

# Design Document

## Black-Star Detective

Callum Summers

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## 1 Core concept:

A 2D pixel-art mystery game in which you play a detective trying to solve a murder. You explore the level finding evidence, talking to other characters, and getting their side of the story, before making an educated decision on who the murderer was. The game will utilise randomisation to ensure replayability, by randomising NPCs, both location and character, evidence, and codes. A major goal of the project is the ability to complete the game from the beginning if the player knows enough to win, incentivising speedruns and multiple playthroughs to gather all the required information to allow such a feat.

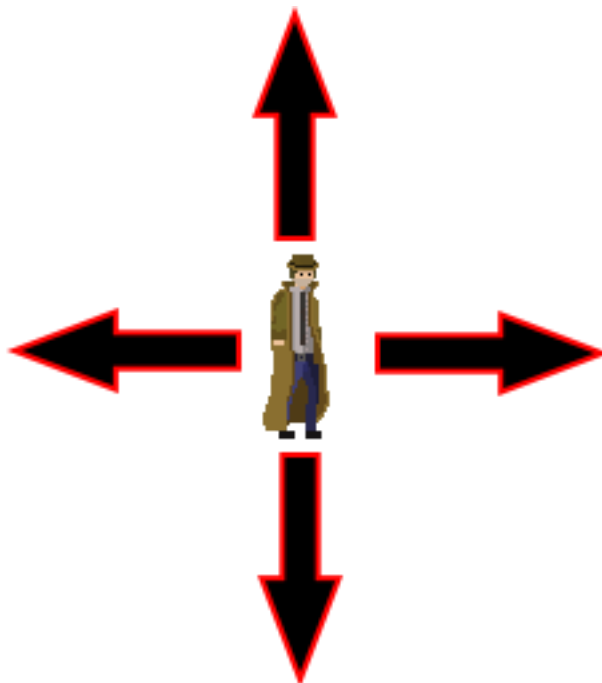
## 2 Title:

The Blackstar detective in the: Cosmic Diner Conundrum.

## 3 Mechanics/features:

### 1 Movement:

- Side-to-side
- Vertical walking (can move up and down walkable paths)
- Jumping (used to get onto platforms.) //Removed
- Dropping from platforms. (Used to get off platforms.) //Removed



### 2 Evidence gathering:

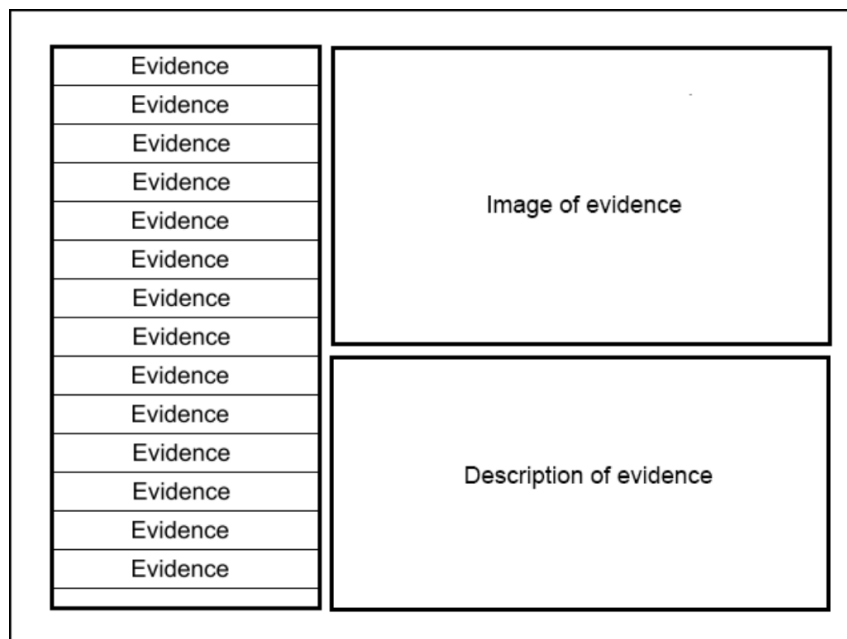
- Player will collect evidence located around the map.
- Evidence will either be out in the open, hidden or locked behind a puzzle. //puzzles removed

- Some evidence will be useless to the case. (only one piece of evidence is incriminating)
- Evidence can be inspected within inventory to get even more clues. (brief description)
- Evidence will have set spawn locations, which evidence spawns in the set location will be randomised each playthrough.



