



PORTFOLIO FOR
GAME DESIGN AND DEVELOPMENT

BOWEN WANG

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IN DRAGESTERA

L.I.R.P.

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IN DRAGESTERA

Summary

The story of the ancient dragon has always been a topic of interest among explorers. There is a cave at the foot of the snow-capped mountains in the distance, and a terrible dragon lives in the cave, which is called the Dragestera. Kill the dragon and you can get inexhaustible treasure. Driven by money, an expedition team walked into the cave at the foot of the snow-capped mountains in the distance, preparing for an expedition. There are many monsters in the cave, winding like a maze. During the fierce battle, the expedition team gradually lost its direction when entering the cave, and could not find the exit of the cave.

You play as an adventure team, explore the cave, kill monsters, collect resources, improve your strength, find and kill the dragon, and escape the cave with your loot.



This is a board game with Roguelike elements. The map is different every time you play, so you have a different experience every time you play. The setup of the game is simple, since no map layout is required.

COMPONENT

- 1 Rulebook
- 12 Map tiles
- 8 Role Cards & Initial Weapons
- 8 Designed Standards
- 4 Player mats
- 2 Shop tiles
- 30 Shop Items
- 30 Treasure Items
- 8 Statue BUFF Items
- 36 Enemy Cards
- 24 Dragon Clues tile
- 6 Player Dice
- 1 Dragon Dice
- Several Tokens



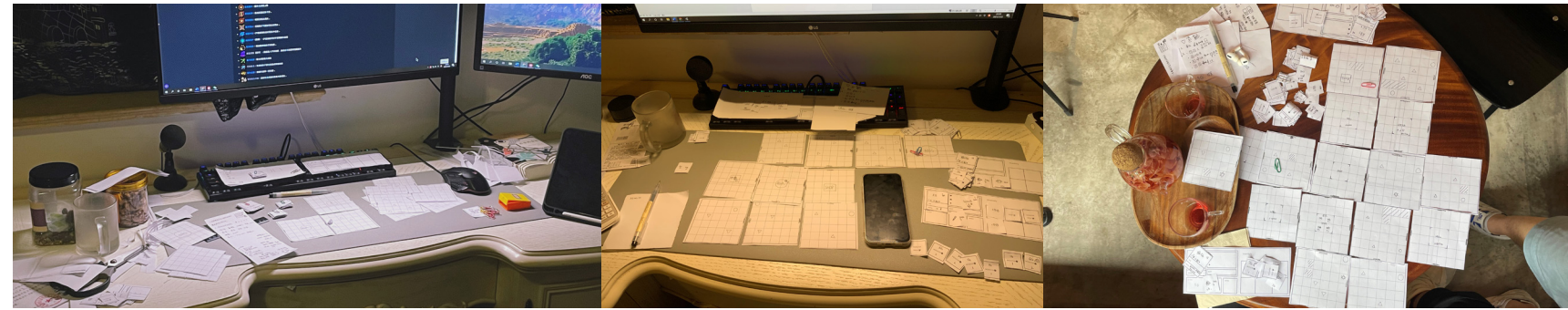
INSPIRATION

I got the initial inspiration from roguelike elements: roguelike games have randomly generated environments, turn-based operations, character enhancement and map exploration, which can effectively attract players to the game.

Roguelike in video games: dead cells, vitality knights.

When combining rogue elements with board games, we get a more free way of action: players can explore freely, and also get high replayability: because the next room to be explored is unknown, and the initial layout is more convenient.

ITERATE DESIGN



PROTOTYPING

Version 0.1

A preliminary paper-playing prototype was formulated, and the gameplay of the exploration map was determined: according to the roguelike element setting-the map is randomly generated, and the number of steps the player can take per round is limited. In this version, the battle system between characters and monsters is missing: the battle process is boring and there are fewer types of maps.

Version 0.2

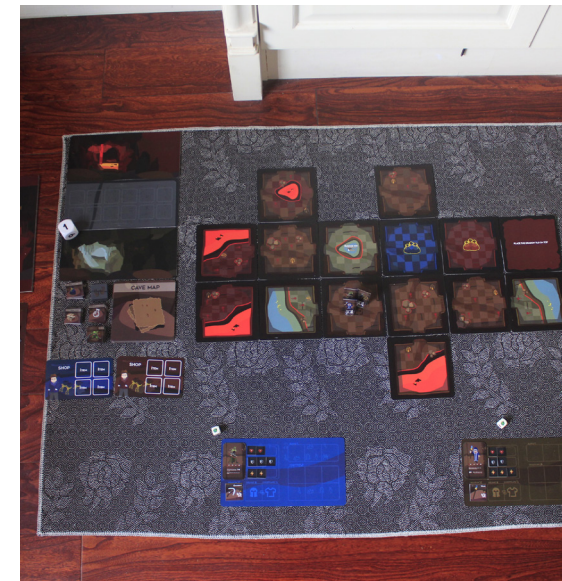
Increased the types of interactive rooms and adjusted the monster's attack AI. Added skills to characters.

Version 0.3

Adjusted the difficulty curve. As the number of rooms explored by the player increases, the difficulty of the monster will also increase.



Version 1.0
Draw image version

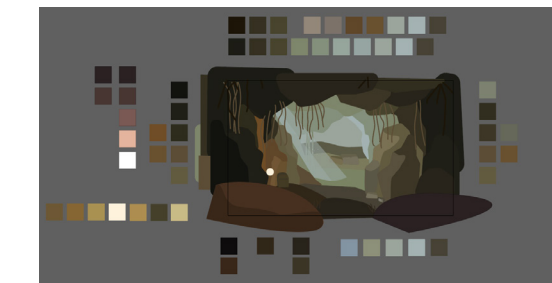


Version 1.1
Print

ART CONCEPT



Quiet mysterious cave, only slowly flowing lava inside, splashing a little lava, quiet and dangerous. Some clues to life with the dragon are left in the distance.



The silent mysterious cave, a beam of light shining in, seems to indicate that the expedition is about to find a way out, but the pale green level is quiet and scary, and some bones that have not been corroded by the water are sunken under the water, making people afraid to approach.



MAPS

The caves that can be explored are divided into monster caves and interactive caves.

Monster Cave
There may be monsters in a new room. Players can enter the room, fight monsters to obtain their drops, and open the treasure chest in the room.



INTERACTIVE CAVE VARIETIES

There are no monsters in some rooms, but interactive facilities. Interactive facilities here refer to shops, wishing springs, statues and other facilities. Players can consume 1 action point to interact with these facilities to produce different effects.



Trevi Fountain

There is a mysterious pond in the cave. somebody heard that if you throw gold coins down, magical things may happen!



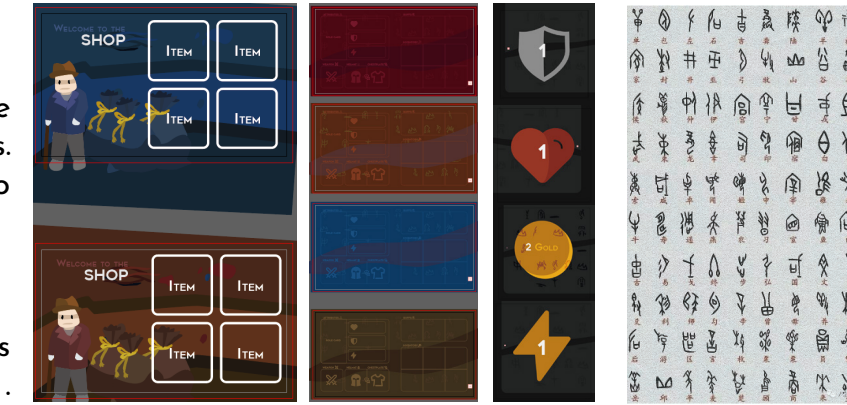
Statues

There is a mysterious statue in this cave. It vibrated slightly, as if expecting to resonate with the player. After touching the statue to resonate with it, the player will be blessed or cursed by the statue.



Shop

The mysterious merchant opened a shop in the cave. Spend gold coins to buy your favorite equipment and props in other places.



Other tiles, tokens



A symbol of luck. It may work when making a wish in the Trevi Fountain.



Represents the symbol of life. It may play a special role at certain times.



The skull exudes ominous signs.



A symbol representing the distance travelled.



A symbol representing a critical strike. May make the attack more powerful.



A symbol representing a decrease in quantity.

Oracle on the wall

Oracle is an ancient Chinese script, usually engraved on tortoise shells or animal bones to record events. Different oracle bone inscriptions have different meanings. I used different oracle bone inscriptions on the wall to record the story of warriors and dragons fighting in caves in ancient times to enhance the atmosphere of the game.



Dice, critical



CHARACTERS

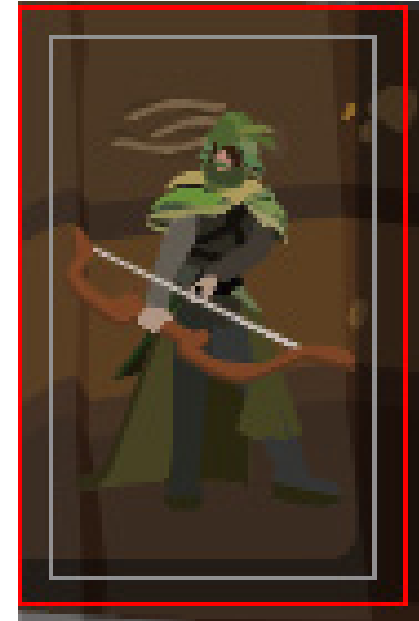
The members of the expedition entered the cave together with different thoughts.



Berserker
The strongest man in town, heard that he was a matador in the capital when he was young.

Blood Burst
Deducts 1 Health, and the attack in this turn will be 100% critical.

Robust Physique
When armor is broken, the next attack take this turn does not take damage.



Ranger
Actual job is a hunter, with a warm and hospitable personality, and often shares his prey on the mountain with the residents of the town.

Regenerative
Attack range is increased by 1 round. enemies cannot retaliate.

Attack probability does not deduct action.

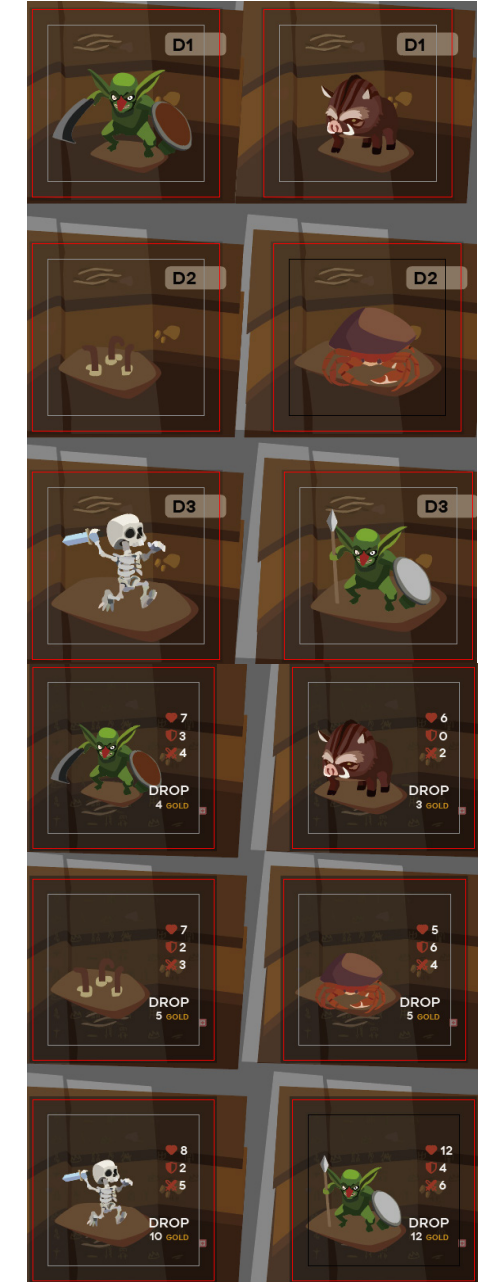


Mage
Wearing a big robe ... lives alone in Mage tower at the foot of the mountain, do not like to socialize, people put a great effort to convince him up for an adventure.

Spell Mastery
When holding a staff weapon, you deal 2x weapon damage

Area of Effect
Deals a 3x3 range attack and 3x weapon damage.

MONSTERS



Goblin
The aborigines of the caves, living in the caves for a long time make their appearance look ugly. Maybe their civilization will be able to get out of the cave in a few centuries.

Goblin Shaikh
The leader of the Goblin tribe, maybe because of his strong size, he stand out in the tribe.

Boar
The wild boar who strayed into the cave, looks very grumpy.

Lithode
Crustaceans living in caves, often disguised as rocks.

Nematode
Damp cave on the ground drilled several long nematodes ...

Skeleton
The adventurer who lost his way in the cave a long time ago, obsession attached to the bones became a skeleton without wisdom.

COMBAT

When the player moves to a distance where they can attack the monster, they can choose to attack the monster. The player will enter the battle with the monster, and compare the player's attack power with the monster's armor value.



- If the player's attack power < the monster's armor, the monster's remaining armor value = the original armor value - the player's attack power, and no damage will be taken.
- If the player's attack power = monster's armor, the monster's remaining armor value = 0, but no additional damage will be taken.
- If the player's attack power is greater than the monster's armor, the monster's remaining armor value will be reset to zero, and remaining damage from the attack power - the original armor value will be deducted.

After the player has attacked, it's the monster's turn to fight back. The monster will now use its AI to determine and try to attack.

Enemy AI

Instant fight back

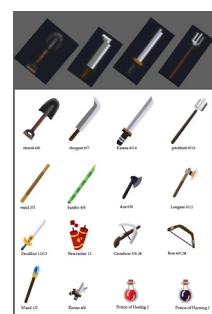
ATTACK If the monster is near the player, the monster will attack the player once. The calculation method is the same as above.

MOVE If the monster is not near the player, the monster will move to the player's side, but will not counterattack.


Turns over

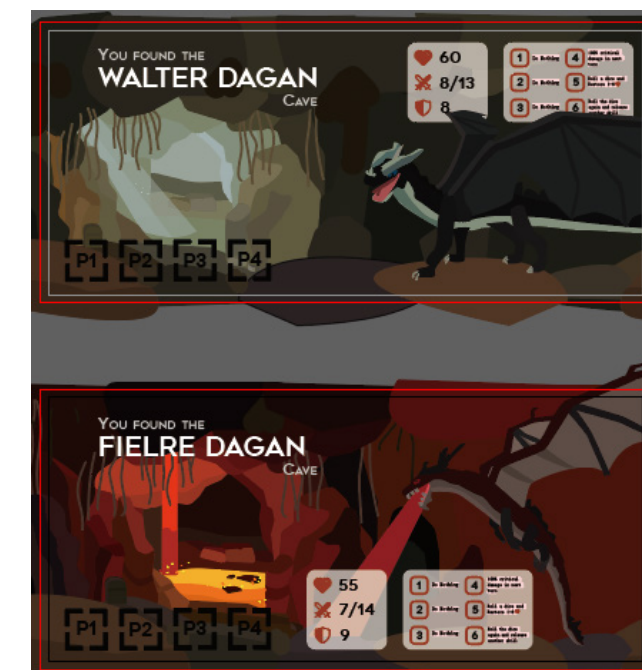
MOVE After a player's action is over, if he is still in a room with monsters and there is no obstacle in the line of sight between the monster and the player, the monsters in the room will move up to 6 blocks in the direction of the player. If there is an obstacle/occlusion between the line of sight, the monster will move 3 blocks in the direction of the player.

ATTACK If it moves to the player's side, the monster will attack the player, and the player can also make a counterattack.



Items, Weapons

Some weapons can produce critical strikes. When making a critical strike, you need to roll a dice. If the icon is , the player's attack will be calculated as the weapon's crit attack.



Dragon Tiles

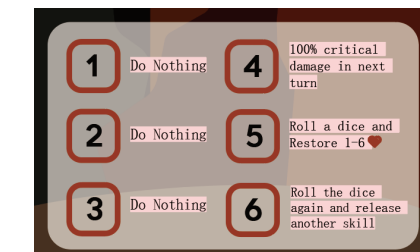


Clues tile



Clues

As the explorers opened the treasure chest, they also found more clues about the dragon...



In addition to each normal attack, the BOSS dragon will also roll a dice and release the skills according to the number rolled.



BOSS BATTLE

1 Every time you open a treasure chest in a room, you will get a dragon clue card. Place the dragon clue card on the clue board.

2 When the number of dragon clues reaches 12, count the number of blue and red clue cards. If there is more red, Fielre Dagan has been found. If there is more blue, Walter Dagan has been found. If there are the same, you can appoint a certain dragon to be found by yourself.

3 After turning over the dragon card, when exploring the next new room, place the BOSS room card in the passage. When a player enters the room, all players will be teleported into the BOSS room for the final battle.

