

Circle Back: Developing a Text-Based Narrative Puzzle Game in Unity

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1 Introduction

Circle Back is a surreal, text-driven, office themed horror game, utilizing a blend of 3D exploration and integrated 2D interfaces aimed at capturing the dullness and monotony that the traditional workweek can produce, developed with Unity game engine for Windows PCs. The game is meant to relate to potential experiences of the player in office settings as well as critiquing toxic capitalist work culture. The game's visual rendering and game play mechanics serve to capture the dull fluorescent lighting, endless meetings, and repetitive tasks of a corporate lifestyle. The game takes place in the 90's which is showcased by the interior design and technology of the time. Despite the somewhat uncomfortable source material and premise the game has a sort of charm with its surreal themes and choice of lofi music.

We were heavily influenced by *Escape the Backrooms* [1] and *No I'm Not a Human* [2], games that are both surreal horror and utilize environmental storytelling. The latter of our two influences gave us the idea to have a central 3D area with 2D scenes that the player can enter and interact with. *No I'm Not a Human* showcases a kind of uncanny, unsettling, and old time feeling that we reflected and expanded upon by integrating modern critiques and text-based puzzles. We also took influence from *Escape the Backrooms* from it's interior scenes, which feature windowless rooms with dim and eerie lighting.

Circle Back is a text driven game where the player takes on the role of a new hire at Ouro Co. The main objective of the game are to complete tasks at the players work station. The terminal has several mini games that can be completed, and the player is evaluated based on their performance on said tasks. If enough tasks are failed the player is fired and the game ends. There is no time limit, leaving opportunities for the player to explore the environment and interact with objects. The story elements include vari-

ous objects like a radio playing static, a grimy and unclean fridge full of discount soda, and a broken breakroom TV that no one has bothered to fix. There is no particular villain in this story, but rather our objective was to capture the experience of a boring and soul crushing office job.

2 Technical Details

2.1 2D to 3D Player Control and Scene Transition

Our game features a unique blend of 3D to 2D gameplay. The main office is a 3D space that the player can explore with interactive objects, while the various other rooms are 2D user interfaces with elements that the player can click on.

We used Unity's built in scene manager to accomplish this. Players can enter and exit rooms by pressing 'E'. When in a 2D scene, there is no camera movement. When the player hovers over in game elements, they are highlighted to indicate that they can be selected. This was achieved by employing two different player movement or interaction scripts, depending on what scene was currently loaded up.

2.2 The Terminal

The player's workstation serves as the main point of game play. See figure 1. When the 'E' key is pressed, the player enters the terminal where they can access certain tasks that constitute the work day. The terminal's visual itself is a Unity canvas with UI components. The *CorporateTerminal.cs* script manages visual output with methods such as *PrintLine* and user input processing with *ProcessCommand* which uses switch-case logic to branch to the corresponding actions.

Additionally, the main terminal script facilitates the work and task system by calling their corresponding methods.

2.3 Task System

To give the player a way to progress the story, we implemented a task system that serves as the core game play loop for our game. There is a static list of tasks that the player needs to complete before the end of our game, and each is categorized as a calculation, cipher, sequence, or retrieval puzzle.

Calculation tasks are math problems that are framed as load balancing questions in which the player needs to input the correct output of the equation to proceed. Cipher tasks implement a Caesar cipher on a target word that the player needs to decrypt. Sequence tasks require the player to input the given word array in order and models redundant tasks fitting of the office setting. The fetch tasks serve as an encouragement for the player to explore the office because the answer is located outside the terminal. It is important to note that the instructions for all commands and tasks are printed to the terminal as they are given. There is also a hint feature for all tasks in case the player is unsure of the correct answer.

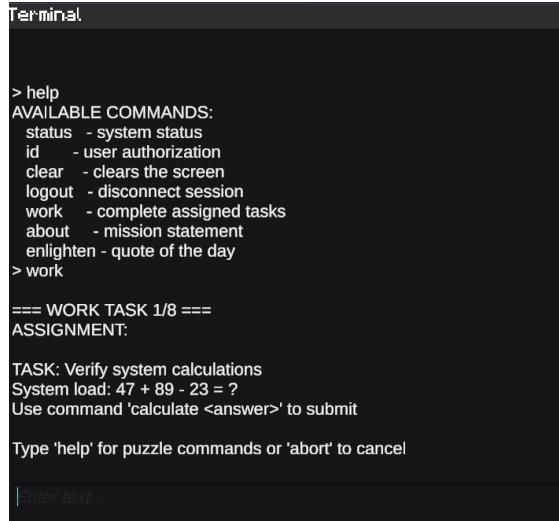
2.4 Dialogue

We used a simple dialogue system for objects that allows the player to click through text in a text box that is displayed to the screen. A pop-up user-interface with strings of text from a static JSON file in a resources folder with object keys and multiple content lines can be found on specific object and player interactions.

The components that trigger this process based on the object's and player's box colliders and player input is scripted in *NPCDialogueTrigger.cs*. The code to instantiate the UI pop-up and fetch quotes sequentially from the JSON dialogue file is managed in a *DialogueManager.cs* script. Since this process is used across the entire level, our dialogue manager script is attached as a component to an empty game object in our main scene hierarchy.

