouse clicks properly.	
Preconditions: The user has opened the game and enters the level 1 dungeon.	
Main Flow: User opens the game Show main menu Menu with options to enter/exit the game. Click to enter the dungeon and start to play.	
Subflows: None.	
Alternative Flows: The game player should enter the gate of dungeon. Then he can meet enemies.	
Post Conditions: Enemies will all move toward main character.	
Frequency of occurrence: Every level except village	
Open Issues: What will happen if enemies come to fight with main character with some sequence?	

Level 0 and level 1 maps	Scope: Main scene
Reference Ticket: TC-8 and TC-12	
Level: Level 0 and level 1	
Primary Actors: Player	
Description: Providing the scenario of level 0 and level 1 following the storyline.	

Dependencies: Fundamental tickets for game.
Assumptions: The mouse clicks properly.
Preconditions: The user has opened the game and is in the start menu.
Main Flow: User opens the game Show main menu Menu with options to enter/exit the game, game background image and music Click to enter the game and start playing. It'll show village map. If the player transition to level 1, there will be dungeon map. There's no collider on the maps of level 0 and level 1.
Subflows: None.
Alternative Flows: None
Post Conditions: there are some objectives and NPCs on the map.
Frequency of occurrence: Always need in level 0 and level 1.
Open Issues: Will NPCs provide some secret information about basic map ?

6.7 User Interface Design

6.7.1 Design Sketches

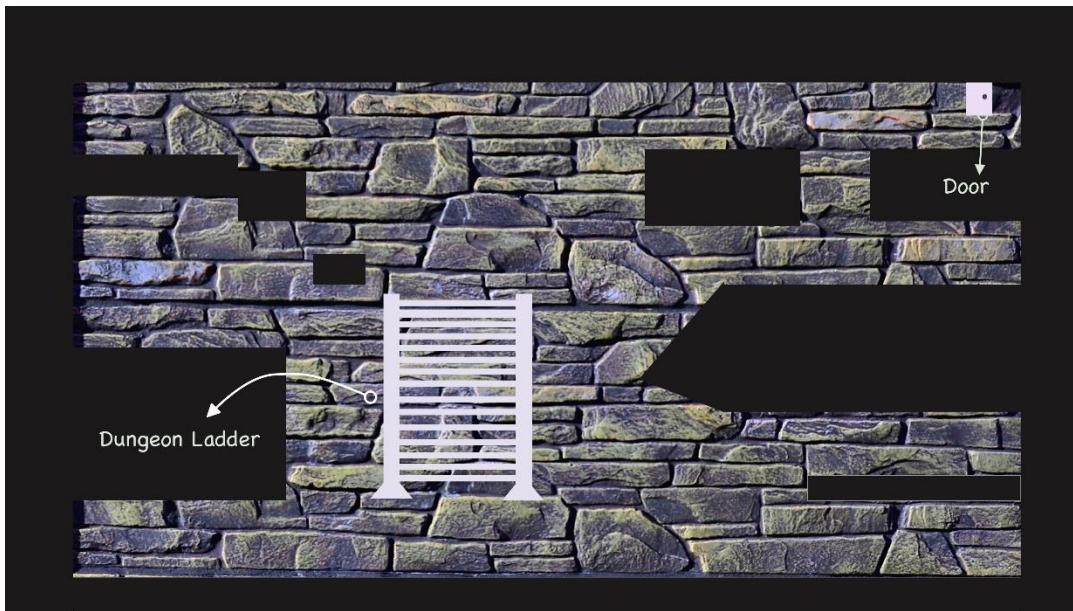
Level 0 Village Map Design

Reference Ticket: TC-12



Level 1 Dungeon Map Design

Reference Ticket: TC-8



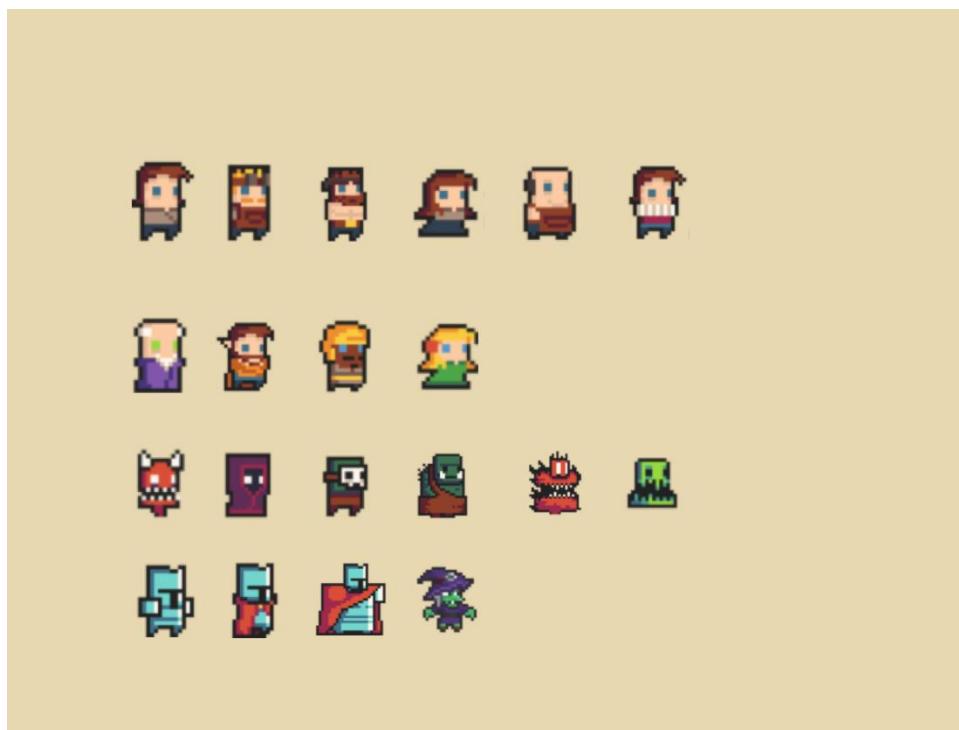
6.7.2 Design Implementations

Please see the [user interface design in sprint 3](#) to see the final Maps for level 0 and 1.

6.7.3 Artwork Used This Sprint

Chosen Character Artwork

Reference Ticket: TC-4, TC-5



CHARACTERS BY

- ROBERT AT https://itch.io/queue/c/1903906/cw2?game_id=147371
- Elthen At <https://elthen.itch.io/2d-pixel-art-witch-sprites>

Assets of Level 0 Village Map

Reference Ticket: TC-12



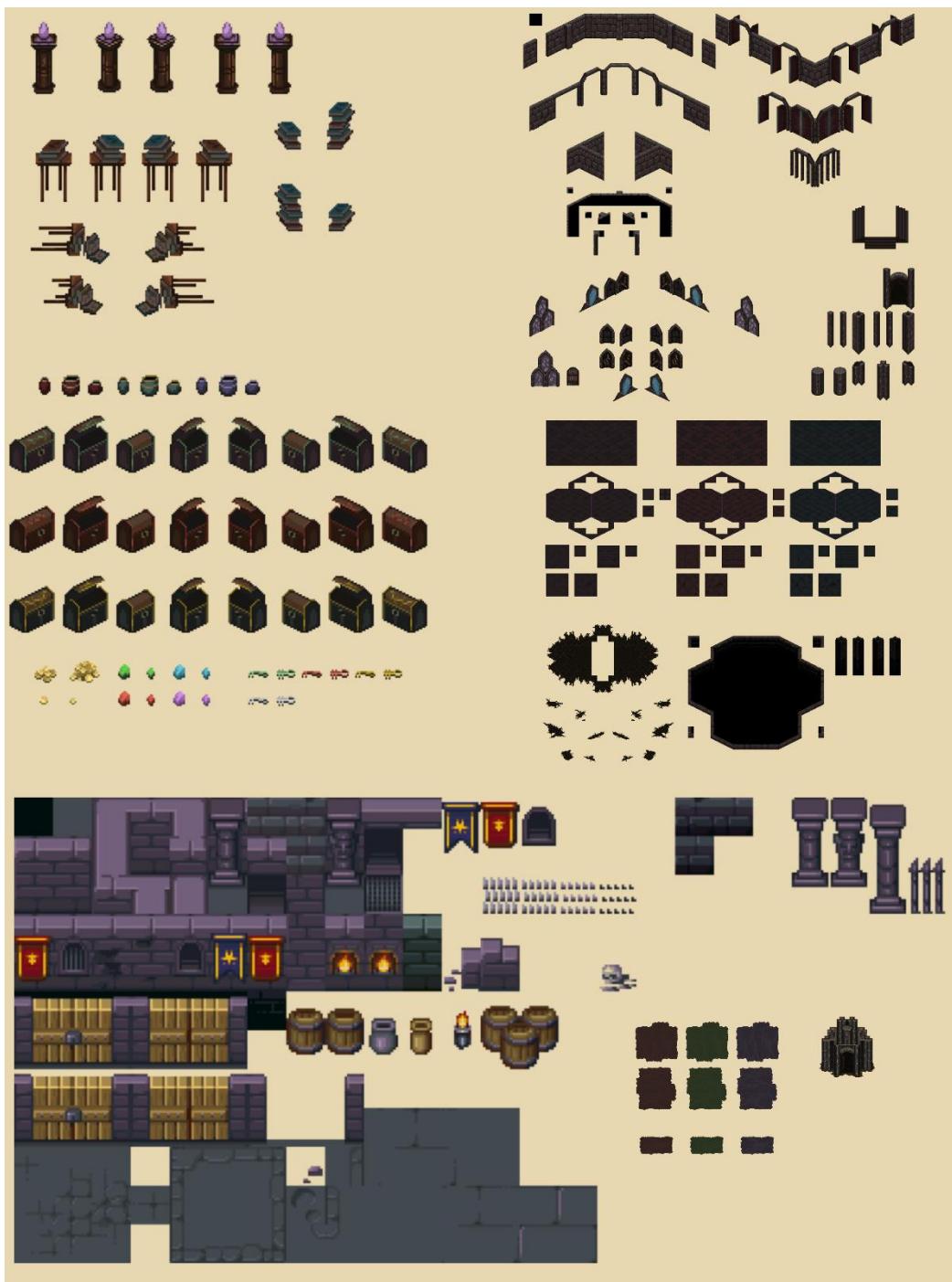
ASSETS FROM

- SZADI FROM [HTTPS://SZADIART.ITCH.IO/CRAFTLAND-DEMO](https://szadiart.itch.io/craftland-demo)

FOR THE USE OF FADING MEMORY GAME LEVEL 0 VILLAGE MAP CONSTRUCTION

Assets of Level 1 Dungeon Map

Reference Ticket: TC-8



ASSETS BY:

- REKKIMARU AT https://itch.io/queue/c/1903906/cw2?game_id=702098

7 Sprint Process Documentation 2

7.1 Preview

The aim of this sprint was to get most of the main characters movements finalised. This consisted of giving it the ability to attack other players and pick up apples, berries and gold around the map which would be added to the player inventory. The players main utilities including health and inventory were also saved when transitioning between maps and if there were extra free time appropriate animations for the main character movement were going to be produced. The next aim was to complete creating an effective enemy attack AI, allowing the enemy to take and give damage to the player when they are in battle. There was also the idea to start looking into NPC interaction and the final boss level, therefore another aim was to add in dialogue bosses for NPCs and create the final boss map in which we will have our final fight with the main Witch boss. A large focus was also placed on documentation to keep us on track with what we need to produce by the end of the project.

7.2 Review

This sprint was again successful with the main development tasks completed during the sprint apart from the NPC dialogue and player movement animation tickets. The latter however was thought to be a minor low priority ticket so was removed and not included in the next sprint. Despite a large cohort working on the documentation this also struggled to get over the line during the sprint with the backlog created from sprint 1.

7.3 Meetings

7.3.1 Week Meeting Schedule

Sprint 2 Meeting Schedule		
Date	Meeting	Attendance
18/11/2021	Sprint Planning	Whole Team attendance
19/11/2021		
20/11/2021	Stand-Up	Whole Team attendance
21/11/2021		
22/11/2021	Stand-Up	Whole Team attendance
23/11/2021		
24/11/2021	Stand-Up	JC, TL, WP, KC, CC, SL, YL
24/11/2021	Customer Meeting	JC, KC
25/11/2021	Sprint Review	Whole Team attendance
25/11/2021	Sprint Retrospective	Whole Team attendance

7.3.2 Sprint Planning

SPRINT 2 Planning Meeting Agenda

1. Select and confirm tickets for Sprint 2. Start the planning give context to what each ticket is required for members to make notes in description of the ticket and write up user stories and use cases.

- What are the characters are we going to use as enemies?

2. Assign new tickets including:

- Implement item pick up system (TC-39)

- Add Portal from Village Start to Dungeon 1 levels (TC-45)
- Implement an Inventory System (TC-28)
- Saving the Game state (TC-40)
- Design the final Boss map Layout (TC-34)
- Writing Final Boss Level Storyline – dialogue and plot (TC-33)
- Add NPC dialogue Boxes (TC-32)
- Implement Enemy Attack (TC-35)
- Main Character Movement Animation (TC-37)

3.Create a sprint goal - Increase Communication and Documentation.

4.Start Sprint.

SPRINT 2 Planning Meeting Notes

Tickets for sprint 2

- Get the final boss map layout firstly. The person who designs the map need to design it like a completely different scene.
- On enemy attack, bosses have different techniques. Their attack will be same, but the higher bosses will have higher damage.

7.3.3 Sprint Review

All parts of the system that were implemented during the last sprint were demonstrated in the meeting with the customer, these were demonstrated again in the review to make sure everyone understood what the new functionality was and how it worked on more of a technical level.

- Shouqing, Jack and Thomas discussed the issues they faced when trying to resolve the collider issues in dungeon level 1 and the standard tile sizing of each map that was used for the final boss map that was created.
- Shouqing then talked through the design and implementation of the final boss map.
- Jack talked through how the inventory system worked showing how initially the player can run over berries and apples and these set a log statement in the console with the number picked up – with the UI coming in the next sprint. Furthermore, he then demonstrated how the inventory content, and health levels remained the same when transitioning between levels showing the players game state to be saved during transitions.
- Will showed the current implementation of the enemy patrol, where it could walk between waypoints when the player is not within a certain distance. When the player is close enough the enemy will chase and collide with the player and give and take damage from each other. There were comments from the team that said animation would be necessary to make this part of the game more entertaining.
- Thomas showed the portal system in how the player can transition between levels, in which there was further suggestions about how we could expand this and add a black screen between each level and potentially add parts of the games storyline.

Please See the [User Stories and Associated Tickets](#) section to see the task assignment and further ticket detail.

7.3.4 Sprint Retrospective

Sprint 2 Retrospective Meeting Agenda

- Review last retrospectives goals and see if we have achieved them
- Fill in the Miro Mad, sad, and glad board

- Talk through each mad, glad, and sad
- Make some team actions in the way we work to change for the next sprint

Retrospective Meeting Notes

Looking at previously set actions to implement this sprint from the last retrospective, as a team we believe we achieved:

- Make sure we set up teams meeting for customer meeting
- **EVERYONE** attends meetings including stand-up unless good reason
- **EVERYONE** gets to the lab on time when it starts or before at 10
- We all write up our sections about what we have completed during the sprint and add it to the appropriate file on teams for it to be collated easily by somebody in the next sprint

We believe we still had to work on:

- Take responsibility for your workload and contribute your fair share
- Contribute to meetings - we want to hear your opinion!
- Communicate and if you are Unsure on what needs to be achieved ask somebody

Mad	Sad	Glad
People need to respond in meetings when asked a question to.	Wish somethings could have gone smoother: Such as Debugging and fixing bugs, and some of my tasks took hours because the code gets confusing.	Made amazing progress with the game's features: Inventory, health bar, save state etc.
We need to be completing ALL tickets.	Code is getting more and more complex, so tasks are taking more and more time to complete	Really impressed with our progress and think we are starting to get better at process as well although still a long way to go before we get it nailed
	Meeting contributions are still not where they need to be (but is improving)	Problems with conflicts when merging branches have been resolved without losing functionality/progress
	Spend lots of time on revisions. Blame it on me. (Referring to bugs found in creating one of the maps)	Everyone attends every meeting. Communicated with each other more
	Improving contributions and communications but still have room to improve	Huge Progress has been made. Personally I think the customer also noticed our improvement too.
		the whole project process is very transparent and honest. (Referring to use of Jira)
		we have clear and efficient communication. we shared useful relevant thoughts, ideas and key info in the teamwork.

		We have made good changes and many new progresses in the project. I believe the customer has noticed this too!
--	--	--

From this meeting the following Actions for next sprint were created and to be reviewed next sprint review:

- Take responsibility for your workload and contribute your fair share
- Contribute to meetings - we want to hear your opinion!
- Communicate and if you are Unsure on what needs to be achieved ask somebody
- Make sure your branch is up to date before making a pull request to mitigate issues with merging

7.4 Sprint 2 Individual Accounts

Jack Chang

Tasks worked on: TC-39, TC-28, TC-33

Sprint meeting 2 – 18/11/2021:

- I have been assigned:
 - Implement item pick up system,
 - Implementing a simple inventory system to store loot picked up from the world by the player.
 - I will also be assisting Cambridge and Kaia with the storyline of the final boss level of the game.
 - I will keep track of my own process throughout this sprint using this document just like the previous sprints.
- After the meeting, I started working on some scripts for the item pick up system, I created a script that detects any colliders that collides with the object and stores them in an array. This is a general script that could be used for weapon hit detection, item pickups and chest collection etc, By inheritance. I also created a script for detecting whether it is a player who is colliding with the object, and if it is, allow the player to pick up this item.
- I started making a class called Inventory, where items could be stored.
- Things that needs figuring out is how to stack items, and how to display items from the inventory in a UI.

Standup Meeting – 20/11/2021:

- By this meeting, I have the item pick up functionality and the inventory storage system all completely finished. The next thing to do is to implement the UI for the inventory system and set a limit to the number of unique items the player can carry, as well as program in the logic for stackable items.
- The UI needs to be interactable as well. So when the player clicks on a button or presses a key, they can use the item.
- The UI also needs to scale with the size of the screen.
- The UI needs to persist between different scenes.
- When the meeting was over, I immediately started working on the design of the inventory UI, as well as starting to build it in Unity and write the scripts for it.
- I also collaborated with Thomas to debug some issues with the Dungeon level 1 map from Shouqing.

Standup Meeting – 22/11/2021:

- By this meeting, I have completely implemented the clicking functionality of the Inventory UI system which “uses up” an item. I just need to implement the “effect” of the item used on the player. The Inventory UI now also scales with the screen resolution. The chest functionality and currency (gold) functionality is also working now.
- Me and Thomas also provided feedback to Shouqing about his map design, which he needs to change a bit to be able to fix some bugs with collision and visual glitches.
- The next things I need to do is: to make the item effects on the player, and also make the UI persist between different scenes.
- After this meeting, I collaborated with Chengpeng and helped him learn more about Unity and helped out with getting some of the first animations implemented.

Standup Meeting - 24/11/2021:

- Before this meeting, I have managed to implement “Item effects” for the already available items, apples and berries. They will heal the player by a certain amount. (Apple heals 1hp or half a heart, whereas berries heal 2 hp or 1 heart).
- The inventory and the corresponding UI also update based on the item used.
- I also managed to implement the Health bar system to the game, but so far the health bar only updates with healing, not player taking damage. I will be working on this during the next sprint.

Thomas Lawrie

Tasks worked on: TC-40, TC-32

- Merged Shouqing’s dungeon level 1 with some help from Jack
- Created a succinct list of steps on using GitHub that any team member can access should they have any doubts about the process
- Gave feedback to some members on their work
- Identified the cause of collision bugs in Shouqing’s levels with Jack
- Fixed the base parameters of these levels and showed Shouqing how to fix the rest of these levels with Jack
- Implemented portal in village level that teleports the player to dungeon level 1
- Implemented saving and loading the player’s state between levels (e.g. items, health)
- Designed Dialogue UI
- Began writing scripts for dialogue

Will Prior

Tasks worked on: TC-31, TC-19, TC-35

During this sprint I:

- Collated all the user stories, tickets, and meeting notes into a single document from the first two sprints top be the basis of our product documentation
- Started to investigate a more formal and better template for CRC cards and use cases.
- Helped ChengPeng finish his main player attack ticket implementing the “weapon” class

- Refactored the structure of the player and enemy movement scripts into a format in which some code could be used by both classes in the fighter and mover classes hence was more efficient.
- Create the enemyweapon script allowing enemies to give damage to the player when their blade collides with it – animation to come later.
- Alongside this as scrum master I organized and ran all meetings – preparing agendas, and any relevant technology to make the meeting a smooth process.

Shouqing Li

Tasks worked on: TC-34

During the second sprint, I was tasked with designing and making the final boss map. I used the initial dungeon assets and built a symmetrical map in layers. And unlike the first tier of dungeons, I added some animation of the ground spikes.

After the build was complete, Thomas, Jack and I discovered that the three maps had differences in ppu and cell size that caused the colliders to overlap. After discussing countermeasures, I resized the dungeon on both levels. It should be running fine for now. I then talk to Kaia about the content of the document.

Cambridge Chan

Tasks worked on: TC-33,

After last week's hard work working with Kaia, we have continued to collaborate in this week's task. I brainstormed the storyline of the boss level and made a documentation describing how the main character should do in order to activate the animations and battles with the mobs and the witch. I then communicated with Kaia about where the mobs should be placed. We made an idea that we should put 10 mobs in the final level and after they were defeated, the witch will appear on the map, right after a scene showing the witch has appeared. I then tried to add some dialogues for the witch and the main character so they can interact. Dialogues refined for the witch so it creates a more intense yet unpredictable background behind the whole story.

In addition, I have also combined the boss level with the two levels that we designed last week, the village level and the level 1 of dungeon. This could enable the whole story to flow smoothly, and everyone would have the idea of how the whole game actually works. It has been documented with detailed information. Dialogues were also highlighted in different colours so it would be easier to distinguish between the speakers.

Kaia Cai

Tasks worked on: TC-33

Overall, I acted as a game storyline designer during this sprint. I improved the level 1 storyline, wrote the ending dialogue part of the final boss and players, and designed the scene and process of the last boss appearance.

After I handed in the draft of the level-1, Tomas proposed the technical restriction. So, I replaced my previous boss design and determined the storyline of level1. Then, I started to design the final ending storyline. Firstly, about the ending, I made a detailed outline: a player character who suffered from post-war PTSD, chose amnesia, and suffered from dual personality after amnesia. The villagers

were all the captives of the player character under the second personality-black impulse. Then, I exchanged the outline of the ending with Cambridge. Regarding peer's final outline, I raised some questions and opinions. Considering that my outline was too depressing, and the worldview was not big enough, we chose the second scheme from peer. Then I wrote the draft of the final dialogue part (boss and the player character) based on our plan and delivered it to Cambridge to modify and integrate.

I created the final boss appearance scene and flow with Cambridge. We conducted a lot of brainstorming about this part to ensure that the final fierce battle was inspiring and logical. I conceptualized and established the order of appearance of the mobs and the final boss. In the beginning, I thought that mobs should surround the witch (the final boss). After defeating the mobs, the player character has a chance to get close to the witch. But considering that the witch would not damage the player character and her identity (the player character's mother), I and Cambridge decided to hide the witch first until the player character defeated the ten mobs.

In the next sprint, I will design some maps and dialogues of common NPCs and continue to communicate and cooperate with Cambridge and related technical implementation personnel.

ChengPeng Huang

Tasks worked on: TC-19

Last week, I did some scripts about characters attack, with the help of teammates, some bugs have been dealt with. On this week's sprint talking, we decide more detailly. From map to the characters, containing UI and animation. Keep going to make the game.

I selected attacking animation this ticket. For completing it I Jack also watched the teaching video bringing the question. Meanwhile, for contribute to the group, I want to do something for documentation. That is why I positively apply for master Will to do.

Make animations to attack enemies, including up-and-down, and in front of the character. I use the unity, animation this moduel. Though the start, the process and the final screen, connecting them as a continue sceens, looks like a moving pictures and called animation. The collider is for whether it toughs the enemy and make it hitpoint cut. That has been written in scripts.

In the following, I am keep going in the documation, and animations if needed.