GAMEPLAY EXAMPLE



1 Game Setup



2 Players tile Setup



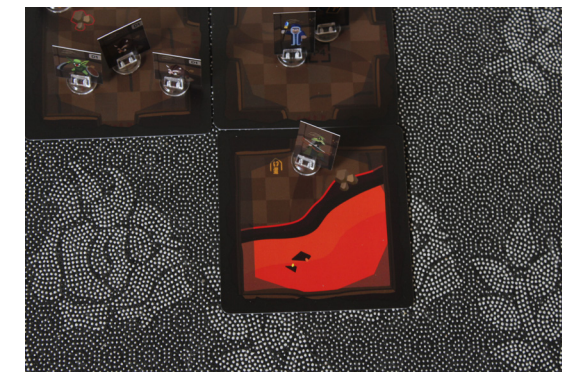
3 The first player moves to the cave junction and explores a new monster cave



4 Put out the monsters and treasure chests in the cave



5 The player chose not to enter, but explored and entered another room.



6 He killed the monsters in the room, opened the treasure chest, and put the items in the backpack



7 After a few rounds, the player explored a cave with the statue and prepared to pray.



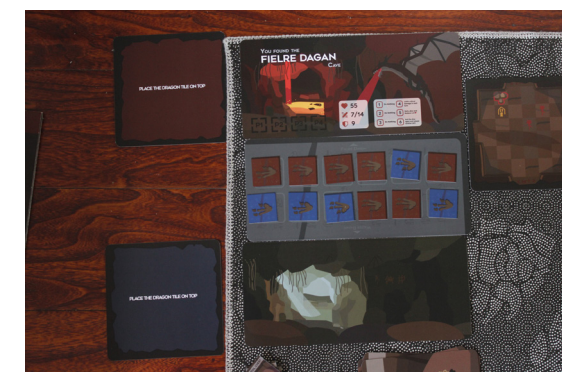
8 Another player explored a shop cave and opened the shop panel to trade with the merchant.



9 As the number of exploration rooms increases, so does the number of dragon clues found.



10 The game after a period of time



11 Opened 12 treasure chests, found 5 blue clues and 7 red clues, and finally found the cave of the Fielre Dagan.



12 A player enters the BOSS room, all players are teleported into the room together as triggered a BOSS battle



13 Fight the boss, Roll the dice

14 They killed the boss, game end.



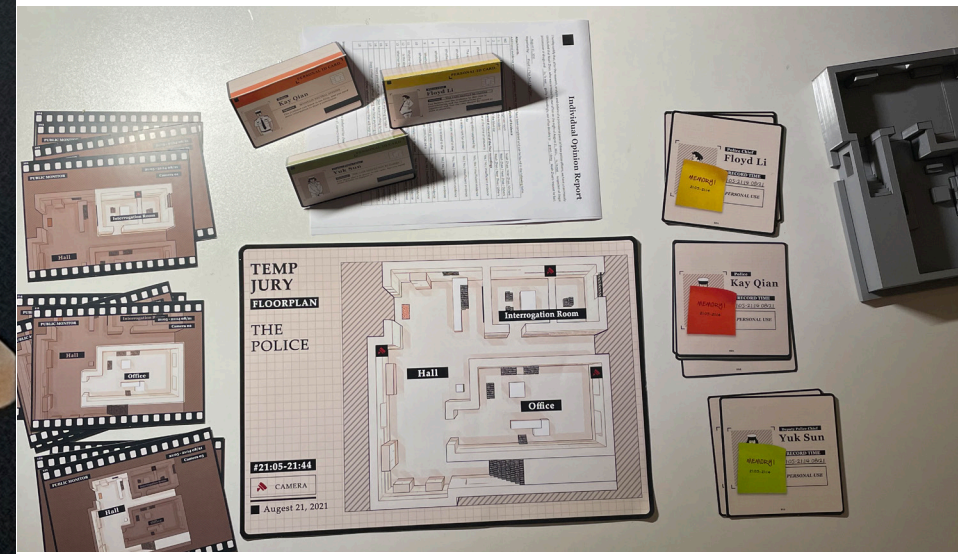
TEMPJURY

- DRUG IN POLICE STATION

A LIRP GAME

TJ is the first LIRP game I invented. the full name of LIRP is live improvising role-playing game, which is a new game category I changed based on LARP. I really love playing LARP because I can feel the experience of different characters in LARP games. However, I observed that LARP has disadvantages such as large amount of text to read, long silence, low player involvement and low experience, so I designed LIRP, in which any theme and script can be adapted into a script for a better game experience. The theme of TJ was chosen because it was inspired by the movie "Twelve Angry Men", a movie about the mechanics of the jury.

The mechanics of a jury is a group of people sitting around a room as an inquisitorial team, discussing the case. They are to convict a suspect or determine something in the course of executing justice. The discussion ends only when everyone agrees. Among these people there may be people who are indirectly related to the suspect or the incident.



WHAT IS LIVE IMPROVISING ROLE-PLAYING GAME (LIRP)

LIRP is a new game category I invented based on the improvement of LARP. one game style of LARP, murder mystery, is popular all over the world. And in China, LARP games are called scripted killings, the most popular way to meet offline for young people in cities today. LARP games have some significant flaws, LIRP improves on them and enhances the sense of play for players.



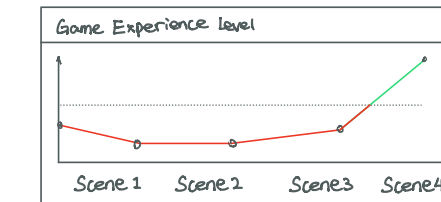
WHAT IS THE DIFFERENCE BETWEEN LARP AND LIRP

LARP

LARP is Live Action Role Playing, which generally has many scenarios throughout the game where players take on different roles. The disadvantage of LARP is the large amount of text to read, the long silence time, and the poor game experience for players with few scenes.

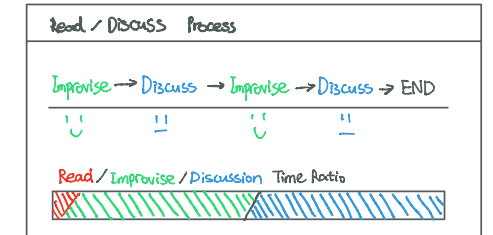


Text Reading	# average	4 Scenes
Scene 1	1691 Words	
Scene 2	1479 Words	
Scene 3	1793 words	
Scene 4	2087 Words	

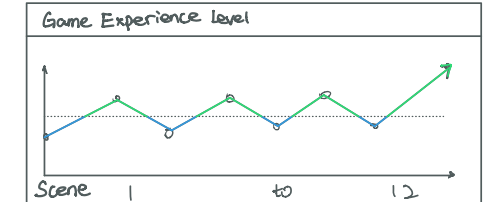


LIRP

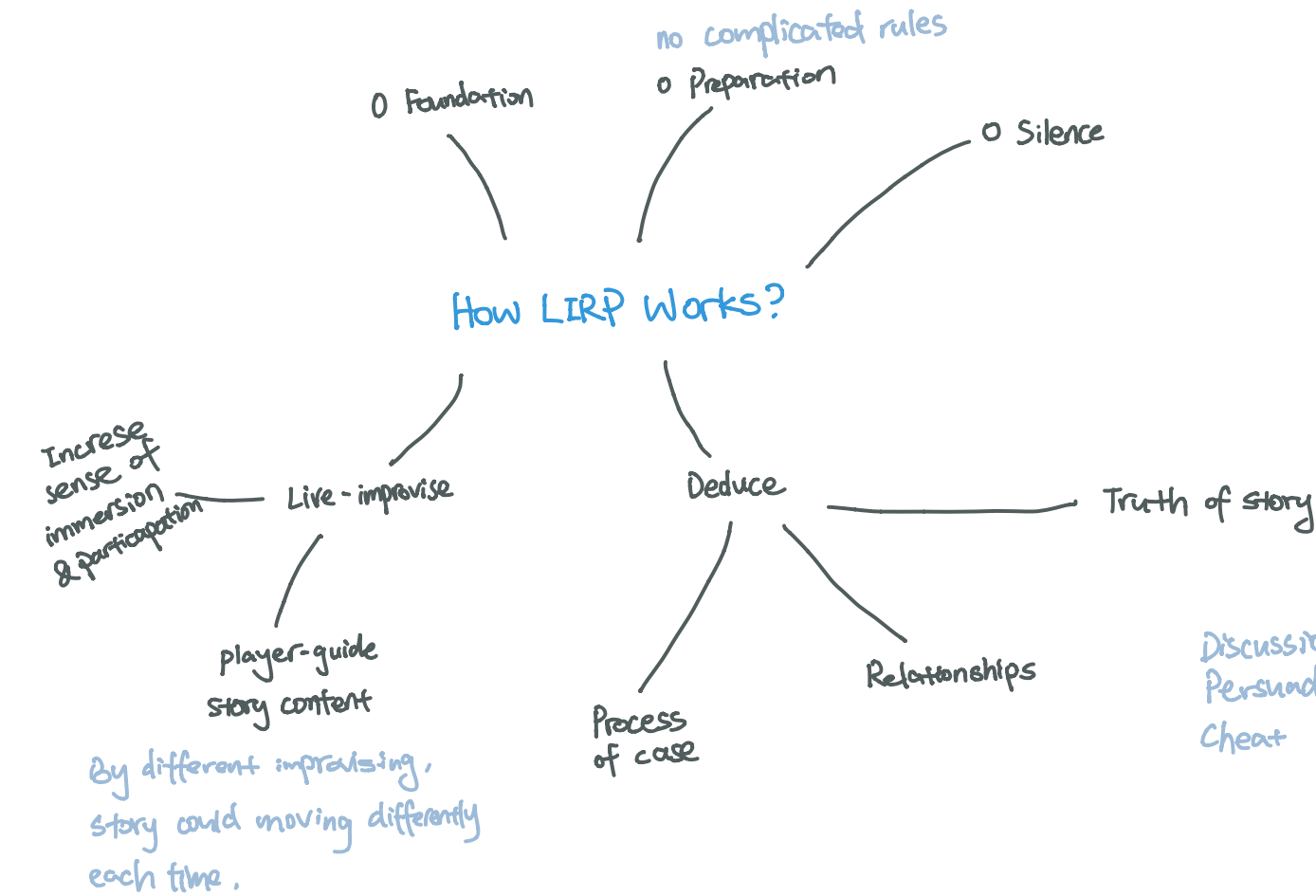
LIRP is a live improvised role-playing game that focuses more on improvisation than LARP. There are many scripts throughout the game. In each act of the game, players need to improvise and recreate scenes based on the content of the script. The performance scripts provide little and fragmented information, so the performers can guide others to interpret the content differently according to their own understanding. In this way, LIRP circumvents the flaws of a large number of LARP games. Players need to read less, and everyone performs and appreciates the content of others' performances for a better game experience.



Text Reading	# average	4 Scenes
Public Mentor	Words ~	
Personal Information	300 Words	
Personal Memory	200 Words x 4	



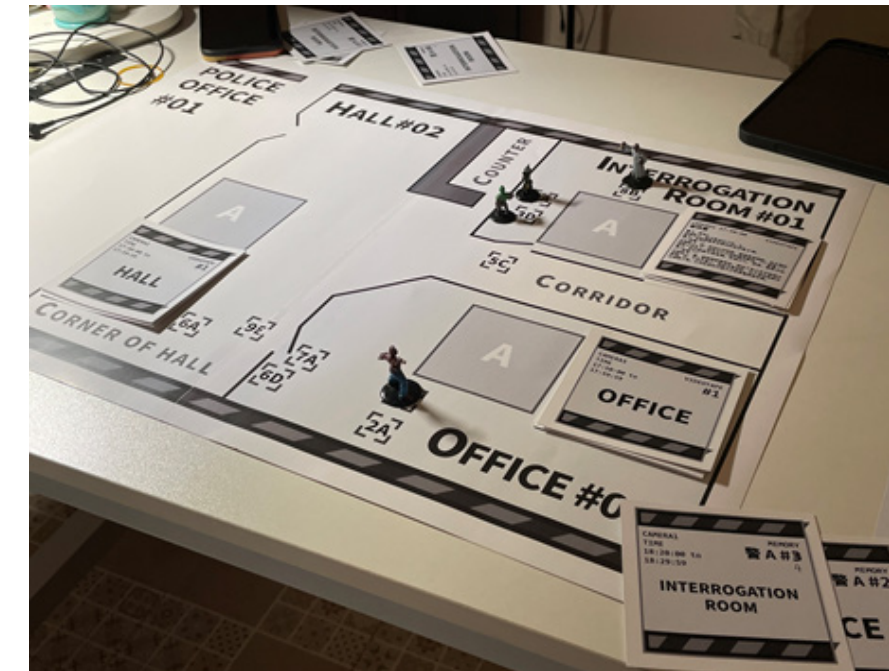
HOW IT WORKS



Design Process

Formal reference

Game "The Voice of Suspicion" - room security tapes showing the format of the script
 Movie "Twelve Angry Men" - the background of the jury plot

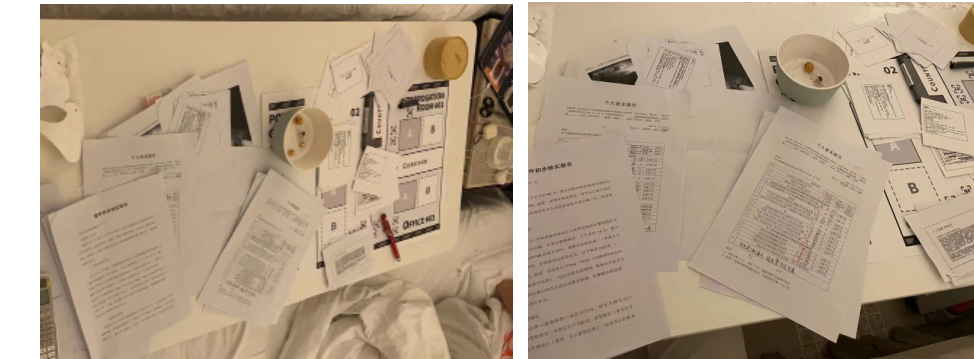


Prototype version 0.0 - Determine the performance play

Prototype Version 0.1 - Improved presentation for easy performance

Recording > Monitoring.
 Modify the script.
 Expose more hidden information of each person.
 Increase the connection between characters.
 Increase logic.

Add personal background information.
 Modify the way the game is played > the victim no longer exists among the players.

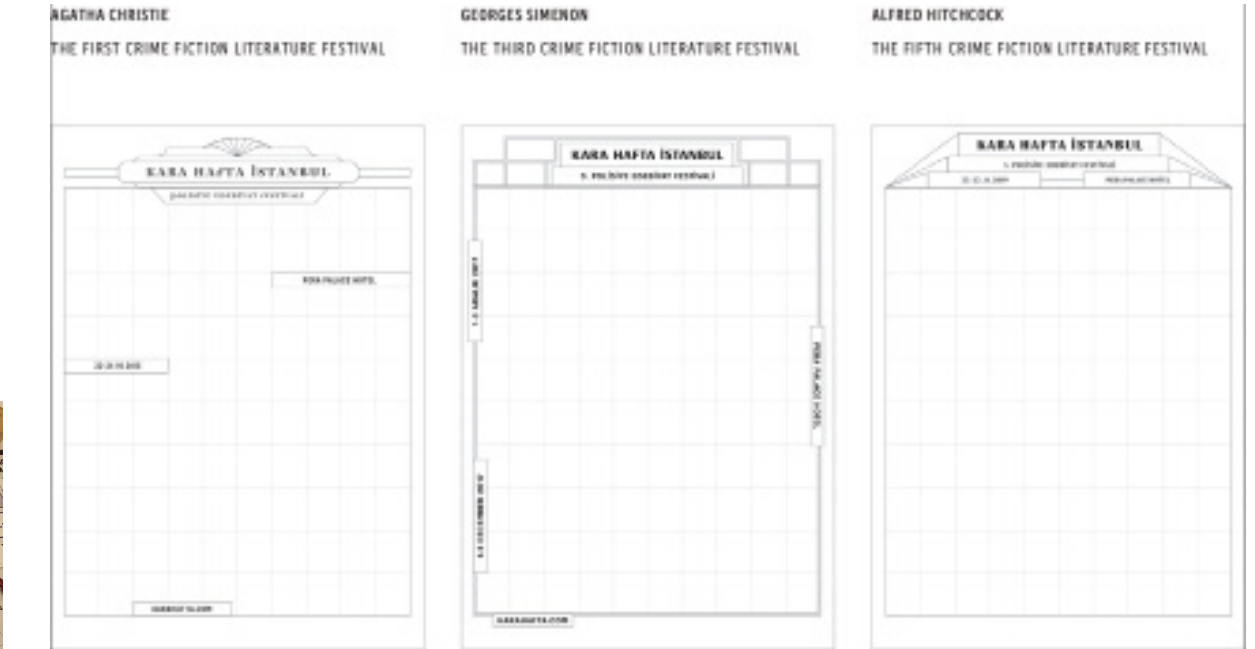


Prototype Version 0.2 - improved scoring

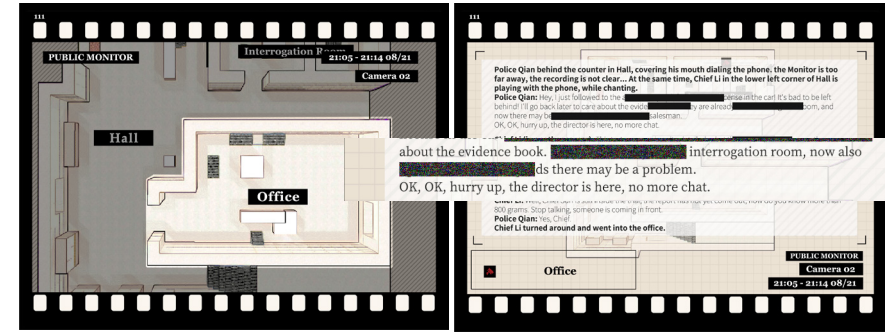
Added a scoring sheet.
 Changed each person's mini-task into a list, and the one with the most correct answers wins.



