

The Memory Bar

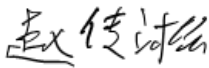
by

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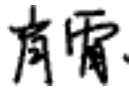
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Abstract

The team found that many people like to talk about some stories while drinking in bars. Everyone's story is unique and interesting. And the team also hopes that everyone's story can be recorded, like a special cocktail for each person. Then, the team made "The Memory Bar" game. In the design of the game, the team hoped to bring the point of view to players through narrative, so the team chose to make a 2D RPG game with platform gameplay and 2D Pixel art style. The players will see some stories through the game. The team achieved storylines by using game characters' interactions and dialog boxes, bringing players into the game's plot. The game players will be playing some game levels, navigating UI pages, using chat dialogues to push the storyline, and interacting with non-player characters. The player will find some interesting stories in "The Memory Bar".

Introduction

Project Summary:

The Memory Bar is an RPG, light platform, and Jumping Game (similar to Kirby & The Amazing Mirror 星のカービィ鏡の大迷宮). This game is designed for platform jumping game lovers and casual game lovers. The game begins with the Player character entering a bar called “The Memory Bar”. Then the character feels curious about the name of the bar, the players don't know what kind of memories are sealed in this bar. To help the character find out the answer, the publican of the bar gives the player the first glass of cocktail. After drinking some glasses of cocktail, the player gets drunk and falls into the first stage of the game (the forcing novice guide). After the first stage, the players will know that different kinds of drinks will lead them into different levels, and the player must collect the tokens in different stage levels and give them to the bar owner.

Problem Statement:

The target audience of the Memory Bar is everyone who is 21 or older and loves RPG games. This game is just trying to entertain players and let the players show some special story if the players are willing to share.

Our problems are:

- Why do the team choose a 2D game?
- Why do the team choose to make a RPG platform Game?
- What do the team want to share with the players?
- What do the team want them to experience and feel in this game? and why?

Solution:

2D is a flexible form and the team wants to express the feeling of time flashing back. The team believes this can represent what the team wants. Additionally, 3D or 2.5D will take the art group extra time to create the model and movement of one character. Instead, the team use 2D so that the team can spend more time on scenario design, which is the core of the game.

Since the game is mainly a narrative method, RPG seems like the best choice. The team can add some background stories to help players express emotions in this game. And some of the operation settings can make the game more suitable for the game stories that the team wants to perform.

At the ages above 21, the team believes that players have had some unique life and social experiences. The experience could be good or unsatisfying. The team wants players to see the story in this game. At the same time, the team hopes that players are willing to accept everything the players have experienced after playing this game and will not regret anything in the players' real life. And what the players need to do is to recognize the essence of life and keep loving it.

Project Source:

In the beginning, Chuansong Zhao came up with the idea of creating a game that tells people's lives. This is a realistic related topic and offers the players a chance to experience different lives. Chuansong is a person who likes to go to the bar and drink cocktails. Chuansong also met many people telling some special stories in bars. So Chuansong thinks if there is a game that could record all the stories in one game and let other people understand other people's stories, then that game would be a very interesting thing.

The background of the game is that the world is about to be destroyed and people are about to die. At this moment, the player has reached a bar called: `The Memory Bar` and starts the player's last round in the player's life. The players will see others' stories and also leave the player's own memories in this bar in the end.

Discussion

Project Objectives/Goals:

1. At least complete 3 game level
2. Upload game to the STEAM(If possible)
3. Players will play the game on the PC side.

Project Scope:

This game is based on the PC platform, This game is a single player RPG and platform jumping game with 2D pixel style. Every time a level is completed, the game will be automatically saved. This game is for RPG lovers and platform game lovers.

Quick Project Timeline:

Task #	Task Name	Duration	Start Date	End Date
1	Demo Script	9	9/21/2021	9/30/2021
2	Assests and Music	15	9/21/2021	10/6/2021
3	Bar Design	4	10/7/2021	10/11/2021
4	NPC Design (First Scene)	30	9/28/2021	10/28/2021
5	Token system (coding)	10	Oct/2021	Oct./2021
6	Jumping game	25	Oct/2021	Nov/2021
7	Combine the Jumping game and count for tokens	20	Nov/2021	Nov/2021
8	Player and NPC react scenarios (first game level)	70	Oct/2021	Dec/2021