7.5 Backlog

<input checked="" type="checkbox"/> TC-19 Create Main Character Attack	TO DO	CH
<input checked="" type="checkbox"/> TC-35 Implement Enemy Attack	TO DO	WP
<input checked="" type="checkbox"/> TC-33 Writing final Boss Level Storyline - dialogue and plot	TO DO	CC
<input checked="" type="checkbox"/> TC-34 Design the final Boss map Layout	TO DO	S
<input checked="" type="checkbox"/> TC-28 Implement an Inventory System	TO DO	PC
<input checked="" type="checkbox"/> TC-39 Implement Item Pick Up System	TO DO	PC
<input checked="" type="checkbox"/> TC-20 Write up Tickets from Backlog	TO DO	YL
<input checked="" type="checkbox"/> TC-31 DOCUMENTATION!!!!!!	TO DO	WP
<input checked="" type="checkbox"/> TC-32 Add dialogue Boxes	TO DO	TL
<input checked="" type="checkbox"/> TC-26 Create a Word Doc and document	TO DO	YL
<input checked="" type="checkbox"/> TC-40 Saving the Game state	TO DO	TL
<input checked="" type="checkbox"/> TC-47 Implement Item usage from the inventory	TO DO	TL
<input checked="" type="checkbox"/> TC-46 Implement player health bar	TO DO	TL
<input checked="" type="checkbox"/> TC-48 Implement gold currency system and UI for gold count	TO DO	TL
<input checked="" type="checkbox"/> TC-50 Implement black screen transitions between levels and in death	TO DO	TL
<input checked="" type="checkbox"/> TC-52 Enemy Patrol Placement level 1	TO DO	TL
<input checked="" type="checkbox"/> TC-51 Design all level NPC and dialogue placement	TO DO	TL
<input checked="" type="checkbox"/> TC-53 Implement death – back to start refill health	TO DO	TL
<input checked="" type="checkbox"/> TC-14 Writing Level Two Storyline	TO DO	TL
<input checked="" type="checkbox"/> TC-9 Design layout of Level 2	TO DO	TL
<input checked="" type="checkbox"/> TC-10 Design layout of level 3	TO DO	TL
<input checked="" type="checkbox"/> TC-11 Design layout of level 4	TO DO	TL
<input checked="" type="checkbox"/> TC-55 Death Condition : leave ghost in place of death and decrement Max HP	TO DO	TL

7.5.1 Complete Backlog Tasks

Sprint 2 Backlog	
Ticket Code	Ticket Title
Completed	
TC-20	Write up Tickets from Backlog
TC-19	Create Main Character Attack
TC-39	Implement Item Pick Up System
TC-28	Implement an Inventory System
TC-34	Design the final Boss map Layout
TC-33	Writing final Boss Level Storyline - dialogue and plot
TC-35	Implement Enemy Attack
TC-40	Saving the Game state
Carried over	
<u>TC-31</u>	DOCUMENTATION!!!!!!
<u>TC-32</u>	Add dialogue Boxes
<u>TC-26</u>	Create a Word Doc and document
Removed	
TC-37	Main Character Movement Animation

7.6 Exception Handling

The problems we had during this sprint was over capacity and possibly not prioritising the right tickets with one of the tickets (TC-37) not being attempted during the sprint and removed from the backlog as it was believed not to be as important as other tickets, we wanted to bring in.

A team member also brought in a ticket midway through a sprint without letting anyone know also impeding our team velocity. The idea of this was ironed out to be unhelpful and that we should focus our efforts on finishing tickets in the current sprint before bringing in new ones. We also still struggled to complete the backlog of documentation that we have leaving us needing to make some larger measures in the following sprint.

8 Sprint 2 Product Documentation

8.1 Customer Meeting

Customer Meeting Agenda Sprint 2

Show the main new features produced this sprint:

- Level 1 Dungeon Map
- Final Dungeon level
- Inventory
- Player and enemy attack (attack animation?)
- Enemy patrol
- Saving game state
- Level transitions

Show Documentation produced:

- Main Documentation (query if there is anything else that is required)
- Storyline produced

Explain what our next direction is:

- Health bar
- Collate documentation from sprint 2 and put into main document
- Implement a currency system and the appropriate UI
- Implement dialogue boxes
- Edit portal script to black screen and show text
- Implement level 1 storyline
- Implement death – back to start refill health and black screen
- What development do we need to do around the final boss?

Questions for the customer:

- Is there anything else you would like to see in the game?

Customer Meeting Notes

As we were explaining what we had done for much of the meeting there was not much feedback from the customer apart from the fact that he was happy with the progress we had made in the last week and that the direction we were heading was good.

On the documentation side he mentioned that it would be good to implement a preview and review section at the start of each sprint to give a brief overview of the sprint and what was achieved. This was then implemented into the process documentation.

8.2 User Stories and Associated Tickets

User Stories	Acceptance Criteria
TC-19 Create Main Character Attack Completed by: Will Prior & Chengpeng Huang	
AS A Game Player I WANT to be able to attack and damage enemies SO THAT they do not kill me	This Story is complete when the main character can: <ul style="list-style-type: none">• The player can apply a definable amount of damage to opponents through a weapon of some sort
TC-39 Implement Item Pick Up System Completed by: Jack Chang	
AS A Game Player I WANT to be able to pick up loot around the map and dropped from enemies. SO THAT I can use these items to help me in my exploration of the world.	This Story is complete when the main character can: <ul style="list-style-type: none">• Pick up “loot” from the ground and• Pickup items from chests.
TC-28 Implement an Inventory System Completed by: Jack Chang	
AS A Game Player I WANT to be able to store the items I pick up from the world in my inventory and access them SO THAT I can use these items to help me explore the world.	This Story is complete when the main character can: <ul style="list-style-type: none">• Pick up an item and the item is immediately stored in the inventory of the player.
TC-34 Design the final Boss map Layout Completed by: Shouqing Li	
AS A Game Player I WANT a visually interesting and playable map SO THAT I have an exciting and usable environment for my character to explore and complete tasks in	This Story is complete when: <ul style="list-style-type: none">• Map layout complete• Add small objects to the map, such as skeletons, candles and traps

	<ul style="list-style-type: none"> • Setting up suitable colliders
TC-33 Design the final Boss map Layout	Completed by: Cambridge Chan, Kaia Cai and Jack Chang
AS A Game Player I WANT to be able to reach the end of the story and experience a good ending plot with the final boss SO THAT I can be happy with how the story ended and be happy with where the main character ends up at the end physically and mentally.	<p>This story is complete when:</p> <ul style="list-style-type: none"> • The plot of the story has reached a conclusion. • The conclusion to the story makes sense and is compelling. • The ending of the story does justice to the main character, or has player think and contemplate the meaning behind the way the story ends.
TC-35 Implement Enemy Attack	Completed by: Will Prior
AS A Game Player , coming across an enemy I WANT the enemies to attack me, be able to reduce my health and take damage SO THAT I can challenge myself to beat and kill them through the game	<p>This Story is complete when the enemy has:</p> <ul style="list-style-type: none"> • an attack radius • perform standard attacks at an appropriate interval and apply damage • take damage from its opponent • can die
TC-40 Saving the Game state	Completed by: Thomas Lawrie
AS A Game Player I WANT to have my items and gold come with me across levels SO THAT I can use what I have gathered later to help me	<p>This Story is complete when the player can:</p> <ul style="list-style-type: none"> • go from one level to another and still have all their items and gold intact

8.2.1 Further Sprint Tickets

Ticket Name and Reference	Acceptance Criteria
TC-20 Write up Tickets from Backlog Completed by: Yanxi Lei	<p>This ticket will be complete when:</p> <ul style="list-style-type: none"> • All tickets extra tickets not in the current sprint in the product backlog have an appropriate description so it is clear what is to be achieved with each ticket.

8.3 Requirement Use cases

Use Case: Pick-up system	Scope: all three maps
Reference Ticket: TC-39	
Level: user goal	
Context: The player can pick up some items in the map, such as apples, blueberries, gold coins, etc. And the player can click on these items to use them.	
Frequency of occurrence: Every time pick up some items	
Open Issues: What should we do if the item could not be picked, or we pick the items which no need to pick?	

Use Case: Inventory system	Scope: all three maps
Reference Ticket: TC-28	
Level: user goal	
Context: Create a box in the corner of Gaming screen for storing the pick-up things. For this part we adjust consider use this box for store unity which for adding HealthPoint rather weapons.	
Frequency of occurrence: In the right-bottom corner showing the system when playing	
Open Issues: What about the sorts of items more than the maximum of capacity? What else do it need to store? Weapons or something else?	

Use Case: Enemy movement and enemy attack	Scope: Level 1, Level 2, Boss level
Reference Ticket: TC-5, TC-35 RUC	
Level: user goal	
Context: Enemies will move around the dungeon map and will swing their weapons at the player as they approach.	
Frequency of occurrence: When the player enters the view of the enemy	
Open Issues: 1.How to measure the distance between enemy and player? 2.Different enemy has different moving speeds, how to decide the enemy's speed, should the boss faster or slower? If boss is faster than player, is it great that boss would be always catching the player.	

Use Case: Character movement	Scope: all three maps
Reference Ticket: TC-4 RUC	
Level: user goal	
Context: The player can move in four directions with the keyboard, up, down, left and right, and can also move diagonally by pressing both directions at the same time.	
Frequency of occurrence: When the player press W/A/S/D or up/down/left/right	

Open Issues:

Player does not move when key is pressed
Player still moves when key is released

Use Case: Create main character attack	Scope: dungeon maps
Reference Ticket: TC-19 RUC	
Level: user goal	
Context: When equipped with a weapon, the player can attack by clicking the left mouse button to inflict damage on the enemy.	
Frequency of occurrence: When equipped with a weapon and left mouse button clicked	
Open Issues: What if the weapon doesn't swing in the given direction when I press the mouse? How do I add an animation for swinging a weapon in multiple directions?	

Use Case: Design the final boss layout	Scope: final boss map
Reference Ticket: TC-34 RUC	
Level: user goal	
Context: Create the final boss map and add small prefabs to the map as well as adding suitable colliders.	
Frequency of occurrence: N/A	
Open Issues: Will the final boss map and the first level of the dungeon use the same elements? How will the final boss map need to be built to allow for better monster alignment?	

Use Case: Saving the game state	Scope: all three maps
Reference Ticket: TC-40 RUC	
Level: user goal	
Context: When the player moves from one map to another, he keep the same amount of health, supplies and coins on himself.	
Frequency of occurrence: Any time you enter a different map	
Open Issues: Can this script be applied to all maps? If I enter a new map while using an item, which event has higher priority?	

8.4 Testing

8.4.1 Testing Completed

What being Tested?	Testing procedure	Pass/Fail	Comments/Bugs
Player Movement TC-4	WASD Test <ul style="list-style-type: none"> - Press W player moves upwards - Press A player moves left - Press S player moves downwards - Press D player moves right 	Pass	
	Pressing WASD together at the same time <ul style="list-style-type: none"> - Press WA player moves towards NW - Press WD player moves towards NE - Press SA player moves towards SW - Press SD player moves towards SE - Press WS player does nothing - Press AD player does nothing - Press WASD player does nothing 	Pass	
	Directions Key Test <ul style="list-style-type: none"> - Press Up player moves upwards - Press Left player moves left - Press Down player moves downwards - Press Right player moves right 	Pass	
	Pressing Directions Key together at the same time <ul style="list-style-type: none"> - Press Up-Left player moves towards NW - Press Up-Right player moves towards NE - Press Down-Left player moves towards SW - Press Down-Right player moves towards SE - Press Up-Down player does nothing - Press Left-Right player does nothing - Press Up-Left-Down-Right player does nothing 	Pass	
Enemy Movement TC-5	Checking whether mobs are moving across the map to chase player (level 1) <ul style="list-style-type: none"> - Place the enemy into the game scene with the appropriate script - Set the way points to patrol through Enemies should be running/walking between the waypoints placed	Pass	
	Checking whether the enemy patrol routes are working as intended (level 1) <ul style="list-style-type: none"> - Place the character within chasing distance of the enemy and run away Player should be chased by the enemy	Pass	
General Map Testing	Run around the map and look for any collider issues This test passes when there are none	Fail	Talk to Jack and Tom and Shouqing about the issues they found

	Checking whether there are visual glitches on the map	Pass	
Implement Item Pick Up System TC-39	Moving player to positions where items are located <ul style="list-style-type: none"> - To where apples are located - To where berries are located Item should be given to player	Pass	
	Moving player to positions where chests are located Gold should be given to player	Pass	
Implement an Inventory System TC- 28	Moving player to positions where items are located <ul style="list-style-type: none"> - To where apples are located - To where berries are located Item should be stored in Item Box	Pass	
	Stacking the number of items when being picked up <ul style="list-style-type: none"> - When no certain item, it will appear in inventory box - When there is the item, the number of the item will increase by one 	Pass	
Implement Enemy Attack TC-35	Checking whether mobs are moving across the map to chase and attack player <ul style="list-style-type: none"> - Enemies follow the planned patrol and attack - Animation will be shown when attacking 	Pass	
	Checking whether enemies' attack will deal damage to player Damage should be dealt to player and HP deducted	Pass	

8.4.2 Bug Issues

Bug Title and Reference	Steps to Reproduce	Expected Outcome	Actual Result	Solution
The Collider Issue	<p>1/ Go to dungeon game project: Documents/GitHub/Team-Cyan-Morning-Coursework</p> <p>2/ Go to the Scenes assets, click “Main Menu”</p> <p>3/ Press the “play” to start the game as the player</p> <p>4/ Run around the map</p> <p>5/ Look for any collider issues</p>	The player should be conflicted with colliders	<p>1. Collision sometimes would be detected and sometimes wouldn't</p> <p>2. There were spaces between the player with the collisions</p>	Unresolved

8.5 CRC cards – Version 2

Fighter Script	Collaborators
Responsibilities	Collaborators
<ul style="list-style-type: none"> Player and enemy damage received The game objects current health Player death and respawn 	

Mover Script	Collaborators
Responsibilities	Collaborators
<ul style="list-style-type: none"> Player and enemy movement between two places 	<ul style="list-style-type: none"> Fighter

Player Script	Collaborators
Responsibilities	Collaborators
<ul style="list-style-type: none"> Consuming player movement left/right/up down keyboard input Initialising the player's inventory Saving the players current inventory to the game manager to save its state. 	<ul style="list-style-type: none"> Mover Inventory

Collidable Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Keeps track of all the collision between game objects in the game i.e. player running into a wall, weapons hitting players etc . 	

Weapon Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Store the weapon damage and push force • Detect if the weapon can swing again and cause damage based on a cool down period • Swinging the weapon 	<ul style="list-style-type: none"> • Collidable

Enemy Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Implement enemy movement AI to chase player within a certain range • Control the enemy patrol between certain waypoints • Enemy death - removing the enemy player from the map when it has no health remaining 	<ul style="list-style-type: none"> • Mover

Enemy Weapon Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Recording the damage inflicted on the player by the enemy and sending the damage values to. 	<ul style="list-style-type: none"> • Collidable

Game Manager Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Storing the players current game state including its health inventory. 	<ul style="list-style-type: none"> • Collidable

Inventory Class	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Storing the inventory items • Adding items to the inventory • Removing items from the inventory 	

Collectable Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Detects when a collectable item has been run into by the player • Stores a collectable items collection state from the player 	<ul style="list-style-type: none"> • Collidable

Item Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Stores a list of collectable items • Stores the items that have been collided by the player into the inventory of the player • Destroys the item from the map to show it being 'picked up' 	<ul style="list-style-type: none"> • Collectable

8.6 Design Use Cases

Pick Up System	Scope: all three maps
Reference Ticket: TC-39-DUC	
Level: user goal	
Primary Actors: Player	
Description: To allow the main player to pick up the things automatically The player could only pick up the items which restricted assets includes apples, chests, and berries.	
Dependencies: Key tickets of the game features	
Assumptions:	

The keyboard clicks properly
Preconditions:
The player come to the items he wants to pick face to face.
Main Flow:
The player is playing level 0
The player is walking to the place where apples/berries located
The player went to the positions where chests are located Gold
The player picks up the items
Subflows:
Nope
Alternative Flows:
The apples could be picked
The berries could be picked
The number of Gold decreases
The player picks up the items
The player could click button to use the items
Post Conditions:
The items disappear
Showing the items those the player has picked
Frequency of occurrence: Every time pick the unity
Open Issues:
What should we do if the item could not be picked, or we pick the items which no need to pick?

Inventory system	Scope: all three maps
Reference Ticket: TC-28-DUC	
Level: user goal	
Primary Actors: Player, Inventory	

Description:
Create a box in the corner of Gaming screen for storing the pick-up things.
Dependencies:
Key tickets of the game features
Assumptions:
The mouse and keyboards click properly
Preconditions:
The user is on the main scene of the game.
Main Flow:
<p>The player is playing level 0</p> <p>The player is picking up the items</p> <p>The player moves to next level</p> <p>The Game player clicks on the items bottom on the inventory system.</p>
Subflows:
The inventory could store six kinds of items maximum
Alternative Flows:
<p>There is a UI system showing at the corner of main scene with six spaces for storing</p> <p>The unity displays in the inventory when pick it up at the first time.</p> <p>The numbers of the items displaying in the inventory box add one when pick it up again</p> <p>The numbers of the items displaying in the inventory box decreases when chick on the bottom of the item.</p> <p>The health points of main character increase 1 point when using apples</p> <p>The health points of main character increase 2 points when using berries</p> <p>The item disappears when it goes to zero when using</p>
Post Conditions:
A start menu is displayed and the user is able to click on actions in the menu
Frequency of occurrence: Every time we open the game
Open Issues:
<p>What should we do if we don't get a response when clicking on Start Game/Quit Game?</p> <p>Should there be a settings option on the menu?</p>

Enemy movement and enemy attack	Scope: all three maps
Reference Ticket: TC-5, TC-35 DUC	
Level: user goal	
Primary Actors: Player	
<p>Description:</p> <p>Enemies will move around the dungeon map and will swing their weapons at the player as they approach.</p>	
<p>Dependencies:</p> <p>TC-8</p>	
<p>Assumptions:</p> <p>The game is running smoothly and the player has successfully entered the dungeon.</p>	
<p>Preconditions:</p> <p>Monsters have been placed in the dungeon and the script is correct.</p>	
<p>Main Flow:</p> <p>The player enters the dungeon level</p> <p>Players can see many monsters walking around</p> <p>As the player walks in, the monsters will chase the player and attack with their weapons</p> <p>The monsters can attack in four directions</p>	
<p>Subflows:</p> <p>Nope</p>	
<p>Alternative Flows:</p> <p>The monster deals damage to the player, but the weapon is not wielded.</p> <p>The monster stays in place and does not move even when the player approaches.</p>	
<p>Post Conditions:</p> <p>The screen shows the enemy moving and the ability to swing a weapon</p>	
<p>Frequency of occurrence: When the player enters the view of the enemy</p>	
<p>Open Issues:</p> <p>1. How to measure the distance between enemy and player?</p>	

2.Different enemy has different moving speeds, how to decide the enemy's speed, should the boss faster or slower? If boss is faster than player, is it great that boss would be always catching the player.

Character movement	Scope: all three maps
Reference Ticket: TC-4 DUC	
Level: user goal	
Primary Actors: Player	
Description: The player can move in four directions with the keyboard, up, down, left and right, and can also move diagonally by pressing both directions at the same time.	
Dependencies: TC-12	
Assumptions: The player presses the corresponding moving key.	
Preconditions: Player movement is scripted correctly and collisions on the map and on the player are set correctly.	
Main Flow: The player enters the game and appears in the village scene. The player can move in different directions by pressing w/a/s/d or up/down/left/right. When multiple keys are pressed together, different actions are performed.	
Subflows: Nope	
Alternative Flows: The player presses the move button, but the character is not heading in the desired direction. When the player releases the keyboard, the character is still moving and cannot stop.	
Post Conditions: The screen shows that the player can move in all directions on the map.	
Frequency of occurrence: When the player press W/A/S/D or up/down/left/right	

Open Issues:

Player does not move when key is pressed

Player still moves when key is released

Create main character attack	Scope: dungeon maps
Reference Ticket: TC-19 DUC	
Level: user goal	
Primary Actors: Player	
Description: When equipped with a weapon, the player can attack by clicking the left mouse button to inflict damage on the enemy.	
Dependencies: TC-8	
Assumptions: The keyboard works properly.	
Preconditions: The player is equipped with any of the weapons and the left mouse button is clicked.	
Main Flow: The Player is equipped with a weapon by dragging. Attack by pressing the left mouse button. The attack can go up / down / left / right. Attack can cause damage to the enemy.	
Subflows: Nope	
Alternative Flows: The attack can do damage to the enemy, but there is no waving animation. When the player attacks while walking, the swing angle of weapons will be different.	
Post Conditions: The player's weapon waving animation is displayed on the screen, and different angles will be displayed in different directions.	

Frequency of occurrence: When equipped with a weapon and left mouse button clicked
Open Issues:
What if the weapon doesn't swing in the given direction when I press the mouse?
How do I add an animation for swinging a weapon in multiple directions?

Design the final boss layout	Scope: final boss map
Reference Ticket: TC-34 DUC	
Level: user goal	
Primary Actors: Player	
Description:	
Create the final boss map and add small prefabs to the map as well as adding suitable colliders.	
Dependencies:	
TC-8	
Assumptions:	
There is additional dungeon material.	
Preconditions:	
The village map and the first level of the dungeon have been constructed.	
Main Flow:	
Import material into unity	
Cut material into 16 ×16	
Formed the tilemaps	
Add preform	
Add Colliders	
Modification details	
Subflows:	
Nope	
Alternative Flows:	
Different layers are not displayed correctly, resulting in overlap.	
The collider is not set correctly, preventing the player from moving.	

Post Conditions:
It should be able to display a complete boss map, including scenes, small objects, roads / doors, etc.
Frequency of occurrence: N/A
Open Issues:
Will the final boss map and the first level of the dungeon use the same elements? How will the final boss map need to be built to allow for better monster alignment?

Saving the game state	Scope: all three maps
Reference Ticket: TC-40 DUC	
Level: user goal	
Primary Actors: Player	
Description:	
When the player moves from one map to another, he keep the same amount of supplies and coins on himself.	
Dependencies:	
TC-12, TC-8	
Assumptions:	
The player has some Consumables / gold coins.	
Preconditions:	
It realizes the transmission between different maps. The player has apples, blueberries, gold coins or any usable items.	
Main Flow:	
The player has some consumables and gold coins. The player enters the dungeon map from the village map. The player finds that his items have not been reduced at all. Click on the items and they can still be used.	
Subflows:	
Nope	
Alternative Flows:	

The number of items did not change when entering the dungeon from the village, but it was cleared when entering the boss map.

Items cannot be clicked on, but the quantity remains unchanged.

Post Conditions:

A constant number of items and gold coins will be displayed in the player's backpack, no matter which map it is transmitted from.

Frequency of occurrence: Any time you enter a different map

Open Issues:

Can this script be applied to all maps?

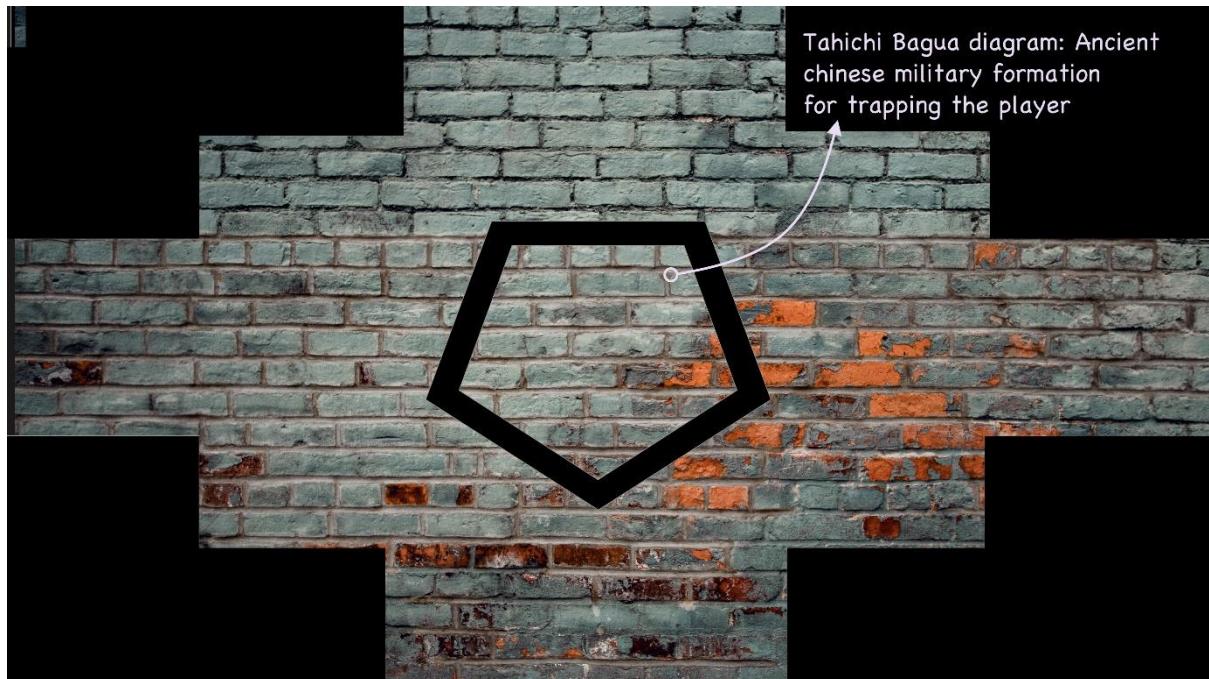
If I enter a new map while using an item, which event has higher priority?

8.7 User Interface Design

8.7.1 Design Sketches

The Final Boss Map Design

Reference Ticket: TC-34



8.7.2 Design Implementation

To see final implementation of the map please see [sprint 3 user interface design](#).

9 Sprint 3 Process Documentation

9.1 Preview

The aim of this sprint was to implement further player enhancements, enemy positioning, and attack play, add in interactable NPC's using dialogue to display more of the storyline and finally collate all the documentation written from the previous two sprints including more detailed documentation of the testing strategy we had used. The player enhancements included the players inventory item consumption, the player health bar UI, the player gold collection and storage UI, conditions around the players death, one being where the player leaves a ghost in the place of its death, and when the player dies that the screen goes black tells the user you have died, transporting the player back to the starting position of the level. The enemies were built into prefabs and placed in different positions across the second and third and final level and transition fight was to be created in which the final boss appears after all the previous enemies of the level had been killed.