ART PROTOTYPE & STYLE

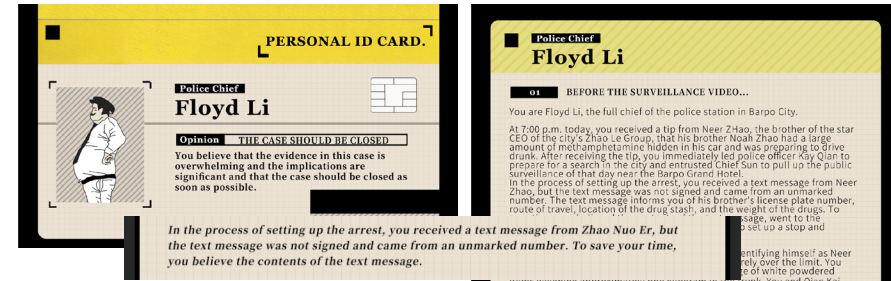


Links between Public surveillance, personal background, personal memory



Details corresponding to public surveillance, personal memories, background information and preliminary supplementary evidence book in the game script

It is only when the performance is over that the player is given a personal memory tile and knows what he or she did during the fuzzy parts of the performance.



In the process of setting up the arrest, you received a text message from Zhao Nuo Er, but the text message was not signed and came from an unmarked number. To save your time, you believe the contents of the text message.



In the background message, the player learns that he received and believed a text message from an unknown source at the scene of the arrest, and letting others know that the information could be detrimental to them.



On the phone screen: 54 minutes ago: Zhao Nuo appeared in a car at the intersection of Zhongshan Road and Tongtu Road a while later with 486 grams of drugs in the trunk. Li Bureau (whispered muttering): This text message is quite detailed, what time and minutes, where to appear, the weight of drugs are all said clearly. So clear, This Zhao Nuo Er know is detailed. But he is already in the office, why still send me a text message. Tell me directly can not.

Quantitative scoring: individual opinion reports

Rate how well players know the details of the background, process, and truth of the story.

Individual Opinion Report

I hereby certify that, after the research, analysis and debate of a provisional panel of three police officers, we have unanimously concluded that Noah Zhao, who was arrested by our office on the night of August 21, 2021, is/is not suspected of illegal possession of drugs and is/is not guilty. Accordingly, our office decides to grant/deny Noah Zhao's request for bail.

August 21, 2021
Reported by: Floyd Li /Yuk Sun /Kay Qian

Additional evidence analysis and opinions on the merits have been completed and can be found in the following table.

NO	Analysis of Evidence	Yes / No / Insufficient evidence
1	Identity of persons held in the interrogation room	Noah Zhao / Neer Zhao / Others
2	The identity of the person reporting the incident	Noah Zhao / Neer Zhao / Others
3	The registered identity of the owner of the blue car	Noah Zhao / Neer Zhao / Others
The above analysis must be answered at the end of the four recordings		
4	Whether the identity of the twin driver of the blue car at the time of seizure is in doubt	Yes / No / Insufficient evidence
5	The identity of the driver twins of the afternoon loading video captured by public surveillance is not in doubt	Yes / No / Insufficient evidence
6	Whether the identity of the twins who walked into the restaurant for dinner is in doubt	Yes / No / Insufficient evidence
7	Whether the identities of the other people eating together are related to the case	Yes / No / Insufficient evidence
8	Whether the driver's license of Neer Zhao found in the car is related to the case	Yes / No / Insufficient evidence
9	Whether the cell phone found by the grandmother is related to the case	Yes / No / Insufficient evidence
10	Whether the identity of the owner of the phone number 15991928194 is known	Yes / No / Insufficient evidence
11	Whether the owner of the phone number 15991928194 is related to the case	Yes / No / Insufficient evidence
12	Is the identity of the owner of the phone number 13928519281 known?	Yes / No / Insufficient evidence
13	Whether the owner of the phone number 13928519281 is related to the case	Yes / No / Insufficient evidence
The above analysis must be completed at the end of the twelve recordings		
14	Does Chief Li have anything to hide?	Yes / No / Insufficient evidence
15	Does Chief Sun have anything to hide?	Yes / No / Insufficient evidence
16	Does police officer Kay Qian have anything to hide?	Yes / No / Insufficient evidence
17	Does civilian police officer Zhang Yan have anything to hide?	Yes / No / Insufficient evidence
18	Other relevant evidence that will help the trial. (fill in the key words)	

Instructions.
1. correct analysis +5 marks, analysis -5 marks, no marks deducted for choosing the option of insufficient evidence
2. no points deducted for incorrect information in column 17, correct information content +5 points/word

Part 1: First four rounds: Make player to have initial understanding of what happens

Part 2: Prompt the player to further analyze the story content in depth

Part 3: Motivate players to find more free details that may exist behind the story.

Game Flow

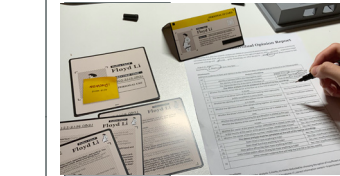
0 Choose your identity, do short introduce



1 check room monitor, perform



2 Discuss & Fill out your Initial Judgment about case



3 See your backstory & thing you done



4 Continue to watch & remain monitor from now on you will recover your memory (4 time stage)

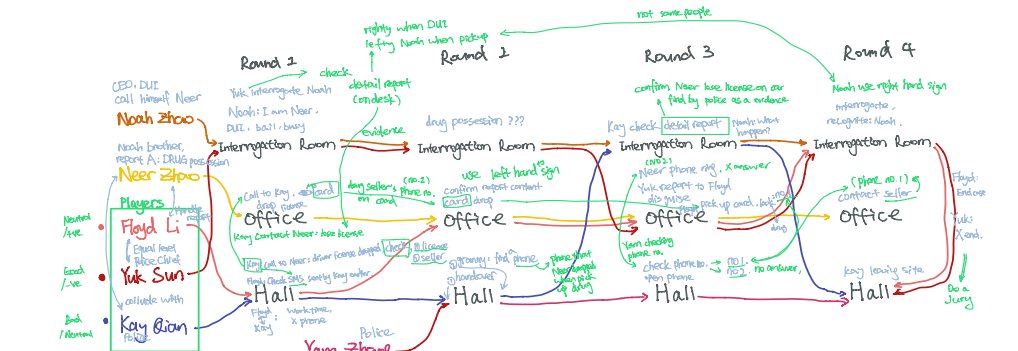


Form Now on, most players start deceit, misguide to find/hide things.

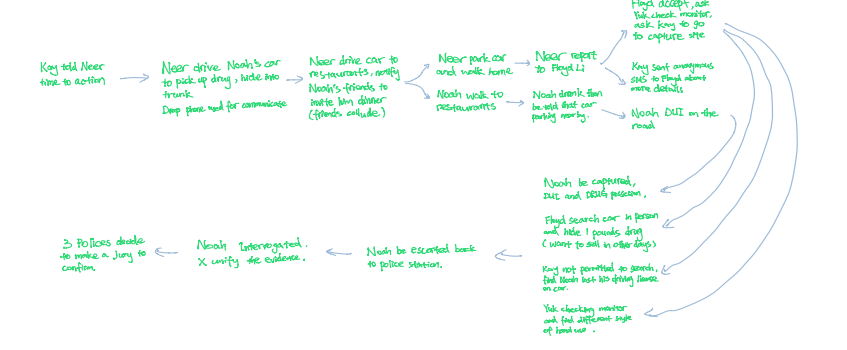
5 After 8 rounds, game end, no more check monitor
Fill out form and settlement.

About "Drugs in the Police Station" game script

CHARACTER & PLOT RELATIONSHIP MAP



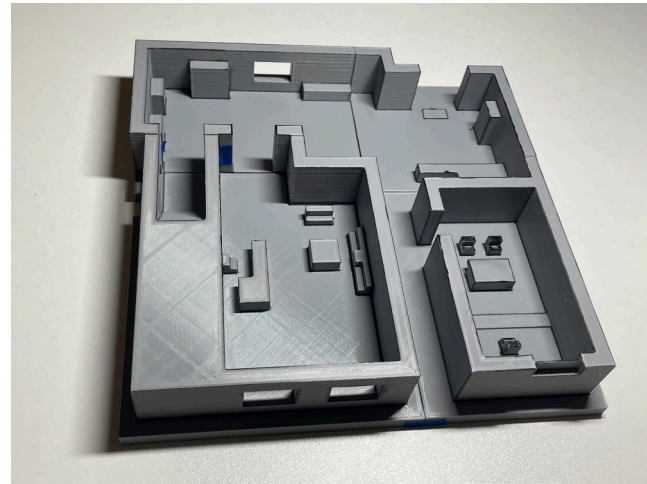
Timeline



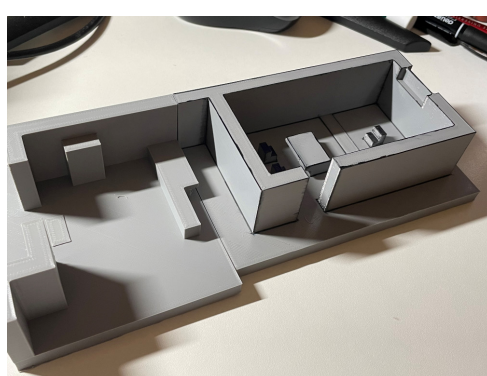
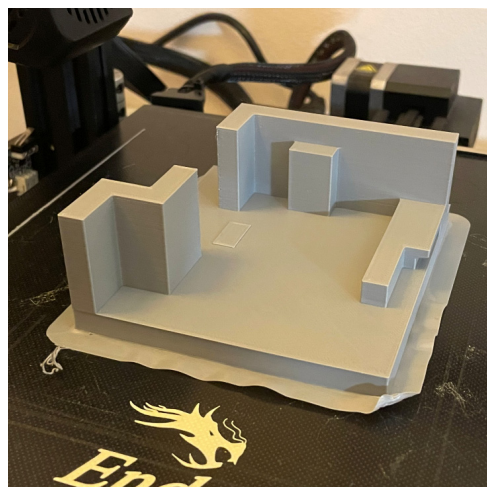
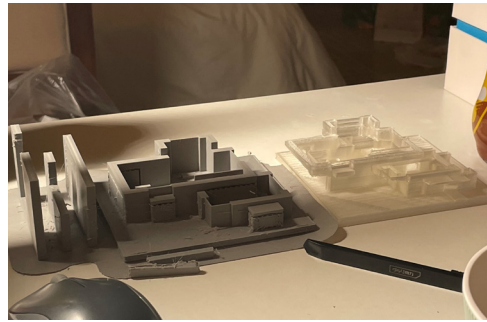
Optional accessories 1: Scene Model

By having a scenario model, players can have a more realistic experience in the discussion of the temporary trial group. More helpful details are also present in the model.

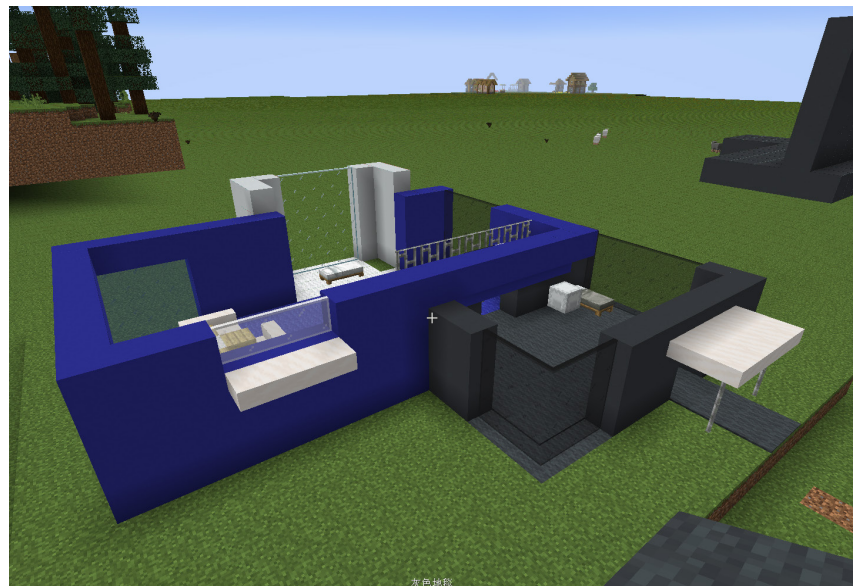
Model making process:



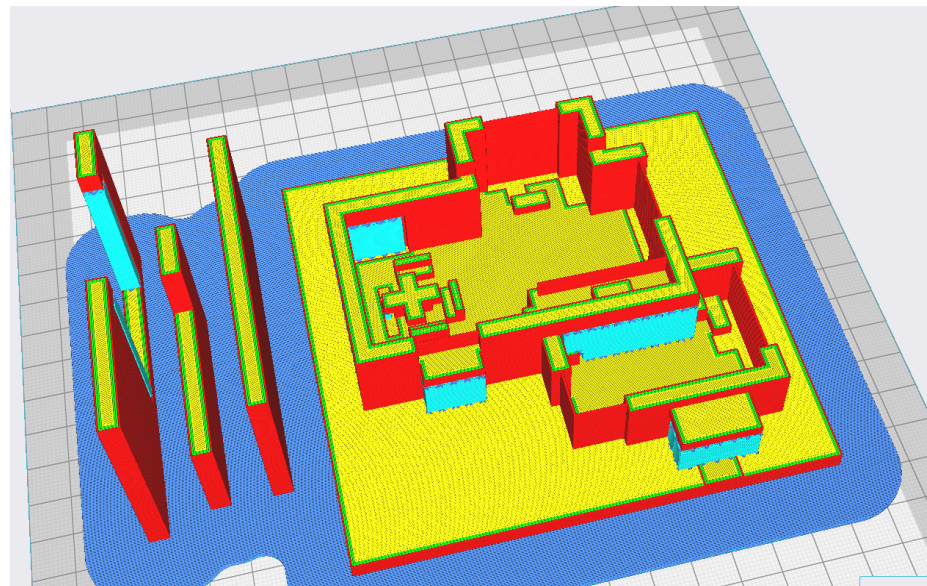
3 3D printing & processing



1 Initially build the scene in Minecraft



2 Convert and rebuild models into 3d printing models



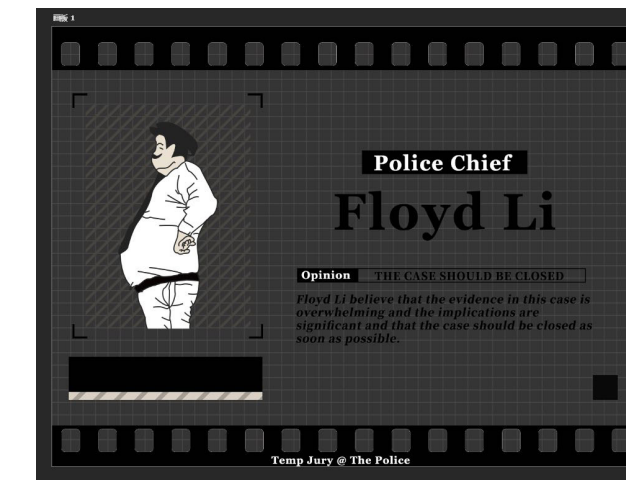
Optional accessories 2: Additional description of case



The contents of this document will help to deduce more details, but not using this document will not affect the flow of the game, which is useful for players who know less about the deduction. The Preliminary Case Verification Report is a document that appears in the plot and can add more details to the case process.

Optional accessories 3:
Acrylic ID badge

The Acrylic ID badge make players feel more immersive about their identity.



Player Rating & Reviews



Allen Wu
Script-killing veterans

it's a completely different experience, happier and more experiential!



Bang Zhen
New players without any experience in LARP games

I have hardly ever played LARP type games before because they usually have a lot of reading text and most of the entire game flow is in silence or spoken by a few people. As far as I'm concerned, I think this kind of content is very difficult for me to really get hooked on.

And after playing Interim Inquisition today, I have to admit that Bowen has really done a great job of revamping LARP to make it more interesting. This new way of playing the game, LIRP, has got me somewhat hooked! By having big showtimes, I think everyone got in on the action, and those shows had me cracking up! At the same time, the misdirection and deception that everyone performed through improvisation made me feel engrossed. It was so much fun!