9	First game level Done	100	Sep/2021	Dec/2021
10	Second game level	50	11/1/2021	Feb/2022
11	Scene Manager coding and design	15	Dec/2021	Feb/2022
12	Combination for game and token	3	Dec/2021	Dec/2021
13	NPC and Player react scenarios	20	Dec/2021	Jan/2022
14	Third game level	50	Nov/2020	Feb/2021
15	Game data storage and Saving	180	Jan/2022	April/2022
16	Game animation(or comic image style)	120	Oct/2021	May/2022
final	Finish Project and upload to the steam		9/20/2021	8/9/2022

Technology

Technologies Used:

Adobe is an effective and powerful tool to design posters, character art and music effects:

Adobe Audition -Sound

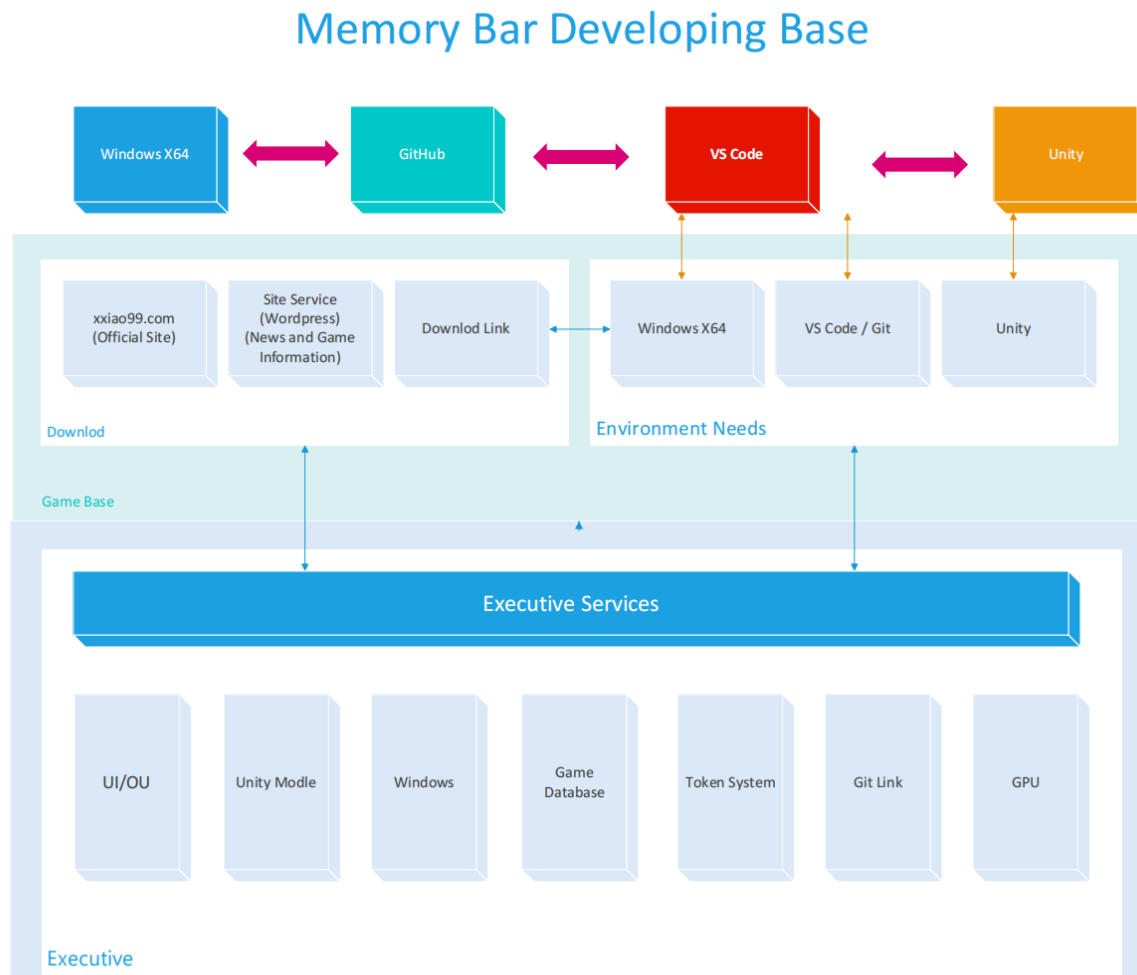
Adobe photoshop - Game Art and animation

Most of the team members have the experience of using Unity. VS code is required to use for coding in Unity:

Visual Studio Code - Coding

Unity - Overall Game Engine

Technical Architecture Diagram:



User Personas:

Table 1 User Persona Table

User Persona: 1	
	Title Game Streamer
	Name Even Baker
	Age 25
	Gender Male
Behavior	Game lover, play games on his stream
Pain	Some games are not attriactable for audience of Streamers to play on the stream

User Persona: 2	
	Title Student
	Name Jane Beth
	Age 17
	Gender Female
Behavior	Busy with homework everyday. Would like to do something fun between homework. Which is not taking too long and will relaxed.
Pain	like to do something fun, but school work, club activities take almost time of life.
Needs & Goals	could get relaxed and won't take too long. Interesting enough for a 17-year-old girl. Since still under 18, parents do not willing to play anything that contains violent, bad habits, or bloody scenes.

User Persona: 3	
	Title Account Assistant
	Name Jams Brown
	Age 40
	Gender Male
Behavior	Game lover, work in week, only play the game on weekend.
Pain	The time length is not good enough for personal time table.
Needs & Goals	could quickly save and review the story.

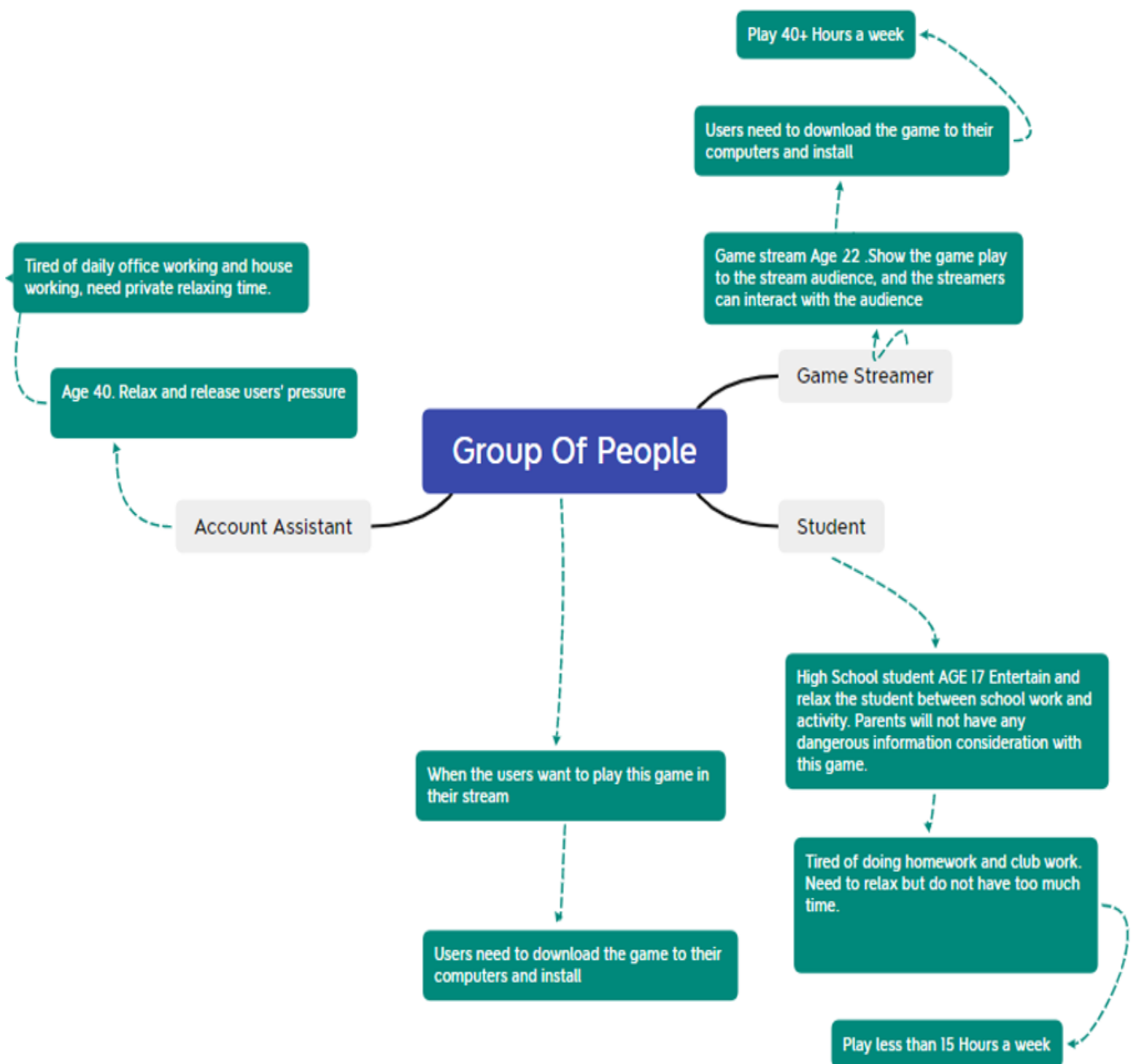
Table 2 Use Case Table

Use Case ID	1
Use Case Name	Game Stream
End Objective	Show the game play to the stream audience, and the streamers can interact with the audience
User/Actor	Over 22 years old
Trigger	When the users want to play this game in stream
Frequency of Use	Depends on the users' need
Preconditions	Users need to download the game to computers and install
Basic Flow	- Users need to download the game and install the game to computers - Users can run the game with computers - Users can use stream application to capture the game display
Alternate Flow	- Users can interact with the stream audience during the game play
Postconditions	- Users need to turn off stream applications after a stream end

Use Case ID	2
Use Case Name	Student Free Time Relax
End Objective	Entertain and relax the student between school work and activity. Parents will not have any dangerous information consideration with this game.
User/Actor	Jane Beth-- 17 year-old-High-Schooler
Trigger	Tired of doing homework and club work. Need to relax but do not have too much time.
Frequency of Use	one to two hours per day.
Preconditions	-pre download on the computer. -single player game, do not need teammate -one story has been divided into several scenarios, each scenario is short and won't take too long. -based on the ethical consideration, no bloody and violate scenarios. And good for everyone who is 16 and older
Basic Flow	-download the game(first time) -open the game -play the game -close the game
Alternate Flow	-turn on the game -select the previous stored plot -follow the steps, interact with the NPC and collect the token -save and exist
Postconditions	Entertain and relax the student in a short time.

Use Case ID	3
Use Case Name	Relaxing & Fun
End Objective	Relax and release users' pressure
User/Actor	People who is 16 or older
Trigger	When the users want to relax and have some fun