9.2 Review

From a development perspective this was a very successful sprint with all the dev tickets being completed and tested. However the documentation side of things was not quite completed with the strategy and collation taking longer than expected. This will be a larger focus in the next sprint.

9.3 Meetings

9.3.1 Sprint Meeting Schedule

Sprint 3 Meeting Schedule		
Date	Meeting	Attendance
25/11/2021	Sprint Planning	Whole Team attendance
26/11/2021	Documentation Meeting	WP, YL, CH, KC, CC
27/11/2021	Stand-Up	Whole Team attendance
28/11/2021		
29/11/2021	Stand-Up	JC, TL, WP, KC, CC, SL, CH - (YL-ill)
30/11/2021		
01/12/2021	Stand-Up	JC, TL, WP, KC, CC, CH, YL
02/12/2021	Sprint Review	Whole Team attendance
02/12/2021	Sprint Retrospective	Whole Team attendance

9.3.2 Sprint Planning

SPRINT 3 Planning Meeting Agenda

1. Start the planning give context to what each ticket is required for members to make notes in description of the ticket and develop user stories and use cases for each to allow us to create an acceptable acceptance criterion. Tickets to be discussed:

- Collate documentation from sprint 2 and put into main document
- Implement a currency system and the appropriate UI
- Implement dialogue boxes
- Implement black screen transitions between levels and in death
- Implement level 0 storyline (inserting NPC dialogue boxes and the dialogue)
- Design level 0 NPC placement and dialogue insertion
- Write Ticket Documentation
- Enemy placement
- Implement death – back to start refill health

- Attack animation
 - Final boss map kills hoard of enemies then spawns final boss to attack
2. Add tickets to the sprint
 3. Create a sprint goal
 4. Start Sprint

Sprint 3 Planning Meeting Notes

- We need to write up more in documentation. For instance, manual test, CRC cards and use cases. They should include the tickets done in sprint 1 and sprint 2. It's important to show our testing and design procedures we went through that have been progressing over each Sprint. Will will set up a separate meeting during the week to make a centralised template for each of these to keep consistency.
- The transition between the level and death should clearly tell player something.
- We can use the black screen to help tell the story.
- When the player dies it should show specific text on the screen 'You Died'.
- There will only be NPCs in level 0 to aid describing the foundations of the game. There will be no enemies in level 0.
- The difficulty of the levels should increase as the player passes through them. I.e. the enemies should have more health and attack damage, so the player must be more skilful when coming to the higher levels.
- Kaia and Cambridge will write up the manual test strategy we have gone through. They will also write up the bugs we have had and any of the solutions from this.
- Collecting memory and soul is part of this game. When a player dies, an outline will represent the player's memory dropped.

Please See the [User Stories and Associated Tickets](#) section to see the task assignment and further ticket detail

9.3.3 Documentation Meeting

This was a meeting containing the people mainly responsible for the product documentation to discuss a system as to how certain pieces of documentation would be written up.

Documentation Meeting Notes

Knew we had a big backlog of documentation to do including CRC cards, use cases and testing documentation.

Started with outlining a template example for the testing documentation to be backdated and implemented of what tests we had already been completing.

What being Tested?	Testing procedure	Pass/Fail	Comments/Bugs
Player Movement Ticket Reference TC-4	Basic test <ul style="list-style-type: none"> • Press W player moves upwards • Press A player moves left • Press S player moves downwards • Press D player moves right 		
	Press all WASD together Is there any issues?		
Level 1 Map Testing	Run around the map and look for any collider issues This test passes when there are none found	Fail	

The tests should be written by at least 2 people, and these should cover the acceptance criteria of the ticket it is testing and any edge cases of the functionality that should occur.

After doing some further discussion Kaia and Cambridge said they would take on the responsibility of documenting our current test strategy.

After this we discussed CRC cards and found that how they would be implemented required further investigation which Will volunteered to do as he also had knowledge of the current code base.

Use case template examples was then discussed and a centralised template was then created that all previous produced information could be put into along with adding some extra. ChengPeng and Yanxi volunteered to fill in these documents.

TITLE: Create Character Movement				
PURPOSE: To allow the main player to move around the map				
ACTORS: Game player				
Overview:				
The player will put some input through the keyboard and the player on the screen will move in various directions depending on the input.				
<table border="1"> <thead> <tr> <th>Actor Action</th> <th>System Action</th> </tr> </thead> <tbody> <tr> <td> 1. Game Player boots up the game 3.Game player presses movement key on keyboard </td> <td> 2. Game turns on and initialises and displays player 4. Player moves in intended direction </td> </tr> </tbody> </table>	Actor Action	System Action	1. Game Player boots up the game 3.Game player presses movement key on keyboard	2. Game turns on and initialises and displays player 4. Player moves in intended direction
Actor Action	System Action			
1. Game Player boots up the game 3.Game player presses movement key on keyboard	2. Game turns on and initialises and displays player 4. Player moves in intended direction			
Ref: TC-4				

These were explained to be a starting point and could evolve if it was believed extra sections were required.

9.3.4 Sprint Review

During this week's sprint review:

- Shoquing showed the placements of all the NPCs that were placed in the designs created by Kaia and Cambridge.
- Chengpeng showed with Jacks help how the enemies and players could now swing weapons causing damage when their weapons collided with the bodies of their opponents.
- Thomas demonstrated the use of the dialogue box on the NPC and how the player has to go up to the NPC and press the "F" key to interact and the dialogue box pops up. He also showed the extension of the level transitions in which he placed all the portals in the maps and added in the black screen and storyline between levels.
- Jack showed the health bar that had been implemented with a heart system where each half heart represented a hit point and how this could be increase by consuming items from the inventory or decreased when taking hits from enemies. He also showed how the player left a ghost behind after death and the max Hit points was decreased which was reflected in the UI health bar. The player was also seen to walk up to treasure boxes interact and store the gold from within them increasing the gold storage UI in the top left of the screen. Finally he showed the prefabs he created for dungeon level one and how they were placed and patrolled around the first level.

- Will showed the new enemy sprites he had added to the game for the final boss level and their positioning and how the interlude between the final level standard enemies transitioned to fighting the final witch boss when all the previous enemies had been killed. He reported that there still seemed to be some collision issues with some smaller objects on the final map and asked a bug ticket to be raised for this to be solved within the next sprint.

All UI design and implementation was completed within the same sprint in this case so please see the [UI design](#) section to see the NPC and enemy placement diagrams and the final shot of them.

9.3.5 Sprint Retrospective

Sprint 3 Retrospective Meeting Agenda

- Review last retrospectives goals and see if we have achieved them
- Fill in the Miro Mad, sad, and glad board
- Talk through each mad, glad, and sad
- Make some team actions in the way we work to change for the next sprint

Retrospective Meeting Notes

Looking at previously set actions to implement this sprint from the last retrospective, as a team we believe we achieved:

- Communicate and if you are Unsure on what needs to be achieved ask somebody
- Make sure your branch is up to date before making a pull request

We believe we still had to work on:

- Take responsibility for your workload and contribute your fair share
- Contribute to meetings - we want to hear your opinion!

Mad	Sad	Glad
That the customer meeting was cancelled as is our last chance to get feedback in which we can make large changes on with the given time frame.	That we only ended up making 2 dungeon levels.	That we are on track to finish on time *taps on wood*
Last minute cancellation of the customer meeting that we really need to get feedback	We don't have more time to implement level 2	We nearly have a fully functioning game!!
We still have lots of documentation to do	Dungeon 2 is cancelled; I can't help much with programming because I haven't used C sharp much.	We have a functioning game. The only bug I could find is the dialogue box, which is not a major issue.
	We only have two levels, but it is fine since the player needs to kill all the mobs before the final boss appears so it's ok	The game is fun and interesting.

From this meeting the following Actions for next sprint were created and to be reviewed next sprint review:

- Take responsibility for your workload and contribute your fair share

- Contribute to meetings - we want to hear your opinion!
- Complete all process documentation up to sprint 3

9.4 Sprint 3 Individual Accounts

Jack Chang

Tasks worked on: TC-46, TC-47, TC-48, TC-52, TC-55, TC-59

Sprint Meeting – 25/11/2021:

- Continued working on the player death system.
- Started working on the player “fade memory” or “player ghost” system, where if the player dies, the player’s max hp will drop by 2 and will only be restored once the player picks up the “faded memory” or “player ghost”.
- Before the next standup meeting, I managed to get the “faded memory” to work, and I also worked on adding lighting to the game.
- The package “Universal Render Pipeline” was installed from the “Unity Package Manager”. (I wrote this just in case we need to note this down to prevent us from being accused of plagiarism).

Standup Meeting – 27/11/2021:

- By this meeting, I have completed the player death respawn mechanic, the max hp loss mechanic, as well as the “Faded memory” mechanic.
- The next thing I will be doing is helping Will with some of his tickets, as currently, he is extremely busy with some of the documentation. So, I will be doing enemy placements and patrol area placements in dungeon level 1. And then afterward, I will be helping with some documentation too.
- I also plan to add walking/running animations to these enemies.

Standup Meeting – 29/11/2021:

- By this meeting, I have completed the enemy placements on dungeon level 1, and also added running animations to all enemies. This was a collaboration with Will Prior.
- I have also completed the lighting system. So now things that should emit light, do.
- I also added player’s idle and walking animations and have smooth transitions between them.
- Lastly, I have helped Chengpeng Huang with the player’s attack animations for left, right, up and down attacks.
- Since my tickets were completed, I started helping other team members with completing their tickets.

Standup Meeting – 01/12/2021:

- By this standup meeting, I have helped other team members’ complete some of their tickets. Such as helped Chengpeng with completing the player’s attack animations and helped Will with enemy attack animation tuning in terms of attack cooldowns and enemy scaling.
- I also managed to fix an issue where the player was able to move even though the “you died” screen was still active. So now the player will be unable to move until the screen disappears.
- I also implemented a feature where if the Inventory UI has not been interacted with for a period of time, it will be hidden so that the player can see more of the game screen. The Inventory UI can be revealed again by pressing the corresponding keys (1 – 6) to use an item from the inventory OR by pressing “E” on the keyboard to bring up the Inventory without

any item consumption, and then the mouse can also be used as well as the keyboard to interact with the inventory UI.

But since this was not an essential feature and I wasn't sure if the other team members would prefer this, I temporarily commented out the code responsible for this feature, until it is needed again.

- The last thing I helped with was to write a portion of the documentation, as Yanxi was ill during the two days leading up to the customer meeting. Overall, this ticket was done as a collaboration between the both of us.

Thomas Lawrie

Tasks worked on: TC-32, TC-51, TC-50

- Finished writing all scripts for dialogue interactions
- Various merges on GitHub
- Tested new features
- Started implementation of black screen transitions
- Showed Shouqing how to add NPCs to village map with dialogue objects

Will Prior

Tasks worked on: TC-54, TC-31, TC-49

During this Sprint I:

- Had a documentation meeting with the non-dev members of the team to discuss how we would present the testing strategy, CRC cards and use cases in the process documentation coming up with a template for each. I then assigned other team members their jobs and myself the CRC cards which I made a start on.
- I continued to collate all other documentation that had been completed during the current and previous sprint and add it to the now established process document unable to complete the scope of the ticket with outstanding work from others
- I also populate the final boss map of the game adding appropriate animations for each character as I added them.
- I also implemented the condition that meant you had to kill all current populated enemies on the final boss map before the witch spawns creating all appropriate animations for the witch and adding the appropriate logic

Shouqing Li

Tasks worked on: TC-60, TC-59

What I did.

1. I placed eligible npcs on the village map and the first level of the dungeon map, and they were placed in the appropriate environments based on their backstories.
2. I set up a dialogue for each npc and pressed F when the player was close to the npc to enable a conversation with the npc.
3. I provided some ideas for player attack animation design.

My teamwork.

1. Thomas and I talked on the phone and he told me how to go about creating a new npc and a new dialogue and placing the dialogue on the npc. Also to change the appearance of the npc.
2. I discussed the placement of the npc and dialogue with Kaia and Cambridge, they gave me the material and advice and I was responsible for implementing it.

3. I worked with Chengpeng on how to go about designing the player's attack scripts and attack animations.

Cambridge Chan

Tasks worked on: TC-51, TC-58

Preview

In this sprint my role is to place the NPCs and mobs as well as the boss in the corresponding level maps. After this task, I also need to start doing the game prototype testing for the completed levels to ensure there are no bugs and flaws. I would also need to document every performed test with regards to the tickets created for each scrum. These would be completed together with Kaia, Jack and Shouqing.

Review

I had a meeting with Will and we discussed about the documentation details. Me and Kaia were assigned to work on manual testing of the game and record every test we checked for documentation. We would need to perform testing for every sprint.

After that I started planning and design the placements of NPCs and mobs for each level by placing the sprites into the levels. The dialogues are also modified as per requested by several groupmates. I also created the Dialogues for Blank Screen Transitions for 4 scenes: *Before Village Level, Getting Through the forest, Before Final Boss Fight, and After Final Boss Fight*.

I also did the testing work for the game. In this task I did the game testing for sprint 1 and sprint 2 tickets. I listed the testing strategy and bugs discovered in a document so other team members could check if they could find the solution to the bugs.

Kaia Cai

Tasks worked on: TC-51, TC-58

Overall, in sprint 3, I completed these tickets: 1. Built the Level-1 and Final level mobs and NPCs' placement; 2. Selected and Imagined the NPC's figures (Level-1 and Final level); 3. Wrote the Level-1 NPCs' dialogue; 4. Edited the text for the transfer black screen; 5. Tested the level-1; 6. Documented the manual testing; 7. Delivered testing result to the related people to debug

After discussing with Will and Jack, I got some inspiration for level-1 NPCs interaction dialogue building. (Actually, I understood it wrong at the beginning). At first, I placed 12 mobs randomly on the level-1 map. Then, I considered the storyline background and map environment. There were no human NPC. This is why after I finished the mobs' placement, I naturally started to design dialogues for them, lol. However, When I submitted the NPCs dialogue draft, Shouqing told me the NPCs needed to be human, not the mobs. I was shocked because I thought there were no people on the dungeon map. So, I discussed this with Shouqing, jack and will. I told them my idea: The mobs first say something that could provoke or mock you and then start to attack you. Or they are talking to themselves, and you disturb them. Therefore, the player and mobs are fighting. Cambridge and Jack understand what I thought. But I still couldn't understand why they thought there should be humans in the dungeon because this is a dungeon nobody could walk freely in there. After a stalemate for a while, I compromised and considered magical creatures that are not aggressive for the player, like elves inspired by Jack. Finally, I created three roles (casino staff (half-orc), butcher (Goblin), divination (Half-elf)) and edited the dialogue for them.

Considering the black screen loading speed, I reduced the words of Cambridge's monologue draft and got an agreement. Then I wrote and added the monologue of the final boss fight part after

discussing it with Jack and Cambridge. After this, I tested and recorded the level-1 game and delivered the collisions' bug to shouqing.

Yanxi Lei

Tasks worked on: TC-26, TC49, TC-31

During this sprint. I completed the meeting notes of sprint2 and sprint3. When we come to sprint3, we arranged more game building tickets. And we put up the documentation details, like CRC cards and use cases. I and Chengpeng started to work on use cases for sprint1 and sprint2.

ChengPeng Huang

Tasks worked on: TC-59

- Finish the attacking animations.
- Setting trigger to attack
- Manual testing of the game
- Write the use-case template in Sprint

9.5 Backlog

<input checked="" type="checkbox"/> TC-50 Implement black screen transitions between levels and in death	TO DO	
<input checked="" type="checkbox"/> TC-51 Design all level NPC and dialogue placement	TO DO	
<input checked="" type="checkbox"/> TC-26 Create a Word Doc and document	TO DO	
<input checked="" type="checkbox"/> TC-54 Final Boss map fight interlude and enemy placement	TO DO	
<input checked="" type="checkbox"/> TC-59 Attack Animation	TO DO	
<input checked="" type="checkbox"/> TC-52 Enemy Patrol Placement level 1	TO DO	
<input checked="" type="checkbox"/> TC-55 Death Condition : leave ghost in place of death and decrement Max HP	TO DO	
<input checked="" type="checkbox"/> TC-47 Implement Item usage from the inventory	TO DO	
<input checked="" type="checkbox"/> TC-48 Implement gold currency system and UI for gold count	TO DO	
<input checked="" type="checkbox"/> TC-53 Implement death – back to start refill health	TO DO	
<input checked="" type="checkbox"/> TC-46 Implement player health bar	TO DO	
<input checked="" type="checkbox"/> TC-32 Add dialogue Boxes	TO DO	
<input checked="" type="checkbox"/> TC-31 DOCUMENTATION!!!!!!!	TO DO	
<input checked="" type="checkbox"/> TC-49 Sprint 2 Documentation Collation	TO DO	
<input checked="" type="checkbox"/> TC-58 Manual Testing Strategy	TO DO	
<input checked="" type="checkbox"/> TC-68 Search and download/create different sound effects and music	TO DO	
<input checked="" type="checkbox"/> TC-73 Level Transition: Kill level "main boss" before being allowed to transition to next level	TO DO	
<input checked="" type="checkbox"/> TC-74 Add in level Transitions and storyline Text	TO DO	
<input checked="" type="checkbox"/> TC-69 Implement the sound manager for the game to player sound effects and music	TO DO	
<input checked="" type="checkbox"/> TC-67 Create a main/start menu for the game	TO DO	
<input checked="" type="checkbox"/> TC-62 Add lighting feature to the game, especially to the player ghost/"Faded Memory".	TO DO	

<input checked="" type="checkbox"/> TC-60 Implement the NPC dialogue and placement Design	TO DO	
<input checked="" type="checkbox"/> TC-14 Writing Level Two Storyline	TO DO	
<input checked="" type="checkbox"/> TC-9 Design layout of Level 2	TO DO	
<input checked="" type="checkbox"/> TC-70 Find and implement level 2 boss	TO DO	
<input checked="" type="checkbox"/> TC-71 Populate level 2 with enemies	TO DO	
<input checked="" type="checkbox"/> TC-72 Populate level 2 with NPCs and dialogue	TO DO	
<input checked="" type="checkbox"/> TC-11 Design layout of level 4	TO DO	
<input checked="" type="checkbox"/> TC-10 Design layout of level 3	TO DO	
<input checked="" type="checkbox"/> TC-66 Implement Mana system for ranged attacks	TO DO	
<input checked="" type="checkbox"/> TC-65 Implement ranged attack	TO DO	

9.5.1 Complete Backlog Tasks

Sprint 3 Backlog	
Ticket Code	Ticket Title
Completed	
TC-32	Add dialogue Boxes
TC-26	Create a Word Doc and document
TC-46	Implement Player Health Bar
TC-47	Implement Item usage from the inventory
TC-48	Implement gold currency system and UI for gold count
TC-50	Implement black screen transitions between levels and in death
TC-51	Design level 0 NPC and dialogue placement
TC-52	Enemy Patrol Placement level 1
TC-53	Implement death – back to start refill health
TC-54	Final Boss map fight interlude and enemy placement
TC-55	Death Condition: leave ghost in place of death and decrement Max HP
TC-59	Attack Animation
TC-60	Implement the NPC dialogue and placement Design
Carried over	
TC-58	Manual Testing Strategy
TC-49	Sprint 2 Documentation Collation
TC-31	DOCUMENTATION!!!!!!!

9.6 Exception Handling

The main problems we had this sprint was when implementing the enemies into the final boss level there seemed to be lots of collider issues that we did not see before with smaller items on the map. This led to the enemies getting stuck behind small items such as candles before reaching the player leading to unrealistic game play therefore a bug was raised for this to be fixed in the next sprint.

The other issue we had was there was no customer meeting leaving us unsure if what we had currently completed was what he wanted. However on the other hand this gave us the freedom to continue in the same as we were and implement what we believed was still needed.

- No customer meeting so decided to carry on as usual continuing to go off the guidance from the previous meetings
- Worrying state of the documentation meant documentation meeting was held to distribute and back write the needed documents

10 Sprint 3 Product Documentation

10.1 Customer Meetings

This week was cancelled due to Strike action.

10.2 User Stories and Associated Tickets

User Stories	Acceptance Criteria	
TC-32 Add dialogue Boxes Completed by: Thomas Lawrie	 AS A Game Player I WANT to have information and exposition communicated to me through dialogue boxes SO THAT I can understand what is happening in the game	This Story is complete when the player can: <ul style="list-style-type: none"> • be shown a dialogue box to convey a character talking to them • be shown a dialogue box to inform them of the occurrence of an in-game event
TC-46 Implement player health bar Completed by: Jack Chang	 AS A Game Player I WANT to be able to visually see the main character's health value SO THAT I can know what the character health value is at all times, so I can know when to heal my character.	This story is complete when the UI contains a health bar that: <ul style="list-style-type: none"> • Shows the correct health value of the character. • Updates when the player is healed. • Updates when the player is damaged.
TC-47 Implement Item usage from the inventory Completed by: Jack Chang	 AS A Game Player I WANT to be able to use items from my inventory SO THAT I can heal my character or effect my character's stats.	This story is complete when the player is able to: <ul style="list-style-type: none"> • Click on an item in the inventory by clicking on the inventory slot. • And then the item is removed from the inventory and its effect is applied to the player. • The inventory and its UI will update after the item is used up.

TC-48 Implement gold currency system and UI for gold count	
Completed by: Jack Chang	
AS A Game Player I WANT to be able to see how much gold I have at any point SO THAT I can have a idea of the amount of gold I have and decide what to do with that gold.	This story is complete when: <ul style="list-style-type: none"> The player can keep a count of the gold they loot from chests. Different chests give different amounts of gold. There is a UI that displays gold count.
TC-50 Implement black screen transitions between levels and in death	
Completed by: Thomas Lawrie	
AS A Game Player, on death I WANT to see a black screen and be told I died SO THAT I cannot be disoriented and try the level again	This story is complete when: <ul style="list-style-type: none"> the player sees black screen on death and sees text on screen "YOU DIED "
AS A Game Player, on level transitioning I WANT to see a black screen and be presented with story progression SO THAT I can see a clear transition between levels and progress through the story	This story is complete when: <ul style="list-style-type: none"> the player sees black screen when transitioning between levels/scenes
TC-51 Design level 0 NPC and dialogue placement	
Completed by: Cambridge Chan, Kaia Cai	
AS A Game Player, I WANT to see NPCs around the map in a logical manner SO THAT I can interact with them and learn the storyline	This story is complete when: <ul style="list-style-type: none"> a screenshot of the placement of the NPCs and their dialogue has been produced for all levels using the numbering system a separate document has been produced with the sprite and dialogue associated with each number
TC-52 Enemy Patrol Placement level 1	
Completed by: Jack Chang	
AS A Game Player, I WANT to run into patrolling enemies in the castle/dungeon SO THAT there is challenge within the game	This story is complete when: <ul style="list-style-type: none"> There is a suitable amount of patrolling enemies who attack the player when he comes within a certain distance

	<ul style="list-style-type: none"> • There are more surrounding precious items
TC-53 Implement death – back to start refill health	
Completed by: Jack Chang	
AS A Game Player, on death I WANT my player being transported back to the start of the map and health refilled SO THAT I can start the level again	<p>This story is complete when:</p> <ul style="list-style-type: none"> • the main player transports to the start of the map on death • the player's health is refilled
TC-54 Final Boss map fight interlude and enemy placement	
Completed by: Will Prior	
AS A Game Player, I WANT the final level to be challenging SO THAT I can complete a level with appropriate difficulty for the end of a game.	<p>This story is complete when:</p> <ul style="list-style-type: none"> • the player gets initially attacked by a hoard of standard enemies • once the hoard has been killed, the final boss spawns and attacks for the final fight
TC-55 Death Condition: leave ghost in place of death and decrement Max HP	
Completed by: Jack Chang	
AS A Game Player on death I WANT to create a ghost where I last died which contains a portion of my max HP SO THAT I can be encouraged to revisit areas I have been before and reattempt to kill the enemies which initially killed me.	<p>This story is complete when:</p> <ul style="list-style-type: none"> • When a player dies a ghost outline, representing the players memory, of the main player is dropped in the place of death • the max HP is reduced every time the player dies until it reaches 4 hp • the max hp can be regained by recollecting part of his memory from the previous place of death
TC-59 Attack Animation	
Completed by: Jack Chang & Chengpeng Huang	
AS A Game Player attacking I WANT to see my weapon swinging at my opponent and his swinging back at me SO THAT I can attack and be attacked from all directions	<p>This story is complete when:</p> <ul style="list-style-type: none"> • the weapon can swing in left and right directions • the weapon can swing and attack in above and below directions
TC-60 Implement the NPC dialogue and placement Design	

Completed by: Shoqing Li	
AS A Game Player I WANT to have more conversations with the NPCs in the game. SO THAT I would be able to know some of the backstory of the game and what the plot development is later in the game.	This story is complete when: <ul style="list-style-type: none"> • NPCs are correctly placed • Pressing F key enables to communicate with NPCs • Correct display of dialogue content

10.2.1 Further Sprint Tickets

Ticket Name and Reference	Acceptance Criteria
TC-26 Create a Word Doc and document Completed by: Yanxi Lei	Create word Document and write up the process we have gone through up until the start of sprint 2 including the sprint planning meeting This would Include: <ul style="list-style-type: none"> • Our initial team Meeting activities and meeting notes and the meeting outcomes • The first couple of customer meetings

10.3 Requirement Use Cases

Use Case: Add dialogue boxes, Implement the NPC dialogue and placement	Scope: Some scene of game
Reference Ticket: TC-32, TC-60	
Level: Nope	
Context: There will be some dialogues and explanation happen when the player stands next to NPCs or some entrance. Those dialogues should be shown by boxes.	
Frequency of occurrence: When the player stands by NPCs or place of transitions.	
Open Issues: How to induce those dialogues?	