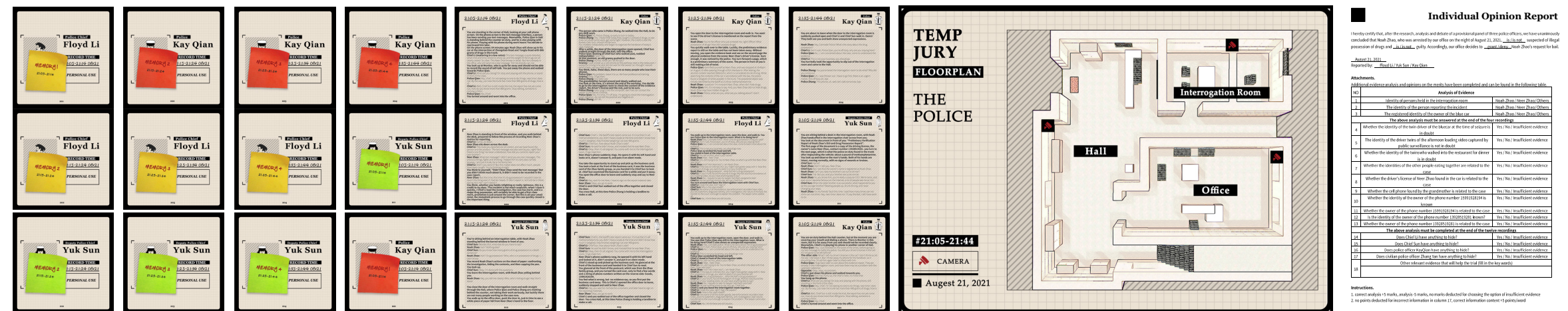
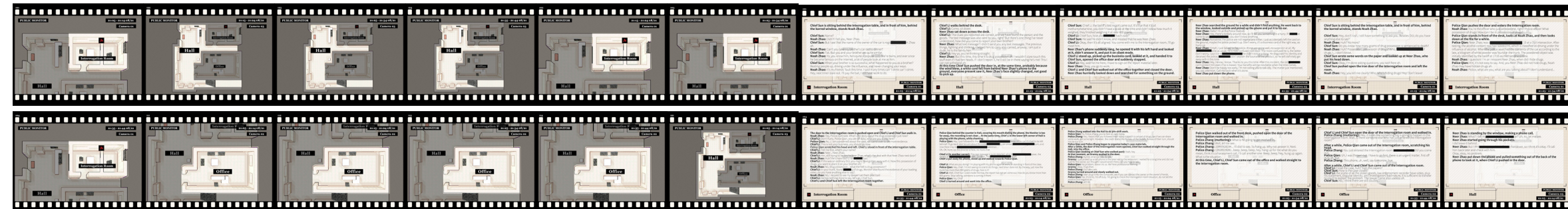


Shenfan Chen
Script-killing veteran

I really like this new way of playing and am looking forward to more in the series.



All Basic Components



Individual Opinion Report

I hereby certify that, after the research, analysis and delivery of a report prepared by three police officers, we have unanimously concluded that this case can be considered as a regular investigation. It is not a special case, and the investigation should proceed in a normal manner. I hereby certify that this report is true and correct, and I am not aware of any other information that may affect the investigation.

Reported by: Floyd Li, Kay Qian, Yuk Sun

Attachments:

No.	Analysis of Evidence	Yes/No/Insufficient Evidence
1	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
2	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
3	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
4	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
5	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
6	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
7	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
8	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
9	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
10	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
11	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
12	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
13	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
14	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
15	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
16	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
17	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
18	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
19	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence
20	Whether the information provided in the surveillance video is accurate.	Yes/No/Insufficient Evidence

Notes:

1. Cases marked with 1-5 marks, analysis 5 marks, no marks deducted for choosing the option of insufficient evidence.
2. No points deducted for incorrect information in column 1, correct information correct + 1 point each.

PLANT TOWER

PLANTOWER

In 2030, due to the extreme weather on the ground, people have to build high towers and leave the ground. A child wandering on the ground inadvertently finds a green potted plant and gains access to purify the land eroded by the harsh climate. The child entered the tower with the potted plant and their adventure began.

TAP TO START

This is a video game that I created using unity3D, you can find the showcase and download the game demo at www.bowen.wang/plantower.

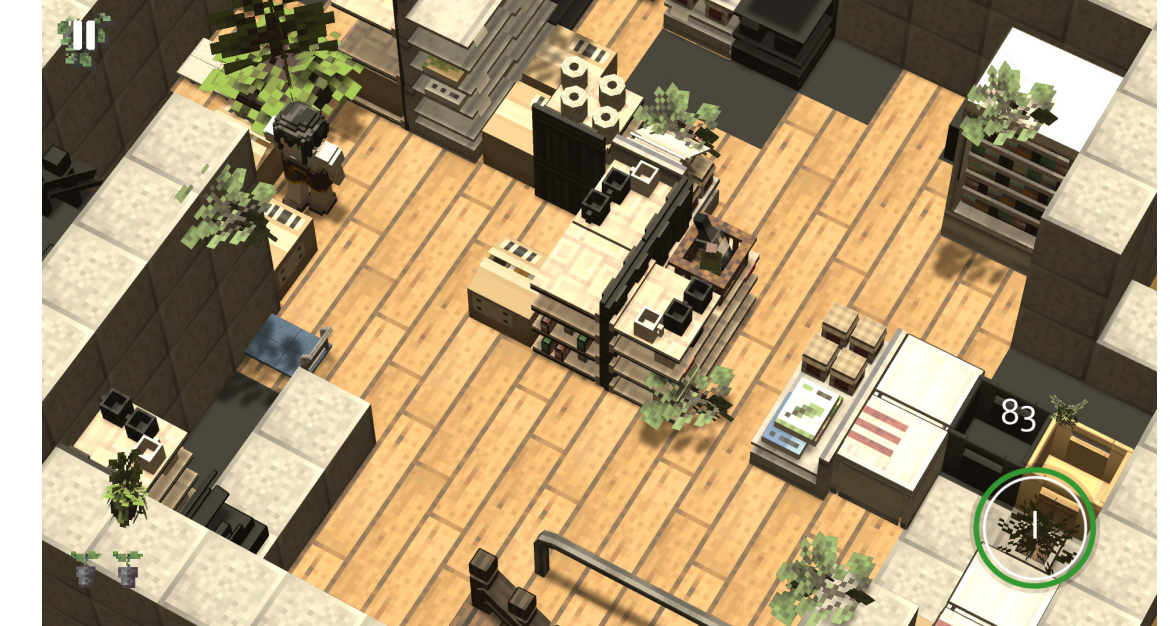
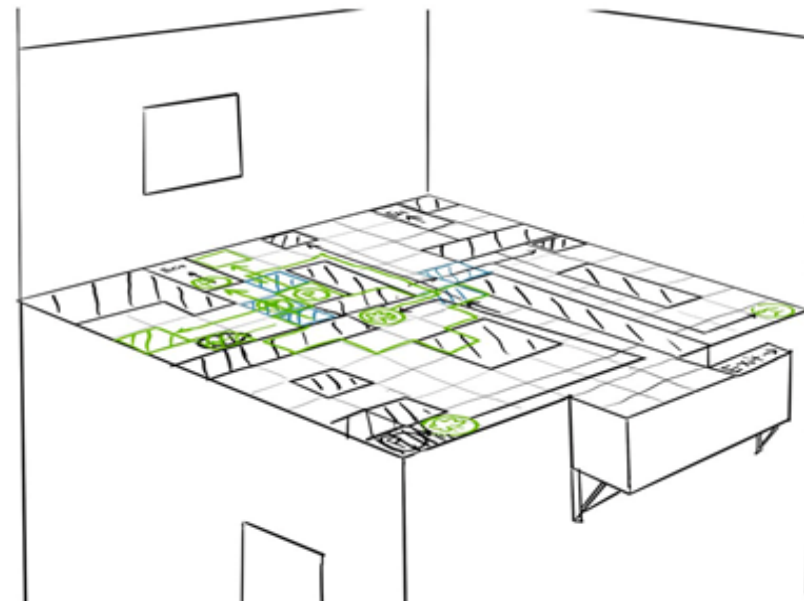
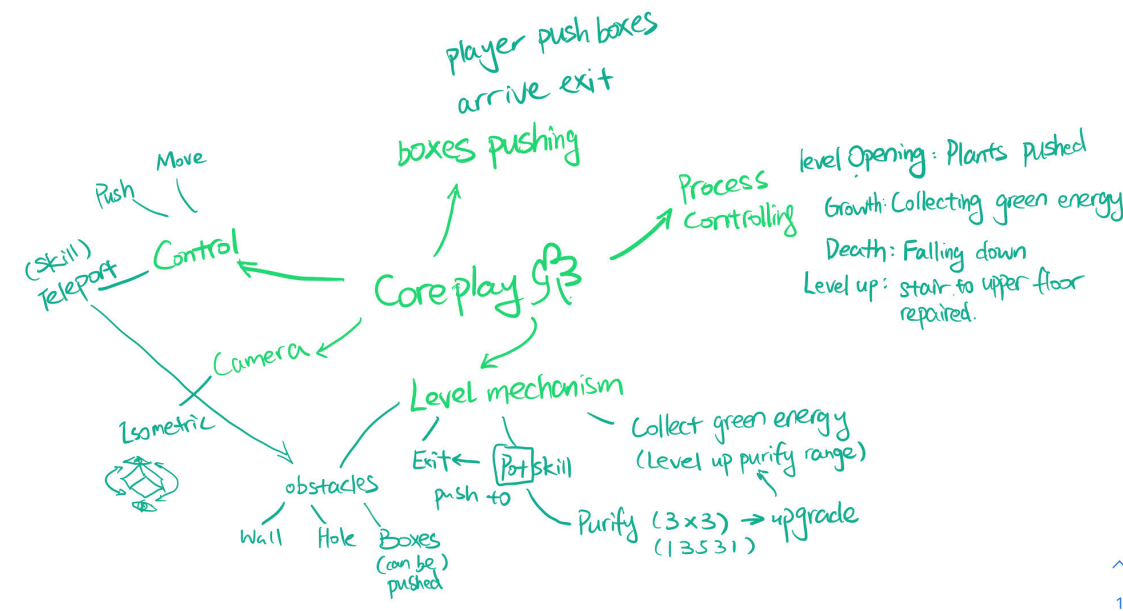
Inspiration & Ideas for the theme

The birth of the game is related to a Gamejam last year. In the summer of 2021, I joined a jam called "Game for Good" with the theme "Extreme Climate" as an artist and animator, and this was my first real exposure to the game industry and Gamejam. After that, I got hooked on game design and started to keep moving on.

In that gamejam our team came up with the theme of building a tall tower to defend against bad weather, but in the end we didn't adopt that idea. I was very sorry about that, so I continued to develop the "tower" theme after the game. I refining the worldview of the idea, learning and using unity 3D to build this game with the core mechanic of pushing boxes.



Game we made in Gamejam "Game for good" at August 2020.



GAME STORY

In the game, a child inadvertently finds a potted plant in the ruins on the ground that has the ability to purify the surrounding area from climate erosion. The child takes the potted plant into a tower built by the rich to escape the harsh climate on the ground and follows the potted plant's guidance to the top of the tower.

After going through many obstacles, the child with the potted plant finally reached the top of the tower, but they found that all those humans here had disappeared. After the whole tower was purified, the child finally understood that the source of the bad climate was because people had built too many buildings without considering environmental pollution, and the pollution generated by the construction of the tower eventually came back to their own bodies.

GAMEPLAY AND MECHANICS

I set the main gameplay of PLANTOWER to push the box, but different from the traditional box pushing gameplay, players need to push the obstacles on the road so that the potted plant can pass, and then players need to push the potted plant to the finish point.

In the game I have set up a core mechanic for teleportation. Players can always teleport through the area around the potted plant shuttle, to bypass obstacles to complete some of the original impossible to complete the action.

The obstacles in the scene are "obstacles that can't be pushed", "obstacles that can be pushed" and "holes", players need to bypass the obstacles that can't be pushed, remove the obstacles that can be pushed, and repair the holes with the plant energy collected by the potted plants in the scene.

Players need to fix the stairs upstairs and purify as many scenes as possible to get a higher score.



Control

In the game, you can use WASD to move the character, drag the mouse to rotate the perspective, press space to use the teleportation skill, collect more green energy to expand the purification range of the plant, and consume the green ability to fill the holes in the ground.

PROTOTYPE TEST - TESTING PLAYABILITY

Playtest 01

energy bar
Score: 32
P: Push/Pull
+3x3
Increase energy

Limit energy (Make into gray part cost energy)
Need to complete every step boring

Playtest 02

32 Steps
Scores: 43
Player

① Too easy
② Boring

Playtest 03

Light Area ++
Scores: 32
L1: [Symbol]
L2: [Symbol]
L3: [Symbol]
[Symbol]: Pull/Push
Player push/pull
Balcony
Exit

Add [Symbol] box: pull/push
Teleport in shadows
Add multiple exit
Improve:
Add Limit?
Light Area?

Playtest 04

Scores: 32
Player

Remove "Push"
Remove multiple exit
Add skill "Fix holes" by costing green energy

ART STYLE OF SCENES AND MODELS (CUBIC PIXEL STYLE)



Screenshot of the game "cloud garden", my initial art references for voxel art

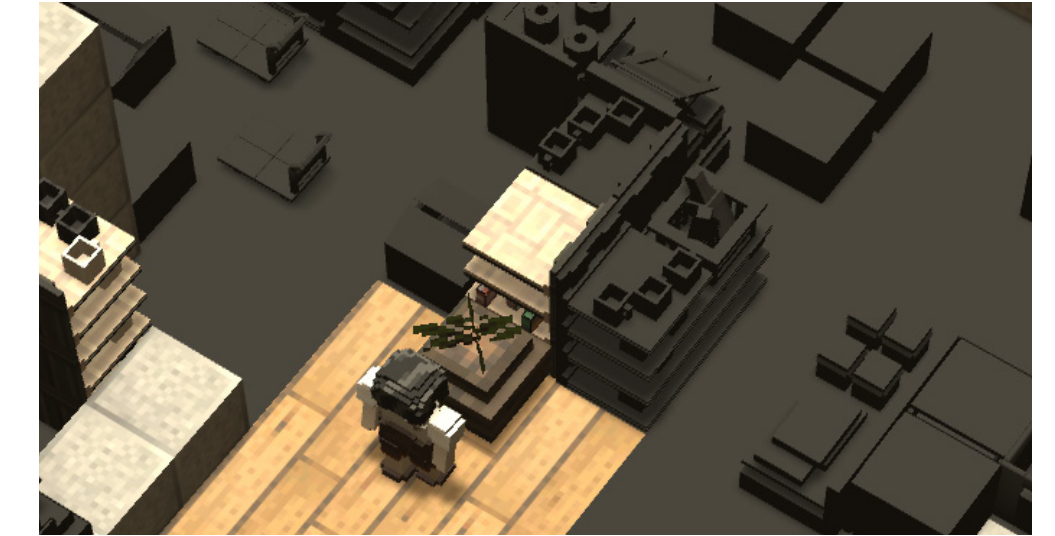


My Plantower scene screenshot



The Child

The child in the game is the main character that drives the potted plant upwards continuously. He comes from the ruins of the ground and grew up wandering, so he has not experienced the life of the rich, but has really felt the effects of pollution. Therefore, in his eyes, all the unpurified objects in the scene are covered with a layer of gray that symbolizes pollution.



Player is pushing pot plant to purify environment

Purify

Before being purified, the grid of the scene are covered with a layer of "dust", when there are plants or potted plants Passing through nearby, these grids will be purified.