Frequency of Use	Depends on the users' need
Preconditions	Users need to download the game to computers and install
Basic Flow	- Users need to download the game and install the game to computers - Users can run the game with computers.
Alternate Flow	None
Postconditions	None

Use Case Diagram:



Testing Plan:

Overview

1. Code review from each team member is necessary. A report from the tester to the assignee(s) is required.
2. Separate the testing process into several small specific tasks. Each team member will also assign a task to test in the game randomly. Then each team member will test the whole game individually. And provided some advice (from the user interface, level design, and NPC conversation improvement perspectives).
3. Team members will share their test results immediately after the testing process.
4. Random user testing is required.
5. Fixing the bug is a higher priority.

Methodology

Each team member individually

1. will do the code review for the same piece of code whenever the code is updated on github.
2. test the collision of each asset.
3. test each key to make sure the keys are set in a correct way
4. test the whole game level process.

Export the game and let someone, who is not the group member, download and play the game. Collect commands from testers and test the game by the team members again. If there is a bug, mark it in the Trello board and solve it.

Scope

1. Use case 1: user opens the game and is able to use the up, left, right and down keys to control the character in the game. The character plays different poses while pressing the different keys. The player is able to use the different keys to control the character to pass all the obstacles, collect all the coins or beat all the enemies in each game level. So that the game can be successfully continued to the next level(new scene).
2. Use case 2: Token system, the player has to collect all the tokens in each level(scene). At the top left corner, token quantity will add up after the player collects the token.

Objectives

1. Four user-tests the same section at least two times.
2. Bug has to be posted on the test note board and marked as high priority
3. repeat the game cycle several times to test each small section(jumping, solid wall/block bouncing, token system, talk and story trigger)

4. Make sure the game is working properly and has no bugs before release.

Test Logs and Procedures

Test Case #1

User: Tianzuo Huang

Role: Game Developer

Expected Output: Adding the in-game menu to the jumping game demo and making it work.

Actual Output: The in-game menu works very well during the game demo test.

Result: Success

Date: 1/28/2022

Test Case #2

User: Xiao Xiao

Role: Game Art Design

Expected Output: All the collisions are working properly. The character is able to jump on the stones and other obstacles. Up and down keys control the jump and squat down movement.