Use Case: Implement Player Health Bar	Scope: Always in game
Reference Ticket: TC-46	
Level: Nope	
Context: When the main player exists in game. He has the motivation to fight with enemies and bosses. The health bar will show how much he can stand being only hit by enemies or bosses.	
Frequency of occurrence: Always if the player exists	

Open Issues:

What extent of overall health capacity is appropriate?

Use Case: Implement Item usage from the inventory	Scope: Some scene of game
Reference Ticket: TC-47	
Level: Nope	
Context: The player can pick up and contain some items in his inventory. In the meanwhile, he can use those items by pressing the number keys.	
Frequency of occurrence: Once the player wants to use items	
Open Issues: Is the implement item usage necessary?	

Use Case: Implement gold currency system and UI for gold count	Scope: Always in game
Reference Ticket: TC-48	
Level: Nope	
Context: As the player entering the game, the player can always enter dungeon and walk around. There are some chests placed on the different levels of the dungeon. Gold currency system and UI for gold count will play the gold player attained.	
Frequency of occurrence: Always if the player exists	
Open Issues: How currency change number, will there be some animation?	

Use Case: Implement blank screen transitions between levels and in death	Scope: When player lost the fight
Reference Ticket: TC-50	
Level: Nope	
Context: The transitions will show when the game change scenarios. For example, if the player loses whole heart and die, then the transition will appear. It's like blank screen.	
Frequency of occurrence: When scenarios change or the player die	
Open Issues: Will blank screen be too tedious?	

Use Case: Enemy Patrol Placement level1	Scope: level 1 enemies' scene
Reference Ticket: TC-52	

Level: Level 1	
Context: When entering dungeon level 1, the player needs to face enemies' patrol. It's like the enemies are patrolling and protecting something.	
Frequency of occurrence: Always if the player enters dungeon level 1	
Open Issues: Can we provide some extra movement for main character except only walking?	

Use Case: Implement death – back to start refill health, Death Condition: leave ghost in place of death and decrement Max HP	Scope: Some scene of game
Reference Ticket: TC-53, TC-55	
Level: Every dungeon level	
Context: When the player was killed by enemies, the player may back to Max HP as he reborn in fact.	
Frequency of occurrence: After the player died	
Open Issues: Will some difference happen after reborn?	

Use Case: Final Boss map fight interlude and enemy placement	Scope: Some scene of game
Reference Ticket: TC-54	
Level: Final level	
Context: Some interludes need to appear when the player fight some mini bosses in the dungeon final boss map.	
Frequency of occurrence: When the player has defeated some bosses in final level.	
Open Issues: Will that exist with some bonus?	

Use Case: Attack Animation	Scope: Some scene of game
Reference Ticket: TC-59	
Level: Every dungeon level	
Context: When the player attack enemies or bosses, some attack animation is necessary.	
Frequency of occurrence: As the player enter dungeon level and user click the mouse.	

Open Issues:

Can we provide some extra movement for main character except only walking?

10.4 Testing

10.4.1 Testing Completed

What being Tested?	Testing procedure	Pass/Fail	Comments/Bugs
Player Movement TC-4	WASD Test <ul style="list-style-type: none"> - Press W player moves upwards - Press A player moves left - Press S player moves downwards - Press D player moves right 	Pass	
	Pressing WASD together at the same time <ul style="list-style-type: none"> - Press WA player moves towards NW - Press WD player moves towards NE - Press SA player moves towards SW - Press SD player moves towards SE - Press WS player does nothing - Press AD player does nothing - Press WASD player does nothing 	Pass	
	Directions Key Test <ul style="list-style-type: none"> - Press Up player moves upwards - Press Left player moves left - Press Down player moves downwards - Press Right player moves right 	Pass	
	Pressing Directions Key together at the same time <ul style="list-style-type: none"> - Press Up-Left player moves towards NW - Press Up-Right player moves towards NE - Press Down-Left player moves towards SW - Press Down-Right player moves towards SE - Press Up-Down player does nothing - Press Left-Right player does nothing - Press Up-Left-Down-Right player does nothing 	Pass	
Enemy Movement TC-5	Checking whether mobs are moving across the map to chase player (level 1) <ul style="list-style-type: none"> - Place the enemy into the game scene with the appropriate script - Set the way points to patrol through Enemies should be running/walking between the waypoints placed	Pass	
	Checking whether the enemy patrol routes are working as intended (level 1) <ul style="list-style-type: none"> - Place the character within chasing distance of the enemy and run away Player should be chased by the enemy	Pass	

General Map Testing	Running around the map and look for any collider issues This test passes when there are none	Fail	Talk to Jack and Tom and Shouqing about the issues they found
	Checking whether there are visual glitches on the map	Pass	
Implement Item Pick Up System TC-39	Moving player to positions where items are located <ul style="list-style-type: none"> - To where apples are located - To where berries are located Item should be given to player	Pass	
	Moving player to positions where chests are located Gold should be given to player	Pass	
Implement an Inventory System TC- 28	Moving player to positions where items are located <ul style="list-style-type: none"> - To where apples are located - To where berries are located Item should be stored in Item Box	Pass	
	Stacking the number of items when being picked up <ul style="list-style-type: none"> - When no certain item, it will appear in inventory box - When there is the item, the number of the item will increase by one 	Pass	
Implement Enemy Attack TC-35	Checking whether mobs are moving across the map to chase and attack player <ul style="list-style-type: none"> - Enemies follow the planned patrol and attack - Animation will be shown when attacking 	Pass	
	Checking whether enemies' attack will deal damage to player Damage should be dealt to player and HP deducted *HP status is determined in TC-46*	Pass	
Add dialogue Boxes TC-32	Pressing F when player standing next to NPCs Dialogue Box should pop up with specific message of the NPC	Pass	
	Pressing F when player standing at any direction next to NPCs Dialogue Box should pop up not matter what direction the player is at next to the NPCs	Fail	Some Dialogue Boxes only appear when player is beneath the NPCs
Implement Player Health Bar TC-46	Checking whether there is a HP bar appearing on the top of the screen	Pass	
	Checking whether the player health bar has 10HP in total (5 hearts, 1HP per half of heart)	Pass	
	Checking whether the health of player will increase or decrease <ul style="list-style-type: none"> - When being attacked, HP will decrease - When consuming items, HP will increase 	Pass	

Implement Item usage from the inventory TC-47	<p>Checking whether the items in the inventory could be used.</p> <ul style="list-style-type: none"> - By clicking with mouse - By pressing 1-6 of top row number keys - By pressing 1-6 of number keypad <p>Items should decrease in number by 1 when used</p>	Pass	See if number keypad is necessary
	<p>Decreasing the number of items when being used</p> <ul style="list-style-type: none"> - When number of the item is 2 or more, it will decrease by 1 when used - When number of the item is 1, it will disappear from inventory when used 	Pass	
Implement gold currency system and UI for gold count TC-48	<p>Checking if there is a gold currency system in the top left-hand corner</p>	Pass	
	<p>Checking if the default amount of gold is set to 100</p>	Pass	
	<p>Stacking the gold collected from opening chests around different levels of the dungeon Amount of gold would increase</p>	Pass	
Implement blank screen transitions between levels and in death TC-50	<p>Checking if the blank screen with storyline dialogues or player condition (death of player) appears</p> <ul style="list-style-type: none"> - In the beginning of the game - Leaving the village - Getting into level 2 - Witch appearing - Leaving the castle - Player's death 	Pass	
Enemy Patrol Placement level 1 TC-52	<p>Going nearby to the enemies in level 1 to see if the patrol placement is working as intended</p> <ul style="list-style-type: none"> - Enemies should follow and chase the player within the patrol route - Enemies will not follow and chase the player if player is not within the patrol route 	Pass	
Implement death – back to start refill health TC-53	<p>Checking if the player HP will be refilled after being killed by enemies. *Refilled HP is determined in TC-55*</p>	Pass	
Final Boss map fight interlude and enemy placement TC-54	<p>Checking if the interlude for final boss fight is as intended The witch appears after mini boss is killed</p>	Pass	
	<p>Checking if the placements of enemies and their patrol are as intended by exploring the map</p> <ul style="list-style-type: none"> - Enemies (small mobs) in intended placements - Large mini boss in the centre of dungeon 	Pass	
Death Condition: leave ghost in	<p>Checking if the player will be reborn in the same level as he was killed by enemies</p>	Pass	

place of death and decrement Max HP TC-55	Checking if the maximum HP will be lowered by 2HP (1 heart) after death	Pass	
	Checking if the ghost (soul) will appear in the last place of death	Pass	
	Checking if player will get to full health and max health (5hearts; 10HP) immediately when picking up the ghost (soul)	Pass	
Attack Animation TC-59	Left clicking with mouse will activate the sword <ul style="list-style-type: none"> - Top sweep animation when pointing at top - Low sweep animation when pointing at bottom - Normal sweep animation when pointing at left or right 	Pass	
Implement the NPC dialogue and placement TC-60	Checking if the NPCs in all level has the correct dialogue Dialogue will appear in dialogue box when pressing F next to NPC *Dialogue box is determined in TC-32*	Pass	
	Checking if the placements of NPCs are as intended <ul style="list-style-type: none"> - NPCs placements correct in the village - NPCs placements correct in level 1 	Pass	

10.4.2 Bug Issues

Bug Title and Reference	Steps to Reproduce	Expected Outcome	Actual Result	Solution
The Collider Issue	<p>1/ Go to dungeon game project: Documents/GitHub/Team-Cyan-Morning-Coursework</p> <p>2/ Go to the Scenes assets, click "Main Menu"</p> <p>3/ Press the "play" to start the game as the player</p> <p>4/ Run around the map</p> <p>5/ Look for any collider issues</p>	The player should be conflicted with colliders	<p>1. Collision sometimes would be detected and sometimes wouldn't</p> <p>2. There were spaces between the player with the collisions</p>	unresolved

The dialogue boxes popping up issues	<p>1/ Observe where the NPCs appears on the map</p> <p>2/ Approach NPCs until next to NPCs</p> <p>3/ Press "F"</p> <p>4/ Observe the dialogue whether is popped up</p> <p>5/ Switch directions - "East, south, west, north"</p> <p>6/ Press "F"</p> <p>7/ Observe the dialogue whether is popping up</p>	Dialogue Box should pop up whichever directions the player is beside NPCs	<p>The NPCs did not respond to the player in some directions</p> <p>(The dialogue box could not be popped up.)</p>	unresolved
The interact with the NPC issue	<p>1/ Approach NPCs</p> <p>2/ Press "F" to interact with NPCs</p> <p>3/ Observe the dialogue is popping up</p> <p>4/ Press "F" again</p>	The player should not continuously interact with NPCs, when the first dialogue box is appearing,	<p>The player was able to interact with the NPC constantly after the first dialogue box was already displayed.</p>	<p>Solution:</p> <p>check if nameOfGameObject is null, if it is not null, disable the NPC_Interact.cs script on that NPC game object, until the dialogue box closes, in which case, re-enable it.</p>
The accelerates the speed of text issue	<p>1/ Interact with NPC</p> <p>2/ Press space while text is being printed to accelerate text speed</p> <p>3. Wait for dialogue to end and press space</p> <p>4. Interact with an NPC again (can be the same one)</p>	The dialogue test from the second times should not be accelerated	<p>The dialogue test from the second times is already accelerated</p>	<p>Solution:</p> <p>Move the if statement that resets text speed outside of the while loop responsible for printing each</p>

	5. Wait and observe the dialogue text's speed			character out
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10.5 CRC Cards – Version 3

Fighter Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Player and enemy damage received • The game objects current health • Player death and respawn • Spawn the player ghost after death • Update the health bar UI with the damage taken 	<ul style="list-style-type: none"> • Health bar UI

Mover Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Player and enemy movement between two places 	<ul style="list-style-type: none"> • Fighter

Player Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Consuming player movement left/right/up down keyboard input • Initialising the player's inventory • Saving the players current inventory to the game manager to save its state. 	<ul style="list-style-type: none"> • Mover • Inventory • Game Manager

Collidable Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Keeps track of all the collision between game objects in the game i.e. player running into a wall, weapons hitting players etc . 	

Weapon Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Store the weapon damage and push force • Detect if the weapon can swing again and cause damage based on a cool down period • Swinging the weapon 	<ul style="list-style-type: none"> • Collidable

Enemy Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Implement enemy movement AI to chase player within a certain range • Control the enemy patrol between given waypoints • Enemy death - removing the enemy player from the map when it has no health remaining 	<ul style="list-style-type: none"> • Mover

Enemy Weapon Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Recording the damage inflicted on the player by the enemy and sending the damage values to the player. • Coordinate the correct attack animation 	<ul style="list-style-type: none"> • collidable

Game Manager Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Storing the players current game state including its health inventory and gold capacity 	<ul style="list-style-type: none"> • Collidable • Inventory • Player Gold storage • fighter

Inventory Class	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Storing the inventory items • Adding items to the inventory • Removing items from the inventory • Refreshes the Inventory UI when items are used/equipped 	<ul style="list-style-type: none"> • Inventory UI

Inventory UI Class	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Clearly display the stored inventory items on the screen • Be interactable to use the inventory items 	<ul style="list-style-type: none"> • Inventory

Collectable Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Detects when a collectable item has been run into by the player • Stores a collectable items collection state from the player 	<ul style="list-style-type: none"> • Collidable

Item Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Stores a list of collectable items • Stores the items that have been collided by the player into the inventory of the player • Destroys the item from the map to show it being 'picked up' 	<ul style="list-style-type: none"> • Collectable

Dialogue Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Store dialogue scripts • Control the way in which the dialogue will be written on the screen • Control when the dialogue appears on the screen and invoking the Dialogue UI at the correct time 	<ul style="list-style-type: none"> • Dialogue UI

Dialogue UI Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Displaying the dialogue box when it is invoked by the dialogue script 	<ul style="list-style-type: none"> • Dialogue UI

NPC Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Detect when the player has collided with the NPC and pressed the interact key • Tell the dialogue to display when this occurs 	<ul style="list-style-type: none"> • Dialogue UI

Health UI Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Display the current health on the screen Update the health values when being attacked/ using healing items 	<ul style="list-style-type: none"> Fighter

Player Health List Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Stores the current HP value and max HP value of the player into a list. Uses an Event Handler to send a message to Health UI script to update the health bar every time this current HP and/or max HP of the player changes. 	<ul style="list-style-type: none"> Heath UI

Chest Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Store a gold value attached to Chest game object Detect when the chest has been run up to and update the players gold 	<ul style="list-style-type: none"> Fighter collectable

Player Gold Storage Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Adds gold to the players gold storage when colliding with chest Removes gold when gold it is used 	<ul style="list-style-type: none"> Chest Game Manager

Portal Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Attach to game object on the entrance to the next level Transport the player to the next level when the player runs into it Invoke the transition script 	<ul style="list-style-type: none"> Transition collidable

Transition Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Fade to black screen • Display the appropriate writing for the following situations: <ul style="list-style-type: none"> ◦ On player death ◦ On level transitions 	<ul style="list-style-type: none"> • Transition • collidable

Player Death Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • spawn the faded memory game object in the place of the players death • respawn the player at the start of the current level • reduce the max health by 2 HP (1heart) each time it dies until there is only 4 hp left in which case it does not reduce further 	<ul style="list-style-type: none"> • Player Ghost (faded memory)

Player Ghost Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Be placed on the faded memory ghost object • After being collected: <ul style="list-style-type: none"> ◦ Increase the players health to full ◦ Restore the players max hp ◦ Update the health bar UI ◦ Remove the player ghost 	<ul style="list-style-type: none"> • Collectable • Health UI • player

Deploy Final Boss Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • deploy the final boss when the rest of the enemies in the level had been slayed 	

10.6 Design Use cases

Add dialogue boxes, Implement the NPC dialogue and placement	Scope: Some scene of game
Reference Ticket: TC-32, TC-60	
Level: Every level	
Primary Actors: Player	
Description: When enter the game, the player will start in the village level. There are several NPCs on this map. When the player standing around them, and pressing F, the dialogue will appear. There are also NPCs in Dungeon level 1 and dungeon Final boss level (The witch)	
Dependencies: Additional explanation and guidance for the game. Provides story dialogue to the player.	
Assumptions: The mouse clicks properly, the user rightly presses F when he is stand by NPCs or entrance.	
Preconditions: The user has opened the game and enters village. Then the player walking around the map.	
Main Flow: The player stands on the village map. The player walked around and meet NPCs or place of transitions. After pressing F button, dialogue box appears on the screen	
Subflows: None.	
Alternative Flows: The player may miss the dialogue with NPCs, if he is a speed runner.	
Post Conditions: After the dialogues appeared, pressing the space bar to speed up the dialogue, and when the dialogue is done, pressing space bar again and the dialogue box will disappear.	
Frequency of occurrence: When the player stands by NPCs or place of transitions.	
Open Issues: What will happen if main player has no idea to press F?	

Implement Player Health Bar	Scope: Always in game
Reference Ticket: TC-46	
Level: Every Level	
Primary Actors: Player	
Description: When entering the game, the player will exist with several parameter, including current health and max health. There will be a player health bar shown on the right top of the screen.	
Dependencies: Key tickets of the game features, as showing the current and max hp of the player.	
Assumptions: The mouse clicks properly, and the user enters the game.	

Preconditions:
The user has opened the game and enters the map.
Main Flow:
Show main menu Menu with options to enter/exit the game, game background image and music Click to enter the game and start playing Player runs up to enemy to attack, enemy attacks and hits the player
Subflows:
Player uses something from inventory
Alternative Flows:
None.
Post Conditions:
Healthbar reduces, when player gets hit or dies (Max hp reduced) Healthbar increases by healing amount when consuming items
Frequency of occurrence: Always if the player exists
Open Issues:
How many kinds of health parameter will be shown?

Implement Item usage from the inventory	Scope: Some scene of game
Reference Ticket: TC-47	
Level: Every Level	
Primary Actors: Player	
Description: After the player enter the game, he will firstly walk around in village level. There are several items he can pick up and save in inventory. When he wants to use those items later, he can always try to press number keys or left mouse click on the inventory buttons.	
Dependencies: Additional tickets for game flow.	
Assumptions: The mouse clicks properly.	
Preconditions: The user has opened the game and enters the village map. When the player in village, he has to picked up items.	
Main Flow: The player enters the village level and pick up items on the ground. The player must use items, so press some number keys. For example, pressing 1.	
Subflows: The player can pick up some items from village	
Alternative Flows: If the number key the player presses is large than the inventory capacity. The implement will be useless.	
Post Conditions: The amounts of items in inventory will decrease when an item is used.	

The amounts of items will increase if the player walk and picks up again
Frequency of occurrence: Once the player wants to use items
Open Issues: What will happen if player want to use one specific item in inventory which contains several kinds of items?

Implement gold currency system and UI for gold count	Scope: Always in game
Reference Ticket: TC-48	
Level: Every Level	
Primary Actors: Player	
Description: As the player enter the game, the gold currency system will show on the left top of the screen.	
Dependencies: Key tickets of the game features	
Assumptions: The mouse clicks properly.	
Preconditions: The user has opened the game and enters the map.	
Main Flow: The gold currency system will show on the left top of the screen. As the player arrived at dungeon, he can find opening chests. If he picks up the gold, the gold number will increase and shown on currency system.	
Subflows: None.	
Alternative Flows: None	
Post Conditions: The default amount of gold is set to 100.	
Frequency of occurrence: Always if the player exists	
Open Issues: None	

Implement blank screen transitions between levels and in death	Scope: When player lost the fight
Reference Ticket: TC-50	
Level: Every Level	
Primary Actors: Player	
Description: It should show some blank screen transitions with text when the player enters to another scene or die.	

Dependencies:	Key tickets of the game features
Assumptions:	The mouse clicks properly.
Preconditions:	the player successfully transitions or die.
Main Flow:	<p>The player enters to dungeon level 1 from village level.</p> <p>The player successfully defeated the enemies in dungeon level 1 and transitions to dungeon final boss level. Or the player dies because being defeated.</p>
Subflows:	None.
Alternative Flows:	None.
Post Conditions:	If the player died, the blank screen will appear. If the user presses space bar, then the blank screen will disappear.
Frequency of occurrence:	When scenarios change or the player die
Open Issues:	Need some sentences be added on the blank screen?

Enemy Patrol Placement level1	Scope: level 1 enemies' scene
Reference Ticket: TC-52	
Level: Level 1 and Final boss level.	
Primary Actors: Player	
Description:	When entering dungeon level 1, the player firstly doesn't see the enemies. Once he enters the gate of dungeon level 1, he can see the patrolling enemies.
Dependencies:	Additional tickets of the game features
Assumptions:	The mouse clicks properly.
Preconditions:	The user has opened the game and enters the map, and successfully enter dungeon level 1.
Main Flow:	<p>The player transitioned to dungeon level 1 from village level.</p> <p>The enemies are patrolling on the dungeon level 1 map.</p> <p>Once the enemies find the player, they will come to chase the main character.</p>
Subflows:	None.
Alternative Flows:	Once the enemies find the player who enter the dungeon level 1's gate. They will not still patrol but to fight with the player.

Post Conditions: The player can fight with those enemies.
Frequency of occurrence: Always if the player enters dungeon level 1
Open Issues: Will that some bug if the player walks like some specific route, then enemies will still patrol?

Implement death – back to start refill health, Death Condition: leave ghost in place of death and decrement Max HP	Scope: Some scene of game
Reference Ticket: TC-53, TC-55	
Level: Every dungeon level	
Primary Actors: Player	
Description: The player tried to fight with enemies but failed. Then the player died. After the transition blank screen, the player will respawn. After respawn, the Max HP will be lowered by 2HP. And the ghost will appear in the last place of death.	
Dependencies: Key tickets of the game features	
Assumptions: The user know the functional pressed keys and mouse clicks	
Preconditions: The player meet enemies and started to fight with them	
Main Flow: The player arrived at any of the dungeon levels and fight with enemies. The player failed to win and dies.	
Subflows: None.	
Alternative Flows: The player may win the fight.	
Post Conditions: The player respawn and can continue playing the game.	
Frequency of occurrence: After the player died	
Open Issues: Will the ghost be cleared when the player respawns?	

Final Boss map fight interlude and enemy placement	Scope: Some scene of game
Reference Ticket: TC-54	
Level: Final level	
Primary Actors: Player	
Description: As the player enters the final dungeon level, he must fight with several kinds of enemies. Firstly, he will meet many mobs. When he defeated all the mobs, The witch will appear.	

Dependencies:	Key tickets of the game features
Assumptions:	The user known the functional keys and clicks. And he has the motivation to fight with all kinds of bosses.
Preconditions:	The player defeated the mini boss and still doesn't die.
Main Flow:	<p>The player transitioned to final boss level from dungeon level 1.</p> <p>The player comes to fight with all the mobs.</p> <p>The witch will appear after all mobs is killed.</p>
Subflows:	None.
Alternative Flows:	Maybe the player will die before defeating the mobs. Then the witch will not appear.
Post Conditions:	The player can fight with witches and other types of bosses in this level.
Frequency of occurrence:	When the player has defeated some bosses in final level.
Open Issues:	Will that be chaos and mixed with many bosses then? The screen must be a little out of order.

Attack Animation	Scope: Some scene of game
Reference Ticket: TC-59	
Level: Every dungeon level	
Primary Actors: Player	
Description:	When the player enters dungeon level 1, he must fight with enemies. If he clicks the mouse, the attack animation will appear.
Dependencies:	Key tickets of the game features
Assumptions:	The user click mouse properly.
Preconditions:	The player must enter dungeon level and walk toward enemies.
Main Flow:	<p>The player transitioned to dungeon level from village level.</p> <p>If the user left clicks the mouse, the player will show his attack animation.</p>
Subflows:	None.
Alternative Flows:	None
Post Conditions:	If the player stand nearby the enemies and the attack is effective. Then the enemy will die if the player constantly hit him a few times.

Frequency of occurrence: As the player enter dungeon level and user click the mouse.

Open Issues:

Can attack animation be different when truly hitting enemies?