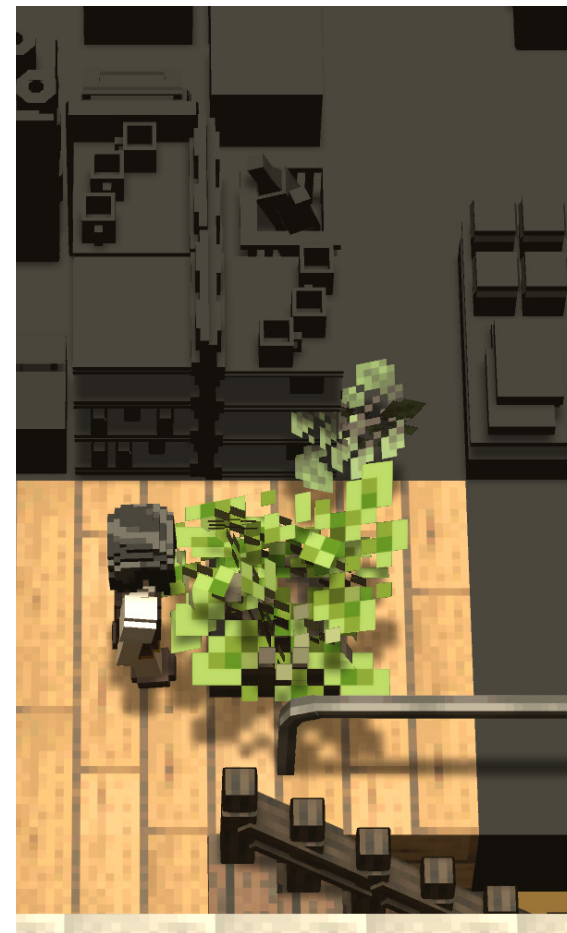
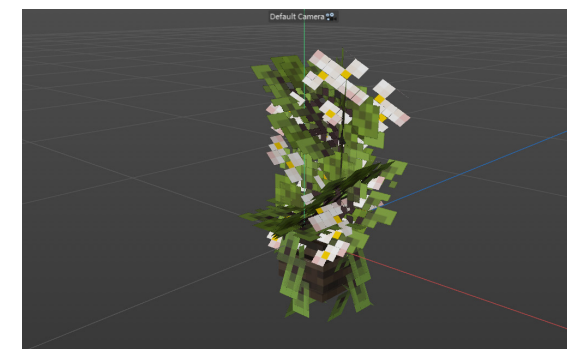
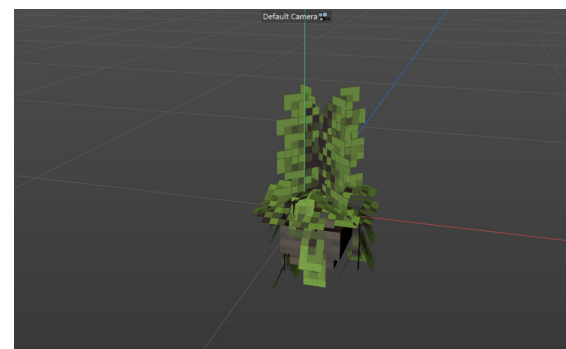
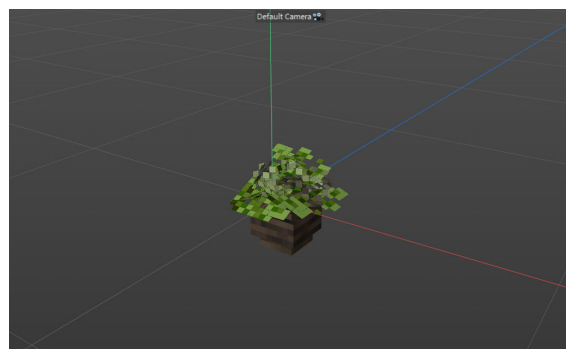
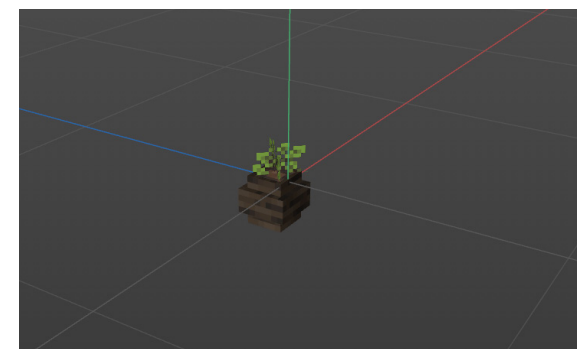
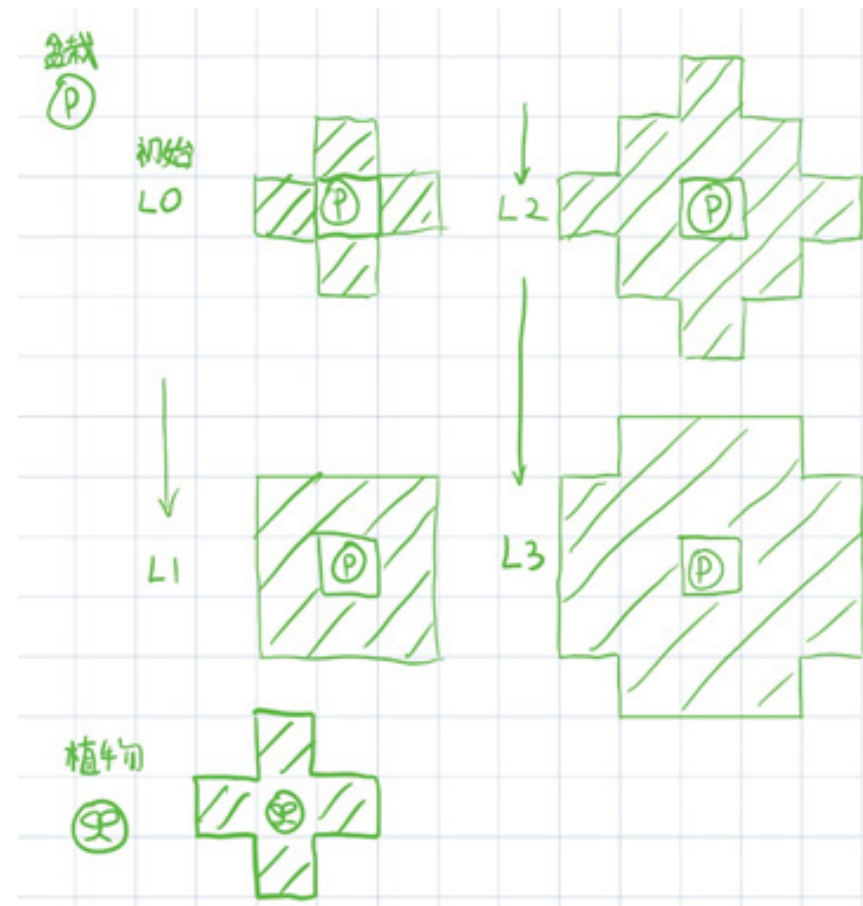
Game ART of PLANTOWER

I focused my art style on a similar three-dimensional pixel style (voxel models), similar to what is shown in Minecraft. Using this low-poly model and a 16 pixel per block layout allowed me to create scenes without being too good at art.

In establishing the art style, I drew to some extent on the game Cloud Garden. This game has a very sophisticated low-poly pixel style and plant shapes.

The Potted Plant: Collect green energy to restore power

The game's potted plants are one of the objects I want to focus on describing. The potted plant has a great ability: the child can teleport at will within the range of his purification. By collecting green plant energy from the scene, the potted plant's purification range can be further enhanced. The potted plant can repair the path by consuming energy to find a way to continue upward.

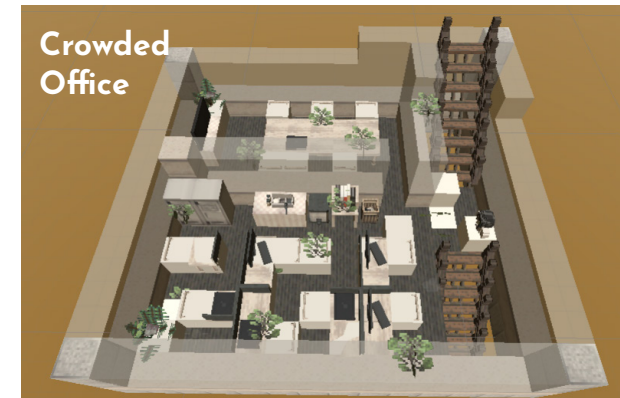


SCENES

The whole game has four scenes: the supermarket on the ground level, the office on the second level, the library on the third level, and the roof on the fourth level. Different levels represent different scenes and also symbolize various sources of pollution in life. When playing in these scenes, players can get a more vivid experience.



Dusty convenience store





TELEPORT SKILL

Teleportation skill of the player is one of the most central mechanics of the game. When the player presses the spacebar in the purification area, he will enter teleportation mode.

When the player selects a location with a hole in the teleportation interface, the pre-selected box will put out a projection of the hole being patched up. At this point, selecting this location will consume a little green energy to patch the hole.

This skill symbolizes the power of nature and the fact that plants can purify artificial pollution by consuming their own energy.



Design Draft

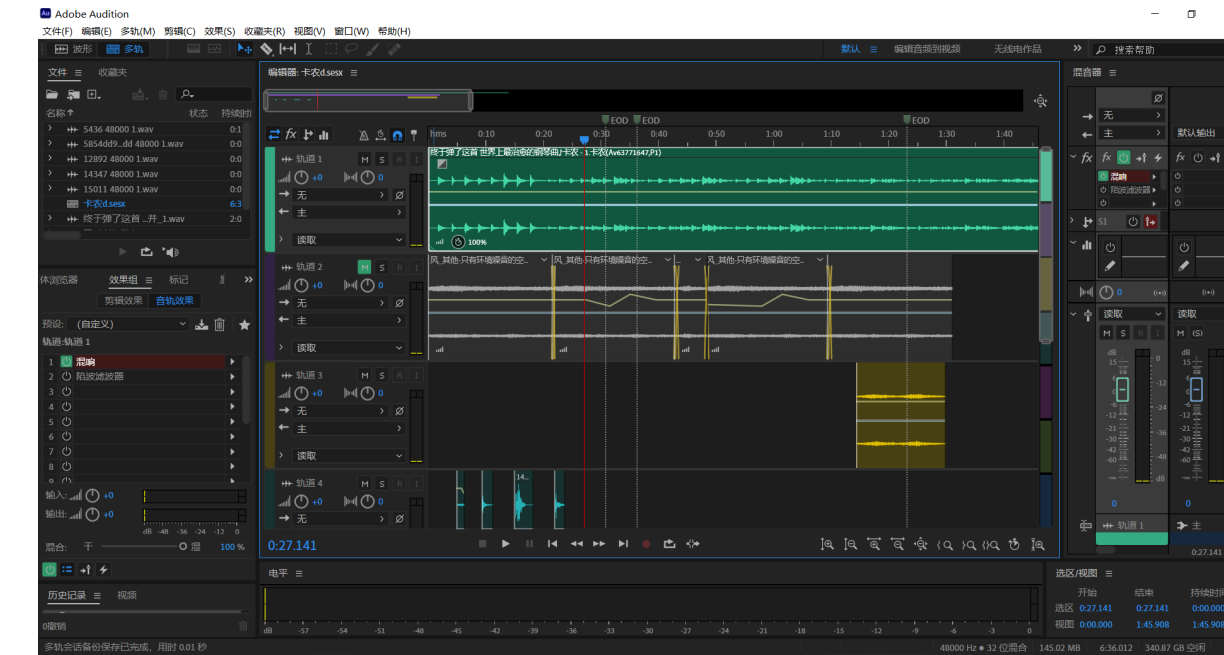
BACKGROUND MUSIC & SOUND

The music and sound effects in the game were recorded by myself.

In more detail, at the beginning page and the first level, I used a canon clip in C major for the loop, while later on, I used a different pitch of canon. The higher and higher soundtrack represents the wandering kid's rising levels in the tower and renders an uneasy emotion. This emotion culminates when the player reaches the top of the tower and finds it empty. And when the game reaches the settlement page, the soundtrack returns to Canon in C major.

I played and recorded the background music repeatedly on my piano at home. Then I modified the different pitches for the tracks in Audition and adjusted the reverb effect of the music to make it sound like it was in an empty room. I also created noise to simulate the effect of the wind blowing through the tower outside. There is also an occasional metallic crashing sound used to simulate the sound of an object hanging outside the tower being blown up and hit by the wind.

In addition to the music, the game has sound effects. The potted plant is particularly large and heavy for a wandering child, and the sound effect of pushing the plant is like the sound of a heavy object being pushed on the floor, in addition to which, after the potted plant has gained green energy, the sound effect of pushing the plant will be different, and the sound effect will seem heavier as the plant gets heavier.



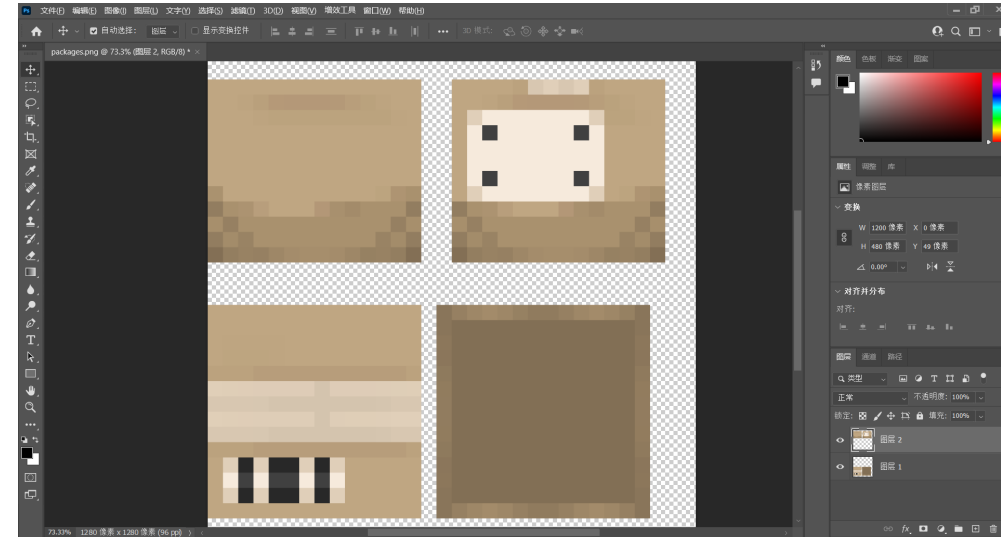
Edit music and sound effects in Audition



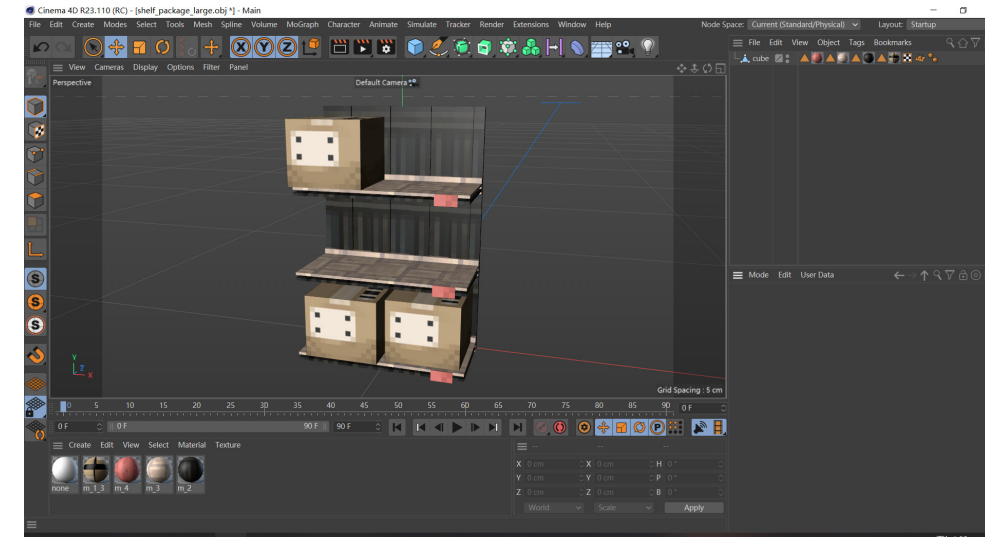
Actually, The sound effect of heavy objects pushing the ground is the sound of my apple pencil scratching across a rough surface, and the sound effect of metal clashing is the sound of renovations knocking through my house.

PROCESS OF MAKING MODELS

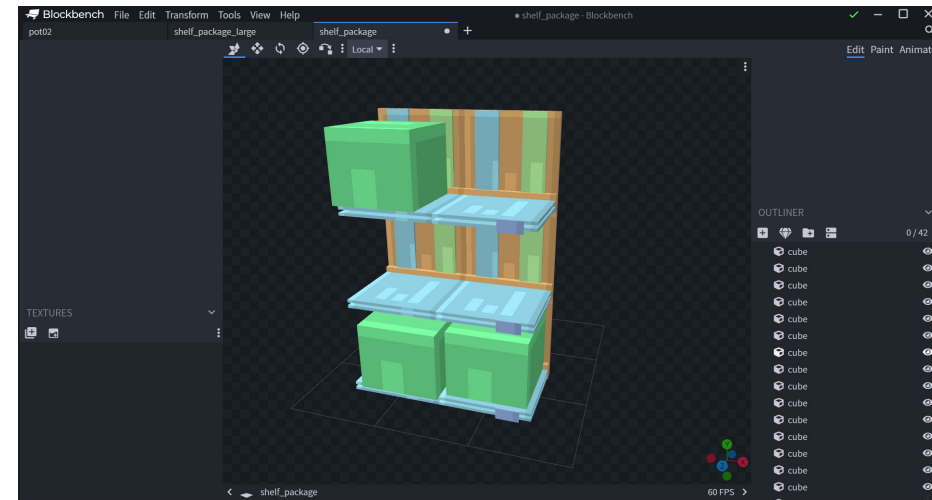
CHARACTER MODEL



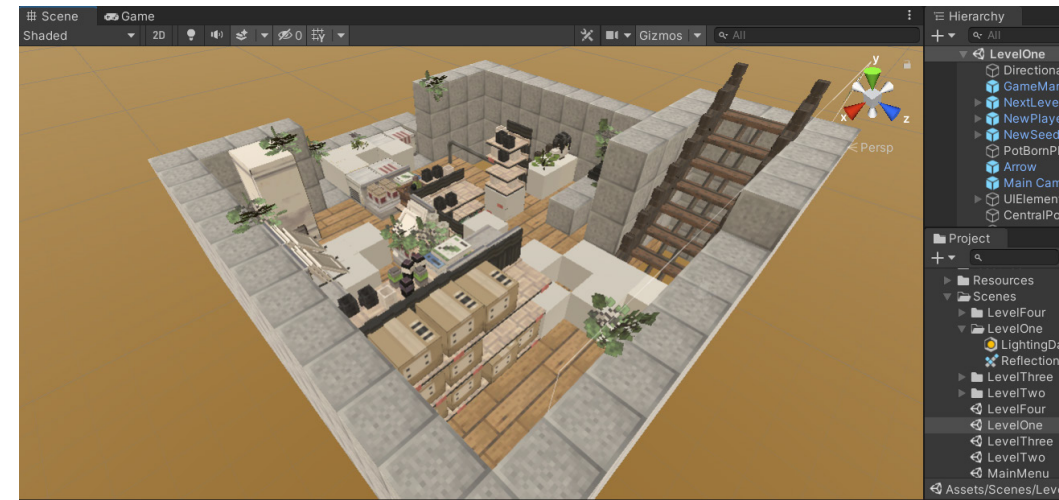
Drawing mapping in photoshop



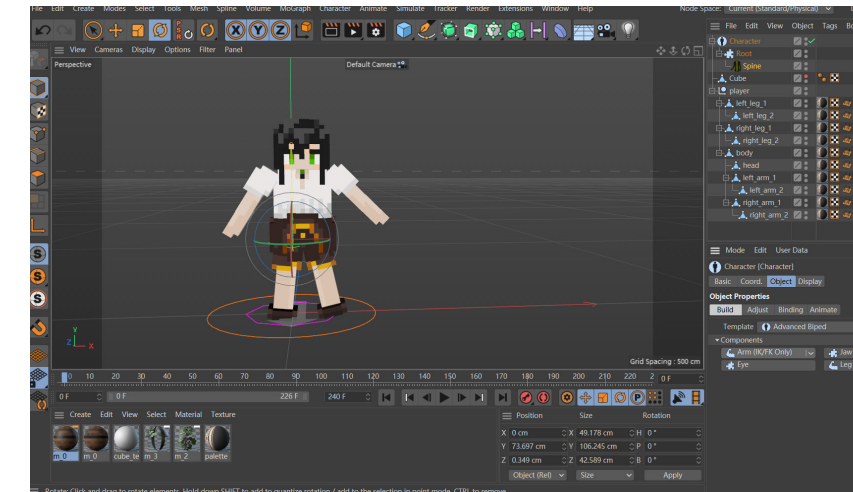
More detailed modifications to the model in c4d