Actual Output: The character was able to jump on most of the obstacles. Up and down key is working fine

Result: Success

Date: 2/3/2021

Test Case #3

User: Chuansong Zhao

Role: Game Designer/Level Designer

Expected Output: During the game demo, the character should move smoothly and collide with each floor and walls' assets

Actual Output: The demo runs incorrectly, and the character cannot move in some positions

Result: Failure

Reason for Result: The game level was not designed well when setting the collider. And there are some bugs in the character jumping action.

Date: 02/06/2022

Test Case #4

User: Shitong Liu

Role: UI designer

Expected Output: In the test game demo, the tester wants to make the UI as clean as possible.

Actual Output: The UI design is very simple and easy to understand and for players to use.

Result: Success

Reason For Result: The function of the UI is very simple, and the designer didn't make the game level too hard since this game level is mainly for users to get familiar with the playing strategies.

Date: 2/01/2022

Test Case #5

User: Aaron Xiao

Role: Player

Expected Output: Player is able to collect the token by touching the token with the character's body in the game. The token is supposed to disappear after it was touched by the character. Then the token quantity number + 1.

Actual Output: All the tokens in each scene are working; the player is able to touch it, it will disappear after being touched. But the token quantity canvas will disappear after transfer to the next level(scene)

Result: Failed

Reason: Unknown.. the team member is still working on it

Date: 2/3/2021

Test Case #6

User: Xiao Xiao

Role: Developer Group Testing Team

Expected Output: After fixing the bug in Case 5, Xiao Xiao retested the token system. The token collides with the ground and the player only. When the player touches the token, the token should disappear and the total token quantity + 1. The total token quantity should be applied to each scene and keep showing the current total token quantity.

Actual Output: The total token quantity +2 after the character touched the token with its body. But when the character touched the token with the feet, total token quantity +1. And the total quantity of tokens will go back to 0 after moving to the new scene.

Result: Failed

Reason: The token back to 0 after the character moved to another scene – unknown

The token quantity is triggered twice since the character has two collision 2d boxes. The code did not specify which box is controlling the trigger system. So both of the collision boxes are triggered, and cause the quantity +2 instead of +1. I specified the box body collision 2d in the code, and this problem is solved.

Testing Review

A lot of the bugs happened because every team member does not have the latest version. Since most of the members have the issue of uploading their project to Github. It is extremely hard for everyone to share and receive the code from each other. When the team members updated the code to the latest version, there were a bunch of existing and potential conflicts. These conflicts caused most of the bugs that were found during the testing process, and made the team did a lot of duplicated work. Not only those, but also left the team with some high risk unknown issues. Additionally, lack of communication between the team members made the team lose each other's working process. Based on the personal work process, team members have a different understanding of the same issue, and expect a different testing result.

In conclusion, every member should participate in the testing process and update the kanban board frequently (including code review, test result, and working process, expecting test results). Update the github (or other project storing platform) to make sure that every member

in the team should have the latest version of the code for code review or feature development. Try to solve the bug as fast as possible. Bug fixing should be done before new feature creation or existing feature enhancement.

Change Management Plan:

All team members can request a change at the team meeting. But only the project owner has the right to change the management plan.

Triage Steps

- The change management plan has to happen in a group meeting and all the members have to attend.
- The promoter has to list all the problems he/she found during the work process, and provide the possible solutions of how to change the management plan.
- The rest of the team members identify the listed problems and decide to support for or against those comments.
- The project owner should collect all the commands
- The project owner and team members need to identify
 - if the management plan changes
 - What problem will be solved?
 - What potential problem will appear?
 - if the management plan remains the same
 - Is there any way that can avoid the problem the team is having right now?
 - If the team can solve the problem without changing the management plan, will this happen again in the future?
- Team members vote for the “Change Management Plan”
- Finally, the project owner makes the decision based on the commands and vote

After the “Change Management Plan” is confirmed. The project owner should quote this meeting and create a document about the details of the new management plan. This should include:

- What is the new management plan?
- How does this new management plan work?
- Why do the team have to change the management plan? What problems could be solved after this management plan?
- Any potential risks after changing the management plan and the solution to avoid these risks.

The project owner needs to provide this document to the sponsors and advisors. Also, based on the new management plan document, answer all the questions from the sponsors and advisor.

Budget:

The budget includes the budget of the staff within the group, budget of the outsourced staff outside the group, and software budget. The budget of the employees in the group is calculated based on an hourly salary of US\$20 and working 6 hours a day (5 working days a week). Since there are no talents in art and music in the group, the team chose to find corporators outside the group through outsourcing for the material in this area. The hourly salary is 15 US dollars for 4 hours of work per day (5 days a week) The final software part is the price of the game engine the team selected as the standard, which is calculated by searching the official price of Unity Pro. The specific details are as follows.