10.7 User Interface Design

10.7.1 Sketches/ Design

Level-0 NPC and dialogue placement Diagram

Ticket reference: TC-51



Level-1 Enemy and NPC placement Diagram

Ticket reference: TC-52



Level-2 Final Boss Dungeon Enemy and NPC placement Diagram

Ticket reference: TC-54



10.7.2 Design Implementation

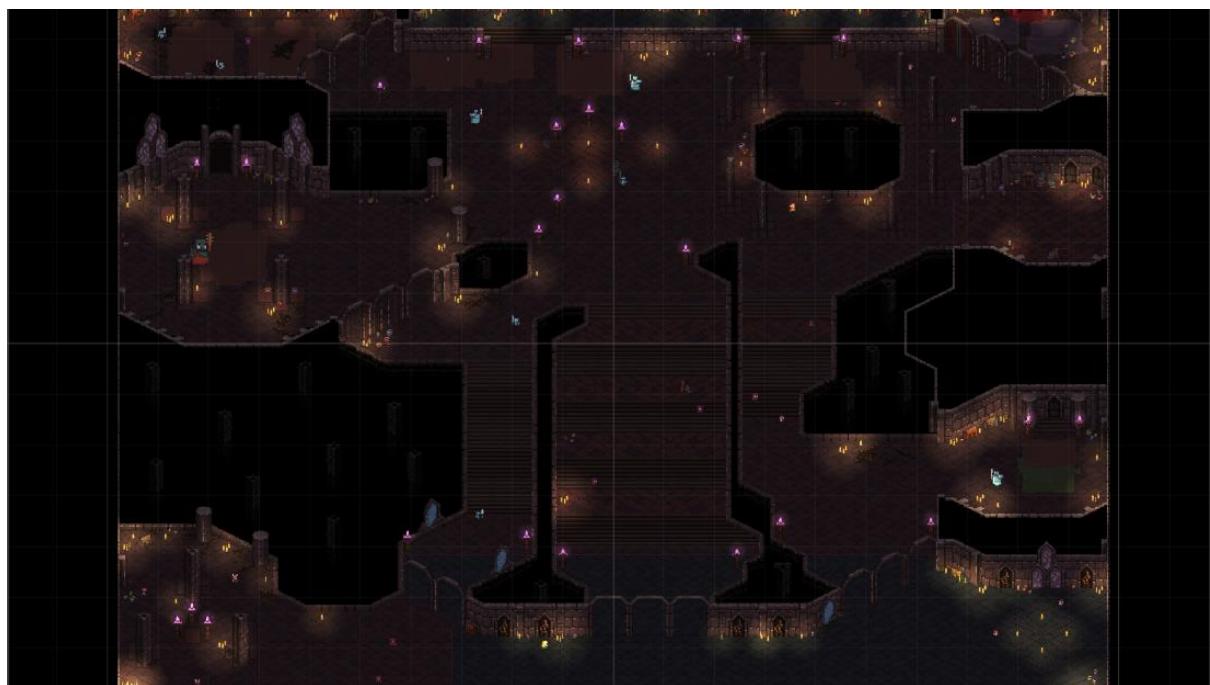
Level 0 Village Map with NPC placement

Reference Ticket: TC-12, TC-51



Level 1 Dungeon Map with enemy placement

Reference Ticket: TC-8, TC-52



Final Boss Dungeon Map with Enemy Placement

Reference Ticket: TC-8, TC-54



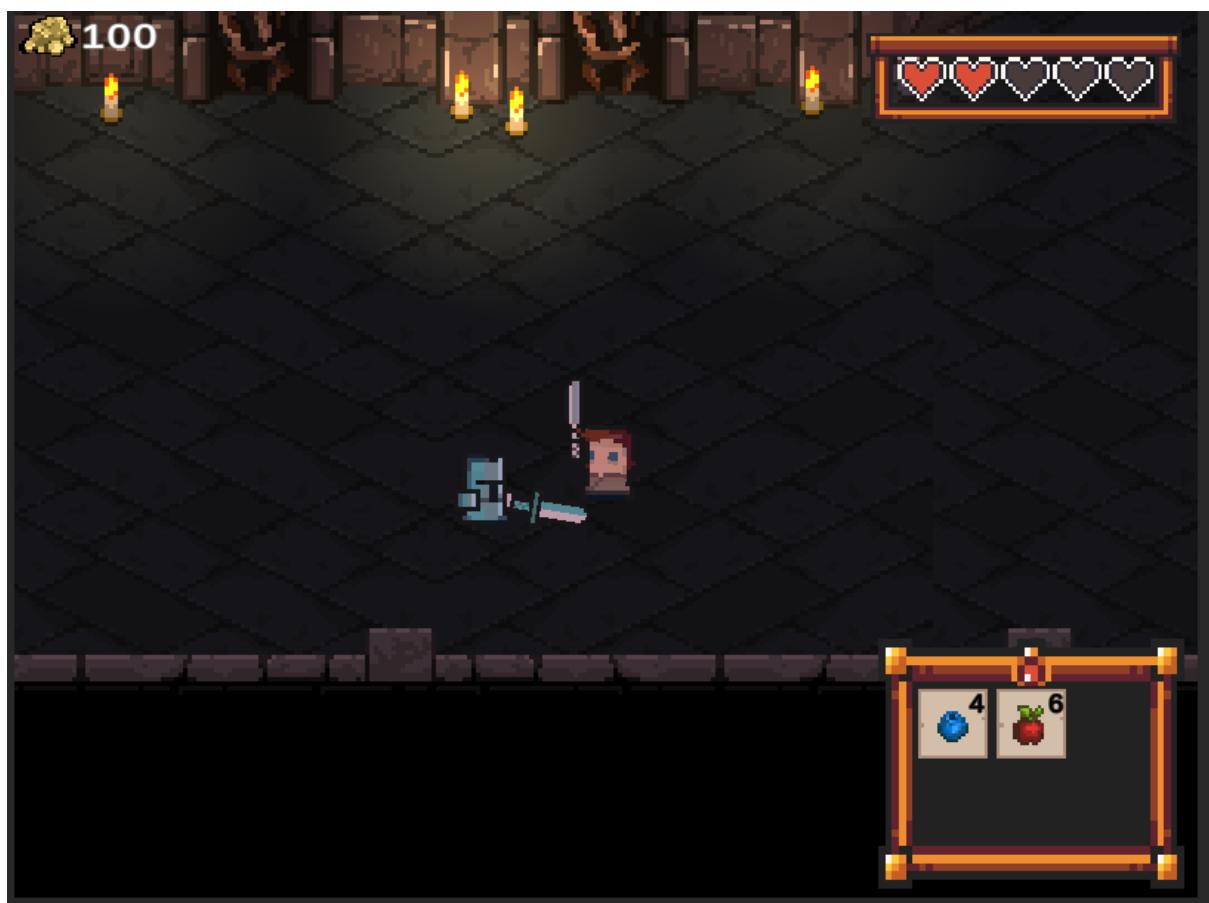
Example of NPC Dialogue, Health Bar, Gold UI, Inventory on the village Map

Reference Tickets:TC-32, TC-46, TC-48, TC-51, TC-60



Example of enemy Attack Animation

Reference Ticket: TC-59, TC-52

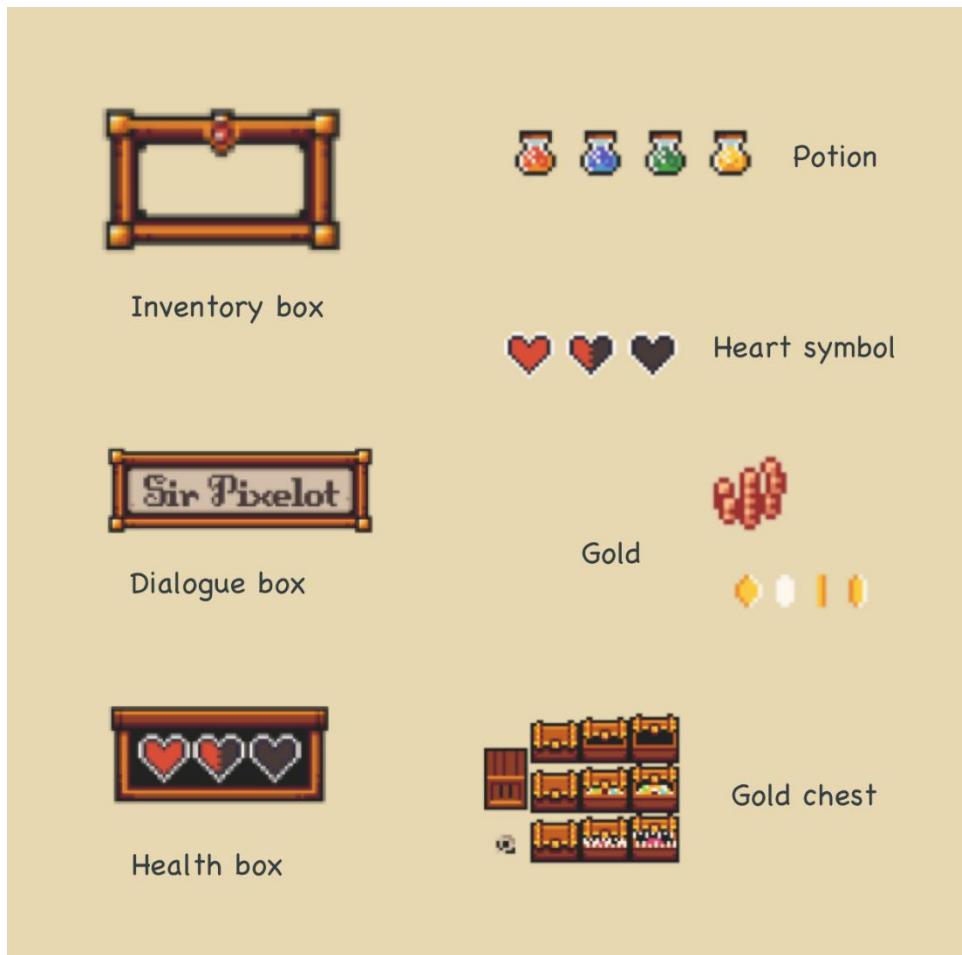


Faded Memory Example

Reference Ticket: TC-55



10.7.3 Artwork Used



ASSETS BY

- https://itch.io/queue/c/1903906/cw2?game_id=606491

11 Sprint 4 Process Documentation

11.1 Preview

The main aim of this sprint was to make the finishing development touches and move the focus more onto documentation. The finishing touches including making a main menu, pause menu, adding background music and sound effects, lighting and more attractive and explanatory transitions between different scenes of the game's storyline.

11.2 Review

As usual all the development tickets got over the line and were finished as shown in [table](#), however the documentation took longer than expected due to external coursework deadlines preventing team members being able to make the progress they wanted to.

11.3 Meetings

11.3.1 Sprint Meeting Schedule

Sprint 4 Meeting Schedule		
Date	Meeting	Attendance
02/12/2021	Sprint Planning	Whole Team attendance
03/12/2021		
04/12/2021	Stand-Up	JC, TL, WP, KC, CC, SL, YL
05/12/2021		
06/12/2021	Stand-Up	Whole Team attendance
07/12/2021		
08/12/2021	Stand-Up	Whole Team attendance
08/12/2021	Customer Meeting	Whole Team attendance
09/12/2021	Sprint Review	Whole Team attendance
09/12/2021	Sprint Retrospective	Whole Team attendance

11.3.2 Sprint Planning

SPRINT 4 Planning Meeting Agenda

Start the planning give context to what each ticket is required for members to make notes in description of the ticket and write up user stories and use cases

Dev work

- Create level 2
- Find and animate level 2 boss
- Populate level 2 with enemies
- Populate level 2 with dialogue
- Start menu
- Implement sound manager
- Level transitions: kill level main boss before continuing to next level
- Add in transitions for:
 - Entering village
 - Level2 and boss
 - Level 1 and 2
 - **End transition**

Documentation/ Story

- Write level 2 storyline in dialogue (for NPCS)
- Sprint 3 write up
- User stories, use cases etc.

Sprint Planning Meeting Notes

In this meeting we initially wanted to start to produce another dungeon map, however after a reality check with the time it would take to complete this and the backlog of documentation, and the upcoming deadlines in other modules we still had to do we decided to keep the levels we currently had and enhance the gameplay. Various conversation topics that were mentioned during the meeting are mentioned below.

- Add music and sound effects in this sprint, including background music and jumping sounds etc.
- ‘Populate the NPCs and dialogues’ need to be completed by the end of Sprint4 so we would not do level population next sprint.
- Implement the portals which will be activated basically. It means put some logic in that basically doesn’t allow other players transition until he kills the final boss.
- It would be a massive focus on documentation from this week.
- Next sprint, we will do some end-to-end testing after the transitions that we put in.
- Cambridge: There’s a problem that dialogue box might not appear if the player needs to be standing up to a certain direction of the NPC.
Thomas: We’ve looked to it before, but we cannot figure it out.
- Will: We can encourage people to sort of play. There’s nothing in it and explore rather than like obviously speed running the whole thing up.
Jack Chang: For the village map, it might be a bit speed-runner friendly. The village might be a bit restrictive if you expect the players told to everyone, especially because the NPCs are really spread out.
- Thomas: As the player play it blind, they shouldn’t really know where to go in the 1st place, so they will talk to a few NPCs. NPCs can say like ‘Who are you? The village exit is that way’
- We are implementing the boss state, where the player had to kill the boss to be able to answer the portal. Or let something describes that the player needs to go find and kill the bosses before the player can continue sort of thing.
- In front of the portal. There are sounds like there’s a decent way of doing it. And a display script will test if the user has a key.
- With the boss killed, their objects will get removed from the game. The accounts of player will increase.
- We will have the gold chest, so user could get the money if they defeated the largest enemy.
- We don’t have time to implement a vending system, which is quite attractive.
- Remind that we need to submit the documentation by 20th Dec.
- We need to put more efforts on documentation, including user stories, CRC cards and use cases. So some people will turn to help the documentation from game building.

Please See the [User Stories and Associated Tickets](#) section to see the task assignment and further ticket detail

11.3.3 Sprint Review

With only Jack and Thomas working on development tasks this sprint they showed the rest of the team the new functionality and took some suggestions:

- Jack showed the team, the games main menu, and pause menu with its play and quit functionalities. He also played through the game explaining all the sounds he had added to the game both in background music, and the movement, attack, and dialogue audio affects, this received very positive feedback as added a more immersive element to the game. He also showed the use of bulbs throughout the dungeon games he implemented to make the game look darker and dingier and more dungeon like.
- Thomas showed how the storyline was implemented into each interval between levels and how the portal worked. He also showed the effect of trying to move between the dungeon level 1 and the final boss level showing the text that encourages you to go and explore more and slay the current level boss to be able to pass through the portal.

There were also some comments from the testing team who had been completing more testing that the transition in the final map with the spawning final boss was good but was not as obvious to the user as it should be being the big final fight. They therefore suggested for the next sprint that we add in a dialogue and sound effect from the witch as soon as she is spawned to make it more effective – this was noted and to be implemented in the next sprint.

11.3.4 Sprint Retrospective

Sprint 4 Retrospective Meeting Agenda

- Review last retrospectives goals and see if we have achieved them
- Fill in the Miro Mad, sad, and glad board
- Talk through each mad, glad, and sad
- Make some team actions in the way we work to change for the next sprint

Retrospective Meeting Notes

Looking at previously set actions to implement this sprint from the last retrospective, as a team we believe we achieved:

- Take responsibility for your workload and contribute your fair share
- Contribute to meetings - we want to hear your opinion!

We believe we still had to work on:

- Complete all process documentation up to sprint 3

Mad	Sad	Glad
That I haven't been able to complete more work this sprint due to other coursework	That I will need to juggle all the documentation with several other deadlines coming up	The Project is nearly complete!
That we have so much documentation to write up	There is still lots of documentation to finish!	The game is fully working now
I was not able to finish 100% of my task for this sprint	Wish we had more time to add extra features in to make the game better, and more time for documentation too. Would be great if this was a semester long project.	I had much communication with members this sprint

A lot of documentation for the final week, the prof/TAs are asking for a lot	Documentation would be a tedious task to do	We have made a game that can play end to end that can be easily expanded. Also think the sound manager adds a good immersive element to the game
	Hard to keep balance between modules	It is remarkable we basically complete the game "Faded memories"
		we got a ton of stuff done during the sprint, like all sounds implemented and all transitions done.
		The game's name and logo are awesome, and the BGM is brilliant
		The game is almost completed with all features, and the playing process is challenging

From this meeting the following Actions for next sprint were created and to be reviewed next sprint review:

- Complete all process documentation up to sprint 3
- Communication is key - make sure you let people know if you are falling behind with workload
- Be available to help if you are free
- Process Documentation - please send to Will once you have completed a section

11.4 Sprint 4 Individual Accounts

Jack Chang

Tasks worked on: TC-68, TC-69, TC-67, TC-62

Sprint Meeting – 02/12/2021:

- I was assigned 2D lighting in the game, creating the main menu functionality, and create the sound manager to control sounds that will be played in the game.
- 2D lighting was already done in the previous sprint.
- I immediately started working on the main menu functionality.
- I also started working on the sound manager functionality.

Standup Meeting – 04/12/2021:

- By the meeting, the main menu functionality was completed. The player can click on the play button to begin the game, and the quit button to exit the game. I also designed the title using photoshop, and designed the background using some assets I have found that are free to use.
- Afterwards, I continued with the sound manager. While I was doing the programming and Unity side of things, Cambridge Chen and Kaia Cai helped me find free to use sound effects and music for the game.
- Before the next standup meeting, I have implemented most of the required sound effects and theme music into the game: Player running sounds, player weapon swing and weapon hit, all theme tunes for all levels, enemy weapon swing, player death sound etc.

- Weapon hit sounds also change depending on whether it's the enemy the player hits or a stone wall/pillar the player hits.
- These sounds will not play during the pause menu and the transition screens.

Standup Meeting – 06/12/2021:

- By this standup meeting, I have completed most of the functionalities of the sound manager. Most of the audio has been added to the game.
- After the meeting, I immediately started working on the ambient sounds for the game, as well as dialogue voices for different NPCs in the game.
- I also added a sound effect for when the player collects gold from chests.

Standup Meeting – 08/12/2021:

- By this meeting, I have completely finished the Sound Manager for the game. More audio can be added if needed.
- I have also fixed a bunch of bugs to do with the sound manager, such as dialogue audio not stopping after the dialogue is done, dialogue audio playing on the pause menu, players was able spam interact with NPCs which caused issues, and audio not playing after the game resumes etc.

Thomas Lawrie

Tasks worked on: TC-73, TC-74

- Managed merging and conflicts on GitHub
- Finished implementation of black screen transitions between levels and in death
- Tested new implemented features
- Implemented feature restricting the player from progressing to next level without killing boss first
- Refined transition text content between levels and in village NPCs dialogue

Will Prior

Tasks worked on: TC-31, TC-83, TC-49

- Due to a heavy deadline week in other modules I did not get to achieve much on this project
- What I did produce was further documentation from previous sprints mostly focused on CRC cards
- I Ran all meetings as usual and set up all agendas and tools used
- I was also a helpline for anyone who needed their document work reviewing or help with what they are doing

Shouqing Li

Tasks worked on: TC-58

What I did:

1. I re-examined both dungeon maps, removed the redundant colliders and removed the collision effect from some small items like candles so that the player can walk on them.
2. I fixed the crack collider on the boss map so that players no longer have collision conflicts.
3. I tested the whole map and wrote up some bugs in the documentation.

My teamwork:

1. I discussed with will, jack and others and decided to remove some small colliders from the map as they were blocking player and monster movement.
2. I did manual testing in collaboration with Kaia and Cambridge, we found some bugs and wrote all the testing process into the documentation.

Cambridge Chan

Tasks worked on: TC-58, TC-68

Preview

In this sprint my main role is to finish the game prototype testing document for all the sprints to check if there are no flaws and bugs. After this task, I would also be working on specific bug tickets and their solutions combined in a single part. For this I would be working with Kaia.

Review

I had a meeting with Kaia and we discussed about the bug testing documentation details. I have been doing manual checking through the whole game for at least 10 times per day to check if there were any bugs.

After that I started checking if there were collider issues throughout all levels of the game. For this task, I communicated a lot with Kaia, Jack and Shouqing on this matter. There is a minor bug fixed during this sprint. I told Kaia about the situation, and she would be documenting the bug in detail. I also did some preparation for the upcoming user manual. I have read related material to check the format and contents that we might potentially include in our document. I also recorded my time to complete the game to get a brief idea of the playability of our dungeon game.

Kaia Cai

Tasks worked on: TC-58, TC-68

Overall, in sprint4, I completed these tickets in cooperation with Cambridge: 1.Selected game soundtracks including background and action sound effects; 2. Tested the existing levels; 3. Documented the manual testing; 4.Delivered testing result to the related people to debug.

Since I am familiar with the storyline and the game atmosphere, I was able to join the task of selecting background music and sound effects. Firstly, I picked some sound effects of the bonus, like opening, getting gold from chests, eating an apple or berry etc. Then, I chose the game soundtracks, including level-0 village BGM, level-1 dungeon BGM, level final battle BGM, player death sound effect, bonus getting sound effect, the player gets hit sound effect, the sword hit sound effect, sword swing sound effect, stone button press sound effect. I discussed sword swing, sword hit, button press with Cambridge because these soundtracks were too hard to determine. By the way, the stone button press sound effect was too abstract to me. After I asked the details of this sound requirement, I found the sound effect that met the need.

Then Jack asked me to find the ambient sound for village level (bird noises, wind and tree noise, etc.) and random mumbling noises of people talking (2-3 male and 2-3 females). Honestly, these sound effects were difficult to find. Since I didn't know how they could be used. After some discussion with Jack and Cambridge, we found the ideal sound effect finally.

Besides, I continued testing the game and delivering the bug to the related programmer. As to the manual testing document, I added some content to the manual testing document based on the Cambridge's version and Will's feedback.

Yanxi Lei

Tasks worked on: TC-82

During this sprint, I am drafting the sprint 4 meeting notes and working on uses cases for sprint 1 and sprint 3. We put more efforts on documentation from this sprint on. The template of use cases is shown on teams meeting files. We followed it and complete the first edition of sprint 1, 2, 4 use cases. However, the drafts are not that perfect as we want for the final documentation. We'll then furtherly modify them for some other information.

11.5 Backlog

<input checked="" type="checkbox"/> TC-31 DOCUMENTATION!!!!!!!	TO DO	WP
<input checked="" type="checkbox"/> TC-68 Search and download/create different sound effects and music	TO DO	CC
<input checked="" type="checkbox"/> TC-73 Level Transition: Kill level "main boss" before being allowed to transition to next level	TO DO	TL
<input checked="" type="checkbox"/> TC-74 Add in level Transitions and storyline Text	TO DO	TL
<input checked="" type="checkbox"/> TC-69 Implement the sound manager for the game to player sound effects and music	TO DO	PC
<input checked="" type="checkbox"/> TC-67 Create a main/start menu for the game	TO DO	PC
<input checked="" type="checkbox"/> TC-62 Add lighting feature to the game, especially to the player ghost/"Faded Memory".	TO DO	PC
<input checked="" type="checkbox"/> TC-49 Sprint 2 Documentation Collation	TO DO	WP
<input checked="" type="checkbox"/> TC-82 Use cases	TO DO	YL
<input checked="" type="checkbox"/> TC-88 Misc Further Bugs	TO DO	
<input checked="" type="checkbox"/> TC-93 Build the final game	TO DO	
<input checked="" type="checkbox"/> TC-83 CRC Cards	TO DO	WP
<input checked="" type="checkbox"/> TC-58 Manual Testing Strategy	TO DO	CC
<input checked="" type="checkbox"/> TC-97 Collate Remaining Meeting Notes For all Sprints	TO DO	
<input checked="" type="checkbox"/> TC-14 Writing Level Two Storyline	TO DO	
<input checked="" type="checkbox"/> TC-9 Design layout of Level 2	TO DO	
<input checked="" type="checkbox"/> TC-70 Find and implement level 2 boss	TO DO	
<input checked="" type="checkbox"/> TC-71 Populate level 2 with enemies	TO DO	
<input checked="" type="checkbox"/> TC-72 Populate level 2 with NPCs and dialogue	TO DO	
<input checked="" type="checkbox"/> TC-11 Design layout of level 4	TO DO	
<input checked="" type="checkbox"/> TC-10 Design layout of level 3	TO DO	
<input checked="" type="checkbox"/> TC-66 Implement Mana system for ranged attacks	TO DO	
<input checked="" type="checkbox"/> TC-65 Implement ranged attack	TO DO	
<input checked="" type="checkbox"/> TC-75 NPC interaction issue when left and right	TO DO	
<input checked="" type="checkbox"/> TC-87 Village Building Layer Issue	TO DO	
<input checked="" type="checkbox"/> TC-84 Collating Sprint Tickets Meeting Notes	TO DO	
<input checked="" type="checkbox"/> TC-90 Change Transition screen storyline to most up to date story	TO DO	
<input checked="" type="checkbox"/> TC-89 Make main character put armour on	TO DO	

11.5.1 Complete Backlog Tasks

Sprint 4 Backlog	
Ticket Code	Ticket Title
Completed	
TC-68	Search and download/create different sound effects and music
TC-69	Implement the sound manager for the game to player sound effects and music
TC-31	DOCUMENTATION!
TC-73	Level Transition: Kill level "main boss" before being allowed to transition to next level
TC-74	Add in level Transitions and storyline Text
TC-67	Create a main/start menu for the game
TC-62	Add lighting feature to the game, especially to the player ghost/"Faded Memory".
Carried over	
TC-83	CRC Cards
TC-82	Use cases
TC-49	Sprint 2 Documentation Collation
TC-58	Manual Testing Strategy

11.6 Exception Handling

There were no real issues this sprint apart from having enough time to complete the work as you can see from the comments made during the [retrospective](#) there was lots of time pressure due to external modules deadlines. Thankfully it did not affect our development delivery too much however it continued to harm the rate in which we produced our documentation.