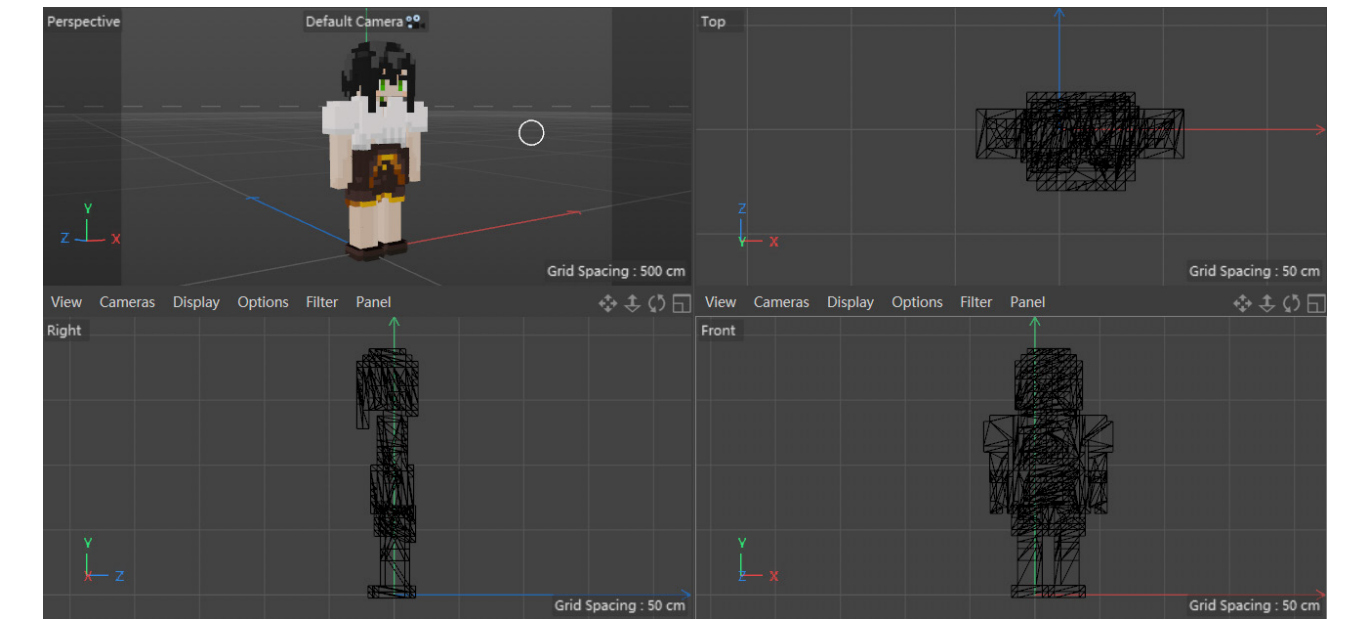
Modeling in blockbench



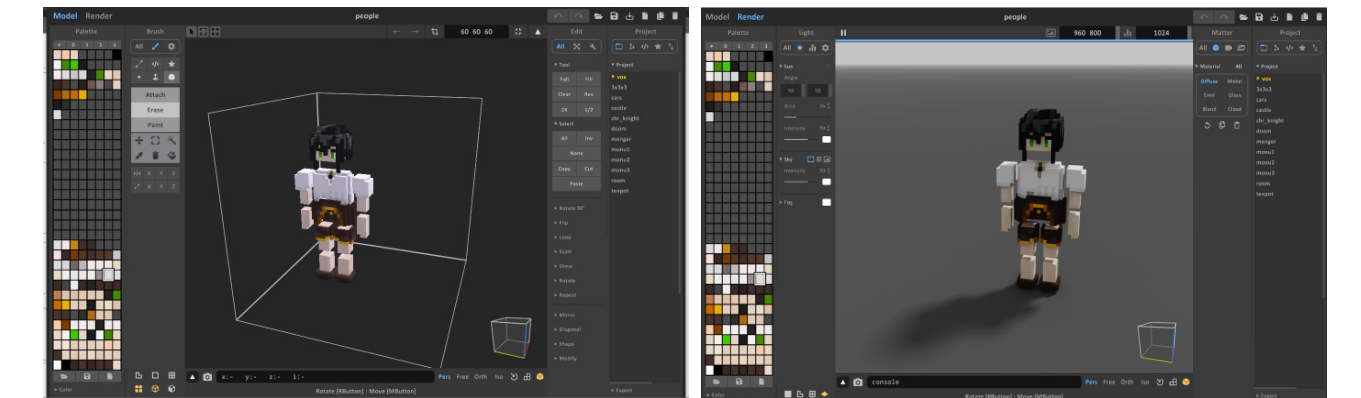
Importing to unity and adjusting shaders



Collage models, binding bones



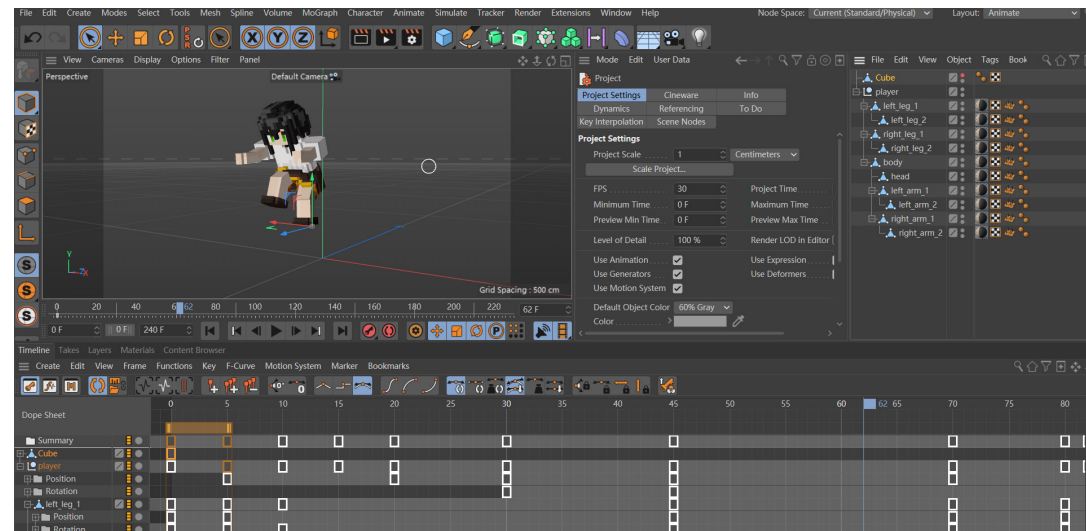
Three views of the model



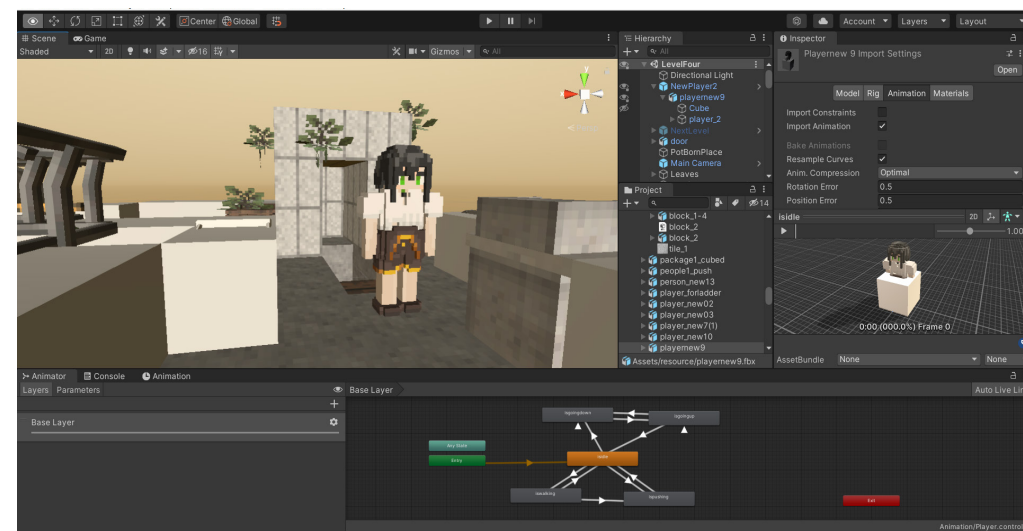
Drawing voxel models in Magicvoxel

ANIMATIONS

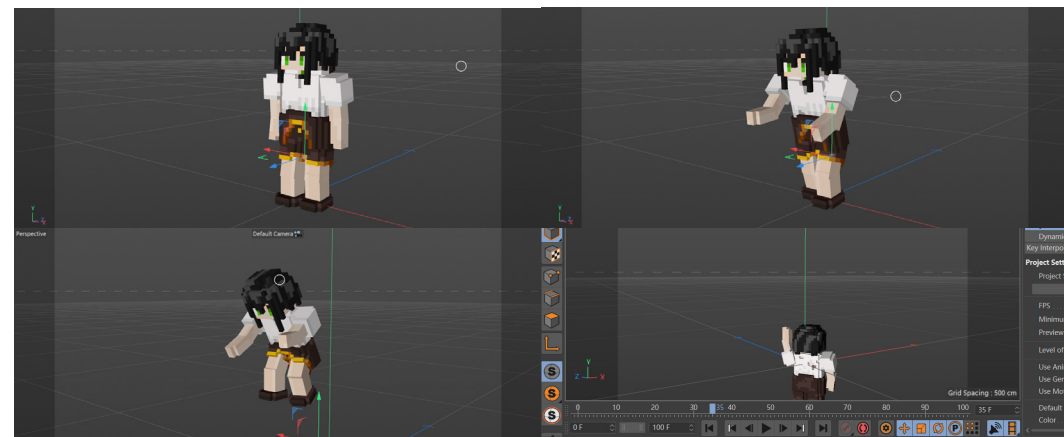
I made animations for the character and plants. I used Cinema 4D to create the animations, then exported them to unity and modified the state machine. While editing the animations, I ran into a problem. When exporting the animations from C4D to unity, the position of the animations were shifted and the snippets were inaccurate. To fix this, I added a sub-object to the animated model in C4D and aligned it again after importing into unity.



Creating animations in C4D



Edit the character's state machine in unity



Some of character's in-game animation: walking, pushing objects, using skills, and climbing ladders

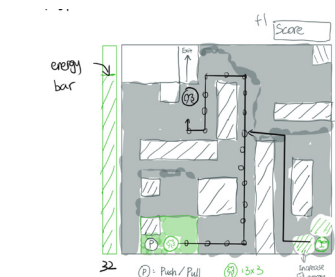


Applying character to game scenes

SEVERAL VERSIONS OF UI



FINAL UI



In the first version of the UI, the game scene does not move, so it is made into a long bar on both sides of the scene.



The second version of the UI was moved to both sides of the screen after the scene was modified.

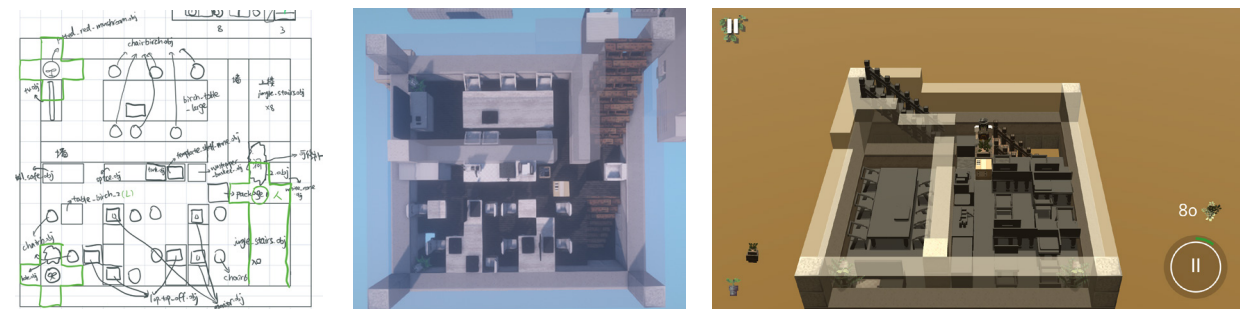


The third version of the UI rearranges items on the screen, making the display much more concise.



Dusty convenience store

The first level of the scene is a convenience store, players need to find forgotten plants in two different corners of the supermarket to help potted plants to restore green energy.



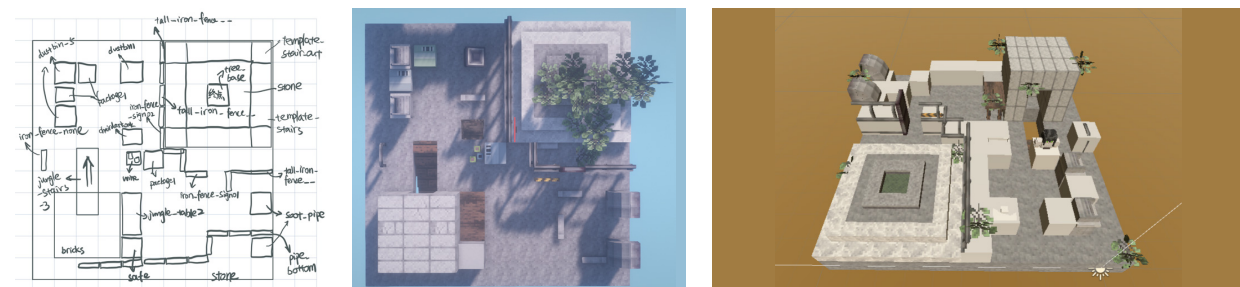
Crowded Office

The second level of the scene is the office, the scene is also scattered with some green plants. Players need to first move away from the obstacles on the road, collect these plants to help potted plants to restore enough energy to repair the road leading up the stairs.



Abandoned Library

The scene on the third level is a library. Here, the plants are not only on the floor, but also on the top of the bookshelves. Players need to move the ladder, climb from the ladder to the top of the bookshelf, and shuttle between the bookshelves to collect energy.