3 Our Challenge: 2D Visual Development

For our additional challenge, we chose to customize as much of the visual aspects of the game as possible. In order to accomplish this, we decided to paint each of the office scenes as well as the break room scene. This was done using Procreate, which is an illustration tool similar to Adobe Photoshop on IOS. We did this in order to keep a consistent style and aesthetic throughout our game.



A screenshot of a terminal window titled "Terminal". The window displays a help menu and a list of available commands: status, id, clear, logout, work, about, and enlighten. Below this, a command "work" is entered, followed by a task assignment: "TASK: Verify system calculations System load: 47 + 89 - 23 = ? Use command 'calculate <answer>' to submit". At the bottom, there is a placeholder text area labeled "Enter text...".

Figure 1: Terminal



Figure 2: Office 1



Figure 3: Office 2

Having our scenes and logo be custom made took a lot of time, but the end result was worth it because of the uniqueness and cohesiveness of the final product. See figures 2-4. Additionally, designing our game to incorporate these 2D scenes allowed us to explore and learn Unity's development pipelines for both 2D and 3D games.

4 Gameplay

Circle Back's gameplay centers around the player exploring the office building of Ouro Co.



Figure 4: Breakroom

The game is story driven, with its main avenue of story telling being dialogue, and the environmental story-telling that allows players to piece together and really think about the world they are in. There are a total of four rooms that can be entered: The main office, supervisor's office, a secondary office, and a break room. Each of these rooms can be entered or exited by pressing the 'E' key on the keyboard. Player movement is controlled by using the 'W', 'A', 'S', and 'D' keys.

Objects that the player can interact with are either highlighted when moused over, or text is displayed on screen when the player enters their hitbox. When objects are interacted with, a text box will appear which can reveal contextual information about the story or the objects themselves. This text box has buttons which can skip forward in the dialogue.

Despite *Circle Back* being a story driven game with no time limit, there are certain objectives that the player must complete in order to progress. *Circle Back* uses a 'performance evaluation' system, where players face a failure threshold of ten incorrect inputs in their workstation. If the player enters ten or more incorrect inputs in the terminal, a game over screen is displayed with an option to try the level again. Every task which contributes to progress in-game can be found and completed via the terminal. The terminal displays a list of commands when "help" is entered including the "work" command. When the player enters "work" the list of tasks for the day are displayed. Tasks are mini-games where the player's input is tested against the correct input and encourage the player to seek out information from the world around them.

5 Evaluation & Feedback

Our counter group emphasized that the feel and overall aesthetic of our game was very unique and effective. They appreciated the hand drawn

images of the 2D scene, and spooky feel of the environment. The choice of music for the game, they said, fit perfectly in a thematic sense. They also commented that the over all feel of the game was intentional and polished. A couple of constructive criticisms that they gave were the current lack of story elements and that the terminal was missing some features as well.

At that point in the game's development, those features were in progress, but not complete. As a result of their feedback, we implemented a starting dialogue text-box with control information and instructions on the goal of the game that is triggered when the player enters the main level from the start menu. We also added more "fetch" type quests in the work terminal that encourage the player to explore the other rooms in the office.

One of the things we did not realize when we started this project was just how much time it can take to construct a cohesive scene. Unity provides a lot of necessary tools, but learning these tools as a beginner takes time and is not always straightforward. The story is currently linear, but could be modified so that there is an element of choice, which can determine different endings depending on the player actions.

6 Member Responsibilities

Cameron Mordini:

- 2D to 3D scene transitions.
- 2D object interactions.
- Set-up of 2D UI elements
- Logo design
- Design and illustration of second office room

Connor Chapman:

- Created dialog manager following the observer pattern
- Applied dialog speakers to game objects that interact with the dialog manager
- Created a functional in-game terminal
- Created underlying data structure for the game's task and puzzle system.
- Implemented and designed the tasks to function as the core game play loop

Jocelyn Villegas:

- Created the 3D office environment scene

- Illustrated 2D scenes and assets for the break room and first office
- Created game flow scripts for scene transitions
- Created start menu design and functionality
- Created ending scene designs and functionality
- Audio selection and sound effects

7 Resources

Our 3D office scene and UI elements were created with free assets imported into our project from the Unity asset store. Our used assets are public and can be found at this link [3].

As beginners to Unity and game engines in general, we also utilized a lot of very helpful online resources and YouTube tutorials that have been centralized. These essential learning tools can be accessed from the following word document [4].

8 Conclusion

Overall, this project has served as an essential learning tool for beginners to Unity, game engines, and game development. As a result of our exploration and in making a finished game demo, the overall structure and interoperability between C# scripting, 3D models, user input, game objects, and inspector components are much clearer, and we feel more prepared to move forward in game development if we so choose.

After taking on this project, the true impact of modularity and common techniques, such as event handler objects, was emphasized. A deep respect for game developers and programmers has been developed over the course of the semester as we have attempted the balance between effective player engagement, code design patterns, and attention to detail in visual design.

Our project, even though we had to scale down significantly from what our initial idea was, reflects the learning objectives and epitome of the course as a whole. We created a cohesive and engaging virtual world that the player can experience and enjoy. Our game's choice of music, assets, and custom artwork serve to create a unique and charming aesthetic that tells a dynamic story.

References

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