12 Sprint 4 Product Documentation

12.1 Customer Meetings

Customer Meeting Agenda

Present With live Demo the last two sprints Dev Work:

- TC-50: Implement black screen transitions between levels and in death
- TC-52: Enemy Patrol Placement level 1
- TC-53: Implement death – back to start refill health
- TC-54: Final Boss map fight interlude and enemy placement
- TC-55: Death Condition: leave ghost in place of death and decrement Max HP
- TC-59: Attack Animation
- TC-60: Implement the NPC dialogue and placement Design
- TC-69: Implement the sound manager for the game to player sound effects and music
- TC-73: Level Transition: Kill level "main boss" before being allowed to transition to next level
- TC-74: Add in level Transitions and storyline Text
- TC-67: Create a main/start menu for the game
- TC-62: Add lighting feature to the game, especially to the player ghost/"Faded Memory".

What we are doing next:

- Fixing bugs
- Finishing up product and process documentation

Questions for customer:

- Do you think the next steps are acceptable?

Customer Meeting Notes

After showing all the previous tickets we have mentioned in the meeting agenda the customer seemed happy with our progress and what we had produced. We then mentioned that our next focus was on fixing bugs and increasing our production of documentation which he agreed on also. He also emphasised on how it was important to have the target audience in mind when writing the user manual and the maintenance guide and vary the detail and tone of the documents accordingly. He also mentioned that the user manual of the game didn't necessarily have to be a document and could be expressed in different types of media such as a video. As the customer was happy with our progress and our next steps we felt comfortable to push on in the current direction we are going as we enter the final stages of the project.

12.2 User Stories and Associated Tickets

User Stories	Acceptance Criteria
TC-69 Implement the sound manager for the game to player sound effects and music Completed by: Jack Chang	This Story is complete when: <ul style="list-style-type: none"> • There is appropriate background audio playing in each level • there are some sound effects when: <ul style="list-style-type: none"> ○ swinging sword ○ sword collides with something else - wall, enemy etc. ○ the player walks ○ player opens a box ○ player ingests some berries/apples ○ NPCs chat (muttering sounds) ○ etc.
TC-73 Level Transition: Kill level "main boss" before being allowed to transition to next level Completed by: Thomas Lawrie	

<p>AS A Game Player I WANT to have to kill the level boss SO THAT I can transition to the next level</p>	<p>This story is complete when the:</p> <ul style="list-style-type: none"> • user cannot go through the portal to the next level before killing the level boss • text is shown saying “You can't pass through here yet, go explore more” if bosses have not been killed • when player kills level boss level portal is activated and player can transition to the next
<p>TC-74 Add in level Transitions and storyline Text</p> <p>Completed by: Thomas Lawrie</p>	
<p>AS A Game Player I WANT to see a black screen between levels with appropriate storyline text between levels SO THAT I can understand when it's the next stage of the game and get deeper insight into the game storyline</p>	<p>This story is complete when the:</p> <ul style="list-style-type: none"> • there is a black screen when entering a level portal that take you to the next level • the storyline text appears on the black screen between levels
<p>TC-67 Create a main/start menu for the game</p> <p>Completed by: Jack Chang</p>	
<p>AS A Game player I WANT a main menu to the game SO THAT I can begin the game when I am ready</p>	<p>This Story is complete when:</p> <ul style="list-style-type: none"> • The starting screen has a relevant background, name (“Fading Memories”) and a start button on it. • On clicking the start button the first level is initiated and the player can begin playing
<p>TC-62 Add lighting feature to the game, especially to the player ghost/"Faded Memory".</p> <p>Completed by: Jack Chang</p>	
<p>AS A Game Player I WANT the game to have good appropriate lighting SO THAT the game has a more appropriate mood for the scene it is in</p>	<p>This story is complete when the:</p> <ul style="list-style-type: none"> • there is lighting which gives the dungeon levels a dark and dingy affect such as you would expect in a spooky dungeon scene

12.2.1 Further Sprint Tickets

Ticket Name and Reference	Acceptance Criteria
TC-31 DOCUMENTATION! Completed by: Will Prior	This ticket will be completed when we are up to date to the previous sprint (3) on collating all: <ul style="list-style-type: none"> • meeting notes • user stories • use cases • CRC cards • Sprint outcomes
TC-68 Search and download/create different sound effects and music Completed by: Kaia Cai & Cambridge Chan	This ticket is completed when there has been appropriate sounds found for the actions stated in ticket TC-69 and any further required sounds.

12.3 Requirement Use Cases

Use Case: Main/Start menu	Scope: Start of the game
Reference Ticket: TC-67-RUC	
Level: user goal	
Context: When opening the game the player will enter the main menu of the game, which provides several functions such as entering/exiting the game.	
Frequency of occurrence: Every time we open the game	
Open Issues: What should we do if we don't get a response when clicking on Start Game/Quit Game? Should there be a settings option on the menu?	

Use Case: Background music	Scope: Throughout the entire game
Reference Ticket: TC-69-RUC	
Level: user goal	
Context: The main music and sound effects in the game are as follows: Main scenario: The player swinging the sword The player sword collides conflict with something else - wall, enemy etc. The player walks The player opens a box The player ingests some berries/apples The player is attacked by enemy NPCs chat (muttering sounds) Variations: Background music of Main Screen Background music of village level Background music of level 1 Background music of level boss Background music of player death	
Frequency of occurrence: There will be plenty of music and sound effects in the game.	

Open Issues:

Background music drowned out by footsteps/attack sounds?

I didn't turn off the microphone, why can't I hear the sound?

Use Case: lighting feature**Scope:** Some scenes in the game**Reference Ticket:** TC-62-RUC**Level:** user goal**Context:**

The scenes in the game are filled with candles for lighting and other lighting devices, especially in the two maps of the dungeon. The aim is to create a scary and eerie atmosphere and to illuminate the paths in the game.

Frequency of occurrence: Dark dungeon/road**Open Issues:**

Will the lights have a flickering effect?

How do the candles have to be arranged to illuminate the whole dungeon?

Use Case: Map transport**Scope:** Each map**Reference Ticket:** TC-73-RUC**Level:** user goal**Context:**

Player shall only be able to proceed when the boss in level 1 is being killed.

Main success scenario:

The player started playing

The player enters the dungeon level

The player kills the enemy and find the boss in level 1

The player kills the boss

The player goes to the transition to the next level

Frequency of occurrence: At the end of each map**Open Issues:**

How do I fix the ability to teleport without defeating the boss?

Is teleportation a two-way street?

12.4 Testing

12.4.1 Testing Completed

What being Tested?	Testing procedure	Pass/Fail	Comments/Bugs
Player Movement TC-4	WASD Test <ul style="list-style-type: none"> - Press W player moves upwards - Press A player moves left - Press S player moves downwards - Press D player moves right 	Pass	
	Pressing WASD together at the same time <ul style="list-style-type: none"> - Press WA player moves towards NW - Press WD player moves towards NE - Press SA player moves towards SW - Press SD player moves towards SE - Press WS player does nothing - Press AD player does nothing - Press WASD player does nothing 	Pass	
	Directions Key Test <ul style="list-style-type: none"> - Press Up player moves upwards - Press Left player moves left - Press Down player moves downwards - Press Right player moves right 	Pass	
	Pressing Directions Key together at the same time <ul style="list-style-type: none"> - Press Up-Left player moves towards NW - Press Up-Right player moves towards NE - Press Down-Left player moves towards SW - Press Down-Right player moves towards SE - Press Up-Down player does nothing - Press Left-Right player does nothing - Press Up-Left-Down-Right player does nothing 	Pass	
Enemy Movement TC-5	Checking whether mobs are moving across the map to chase player (level 1) <ul style="list-style-type: none"> - Place the enemy into the game scene with the appropriate script - Set the way points to patrol through <p>Enemies should be running/walking between the waypoints placed</p>	Pass	
	Checking whether the enemy patrol routes are working as intended (level 1) <ul style="list-style-type: none"> - Place the character within chasing distance of the enemy and run away <p>Player should be chased by the enemy</p>	Pass	
General Map Testing	Running around the map and look for any collider issues This test passes when there are none	Pass	
	Checking whether there are visual glitches on the map	Pass	

Implement Item Pick Up System TC-39	Moving player to positions where items are located <ul style="list-style-type: none"> - To where apples are located - To where berries are located Item should be given to player	Pass	
	Moving player to positions where chests are located Gold should be given to player	Pass	
Implement an Inventory System TC- 28	Moving player to positions where items are located <ul style="list-style-type: none"> - To where apples are located - To where berries are located Item should be stored in Item Box	Pass	
	Stacking the number of items when being picked up <ul style="list-style-type: none"> - When no certain item, it will appear in inventory box - When there is the item, the number of the item will increase by one 	Pass	
Implement Enemy Attack TC-35	Checking whether mobs are moving across the map to chase and attack player <ul style="list-style-type: none"> - Enemies follow the planned patrol and attack - Animation will be shown when attacking 	Pass	
	Checking whether enemies' attack will deal damage to player Damage should be dealt to player and HP deducted <i>*HP status is determined in TC-46*</i>	Pass	
Add dialogue Boxes TC-32	Pressing F when player standing next to NPCs Dialogue Box should pop up with specific message of the NPC	Pass	
	Pressing F when player standing at any direction next to NPCs Dialogue Box should pop up not matter what direction the player is at next to the NPCs	Fail	Some Dialogue Boxes only appear when player is beneath the NPCs
Implement Player Health Bar TC-46	Checking whether there is a HP bar appearing on the top of the screen	Pass	
	Checking whether the player health bar has 10HP in total (5 hearts, 1HP per half of heart)	Pass	
	Checking whether the health of player will increase or decrease <ul style="list-style-type: none"> - When being attacked, HP will decrease - When consuming items, HP will increase 	Pass	
Implement Item usage from the inventory TC-47	Checking whether the items in the inventory could be used. <ul style="list-style-type: none"> - By clicking with mouse - By pressing 1-6 of top row number keys - By pressing 1-6 of number keypad Items should decrease in number by 1 when used	Pass	See if number keypad is necessary

	<p>Decreasing the number of items when being used</p> <ul style="list-style-type: none"> - When number of the item is 2 or more, it will decrease by 1 when used - When number of the item is 1, it will disappear from inventory when used 	Pass	
TC-48	Checking if there is a gold currency system in the top left-hand corner	Pass	
	Checking if the default amount of gold is set to 100	Pass	
	Stacking the gold collected from opening chests around different levels of the dungeon Amount of gold would increase	Pass	
TC-50	<p>Checking if the blank screen with storyline dialogues or player condition (death of player) appears</p> <ul style="list-style-type: none"> - In the beginning of the game - Leaving the village - Getting into level 2 - Witch appearing - Leaving the castle - Player's death 	Pass	
TC-52	<p>Going nearby to the enemies in level 1 to see if the patrol placement is working as intended</p> <ul style="list-style-type: none"> - Enemies should follow and chase the player within the patrol route - Enemies will not follow and chase the player if player is not within the patrol route 	Pass	
TC-53	<p>Checking if the player HP will be refilled after being killed by enemies. *Refilled HP is determined in TC-55*</p>	Pass	
TC-54	<p>Checking if the interlude for final boss fight is as intended The witch appears after mini boss is killed</p>	Pass	
	<p>Checking if the placements of enemies and their patrol are as intended by exploring the map</p> <ul style="list-style-type: none"> - Enemies (small mobs) in intended placements - Large mini boss in the centre of dungeon 	Pass	
TC-55	Checking if the player will be reborn in the same level as he was killed by enemies	Pass	
	Checking if the maximum HP will be lowered by 2HP (1 heart) after death	Pass	
	Checking if the ghost (soul) will appear in the last place of death	Pass	

	Checking if player will get to full health and max health (5hearts; 10HP) immediately when picking up the ghost (soul)	Pass	
Attack Animation TC-59	Left clicking with mouse will activate the sword <ul style="list-style-type: none"> - Top sweep animation when pointing at top - Low sweep animation when pointing at bottom - Normal sweep animation when pointing at left or right 	Pass	
Implement the NPC dialogue and placement TC-60	Checking if the NPCs in all level has the correct dialogue Dialogue will appear in dialogue box when pressing F next to NPC *Dialogue box is determined in TC-32*	Pass	
	Checking if the placements of NPCs are as intended <ul style="list-style-type: none"> - NPCs placements correct in the village - NPCs placements correct in level 1 	Pass	
Implement the sound manager for the game to player sound effects and music TC-68	Checking if the sound manager is working for the game <ul style="list-style-type: none"> - Background music of Main Screen - Background music of village level, level 1 & 2 - Sound effects of player movement - Sound effects of picking up consumable items - Sound effects of NPCs speaking to player - Sound effects of player consuming items - Sound effects of player launching attacks - Sound effects of attacks hit on enemies and walls - Sound effects of enemies launching attacks - Sound effects of player took damage - Sound effects of player's death - Sound effects of buttons 	Pass	
	Checking if the correct sound effects are matching with the specific scenario <ul style="list-style-type: none"> - Background music of Main Screen - Background music of village level, level 1 & 2 - Sound effects of player movement - Sound effects of picking up consumable items - Sound effects of NPCs speaking to player - Sound effects of player consuming items - Sound effects of player launching attacks - Sound effects of attacks hit on enemies and walls - Sound effects of enemies launching attacks - Sound effects of player took damage - Sound effects of player's death - Sound effects of buttons 	Pass	

<p>Level Transition: Kill level "main boss" before being allowed to transition to next level</p> <p>TC-73</p>	<p>Checking if player can proceed to level 2 when boss in level 1 is killed</p> <ul style="list-style-type: none"> - Testing by proceeding to the next level before the boss in level 1 has been killed - Testing by proceeding to the next level after the boss in level 1 has been killed - Testing by proceeding to the next level after the boss and the mobs in level 1 have been killed <p>Player shall only be able to proceed when the boss in level 1 is being killed. Mobs do not affect the player to proceed to the other level</p>	Pass	
<p>Add in level Transitions and storyline text</p> <p>TC-74</p>	<p>Checking if the previous blank transition screens now contain suitable storyline dialogues</p> <ul style="list-style-type: none"> - In the beginning of the game - Leaving the village - Getting into level 2 - Witch appearing - Leaving the castle - Player's death <p>*Blank screen is introduced in TC-50*</p>	Pass	
<p>Create a main/start menu for the game</p> <p>TC-67</p>	<p>Checking if there is a main/ start menu before the whole game starts</p> <p>Menu should contain play and quit button</p>	Pass	
<p>Add lighting feature to the game, especially to the player ghost/"Faded Memory".</p> <p>TC-62</p>	<p>Checking if there is lighting effect is implemented in the game</p> <p>Testing by controlling player to die intentionally and check the ghost (soul) of the player has lighting effect</p>	Pass	

12.4.2 Bug Issues

Bug Title and Reference	Steps to Reproduce	Expected Outcome	Actual Result	Solution
The Collider Issue	<p>1/ Go to dungeon game project: Documents/GitHub/Team-Cyan-Morning-Coursework</p> <p>2/ Go to the Scenes assets, click "Main Menu"</p>	The player should be conflicted with colliders	1. Collision sometimes would be detected and sometimes wouldn't	Shouqing individually went through the map removing and amending all the small objects collision issues.

	<p>3/ Press the “play” to start the game as the player</p> <p>4/ Run around the map</p> <p>5/ Look for any collider issues</p>		<p>2. There were spaces between the player with the collisions</p>	Fixing this bug that has haunted us since the start.
The dialogue boxes popping up issues	<p>1/ Observe where the NPCs appears on the map</p> <p>2/ Approach NPCs until next to NPCs</p> <p>3/ Press "F"</p> <p>4/ Observe the dialogue whether is popped up</p> <p>5/ Switch directions - “East, south, west, north”</p> <p>6/ Press "F"</p> <p>7/ Observe the dialogue whether is popping up</p>	Dialogue Box should pop up whichever directions the player is beside NPCs	<p>The NPCs did not respond to the player in some directions</p> <p>(The dialogue box could not be popped up.)</p>	unresolved
Weapon sound playing issue	<p>1/ Click "left" one time to attack</p> <p>2/ Click "left" again to attack</p>	<p>Weapon sound should be played once after one left click</p> <p>Weapon sound should be played again after the repeating left clicks</p>	<p>1. Weapon sound played once after on left click for one attack</p> <p>2. However, more left clicks would not play the weapon sound again</p>	Solution: Play the sound when the left click is “up”.

Weapon sound overlap issue	1/ Click "left" one time to attack 2/ Quickly click "left" again to attack	Weapon sound should be played twice separately between the twice attack animations	Weapon sound overlapped between the first attack animation and the second attack animation	Solution: Play the sound when the left click is "up".
Weapon sound play issue	1/ Click "left" to trigger the weapon sound 2/ Press "Pause" to stop attack 3/ observe the weapon sound is playing	Weapon attack and sound should be paused	Weapon sound and attack were still active	Solution: When the game is paused, disable the Weapon.cs script if the player has a weapon, then re-enable it when the game resumes.
The voice of the NPCs issue	1/ Approach a male NPC 2/ Press "F" to dialogue 3/ Approach a female NPC 4/ Press "F" to dialogue	The voice of the NPCs should be change according to the gender of the NPCs	The voice of the NPCs would not change no matter what gender of NPCs	Solution: Change the ShowDialogue() function in DialogueUI.cs script so that it takes in a string maleOrFemale and a string nameOfGameObject. This is so that information about the sex of the NPC is stored as well as the name of the NPC. Then use if statements to determine the audio clip to use based on maleOrFemale.

The NPCs dialogue audio issue	<p>1/ Approach NPCs</p> <p>2/ Press "F" to interact with NPCs</p> <p>3/ Press "space" to change the dialogue perspective to the player</p> <p>4/ Observe the dialogue audio for who</p>	The dialogue audio would play for the NPC only	The dialogue audio played even though the player character was talking	Solution: Check the first 4 characters of the dialogue to see if it equals the name "Tony", since the dialogue always starts with a name, and Tony is the name of the main character. Only play the audio if the name is not Tony.
The NPC dialogue audio playing issue	<p>1/ Approach NPCs</p> <p>2/Press "F" to dialogue with NPCs</p> <p>3/ Press "Pause" to stop the dialogue before the dialogue audio has not finished</p>	The dialogue audio should be stopped after stopping the game	The NPC's dialogue audio continued to play even though the game was paused.	Solution: Add a function, PauseVoice(), to DialogueUI.cs script. In this function, make sure the name of the sound effect is not null, then pause the audio.
The NPC dialogue audio resume issue	<p>1/ Approach NPCs</p> <p>2/ Press "F" to interact with NPCs</p> <p>3/ Press "Pause" to stop the dialogue before the dialogue audio has not finished</p> <p>4/ Press "Play" to resume the game</p>	The dialogue audio should be carried on with the resuming the game	The NPC dialogue audio did not resume after resuming the game.	Solution: Add a function, ResumeVoice(), to DialogueUI.cs script. In this function, check that the sound effect name is not null, and also check that the person speaking is not "Tony" and that the sound effect is not paused due to the current text has ended and is waiting for

				player's "space" input. If all of these are true, then resume the audio.
Level theme track issue	<p>1/ Log in the game as a player 2/ Appear on the game level map 3 / Observe the current level theme track 4/ Press "Pause" to stop the game 5./ Observe whether the theme track is stopping</p>	The current level theme track should stop playing	The current level theme track still plays after pressing "pause"	<p>Solution: Add a function PauseCurrent() and ResumeCurrent() to SoundManager.cs script. In PauseCurrent(), the current theme and ambient sound is paused. And in ResumeCurrent() , the current theme and ambient sound is resumed.</p>
Running sound playing issue	<p>1/ Log in the game as a player 2/ Run around the map 3 / Observe the running step sound 4/ Press "Pause" to stop the move action 5./ Check whether the running sound is stopping</p>	The running sound of player should be stopped	The player's running sound still plays after the pause menu.	<p>Disable the player's AudioSource when the game is paused and re-enable it when the game resumes.</p>
The weapon hits issue	<p>1/ Approach the wall 2/ Click the "left " to hit the wall 3/ Approach the pillar 4/ Click the "left" to hit the pillar</p>	The weapon hits sound should play	The weapon hit sound did not play	<p>Solution: Tag the walls and pillars with a unique tag in Unity, then in the OnCollide() function in Weapon.cs script, use if statements to</p>

				check if the collider tag is the enemy or a wall/pillar, then play the appropriate sound.
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12.5 CRC Cards - Version 4

Fighter Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Player and enemy damage received • The game objects current health • Player death and respawn • Spawn the player ghost after death • Update the health bar UI with the damage taken 	<ul style="list-style-type: none"> • Health bar UI

Mover Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Player and enemy movement between two places 	<ul style="list-style-type: none"> • Fighter

Player Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Consuming player movement left/right/up down keyboard input • Initialising the player's inventory • Saving the players current inventory to the game manager to save its state. 	<ul style="list-style-type: none"> • Mover • Inventory • Game Manager

Collidable Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Keeps track of all the collision between game objects in the game i.e. player running into a wall, weapons hitting players etc . 	

Weapon Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Store the weapon damage and push force 	<ul style="list-style-type: none"> • Collidable

<ul style="list-style-type: none"> • Detect if the weapon can swing again and cause damage based on a cool down period • Swinging the weapon 	
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Enemy Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Implement enemy movement AI to chase player within a certain range • Control the enemy patrol between given waypoints • Enemy death - removing the enemy player from the map when it has no health remaining 	<ul style="list-style-type: none"> • Mover

Enemy Weapon Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Recording the damage inflicted on the player by the enemy and sending the damage values to the player. • Coordinate the correct attack animation 	<ul style="list-style-type: none"> • collidable

Game Manager Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Storing the players current game state including its health inventory and gold capacity 	<ul style="list-style-type: none"> • Collidable • Inventory • Player Gold storage • fighter

Inventory Class	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Storing the inventory items • Adding items to the inventory • Removing items from the inventory • Refreshes the Inventory UI when items are used/equipped 	<ul style="list-style-type: none"> • Inventory UI

Inventory UI Class	
Responsibilities	Collaborators

<ul style="list-style-type: none"> • Clearly display the stored inventory items on the screen • Be interactable to use the inventory items 	<ul style="list-style-type: none"> • Inventory
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Collectable Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Detects when a collectable item has been run into by the player • Stores a collectable items collection state from the player 	<ul style="list-style-type: none"> • Collidable

Item Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Stores a list of collectable items • Stores the items that have been collided by the player into the inventory of the player • Destroys the item from the map to show it being 'picked up' 	<ul style="list-style-type: none"> • Collectable

Typewriter Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Controls what writing is written in a certain location • Controls the speed of which this is written • Increases speed when given a spacebar input 	<ul style="list-style-type: none"> • Dialogue • Transition

Dialogue Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Store dialogue scripts • Control when the dialogue appears on the screen and invoking the Dialogue UI at the correct time 	<ul style="list-style-type: none"> • Dialogue UI • Typewriter

Dialogue UI Script	
Responsibilities	Collaborators

<ul style="list-style-type: none"> Displaying the dialogue box when it is invoked by the dialogue script 	<ul style="list-style-type: none"> Dialogue UI
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NPC Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Detect when the player has collided with the NPC and pressed the interact key Tell the dialogue to display when this occurs 	<ul style="list-style-type: none"> Dialogue UI

Health UI Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Display the current health on the screen Update the health values when being attacked/ using healing items 	<ul style="list-style-type: none"> Fighter

Player Health List Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Stores the current HP value and max HP value of the player into a list. Uses an Event Handler to send a message to Health UI script to update the health bar every time this current HP and/or max HP of the player changes. 	<ul style="list-style-type: none"> Heath UI

Chest Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Store a gold value attached to Chest game object Detect when the chest has been run up to and update the players gold 	<ul style="list-style-type: none"> Fighter collectable

Player Gold Storage Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Adds gold to the players gold storage when colliding with chest 	<ul style="list-style-type: none"> Chest Game Manager

• Removes gold when gold it is used	
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Portal Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Attach to game object on the entrance to the next level • Transport the player to the next level when the player runs into it and the level boss has been killed • If boss not dead show dialogue on screen to tell the player to “continue exploring” • Invoke the transition script 	<ul style="list-style-type: none"> • Transition • Collidable • Boss death

Boss Death Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Enables the portal script when the level boss has been killed to allow the player to pass to the next level • Disables the red light illuminating the portal 	<ul style="list-style-type: none"> • portal

Transition Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Fade to black screen • Display the appropriate writing for the following situations: <ul style="list-style-type: none"> ◦ On player death ◦ On level transitions ◦ On final boss death 	<ul style="list-style-type: none"> • Transition • Collidable • typewriter

Player Death Script	
Responsibilities	Collaborators

<ul style="list-style-type: none"> spawn the faded memory game object in the place of the players death respawn the player at the start of the current level reduce the max health by 2 HP (1heart) each time it dies until there is only 4 hp left in which case it does not reduce further 	<ul style="list-style-type: none"> Player Ghost (faded memory)
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Player Ghost Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Be placed on the faded memory ghost object After being collected: <ul style="list-style-type: none"> Increase the players health to full Restore the players max hp Update the health bar UI Remove the player ghost 	<ul style="list-style-type: none"> Collectable Health UI player

Deploy Witch Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> deploy the final boss when the rest of the enemies in the level had been slayed 	

Witch Death Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> While displaying the storyline transition after the final witch boss has been killed by the player the script disables: <ul style="list-style-type: none"> The player movement The player weapon attack 	

Main Menu Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> Plays the button pressed sound when buttons pressed Loads the first scene when the play button is pressed 	

• Quits the game when the quit button is pressed	
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Pause Menu Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Pauses the game when esc key is pressed • Resumes game when the play button is pressed • Quits the game when the quit button is pressed 	

Sound Manager Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • Playing the background music • Playing and pausing and resuming sound effects on other game objects 	

Sound Script	
Responsibilities	Collaborators
<ul style="list-style-type: none"> • A class which consumes each audio clip played • Storing the source <ul style="list-style-type: none"> ○ Name of the sound ○ Volume of the clip required ○ Pitch of the sound ○ If it needs to loop 	<ul style="list-style-type: none"> • Sound Manager

12.6 Design Use Cases

Adding a start menu	Scope: Start of the game
Reference Ticket: TC-67-DUC	
Level: user goal	
Primary Actors: Player	
Description: When entering the game and before starting playing, planning to add a menu screen for user.	
Dependencies: Key tickets of the game features	
Assumptions: The mouse clicks properly	

Preconditions: The user has opened the game and is in the start menu.
Main Flow: User opens the game Show main menu Menu with options to enter/exit the game, game background image and music Click to enter the game and start playing
Subflows: None.
Alternative Flows: Clicking on start/exit does not respond Error in game background image and music
Post Conditions: A start menu is displayed and the user is able to click on actions in the menu
Frequency of occurrence: Every time we open the game
Open Issues: What should we do if we don't get a response when clicking on Start Game/Quit Game? Should there be a settings option on the menu?