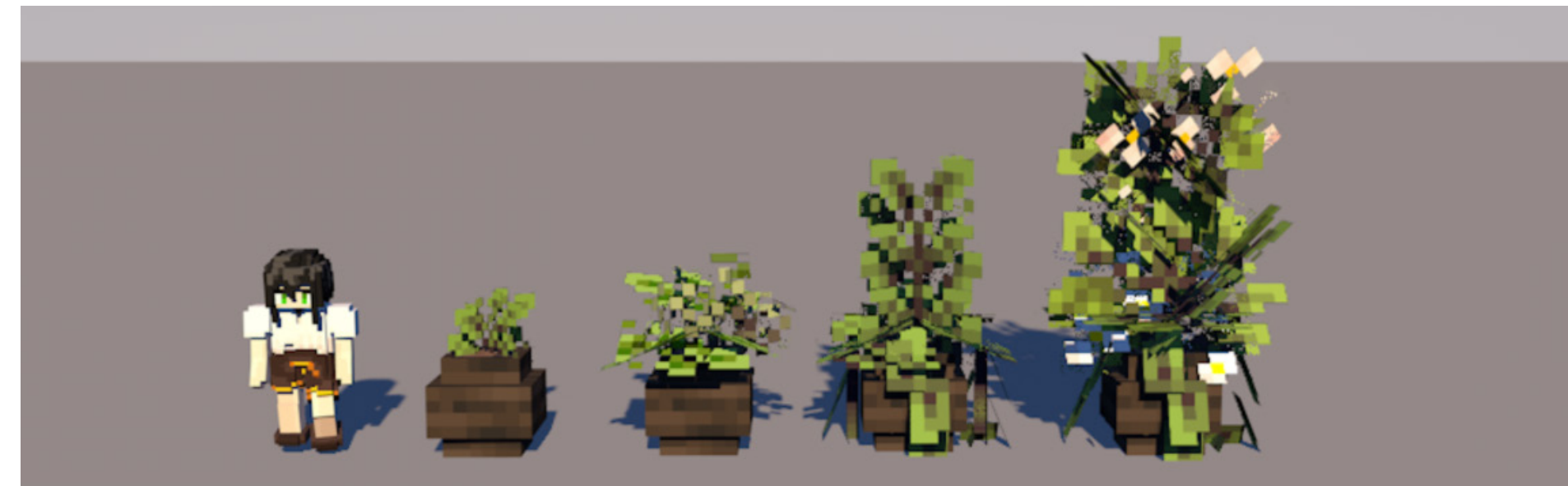


Empty Rooftop

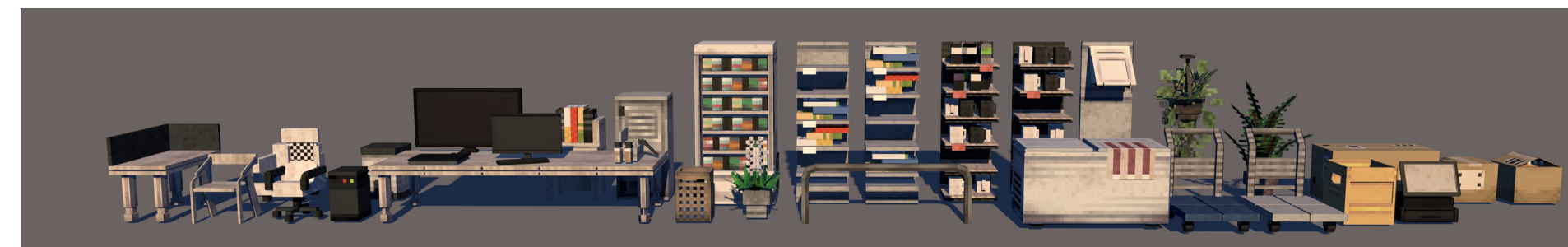
In the fourth scene, you ascended to the top of the tower, missing found that there is no human at the top of the tower. There is only a long-abandoned flower bed at the top of the tower, push the potted plant on the flower bed, the potted plant will begin to grow, the game ends here. The source of the bad climate is because humans built this tower, creating too much pollution and industrial waste. Symbolizing the failure of industrial civilization, civilization finally returned to nature.

LEVEL DESIGN

MODEL LIST



Characters, pots, plants



Level 1~2

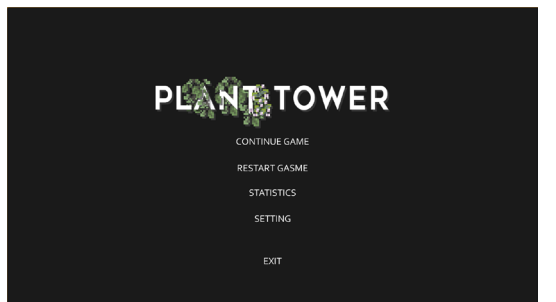
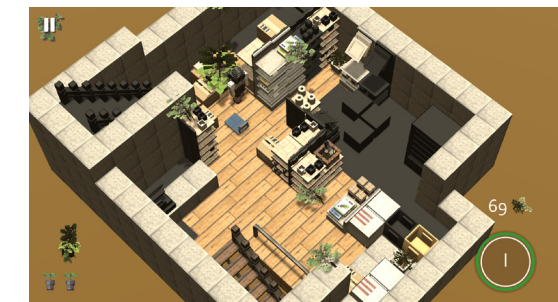
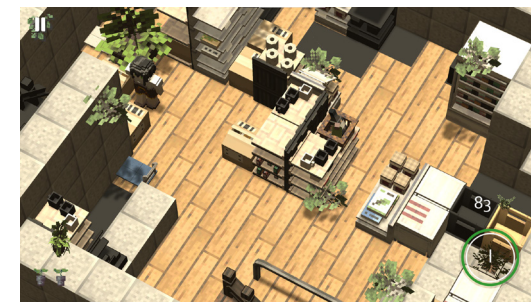
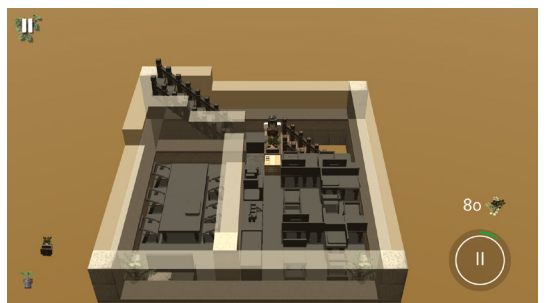


Level 3~4

GAME DESIGN DOCUMENT

The document grid contains 30 pages of design information:

- Pages 1-3: Table of contents and introductory text.
- Pages 4-10: Concept art, level layout diagrams, and design goals.
- Pages 11-15: Detailed level design, including a table of resources and enemy types.
- Pages 16-20: UI/UX design, showing character portraits and control schemes.
- Pages 21-25: Narrative elements, including character bios and story arcs.
- Pages 26-30: Technical specifications, including a table of game mechanics and a list of assets.



SHADING LIGHT

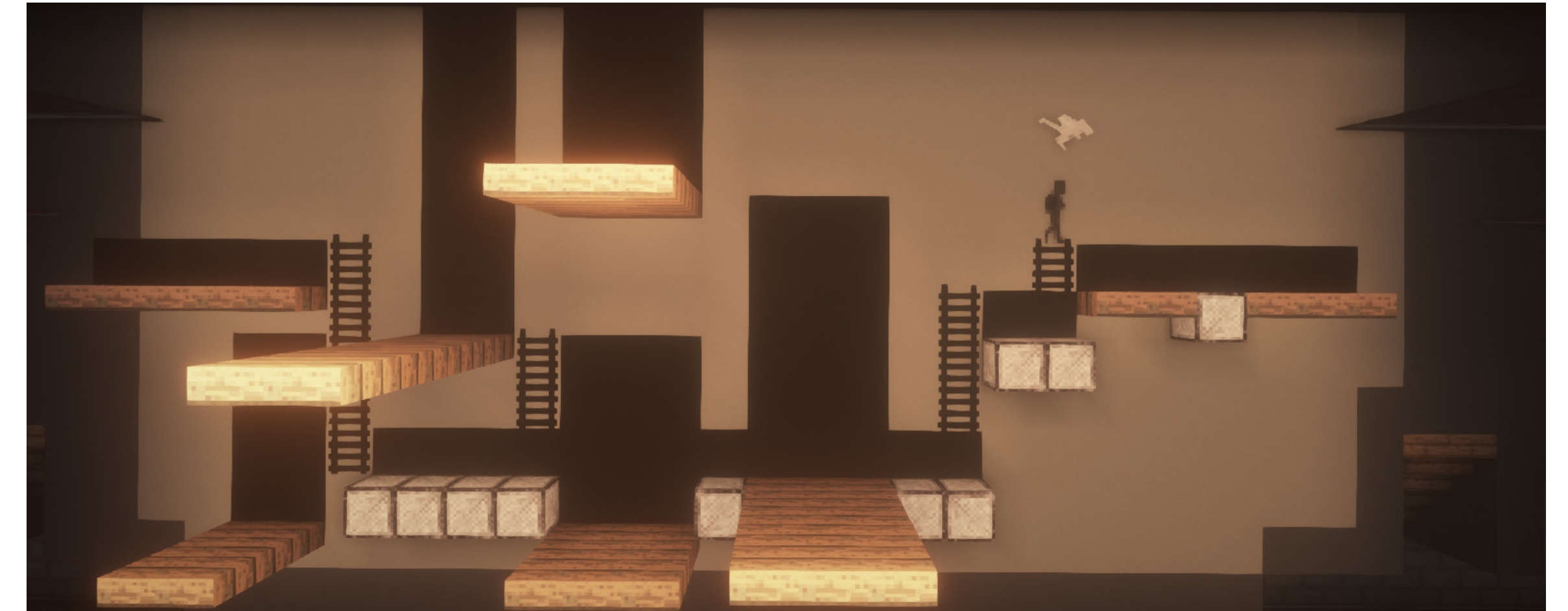
GAME PROJECT IN MINECRAFT



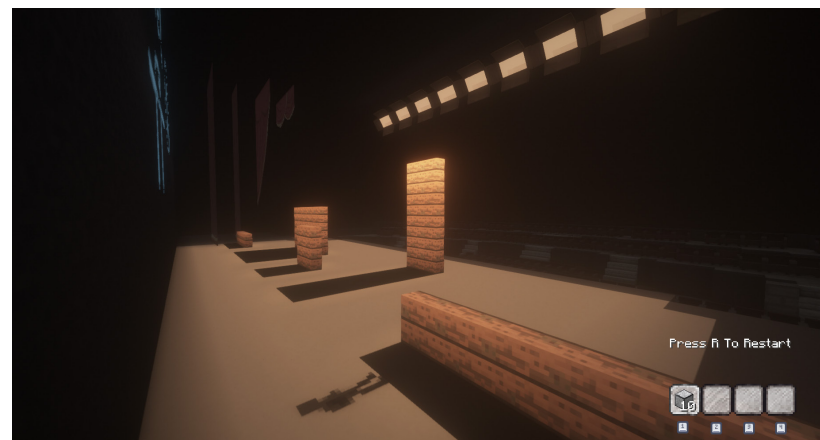
INTRODUCTION

The story takes place in a theater. In the theater, underneath the darkened stage, on the lit-up stage, the maiden and the shadow Silhouette dance on the stage.

To be more specific, the maiden guides Silhouette that tries to move slowly on the floor under the light. The maiden helps Silhouette as she paves its path and avoids obstacles. The Silhouette steps on the shadow, step by step, from following the same path to walking bravely in the light, crossing the obstacles and reaching the other side of the stage to find his own freedom.



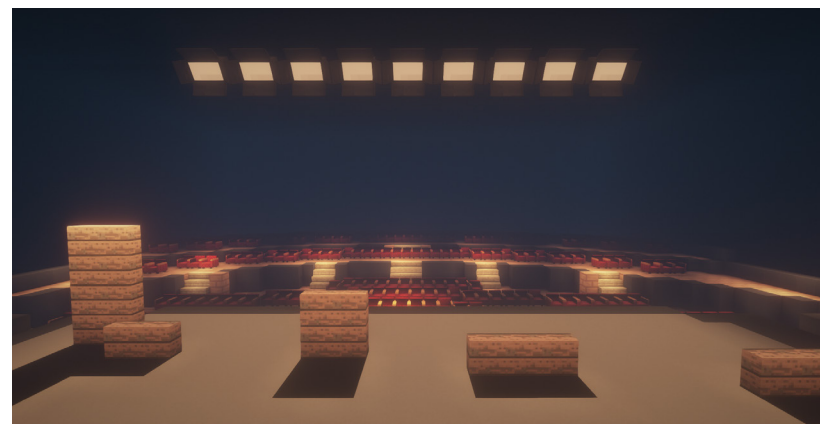
GAMEPLAY & SCREENSHOTS



You are standing on the stage of the theater and the Shadow called Silhouette moves in your direction.



Silhouette tried to head to the other side of the stage, but there weren't many shade on the stage where he could walk, so he was stuck on the edge.

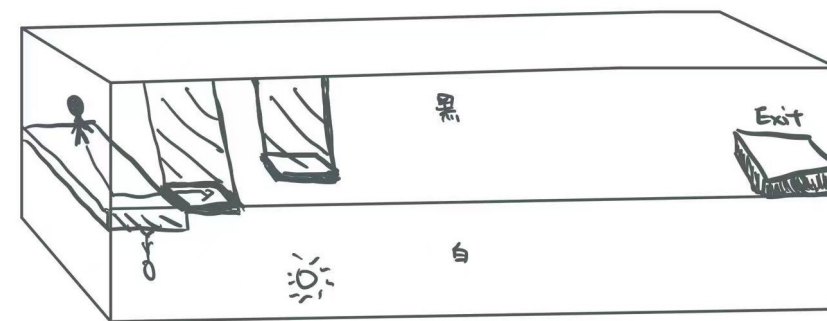


In the end, Silhouette marched bravely under the lights to his own end. The lights of the audience turn on and a great show came to an end.



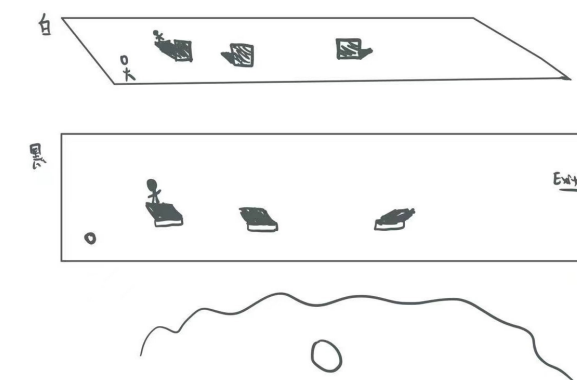
You place objects to cast shadows. You take Silhouette over the stairs, down the ladders, over the obstacles, and Silhouette goes from following in the same footsteps to bravely moving forward, step by step, trying to reach the end.

THE FIRST TWO HOURS OF JAM: GAME PROTOTYPE



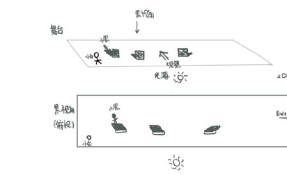
Version 1: Jump upwards!

The idea is that two people use props on each other's platforms in different directions to help each other move forward together. This idea was removed because it was too common, but nevertheless, we kept the idea of the people helping the another to move on the platform.



Version 2: Dual view, manual switching view

In this version, we basically settled on the light and shadow projection onto the platform for play. It's cool to move in 3d space to have an effect on 2d space!



玩法: 白色小人从最上增加, 道具模型为黑色小人开路, 切换视角, 黑色小人在模型上用鼠标移动, 使用障碍, 到达终点.

- ① 美术设计 (策划)
 - 舞台的大, 宽?
 - 布景大小 (道具模型大小)
 - 关卡的主题 (道具模型内容)
 - 规则: 障碍, 障碍物, 障碍, ...
- ② 模型 (美术)
 - 白色人物模型
 - 黑色影子模型
 - 舞台上的道具模型, 地图
 - 与地图不同的影子模型
- ③ 程序
 - 黑色小人的物理引擎 (碰撞)
 - 圆形物体下落控制人物
- ④ 地图
 - UI 地图
 - 地图的编辑
 - 木板地图 (PPTA)
- ⑤ 其他
 - 名字, Logo, 背景故事
- ⑥ 测试

Version 3: Single game, one moves, the other follows

However, constantly switching views is too complicated when operating. So we improved on version 2: the player controls the person in 3d space and the person on the plane will always find a way to move towards the player.

MINECRAFT ENGINE, MINECRAFT CORE

I have been playing Minecraft consistently and writing client-side mods and server-side plugins for Minecraft for over 6 years, so I know all the parts of Minecraft well. minecraft is written in java, so you can customize Minecraft once you master Java. The game also has many sophisticated APIs, as Roblox does, so you can modify any entity's model, camera, game action, mechanics, etc. to make a 3D game.

Server-side: use plugins (data package)

Control the physics engine of the shadow, pathfinding system, animation switching

Client-side: use mods + resource packs + shaders

Control entity models, scene models, animation effects, item bar UI, light and visual effects

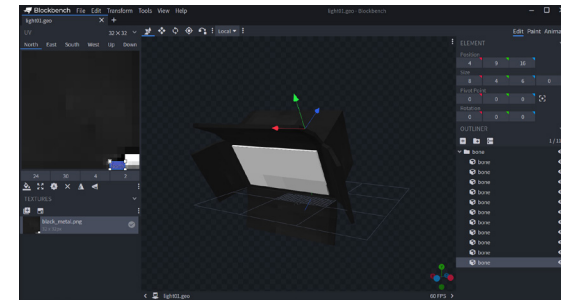


Minecraft-based client showcase - without art processing

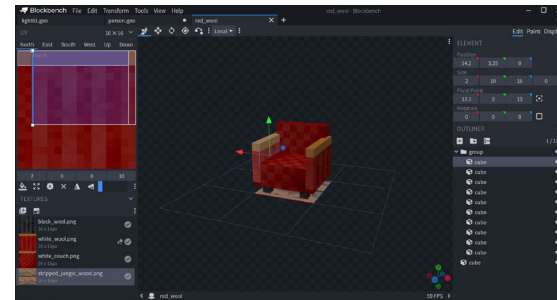
Artwork Part

Modeling

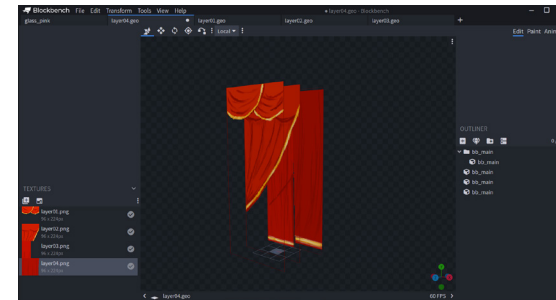
I made as many different models as needed for the contest. minecraft uses json format model files, so we chose to use blockbench for modeling.