Table 3 Project Budget

Estimated Cost Rough Order of Magnitude:						
	Rate Per/Hr	Work Effort (Hours)	1 X Costs	Ongoing Annual		
				Rate Per/Hr	Work Effort (Hours)	1 X Support Cost
Labor - IT	20	6	\$ 120.00	20	360	\$ 7,200.00
Labor - External	15	4	\$ 60.00	15	240	\$ 3,600.00
Software - External	0.84	6	\$ 5.04	0.84	360	\$ 302.40
TOTAL			\$ 185.04			\$ 11,102.40

Problems Encountered and Analysis of Problems Solved:

1. Problem: In-game elements resources are hard to find.
Solution: The team decided to use the in-game elements from the Unity assets store, and also created in-game elements.
2. Problem: The team met some coding problems during the jumping game demo development, the problem made the character couldn't stop jumping or unable to jump during the gameplay.
Solution: The team solved these problems through team discussion, doing research online, and debugging.
3. Problem: The game plot does not match the corresponding level.
Solution: Re-edit the new script that matches the level. At the same time, some art materials are changed according to the script.
4. Problem: The combination of the Token system and gameplay in the game had the technical issues.
Solution: Change the original Token system as a reward bar to a system like a catalog, and set up a corresponding special Token for each different level. Improve the gameplay and clarify the purpose of the game, so that the gameplay and the game plot are more suitable.
5. Problem: The team met some problems to create the in-game art and HUD design.
Solution: After the team discussion, the team decided to draw the in-game artwork and HUD design.
6. Problem: The team met some problems during the game-stage design, in which team members have different ideas.
Solution: The team solved this problem by team discussion and took each members' ideas to design different game stages.
7. Problem: The game background story needed to be changed some details during the game stage demos development.
Solution: The team had a team meeting about it and discussed how to change the background story.
8. Problem: The problem appeared when the team tried to make the diagram, the team didn't have a complete idea of how to make the technical architecture diagram.
Solution: The team solved this problem through team discussion and doing research online.

Conclusion

For the Fall Semester

- What the team used

The team have applied the knowledge of website UI design, skills of writing the scripts, 2D pixel character design, setting the key to moving the character, skills of placing cameras in the unity, level design, and other related experience.

- What the team learned

At the very beginning when the team were designing the project and making plans, the team wanted to make them as detailed as possible, however, this didn't help, instead, this action caused the team a lot of problems. After the project got extra detailed, it began to confuse the team because the project had too many ideas from different team members, which made it hard to even understand the project itself, and also forced the team to come up with an unhealthy time plan. In the end, the team had to cut off some of the projects to help the team finish the game on time.

During the designing and development part, the team learned that it would be much nicer to have multiple backup plans, in this case, the team would have more solutions and would not get stuck when meeting some problems. More importantly, the team found that teamwork is the core to making the whole project go smoothly. What's more, the team also needed to make the project plan renewed every time when the team made any progress, so no one will not get lost during the project review, project checking, and development.

- What the team improved

Navigating how to apply and learn new knowledge quickly in an unfamiliar field is the most precious experience the whole team had. In the process of completing this project, the team has improved the design capabilities (game design, UI design, character design, etc.), the establishment of the game system, and the improvement of some code capabilities. Besides, the team also improved the team communication skills during the problem-solving with team discussion.

For the spring semester

- What the team learned

The team have found that multiple tests helped to understand whether the program progress is going well. During game testing, the team often encountered some intractable bugs, which sometimes affect the development progress. So, the team decided to remove some interesting designs. These tests also make the project better. The biggest problem during development was music and art. But the team made up for it with the help of friends and some art and music assets the team bought and used in the project. This makes the game look better and closer to the expectations.

- What the team Improved

In the spring semester, the team found that the communication between the members was not enough. In this semester, the team decided to add an online meeting every Thursday to record the progress of everyone's work in time. Through this kind of meeting, the team can know the progress of each team member in time and adjust the expected plan to promote the completion of the project.

- Future Improvements

The team believes that at the beginning of the game, there are not only dialog boxes, but a complete set of art scene graphs, which the team believe can help players to understand the content of the game. At the same time, more interesting level designs can be developed, such as the combination of teleports in the demo. Also, the team can design more characters to enrich the plot and allow players to have more opportunities for interactions.

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