Adding background music/sound effects	Scope: Throughout the entire game
Reference Ticket: TC-69-DUC	
Level: user goal	
Primary Actors: Player	
Description: There are different music's and sounds occur when player complete varies of behaviors.	
Dependencies: Key tickets of the game features	
Assumptions: The audio in the computer/cell phone is turned on properly and not off	
Preconditions: The player is not muted and some behaviour is triggered/is in the map	
Main Flow: Players playing in the game Three types of background music will be played in the three maps Sound effects will be played as players walk and attack Sound effects for players picking up and using items Sound effects for enemy attacks etc.	
Subflows: None.	
Alternative Flows: The player's actions are out of sync with the sound when the sound effect is triggered. The sound effects are too loud and affect the game experience.	
Post Conditions: Nothing is displayed, just the corresponding sounds are made in the system.	
Frequency of occurrence: There will be plenty of music and sound effects in the game.	

Open Issues:

Background music drowned out by footsteps/attack sounds?

I didn't turn off the microphone, why can't I hear the sound?

Adding lighting features	Scope: All Dungeon Levels
Reference Ticket: TC-62-DUC	
Level: user goal	
Primary Actors: The maps	
Description: The dungeon map will have many faint lights for illumination.	
Dependencies: TC-8 After the first level of the dungeon has been completely constructed	
Assumptions: The player enters the dungeon from the village map without any problems.	
Preconditions: Dungeon maps design completed, and all collider placements completed.	
Main Flow: The player enters the dungeon map There are many glowing candles and lamps in the dungeon These items light up the dark dungeon At the same time, more monsters may be lurking in the dimly lit areas	
Subflows: None.	
Alternative Flows: The lighting effect is normal in one map and disabled in the other. When the player walks into the lights, they are completely obscured by them.	
Post Conditions: Lots of glowing candles and lamps are placed on the first dungeon and the dungeon boss level.	
Frequency of occurrence: Dark dungeon/road	
Open Issues: Will the lights have a flickering effect? How do the candles have to be arranged to illuminate the whole dungeon?	

Adding teleportation lanes between maps	Scope: Each map
Reference Ticket: TC-73-DUC	
Level: user goal	
Primary Actors: The player	
Description: The Player can transfer between the three maps to each other, provided he has defeated the demons.	
Dependencies: TC-8 TC-12 After having designed all three maps.	
Assumptions: No errors in the transfer script and correct collider settings.	

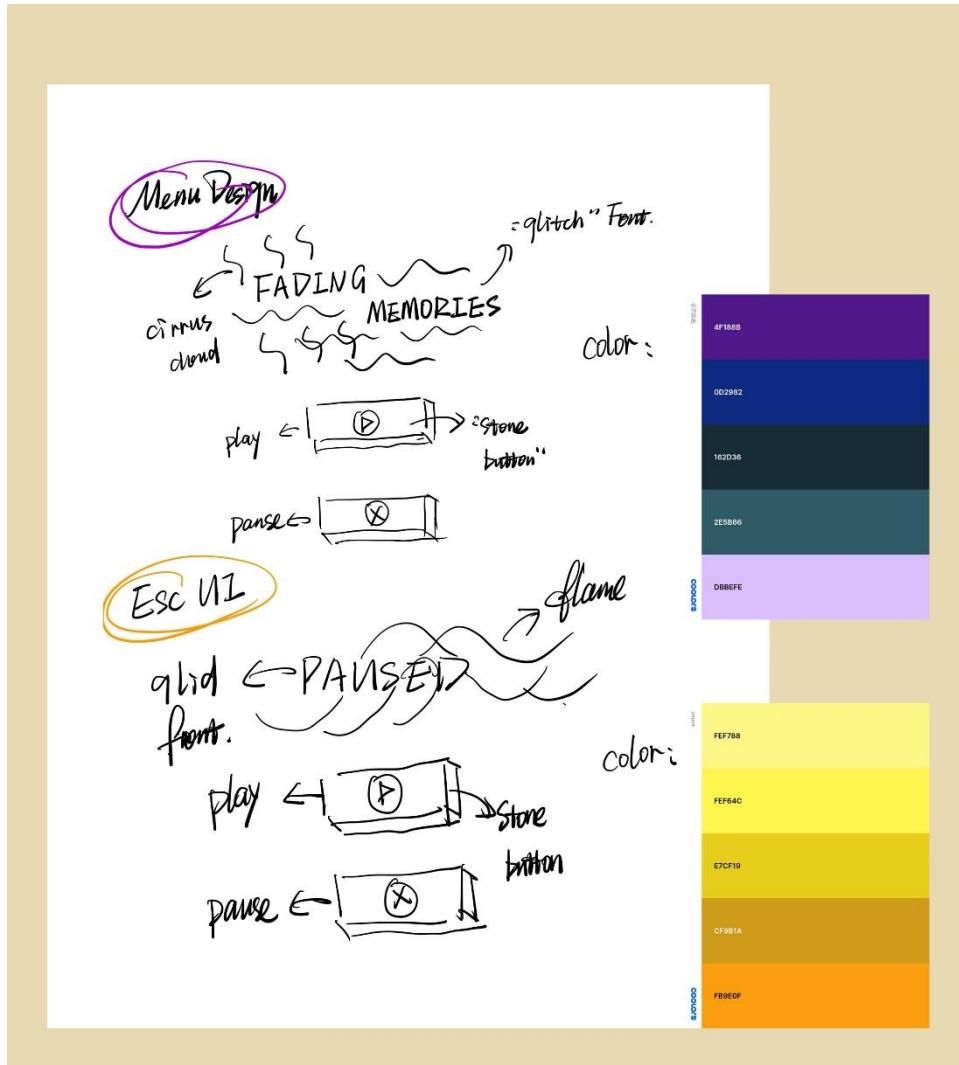
Preconditions: The player kills the boss on each level / after going through all the stories on the village level
Main Flow: The Player experiences the storyline on the village level. After losing the memories, the player can enter the dungeon on the east side of the village. On the dungeon level, the player can enter the dungeon boss level after killing the boss. On the final level, after killing the witch, the player can be transported out of the dungeon.
Subflows: None.
Alternative Flows: The Player will enter another map by mistake when making a transfer. The player does not defeat the boss and proceeds to the next scene through the transmission channel.
Post Conditions: A door or a passage will be shown on the map, indicating that a transmission is possible here
Frequency of occurrence: At the end of each map
Open Issues: How do I fix the ability to teleport without defeating the boss? Is teleportation a two-way street?

12.7 User Interface Design

12.7.1 Design Sketches

The main/start menu and “Esc” sketches

Reference Tickets: TC-67



12.7.2 Design Implementation

Main Menu implementation

Reference Tickets: TC-67



Pause Menu implementation

Reference Tickets: TC-67



13 Sprint 5 Process Documentation

13.1 Preview

During this sprint we planned to make some small enhancements in the final boss transition adding some dialogue and some Witch related noises on its entrance to draw the player to the witch and begin its final attack. After this was complete, we planned to do the full games end to end testing to iron out any bugs that we may find before building the game and focussing our remaining efforts on completing the documentation required for the product including the demonstration video.

13.2 Review

Looking back at the sprint we made good progress through the documentation putting us in a good place for the hand in date leaving only a few remaining documentation tasks. The small enhancements were quickly completed allowing us to complete a thorough end to end test on the game, with no bugs being found we praised our previous testing efforts and built the game ready to be played by the end User. A small group of the team then split off and successfully created the demonstration video of the final product.

13.3 Meetings

13.3.1 Week Meeting Schedule

Sprint 5 Meeting Schedule		
Date	Meeting	Attendance
09/12/2021	Sprint Planning	Whole Team attendance
10/12/2021		
11/12/2021	Stand-Up	Whole Team attendance
12/12/2021		
13/12/2021	Stand-Up	Whole Team attendance
14/12/2021		
15/12/2021	Stand-Up	Whole Team attendance
16/12/2021	Sprint Review	Whole Team attendance
16/12/2021	Sprint Retrospective	Whole Team attendance

13.3.2 Sprint Planning

SPRINT 5 Planning Meeting Agenda

Start the planning give context to what each ticket is required for members to make notes in description of the ticket and write up user stories and use cases

Bugs

- NPC dialogue issue
- Map pixel sizing issue
- Village building layer issue
- Misc further bugs
- Add knight character for when the main player “puts on the armour”
- Dialogue in final story change to current version

Dev tickets

- Witch Spawn sound – witch cackle
- Witch Dialogue when it spawns “”
- Final game build

Other tickets

- Sprint 4 test plan
- Documentation
- User stories, use cases etc.

Sprint Planning Meeting Notes

- When doing process document writing, we may need to attach some UI design screenshots.
- It's necessary to explain some general mechanics about game in Documentation. Some objectives like hierarchy. And we need the installation guide go for the development as well as the user, then we need main game characteristics. Then dialogue, attack, portal scripts, transitions and inventory. If we still have time, we could make it like a flow diagram of each script so people can see how each is linked together in the hierarchy.
- A Collision section is important in the maintenance guide. It can be brief because most of the collision stuff is a base for other functions. Like dialogue where the player needs to collide with another NPC and other procedures like transition.
- We need to add dialogue and a cackle sound for the witch that would let the player know that it has spawned. This is going to be something like: If the character's killed, there will be 'You may have defeated my minions, but you will never defeat me'
- Final level storyline will be re-edit to flow nicely. The previous confuses the reader.
- The whole story of game will be put in the process documentation.

Please See the [User Stories and Associated Tickets](#) section to see the task assignment and further ticket detail

13.3.3 Sprint Review

This sprint review saw jack and Thomas showed the final boss dialogue pop up and sound effect on spawn with the appropriate writing that was discussed during the sprint planning. It was mutually agreed that this made the spawning of the Witch more of a feature to the game adding extra effect to the final fight scene.

There was a discussion about the remaining documentation and solid deadline was set by the team to get all individual parts of the documentation completed by Sunday night, so it gave Will time to collate it all on Monday and appropriately format.

During the week the demonstration video was completed and uploaded to the team's group in which we all reviewed teams and were all happy with the outcome and hence it is ready for submission.

13.3.4 Sprint Retrospective

Sprint 5 Retrospective Meeting Agenda

- Review last retrospectives goals and see if we have achieved them
- Fill in the Miro Mad, sad, and glad board
- Talk through each mad, glad, and sad
- Make some team actions in the way we work to change for the next sprint

Sprint Retrospective Meeting Notes

Looking at previously set actions to implement this sprint from the last retrospective, as a team we believe we achieved:

- Complete all process documentation up to sprint 3
- Communication is key - make sure you let people know if you are falling behind with workload
- Be available to help if you are free
- Process Documentation - please send to Will once you have completed a section

Mad	Sad	Glad
Questionnaire Template Still not on Moodle and other submission portals we require.	That I have so many big deadlines back-to-back this week and next	Game demo recording and editing went well, and everything is almost done
We didn't document as much around stand ups	End of term multiple deadline stress	A lot of dues this week, but we are trying to handle them better under stress
That some templates like team questionnaire is still not available despite deadline being Monday		That the term is almost over
It too much coursework I need to complete during these days so that I paid less time on SE		Making good progress on documentation. Demonstration video looks good!
		We have detailed and varied documentation, I think this project is nearing completion.
		we are reward for our hard work (the game has been formed and has a nearly complete document)
		A friendly teamwork environment, responsible and reliable group mates.
		I got a lot of help from other teammates

From this meeting the following Actions for next sprint were created and to be reviewed next sprint review:

- Will to post another question on the forum about questionnaire templates
- Finnish write ups for each sprint
- Be understanding of other people's pressures
- If you, don't you can complete something by the deadline let other people know well in advance
- Sunday night documentation deadline (actual deadline on following Monday evening)

13.4 Sprint 5 Individual Accounts

Jack Chang

Tasks worked on: TC- 79, TC-102, TC-101, TC-91, TC-92, TC-93

Sprint Meeting – 09/21/2021:

- I was assigned to write a part of the maintenance guide during this sprint, as no more features will be worked on. Specifically, I was to write up all the implementations I have done for the development of the game.
- I added a sound effect for the witch at the moment she spawns.
- I also fixed a bug where a null exception error would occur on the final boss level after defeating the witch. This bug popped up because another team member made an addition to the game after my addition of the sound effect, where the witch would have some dialogue after spawning.

Standup Meeting – 11/12/2021:

- By this meeting I have written my portion of the maintenance guide in detail and included screenshots as well. I included details of each script and each function in the script, as well as the Unity objects the scripts were attached to.
- I also wrote a bugs list with all the bugs I encountered and fixed throughout the development process. I gave this to Kaia, so she can add these to the bugs documentation.

Standup Meeting – 13/12/2021:

- By this meeting, I have completed my portion of the maintenance guide by adding the village map descriptions and by adding a script description using a template from Will.
- I also fixed a small bug in the game before making the final build of the game ready for video demonstration.

Thomas Lawrie

Tasks worked on: TC- 79, TC-102, TC-101, TC-91, TC-92

- Wrote parts of the maintenance guide (screenshots included):
 - Part of movement
 - Dialogue
 - Transitions
 - Part of Events
- Merged changes to game in GitHub
- Provided Kaia with information on bugs encountered during development of the game

Will Prior

Tasks worked on: TC- 83, TC-101, TC-102, TC-49, TC-82, TC-79

This Sprint I:

- Completed collating the full set of CRC cards from the entire project
- Completed my iteration of end to end testing multiple times looking for any faults in the game
- Helped Thomas and Jack with creating the demonstration video deciding and performing a script alongside Thomas with jack editing.

- I also started to coordinate more intently the document collation for the process documentation, asking people to start producing their work by certain deadlines throughout the week so I could add it to the document
- I assigned Thomas and Jack to oversee the final product document and added my section on the enemy attack and witch spawning
- I also reviewed every piece of work before inserting it into the process document giving feedback if extra information was required.

Shouqing Li

Tasks worked on: TC- 82, TC-101, TC-79, TC-58

What I did:

1. I completed my part in the process document, including map design, collider placement and adding new dialogue to the npc.
2. I wrote an additional extension that accepts in detail how to build a 2D map in Unity. For example, where we can get materials, how to cut them and place them with the tile editor, etc. I have written down my own process for making a dungeon map.
3. I designed a new use case template based on the new requirements and completed the use cases for Sprint4 and Sprint5.

My teamwork:

1. Will and I discussed how to design the extra part of the map design, which is the tutorial for making the map.
2. I worked with Yanxi and Chengpeng to change all the use cases and they should all fit perfectly now.

Cambridge Chan

Tasks worked on: TC-101, TC-58

Preview

In this sprint my main role is to finish the game prototype testing document for all the sprints to check if there are no flaws and bugs. After this task, I would also be working on specific bug tickets and their solutions combined in a single part. For this I would be working with Kaia.

Review

I had a meeting with Kaia and we discussed about the bug testing documentation details. I have been doing manual checking through the whole game for at least 10 times per day to check if there were any bugs.

After that I started checking if there were collider issues throughout all levels of the game. For this task, I communicated a lot with Kaia, Jack and Shouqing on this matter. There is a minor bug fixed during this sprint. I told Kaia about the situation, and she would be documenting the bug in detail. I also did some preparation for the upcoming user manual. I have read related material to check the format and contents that we might potentially include in our document. I also recorded my time to complete the game to get a brief idea of the playability of our dungeon game.

Kaia Cai

Tasks worked on: TC- 82, TC-101, TC-79, TC-58

Overall, in sprint5, I completed these tickets in cooperation with Cambridge: 1. Tested the existing levels; 2. Wrote the bug tickets; 3. Documented the manual testing; 4. Delivered testing result to the

related personnel to debug; 5. wrote the user interface part of the process document; 6 designed the illustrations of the front page on the process document

Besides, I continued to test the game and write manual testing document. After manual testing, I wrote the bug tickets and delivered them to the related people to debug. In addition, I integrated and collected the bug tickets of Jack, Tom, Chengpeng and Shouqing from the development process. As to the manual testing document, I added some details to the manual testing document based on the Cambridge version and Will's feedback.

Finally, I joined the writing of the document -collected and integrated the source of the assets and elements from the game, inserted the sketches and implementation screenshot of the user interface, and design the cover illustration of the process document.

Yanxi Lei

Tasks worked on: TC-97, TC-82

During this sprint, I wrote the meeting notes of sprint 5 and still working on use cases on sprint1 and sprint3. It's quite confused with reading some template from forum. There are two use cases we need. Requirement use cases and design use cases. We tried several different templates and finally agreed on one. Shouqing has helped us for sprint 4 and sprint 5. And he guided us for some details in use cases.

13.5 Backlog

Backlog at the start of sprint 5.

<input checked="" type="checkbox"/> TC-49 PROCESS DOCUMENTATION : All Sprint Documentation Collation	TO DO	WP
<input checked="" type="checkbox"/> TC-77 PRODUCT DOCUMENT: Write User Manual	TO DO	CC
<input checked="" type="checkbox"/> TC-98 PROCESS DOCUMENTATION: Ticket, User Stories and Sprint preview/overview	TO DO	WP
<input checked="" type="checkbox"/> TC-82 PROCESS DOCUMENTATION: Use cases	TO DO	YL
<input checked="" type="checkbox"/> TC-79 PRODUCT DOCUMENT: Maintenance Guide	TO DO	PC
<input checked="" type="checkbox"/> TC-88 Misc Further Bugs	TO DO	
<input checked="" type="checkbox"/> TC-93 Build the final game	TO DO	
<input checked="" type="checkbox"/> TC-83 PROCESS DOCUMENTATION:CRC Cards	TO DO	WP
<input checked="" type="checkbox"/> TC-58 PROCESS DOCUMENT:Manual Testing Strategy	TO DO	CC
<input checked="" type="checkbox"/> TC-96 PROCESS DOCUMENT: Design Sketches for All Maps	TO DO	
<input checked="" type="checkbox"/> TC-91 Small Enhancements: Add spawning sound to Witch (cackle)	TO DO	PC
<input checked="" type="checkbox"/> TC-92 Small enhancement: Create Witch Dialogue when it spawns	TO DO	TL
<input checked="" type="checkbox"/> TC-101 End to End Testing	TO DO	
<input checked="" type="checkbox"/> TC-102 Demonstration Video	TO DO	
<input checked="" type="checkbox"/> TC-97 Meeting Notes For all Sprints	TO DO	
<input checked="" type="checkbox"/> TC-14 Writing Level Two Storyline	TO DO	
<input checked="" type="checkbox"/> TC-9 Design layout of Level 2	TO DO	
<input checked="" type="checkbox"/> TC-70 Find and implement level 2 boss	TO DO	
<input checked="" type="checkbox"/> TC-71 Populate level 2 with enemies	TO DO	
<input checked="" type="checkbox"/> TC-72 Populate level 2 with NPCs and dialogue	TO DO	
<input checked="" type="checkbox"/> TC-11 Design layout of level 4	TO DO	
<input checked="" type="checkbox"/> TC-10 Design layout of level 3	TO DO	...
<input checked="" type="checkbox"/> TC-66 Implement Mana system for ranged attacks	TO DO	PC
<input checked="" type="checkbox"/> TC-65 Implement ranged attack	TO DO	PC
<input checked="" type="checkbox"/> TC-75 NPC interaction issue when left and right	TO DO	
<input checked="" type="checkbox"/> TC-87 Village Building Layer Issue	TO DO	
<input checked="" type="checkbox"/> TC-84 Collating Sprint Tickets Meeting Notes	TO DO	
<input checked="" type="checkbox"/> TC-90 Change Transition screen storyline to most up to date story	TO DO	
<input checked="" type="checkbox"/> TC-89 Make main character put armour on	TO DO	

13.5.1 Complete Backlog Tasks

Sprint 5 Backlog	
Ticket Code	Ticket Title
Completed	
TC-83	PROCESS DOCUMENTATION: CRC Cards
TC-58	PROCESS DOCUMENT: Manual Testing Strategy
TC-77	PRODUCT DOCUMENT: Write User Manual
TC-91	Small Enhancements: Add spawning sound to Witch (cackle)
TC-92	Small Enhancement: Create Witch Dialogue when it spawns
TC-101	End to End Testing
TC-102	Demonstration Video
TC-93	Build Final Game
To be Completed	
TC-49	PROCESS DOCUMENTATION: All Sprint Documentation Collation
TC-82	PROCESS DOCUMENTATION: Use cases
TC-79	PRODUCT DOCUMENT: Maintenance Guide
TC-97	PROCESS DOCUMENTATION: Collate remaining Meeting Notes from previous Sprints

13.6 Exception Handling

The problems we faced this sprint was due to a new template being released by the TA's on the 15th before the sprint ended. This left us needing to make many changes to our design and requirement use case format, meaning even with our best efforts unable to complete the use cases task by the end of the sprint. And again we also faced the same issues of other modules deadlines reducing the amount of attention we could spend on this project reducing our output and affecting our team velocity.

14 Sprint 5 Product Documentation

14.1 Customer Meetings

Our last customer meeting showed us explaining our final steps that we wished to complete before the submission which the customer seemed to agree with. From this we believed we had a clear vision of what we needed to achieve before the hand in so didn't feel we needed the meeting this week.

14.2 User Stories and Associated Tickets Completed

User Stories	Acceptance Criteria
TC-91 Small Enhancements: Add spawning sound to Witch (cackle)	
Completed by: Jack Chang & Thomas Lawrie	
AS A Game player I WANT the final Boss Witch to spawn with some indication and dramatic effect SO THAT I know it has occurred and get ready to battle her!	This Story is complete when: <ul style="list-style-type: none"> When all the enemies have been killed in the final boss dungeon level that a Witches cackle sound plays to add effect and alert the user to her presence.

TC-92 Small Enhancements: Create Witch Dialogue when it spawns Completed by: Jack Chang & Thomas Lawrie	
AS A Game player I WANT the final Boss Witch to spawn with some indication and dramatic effect SO THAT I know it has occurred and get ready to battle her!	This Story is complete when: When all the enemies have been killed in the final boss dungeon level that the witches dialogue pops up with the following content: Witch: Hi Hi Hiii! Witch: Well Done! Witch: You've managed to defeat my servants! Witch: Don't get cocky though, you will never defeat me for as long as you live!.

14.2.1 Further Tickets Completed

Ticket Name and Reference	Acceptance Criteria
TC-83 PROCESS DOCUMENTATION: CRC Cards Completed by: Will Prior	This ticket is complete when all sprint CRC cards have been collated into one document ready to be inserted into the main sprint process document. This could involve: <ul style="list-style-type: none"> • Backtracking and writing previous sprints CRC cards • Contacting fellow team members to acquire the CRC cards they produced for their development work • Formatting them in a way that they are all consistent
TC-58 PROCESS DOCUMENT: Manual Testing Strategy Completed by: Kaia Cai & Cambridge Chan	This Ticket is an ongoing ticket throughout each sprint to be used as a marker for all manual tests written for each new piece of functionality. This ticket is complete each sprint when: <ul style="list-style-type: none"> • All manual tests have been written up and carried out for new pieces of functionality • Regression testing has been carried out – tests written for previously developed functionality are redone to check it hasn't been broken by new functionality
TC-77 PRODUCT DOCUMENT: Write User Manual Completed by: Cambridge Chan	This ticket is complete when a user manual has been created with the following sections: <ul style="list-style-type: none"> • User installation guide • how to start the game • The controls: <ul style="list-style-type: none"> ◦ movement

	<ul style="list-style-type: none"> ○ attack ○ interactions ○ using inventory ○ how to carry on from transition screens ● Game mechanics <ul style="list-style-type: none"> ○ death ghost pick up ○ picking up objects ○ using objects ○ killing a boss before the next level ○ how to transition between levels via portals
TC-101: End to End Testing Completed by: Whole Team	This ticket is complete when ALL team members play the game at least once start to finish, exploring all aspects of the functionality, noting any bugs they find as they play
TC-102: Demonstration Video Completed by: Jack Chang, Will Prior, Thomas Lawrie	This ticket is complete when a demonstration video of the game's functionality and features has been produced with appropriate commentary.
TC-93: Build Final Game Completed by: Jack Chang	This ticket is complete when the game has been fully tested and created into a single .exe file with an appropriate icon that can be easily downloaded installed and played.