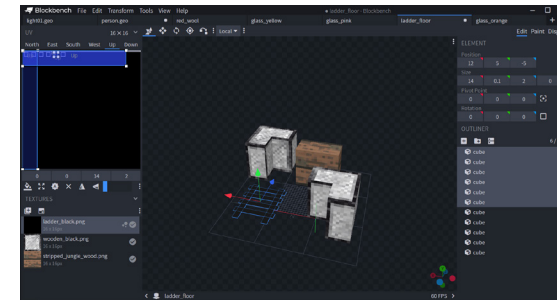
Stage lights



Seat



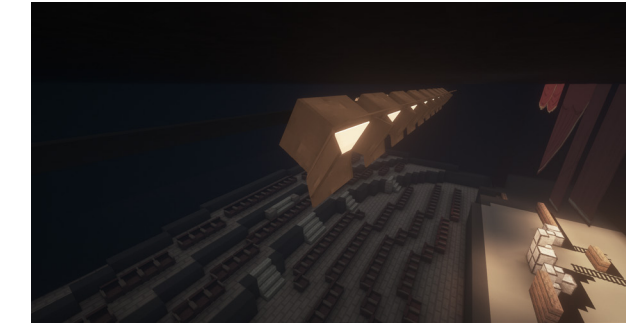
Layered curtains



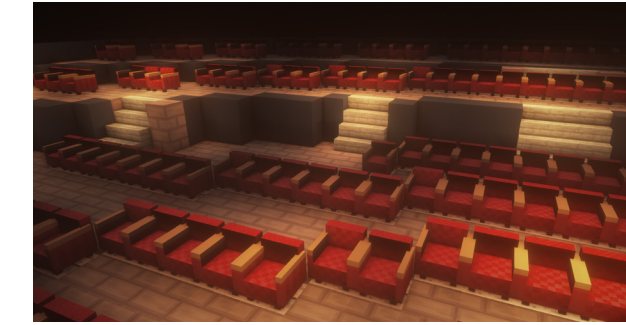
Objects

Scene

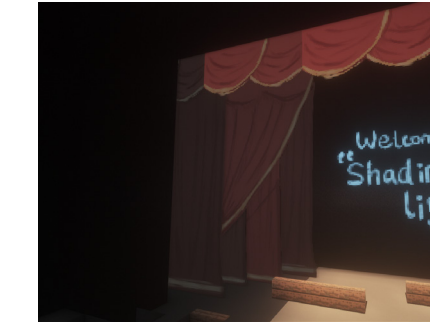
After completing the modeling in blockbench, modify Minecraft's resource files to import models to the game. This step is done by writing the mods. After adding, I place these models out in the game to complete the scene.



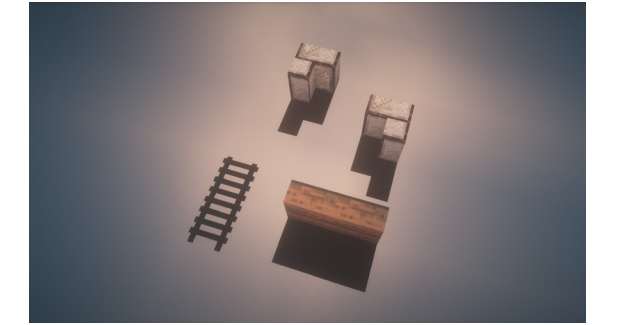
Stage lights



Seats



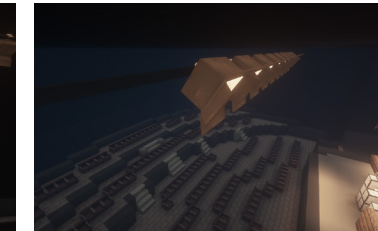
Layered curtains



Objects

T.A. Part

In the process of making a scene, we need a stage background that glows. As a background, a glowing LED screen can make people feel more immersive. For this reason, I modified the shader that controls the client display section to create a soft glowing effect for the screen. Later on, we also applied this glowing effect to the stage lights.



Modify glowing effects (before / after & lighting boxes)

After placing a large number of models into the scene, we found a problem that the client would lag because of too many models. To solve this problem, we changed a model implementation idea to attach different tag data to the original Minecraft armor rack, and then change the armor rack with different tags to different models. This way the performance problem of the client side is optimized. By this method, we also implemented frame switching animation.



Optimize Scenes (before/after assigning models to armor stands)



Animation frames of the Silhouette (prototype / code / game effects)

LEVEL DESIGNS

We have designed three different props in the game: square objects, stair-shaped objects, and shadow ladders. According to these three props, we designed three levels.

01 Go forward!

In this level, player has to learn to place objects to pave a smooth shaded path for Silhouette to help him arrive at the right side of the stage.

02 Climb!

At this level, player has acquired a new "Shadow ladder" prop, which can help Silhouette reach higher or lower planes. Player need to help Silhouette bypass the vertical obstacle shadows.

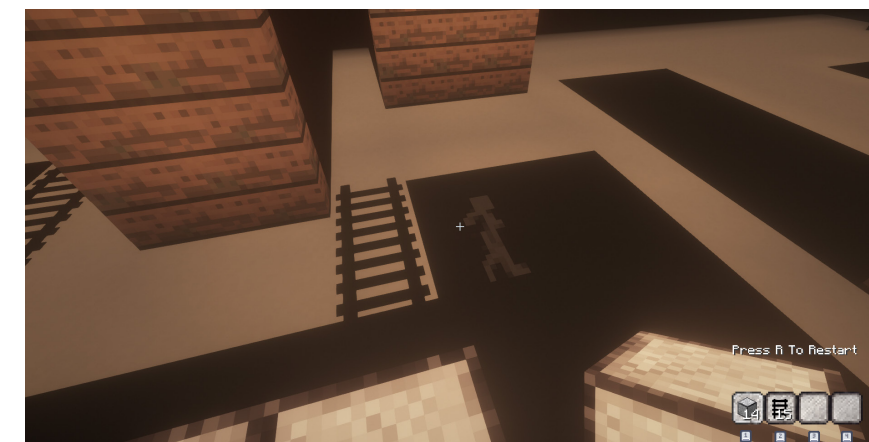
03 Courageous Departure

After reaching this level, players need to use the "stairs" and all the props obtained earlier to help Silhouette reach the end.

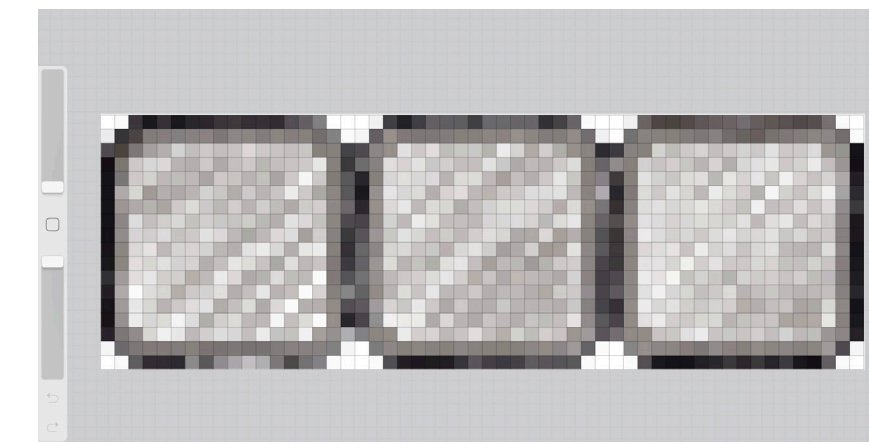


THE LAST 6 HOURS: TESTING, UPDATING AND UI

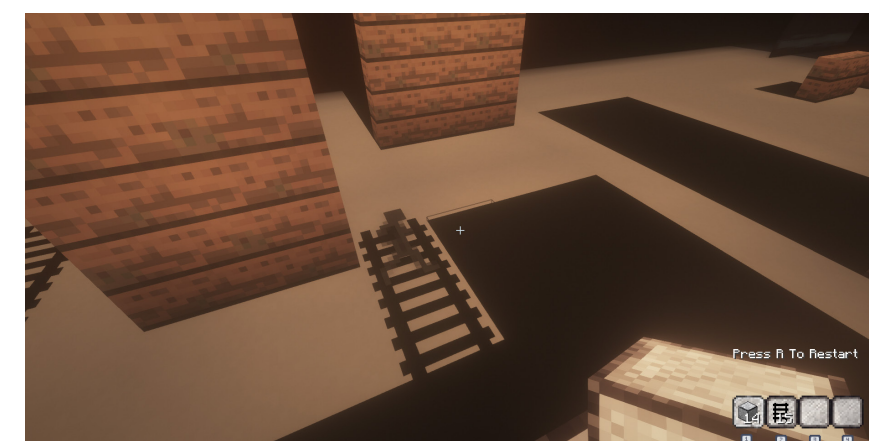
About 6 hours before the end of the game, we finished developing the first runnable core gameplay demo. While others tested it, I simply drew the UI. All we needed was the item bar, action hints, and a screen in the scene. I used an empty theater scene as the game's start page, and wrote the hints on the screen on the stage, and pressed start to start the game.



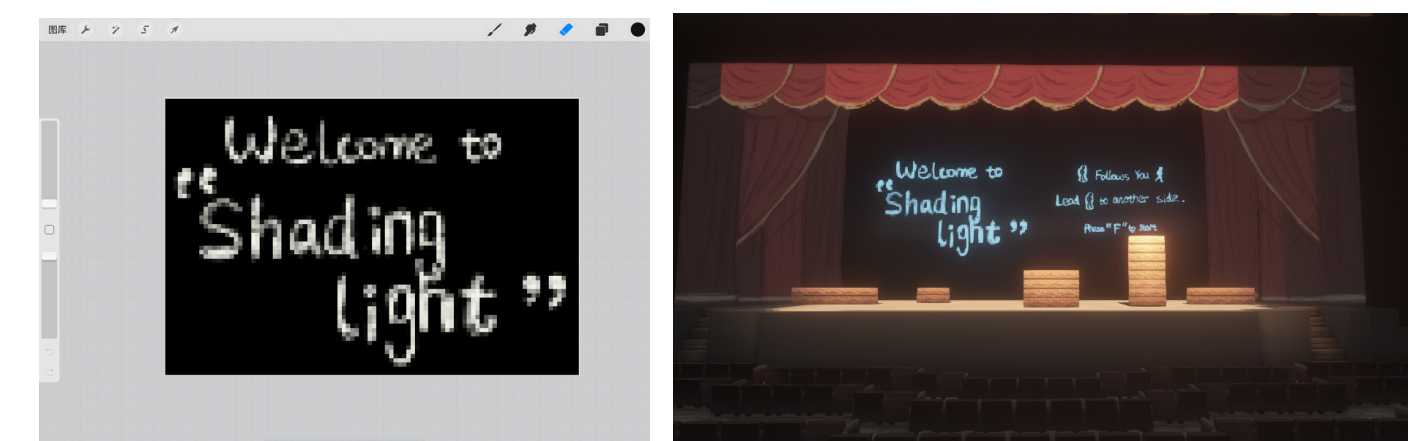
a bug occurred in the first running demo



Item Bar



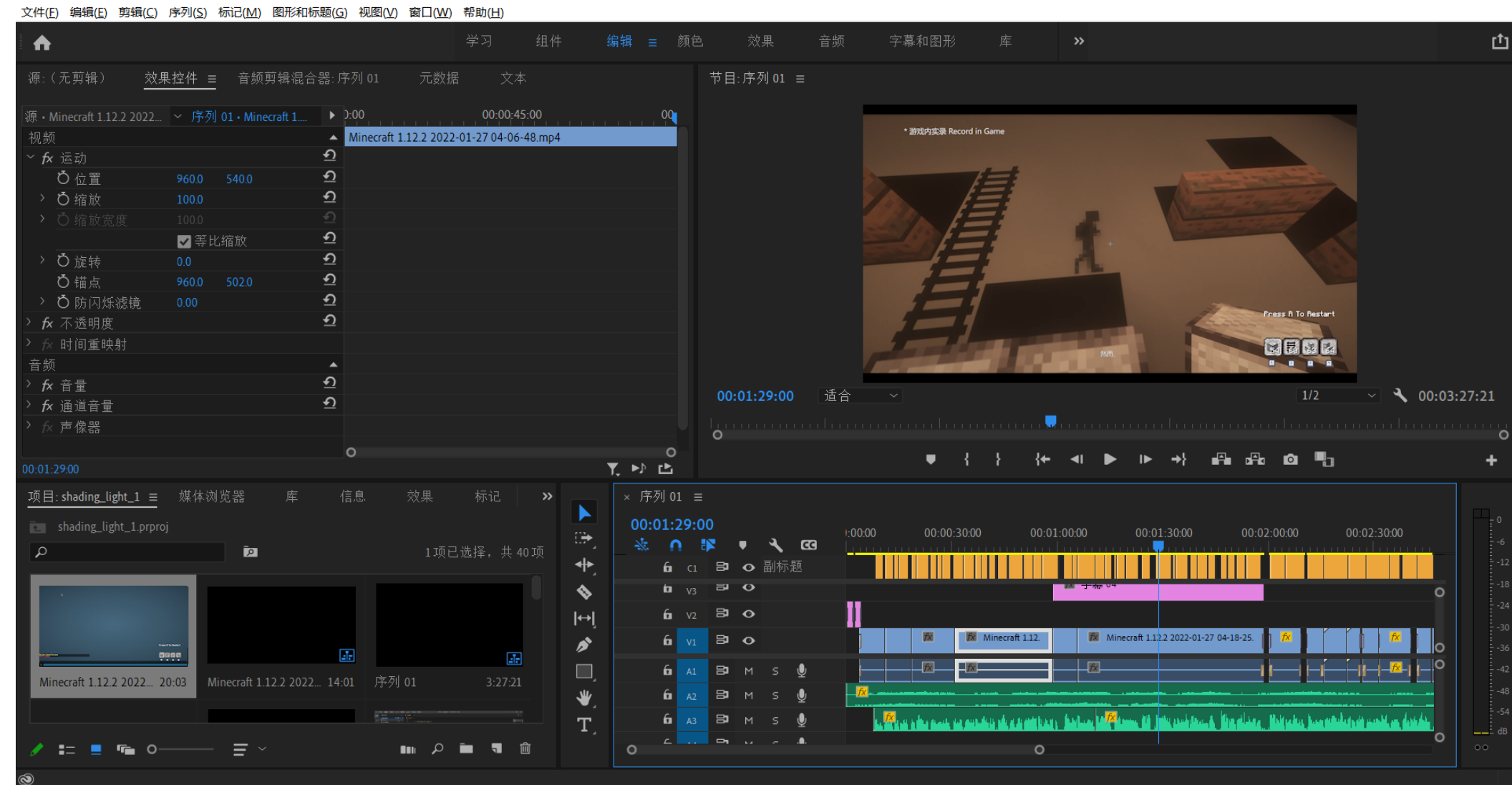
Bug fixed in second version



Startpage LED Screen

THE LAST 2 HOURS: VIDEO EDITING

With most of our game's progress completed two hours before the end of the tournament, I spent about an hour editing an intro video for our game in Premiere Pro. You can find the game demo and this showcase video in my website.



JAM TIMELINE

01/21 16:00 The theme announced: duality, and we started brainstorming on the theme.

01/21 18:00 We brainstormed two different directions of duality: light and shadow, and bravery and fear, and finally decided to do light and shadow.

01/21 20:00 The first version of the design document was completed.

01/21 23:00 Technical development meeting by I and Yankui finished, we adjusted the calculation of shadow area, determined the development route, and started development.

01/22 01:00 The overall framework is built, everyone sleep.

01/22 10:00 Development continues, Lucy draws some 16-bit pixel mapping, I start modeling and writing shadow area calculations, Yankui starts writing pathfinding algorithm.

01/22 17:00 I finish the shadow calculation part and modeling, start designing the level and placing the scene.

01/22 21:00 Ynakui finished writing the pathfinding algorithm.

01/22 23:00 I integrate all the code into the game and do prototype testing.

01/22 11:59 Prototype test passed, sleep.

01/23 10:30 The first game test package is packaged (no UI) and the rest of the team starts to try it out.

01/23 12:00 UI, stage screen production completed.

01/23 13:00 Second game test package package completed (with UI).

01/23 14:30 I started editing the video.

01/23 15:30 Video editing completed for upload.

01/23 16:00 The game is finished.

SOME REGRETS IN THE JAM

This was my first time leading a team in a Gamejam, so my time planning skills are still insufficient. We didn't have enough time to finish the music and sound effects section in this jam.

What I imagined for background music was a round dance loop for each level, with a progressive melody for each level, and a chorus at the last level. The sound effects were some decorative notes incorporated into the round dance. we added this music clip to the game after jam finished.