14.2.2 Further Tickets to Be Completed

Ticket Name and Reference	Acceptance Criteria
TC-49: PROCESS DOCUMENTATION: All Sprint Documentation Collation In Progress by: Will Prior	This ticket is complete when the final process document is complete and well formatted ready for submission.
TC-82: PROCESS DOCUMENTATION: Use cases In Progress by: Yanxi Lei, ChengPeng Huang, Shouqing Li	This ticket is complete when the complete set of design and requirement use cases has been collated into a single document that covers the entire project. This will involve: <ul style="list-style-type: none"> ● Putting earlier sprint use cases into a single document ● Backtracking and writing any unfinished or produced use cases for each ticket ● Inserting the previous into a single document ● Make the formatting consistent across all use cases
TC-79: PRODUCT DOCUMENT: Maintenance Guide In Progress by: Jack Chang, Thomas Lawrie, Will Prior, Shoqing Li	This ticket is complete when a document with the following sections has been completed plus evidence of how appropriate sections could be expanded: <ul style="list-style-type: none"> ● Installation guide for development ● Main game characteristic headers: <ul style="list-style-type: none"> ○ Collision

	<ul style="list-style-type: none"> ○ Map Development ○ Dialogue ○ Attack <ul style="list-style-type: none"> ■ player ■ enemy ○ Movement <ul style="list-style-type: none"> ■ player ■ enemy ○ Transitions ○ Inventory <ul style="list-style-type: none"> ■ Usage ■ UI ■ Pick Up ● Health Bar ● Gold System ● Sound Manager ● Player Death /Ghost ● Events <ul style="list-style-type: none"> ○ killing boss on each level ○ spawning witch etc. ● Main Menu and Pause Menu
TC-97: PROCESS DOCUMENTATION: Collate remaining Meeting Notes from previous Sprints	<p>This Ticket is complete when:</p> <ul style="list-style-type: none"> ● All previous sprint meeting notes have been written for: <ul style="list-style-type: none"> ○ Customer meeting ○ Sprint planning ○ Sprint Review ○ Sprint Retrospective <p>This could involve:</p> <ul style="list-style-type: none"> ● Watching previous meeting recordings and writing appropriate notes of what was discussed and its outcomes ● Collate all the previous notes in a single document which is formatted appropriately and ready to be inserted into the process documentation

14.3 Requirement Use Cases

Use Case: Boss with initial sound effects	Scope: Final boss level
Reference Ticket: TC-91-RUC	
Level: user goal	
Context: The player can hear the final boss's scream before fighting it to determine when they have reached the boss stage.	
Frequency of occurrence: When fighting the final boss	
Open Issues: How to make a witch laugh intermittently? How to make a witch scream when attacked to a certain level?	

Use Case: Boss appears with dialogue	Scope: Final boss level
Reference Ticket: TC-92-RUC	
Level: user goal	
Context: The player can talk and learn about the storyline before fighting the final boss. The player can see the dialog box after killing all enemies.	
Frequency of occurrence: When fighting the final boss	
Open Issues: Is it possible to branch the conversation with the boss? Does the boss reveal a story that makes the player more powerful?	

14.4 Testing

14.4.1 Testing Completed

After completing the same [tests as sprint 4](#) we persisted with the same following bug that we could not find a solution to as seen in the next section this will have to become part of the game.

There was also full end to end testing that took place that was outlined by TC-101, with all of us completing this we found no further bugs which is a great sign for the game!

14.4.2 Bug Issues

Bug Title and Reference	Steps to Reproduce	Expected Outcome	Actual Result	Solution
The dialogue boxes popping up issues	1/ Observe where the NPCs appear on the map 2/ Approach NPCs until next to NPCs 3/ Press "F" 4/ Observe the dialogue whether is popped up 5/ Switch directions - "East, south, west, north" 6/ Press "F" 7/ Observe the dialogue whether is popping up	Dialogue Box should pop up whichever directions the player is beside NPCs	The NPCs did not respond to the player in some directions (The dialogue box could not be popped up.)	unresolved

14.5 CRC Cards

As during this sprint we only did small enhancements on existing scripts the cards are the same as in sprint 4 please see the sprint 4 version 4 of the cards [here](#).

14.6 Design Use Cases

Add spawning sound to the witch (cackle)	Scope: Final boss level
Reference Ticket: TC-91-DUC	
Level: user goal	
Primary Actors: Witch (Final boss)	
Description: When the player has killed all the monsters on the final level, the witch will spawn in the middle of the map with a horrible laugh.	
Dependencies: TC-54 Successfully kill all enemies	
Assumptions: No mute on computer/cell phone	
Preconditions: The player has eliminated all enemies and the pre-boss.	
Main Flow: The player destroyed all monsters. The witch appears in the middle of the map. The witch makes an ear-splitting laugh.	
Subflows: None.	
Alternative Flows: The player cannot hear game sounds. The player cannot see the witch appear.	
Post Conditions: Image and animation of the witch shown on the map.	
Frequency of occurrence: When fighting the final boss	
Open Issues: How to make a witch laugh intermittently? How to make a witch scream when attacked to a certain level?	

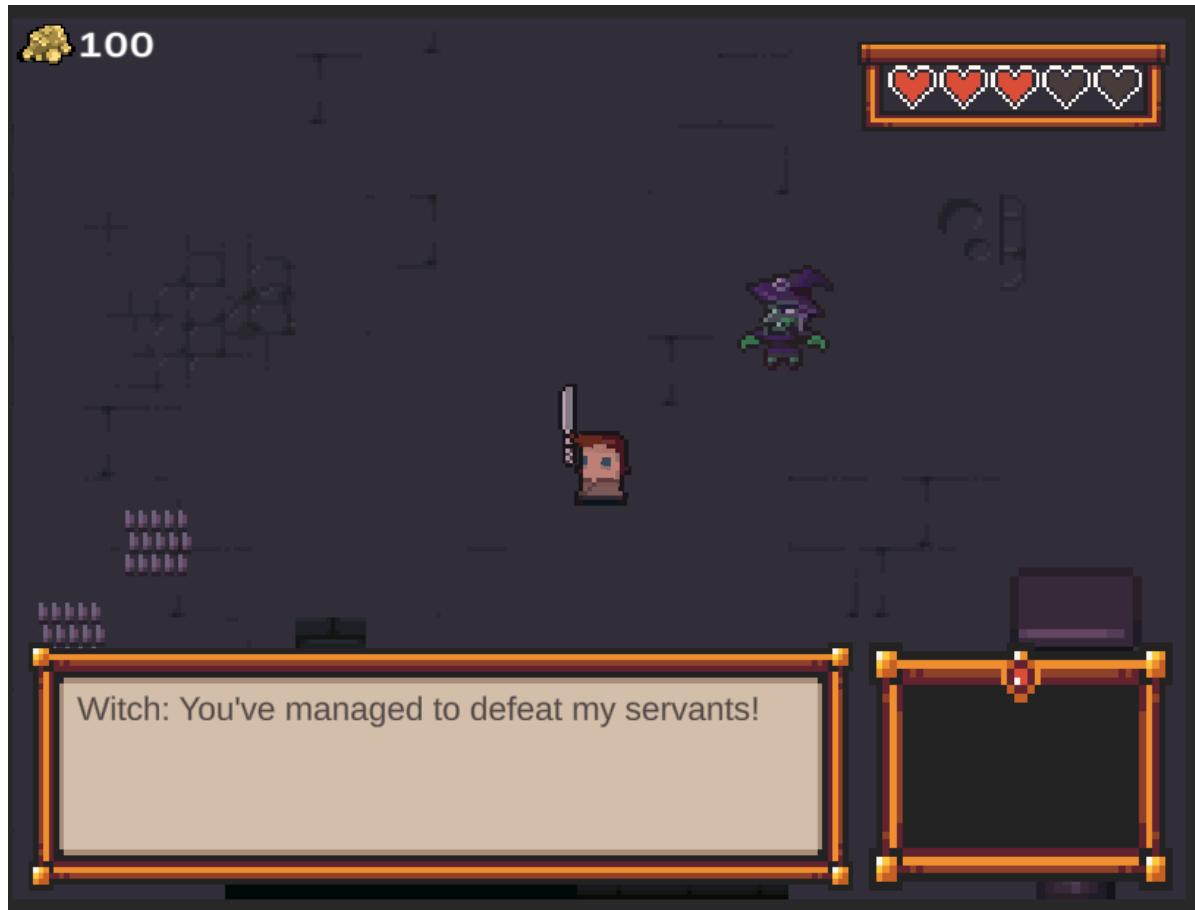
Create Witch dialogue when it spawns	Scope: Final boss level
Reference Ticket: TC-92-DUC	
Level: user goal	
Primary Actors: Witch (Final boss)	
Description: When the player has killed all the monsters on the final level, the witch's dialogue will be displaced on the screen.	
Dependencies: TC-54 Successfully kill all enemies	
Assumptions: The screen displays properly	

Preconditions:
The player has eliminated all enemies and the pre-boss.
Main Flow:
The player destroyed all monsters. The witch appears in the middle of the map. The witch starts a dialogue with the player. The player can press space to skip the dialogue.
Subflows:
None.
Alternative Flows:
The player does not see the witch appear after killing all the enemies. The witch appears and attacks directly and there is no dialogue.
Post Conditions:
A dialog box is displayed, and text slowly appears on the dialog box.
Frequency of occurrence: When fighting the final boss
Open Issues:
Is it possible to branch the conversation with the boss? Does the boss reveal a story that makes the player more powerful?

14.7 User Interface Design

Dialogue Added to the Witch

Reference Ticket: TC-92



15 Finishing Activities

During the closing days of the project between the end of sprint 5 16/12/2021 and the deadline 10/12/2021 we continued to complete our incomplete tickets from sprint 5. We increased the frequency of stand-ups to everyday to increase the communication as it was key when delegating final documentation roles and collating all the information in the required places. We also had a project long reflection on what went well and what didn't which will be explained in the next few sections.

15.1 What did we want to achieve?

The team set out to use a version of the scrum methodology to develop a quality piece of software and give us all strong foundations in what it is to be part of an agile process. This software being used in a dungeon-based game that should be visually interesting with a good use of premade artwork and design, and mentally stimulating with a fascinating storyline and exciting game features.

15.2 What went well?

The scrum process we followed brought lots of positives to the way we worked, with the meeting system giving us a strong structure which quickly became a habit that encouraged teamwork and cohesion. The stand-ups really aided our communication keeping everyone up to date with what they were up to and what they still had to do also keeping an element of accountability. This accountability was further easy to keep track with the use of Jira and its Scrum/Kanban board feature. We also felt the sprint reviews were very useful with the demos they consisted of constantly causing demand for new functionality to be produced each sprint by the dev team. It also aided the whole teams understanding of the product making it easier if team members were transitioning from work one area of the game to another that is not related for example player attack to map development. We also all felt retrospectives gave us a space where we could all be honest with each other and speak our minds on the way we are working with some useful action points coming out of it about how we could change our process.

With most team members being new to unity we felt the development work went well once we got started! The planning process showed to go well from a dev perspective, adequately splitting the project into achievable sized chunks each sprint, which can be shown by most development work being completed within each iteration.

15.3 What didn't work so well?

Most of our issues arose through poor communication and engagement from team members in the initial couple of weeks of the project. This improved as sprints went on and the scrum processes were introduced but always has room for improvement if we were to continue this project for longer.

Our planning meetings could also be improved with us constantly finishing sprints with uncompleted tasks. This could have been improved by implementing a story pointing system through using processes such as planning poker to size each ticket and quantify what we believe the effort is required for each ticket. This would have allowed us to achieve a value for our velocity each sprint and hopefully increase our task completion rate in each successive sprint.

As a reoccurring theme of the project we seemed to struggle to document the process at the time of the events completion with most of this work uncompleted by the end of each sprint leaving a large backlog to get through at the tail end of the project leading us to losing some specific details of some of the interactions and process we took.

We also identified that possibly the way we lead the customer meeting was not the most productive ways of getting feedback from the customer – leading us to mostly getting positive acknowledgements from what we had produced rather than any specific areas to work on.

Finally we believed we identified as a team the importance of testing quite late in the process with a full documented strategy only implemented by sprint 3. Although we had been completing user acceptance tests which we were confident on the results leaving us able to backfill the documentation. However we should have completed more research into unit testing so we could have confidence from a system perspective that it was doing as it was intended also.

15.4 Future Work

15.4.1 Process

From a process perspective we felt as a team there were a few actions that we would like to implement if the project was to go on for longer.

First, we would like to implement this idea of planning poker into our planning meetings as mentioned previously to help us work out our capacity each sprint and get all tasks completed.

Secondly, we would also like to change the role of scrum master every couple of sprints to first keep the meeting styles changing and keep engagement high but also to give the previous scrum master a break allowing the individual to focus fully on the tasks they have been assigned that sprint. This of course being implemented with an appropriate handover period in which the previous scrum master helps the new one out with process etc.

We also felt that we needed to improve the way we documented. From a dev perspective this included adding it in to an acceptance criterion of each dev ticket being that it is completed when the appropriate requirement and design use case have been created and the appropriate CRC cards have been made/updated. With meeting notes, we wanted to make sure someone who was not leading the meeting was taking notes each meeting and not relying on the recordings of each meeting to make notes from just in case there was any technical issues with it, but also better using the individual's time.

To be able to get more out of the customer we wanted to come to each meeting with a range of suggestions for further development rather than a single direction in which we think we should take. This would give the customer a more active role in the design process and lead to further conversations – ultimately leading to a final product that they are completely happy with. This would also test our ability as a team to be able to be agile and adapt more to what the customer is asking of us.

Finally we would want to research and implement unit testing into the code base and create a set of unit regression tests to run each time the code builds – giving us further confidence about the ability of the product. This would require a bit of upskilling from the team with the manual testers getting more involved with the code base itself but would be incredibly beneficial to be able to further guarantee its quality from a backend perspective.

15.4.2 Product

There are lots of ideas of what future work on the product entails. The initial thoughts are to increase the number of levels, with the dungeon one level being one of many with a level boss before you are eventually given access to the final boss level and fight the Witch. This would include expanding the games storyline, range of characters and tasks to be completed to keep the user engaged.

From a character perspective we were keen to implement ranged attacks with extra time using bow and arrow and magic attacks. We also wanted to implement a larger range of weapons and armour using a vending system with the gold collection system implemented in anticipation of this. There are also other aspects which are not visible in the UI which show that we were looking to expand with each weapon containing a level and XP constant showing there to be a level system implemented. This could either increase the players health/damage ratings or give them access to armour/weapons that could do this in the vending system.

15.5 Closing Team Comment

There is a real sense of achievement among the team, considering what our situation was 6 weeks ago. We have produced a polished game that is playable start to end. We all believe we have learnt a lot during this project including communication skills, resilience, Unity, and of course agile methodologies. It's one thing to learn about each methodology and how they work but actually doing them is a far different experience!

16 Appendix

16.1 Appendix 1: Jacks Initial Game Proposal

The Premise

Theme – Dungeon, Setting – Castle, Goal – Discover/exploration, Genre – Puzzle/RPG/Top-down 2D. The game will be a top down pixelated 2D action-adventure dungeon puzzle game, where the player will be going through a story set in a large fantasy based castle, split up in to levels with a linear progression (Includes level selection menus like the old super Mario games.). The goal of the main character is to find the owner of the castle who is able to “steal” the memories of people by wounding them. This is the enemy who stole the memories of a “family” member of his/her’s (Not set yet, could be sister, brother, mother, father, wife, etc.), and they are on a journey to restore the memories. Throughout the exploration through the castle, the character will solve puzzles and fight enemies to gain items that will help them reach the final boss.

Every 4 levels, there will be a boss which the player has to fight to obtain a key. All level designs for levels before the boss and for the boss level are the same, they change when going forward towards a different boss. After all 4 bosses (Demon knights) are defeated, the player can then fight the final boss to end the story with a cutscene.

Player motivation

The player will be taking on the journal of exploring the castle to find the unknown enemy that stole your “family” member’s memories. The main goals is to reach the main chamber of the castle which requires 4 keys of the demon knights who guards the castle and the main chamber. These demon knights acts as the 4 mini bosses of the game, whereas the final boss is the main antagonist of the story who stole the memory. To do this, the player will need to go through each level of the game, solve the different puzzles and defeating foes along the way. There will be different sections of the castle, which will look different, depending on which boss resides/guards there.

Common gameplay elements

- Move: the players are able to move left, right, up and down to travel through the castle.
- Swim: There will be sections of the castle that has water areas which will require the player to swim.
- Interact/pick up: The player is able to interact with some objects in the environment, as well as pick up some objects and loot.
- Basic attacks: the player is able to pick up weapons and use them to do basic light attack combos.
- Heavy attacks: the player is able to do heavy attacks.
- Dash: The player is able to dash to move faster or to dodge attacks.
- Magic: as the player progresses through the story, they will gain magical powers that will help them in combat as well as puzzle solving.

Unique gameplay elements

Death and sanity system: from the perspective of the story, the mysterious has a power that resets all living things that die to a state in their previous point in time. So anything that dies will return, including enemies. Bosses will only return after completion of the story though. This will flow perfectly to the reason why enemies typically respawn in games, including this one. This will also be the reason why the player will respawn at the most recent fast travel point. However, since the player is human compared to other inhabitants of the castle, the player will lose a bit of their “sanity” every time they die, which will directly lower their max HP/max number of hearts. The only way to restore this is to return to the place of death and retrieve their “lost sanity”.

Story

The story is shaped so that it takes real mythology as inspiration, as well as models some fantasy based powers and concept based on real life struggles, such as the 4 demon knights is taken from the 4 horseman of the apocalypse as inspiration, but also represents the main character fighting their own demons which appeared when their loved one loses their memory all of the sudden. This is so that they can help themselves first, before they are able to save the loved one. The main antagonist of the story, the main boss that can steal memories of the ones he wounds, is taken from personal experience, of the fact things in life happen, and they can wound you mentally like depression, anxiety etc. But also hurt the people around you. And this can taint your memories of yourself, where you used to think of yourself as a happy and cheerful person and people think of you in the same way...but after these changes to your mental state, these memories becomes much more negative as you lose confidence in yourself, think of yourself as ugly and unlovable. The main antagonist is the personification of this concept.

The story begins with a shot of the medieval/fantasy village the main character and their loved one lives in. The player will go on a short quest in to the forest to gather some wood and rabbits for food, but only to return to the village with the loved one and everyone in the village having lost all memory of you. The only clue left behind was the fact that everyone only has a few scratches on them, and then the main character finally know what happened and journeys to the mysterious castle in the distance.

The first time the player is the castle for exploration, they will not have much other than a tiny knife. This is to establish the first death as a tutorial to show the “death and sanity system”. And also makes the main character realise what is happening with the story.

Target platform

The game will mainly focus on PC. Mobile is secondary and only if we have time. The PC has always being the most powerful system for video games only in terms of hardware power (ignoring console exclusively) and with the amount of buttons on the keyboard and the freedom of the mouse, it is extremely flexible in terms of making a game work on this platform.

Mobile is also a good platform, since a game of this scale only requires simple movement and combat controls, so is suitable for modern touchscreen smart phones. Even games like *Genshin Impact* and *Life is Strange* can be ran on modern day phones, just due to how powerful the hardware is now.

Game Engine

RPGmaker or Unity.

- RPGmaker: Easier to use and fits the game genre and design, but harder for collaboration.
- Unity: Harder to use for people with little to no experience in Unity and/or C#.

[16.2 Appendix 2: Thomas' Initial Game Proposal](#)

Level-based challenge in a dungeon where each level gets harder and harder. Pros include being able to adapt the number of levels to time left before submission. Every 5 or 10 levels is a boss level, significantly more difficult than the previous. Can reuse assets in each level, changing in little bits incrementally. Inspired by Enter the Gungeon.

Turn-based strategy game based in a dungeon where you go through a story and fight enemies with cards that are randomly dealt to you from the player's stack. Inspired by Darkest Dungeon.

Appendix 3: Retrospective Miro Boards

Actual information found tabulated in the sprints themselves this is just evidence of Miro use





16.3 Appendix 4: The Final Game Story

16.3.1 Character Information

Character	Information and Description
Tony	The main character that the player would be controlling.
Edward	The father of Tony. He was the former leader of Hilkingham in the war.
Tawnia	A friend of Edward. She was not in Hilkingham when the war happened.
Witch	The final boss of the game. Extremely strong and hard to defeat.

16.3.2 Storyline

Please be aware that users are suggested to play the game to figure out the storyline themselves to enjoy the best experience of Fading Memories.

Phase 1

The story begins where Tony, the main character, was walking back home to the village of Hilkingham. He suddenly felt extremely dizzy and drowsy, and suddenly fell on the floor... After a few hours, Tony finally woke up. He could not recall anything about the village he was in. Whilst trying to figure out what happened, he noticed there was a letter on the floor. He picked it up and read it...

"To Tony, son of Edward. The memories of the villagers of Hilkingham, including yours, have been stolen by the dream eater witch. To retrieve them, you must head to the castle. It will not be an easy trip, however. I hope you can make it out in one piece. Good luck! ---Tawnia".

The name Tawnia was not familiar to him. He flipped the paper back and found a map of the village of Hilkingham, and the castle of Shingville.

And thus, his unlikely adventure began...

Tony was a bit confused about the situation, however he thought that following the letter and the map to head to the castle would be his only way to retrieve the memories of the villagers, so he decided to head to the castle of Shingville to check what happened. He stood up, took a big breath, and started to explore the village. He went through every road and corner of the village to search for items that could potentially make through the adventure. He also talked to the villagers and discovered that they do not recognise him. One villager gave him information on how to leave the village and head to the castle. Tony followed his information and went to the exit of village, where a mysterious cloaked man with a stick standing at the gate. Tony decided to ask him for some information regarding the castle.

Old man: Warrior, do you wish to venture into the castle?

Tony: Yes, I want to retrieve the villagers' memories about me. I received a letter that pointed me towards the castle. Do you happen to know anything about it?

Old man: In my early years, there was a myth that there was a witch inside that castle. No one dared to go inside. It seems that no one has lived in this castle for a long time. I just passed by and wanted to have a look. It really looks haunted and scary indeed. Anyway, it sounds like something very unfortunate happened to you. Are you sure you want to venture in there?

Tony: I have to, It's my only way forward.

Old man: Sometimes losing memory is not a bad thing. Starting from zero can also represent a new chance and hope. But if you insist on doing this, I can only wish you good luck, young man!

Tony: Thank you, take care old man.

He then left the village of Hilkingham. Tony walked through thorns and thistles in the dark forest. He equipped himself with steel armour for protection. He followed the map that led him to the gate of the castle of Shingbille. The castle looks haunted and creepy. It is so rusty that it seems like no one has been getting in and out of the castle for quite a while.

Still, Tony decided to get into the castle, wishing to retrieve the memories as soon as possible...

Phase 2

Tony entered the castle. The castle was dark and spooky. He tried to walk around the castle to find clues about the lost memories while some mobs appeared and attacked him. Tony was a bit shocked, but luckily, he had a sword so he could fight against the enemies. Many mobs chased him, and Tony fought hard. He eventually killed all the mobs and he felt tired. He found out that there was a huge greenish giant holding a wooden mace and started to attack him. Tony was terrified, but he noticed that the giant moved quite slow and he needed to use a lot of strength to swing the mace every time. Tony exploited his weakness and successfully defeated the giant. He was so exhausted that he sat down and rested for a while.

After exploring the floor and defeating the monsters within, Tony began to regain some of his memories. Notably, he remembered that his father, Edward, had participated in the battle of Chanersbury, where many of the villagers died.

Tony's head suddenly felt tremendously heavy, like it was about to split. An inexplicable pain brought him to his knees, as several monsters appeared in front of him. Despite the pain, he knew that he had to defeat them all in order to discover the truth behind his lost memories. He discovered the staircase to the second floor and went straight up.

Tony discovered that there are plenty of mobs on this floor. Through fighting, he can tell that the enemies on this floor seem to be more powerful and hard to beat. Tony spent a lot of time fighting with them, hoping to defeat them as soon as possible. After some time, Tony successfully defeated most of them, and the only one left is the monster with a big mouth. He was sure that the monster would want to eat him up, so he had to be very careful. He sneaked out behind the monster and hit him hard. After few rounds of battle, Tony accomplished to kill the monster. He was so happy and he was waiting for the memories to flow back into his brain. Whilst waiting, a scary and high-pitched sound came out from the middle of the floor...

Phase 3

Witch: Hi Hi Hii! Well done! You've managed to defeat my servants! Don't get cocky though you will never defeat me as long as you live!

A witch suddenly spawned out of nowhere. She looks terribly old and evil. She chased Tony and launched high damaged attacks. He thought he already killed the boss and did not expect that coming. Despite his tiredness, he still had to continue fighting. He spent hours and hours fighting with the witch...

Upon defeating the witch, all of Tony's lost memories flooded back into his mind. It turned out that Edward's friend, Tawnia, who was out of the country when the war occurred, wrote the letter that Tony found in the village. She hoped that he could find his lost memories and accept what happened in the past.

After leaving the castle, Tony decided to face his past. He decided to go back to the village, bury his mother and help the villagers recover from the nightmare they had gone through. He left the castle from the staircase and headed back to the village.