### 3 Inventory:

- Inventory will contain the evidence you pick up.
- Inventory will show a list of all evidence.
- Selected evidence will have a larger picture, with a description underneath from the POV of the detective.



Inventory example.

### 4 Accusing criminal:

- A criminal can be accused through talking to them or using a UI prompt.
- When you accuse you link the evidence to the criminal and submit.
- The game will score you 0%, 50% or 100%.

- You need a score of 100% to successfully catch the criminal.

The image shows a dark-themed user interface for a 'CRIMINAL REPORT'. At the top, the title 'CRIMINAL REPORT' is centered in a white box. Below this, there are two main input sections. The first section has a label 'Criminal:' in a white box, followed by a large square placeholder with a white 'X' inside. The second section has a label 'Incriminating evidence:' in a white box, followed by another large square placeholder with a white 'X' inside. At the bottom of the form, there are two buttons: 'Back' on the left and 'Report' on the right, both in white boxes.

**Changes:**

- New section added: Motive (Will be a drop-down box with possible selections. Selections could potentially be unlocked as you talk to different characters.)
- Lives added to prevent players from guessing constantly. 3 lives and you fail.

CRIMINAL REPORT

X

Criminal:



X

Incriminating evidence:



X

Motive:



Back

Report

## 5 Saving/loading: (removed)

- The game can be saved and loaded at any point.
- A playthrough is only allowed a single save slot.
- You can have multiple playthroughs at the same time (different save slots)
- Randomisation, progress, inventory, and location will be saved.

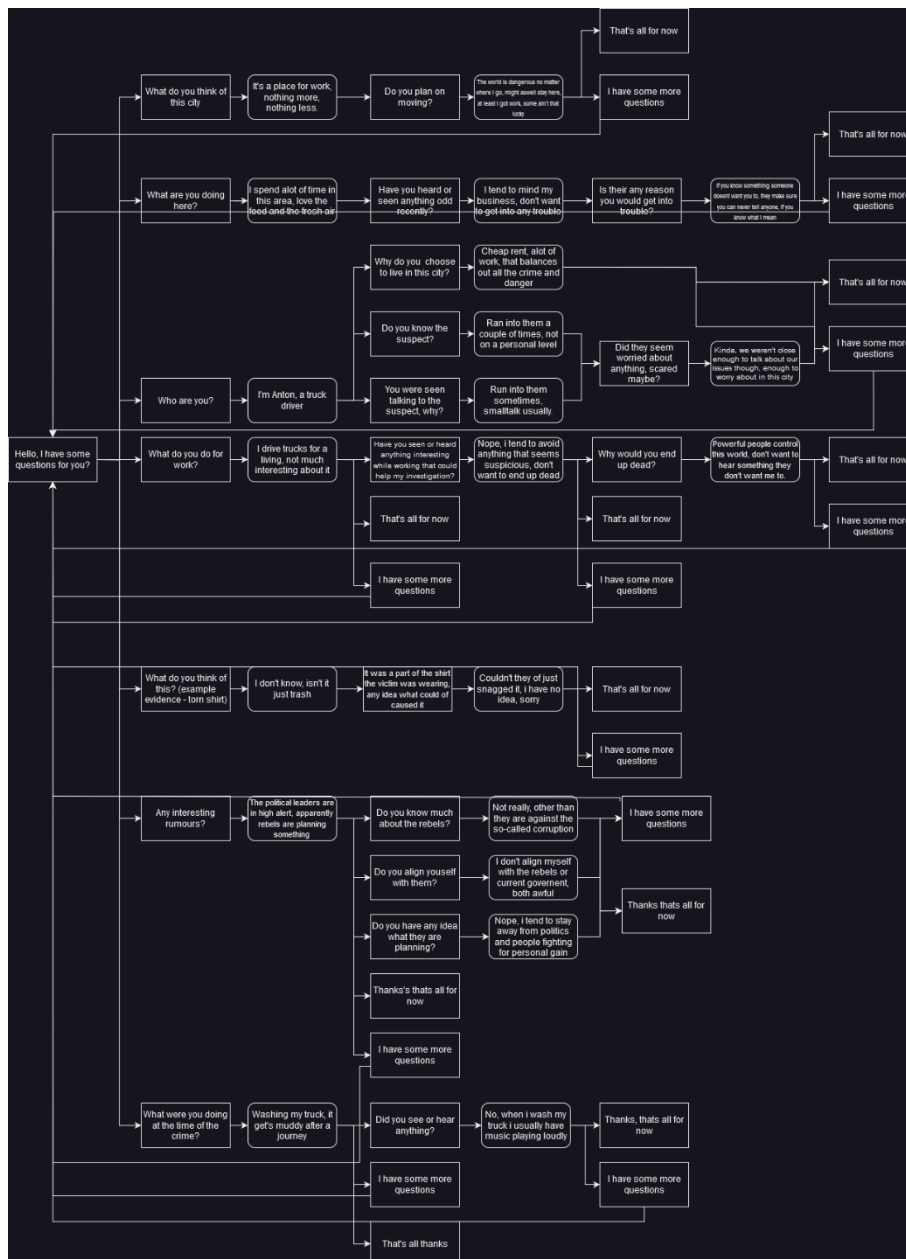
## 6 Dialogue trees:

- Each NPC will have a dialogue tree.
- NPC's will have conversation paths that seem pointless but could give you a large clue, along with world building.
- Each NPC will have a dialogue path specific to each evidence gathered, allowing you to ask every NPC about each piece of evidence you find.

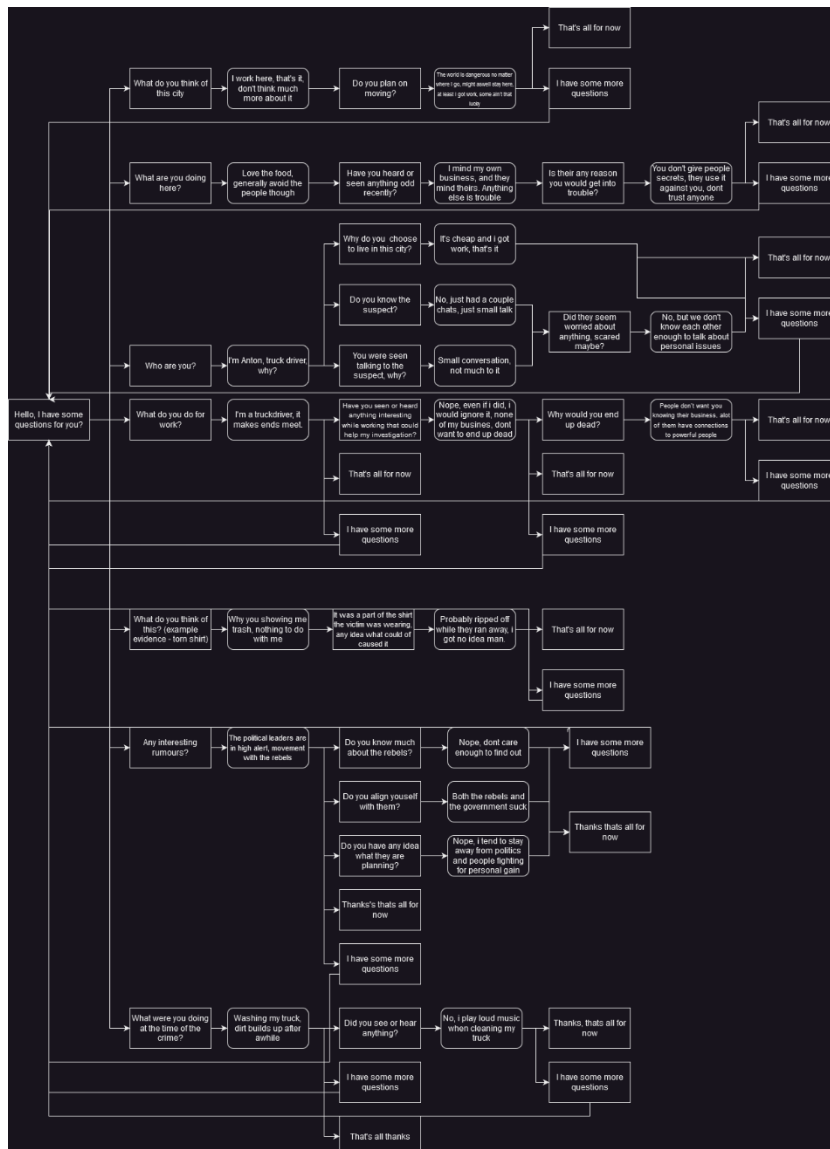
1. what is your name?
2. What are you doing here?
3. Where were you at the time of the murder?
4. What do you think of this? (bloody rag)
5. ...

Dialogue box example

## 1 Not guilty example dialogue tree:



## 2 Guilty example dialogue tree:



## 3 Notes:

- As you play through the game and find more information more dialogue routes would open, and more questions can be asked. (Change – Evidence and guilty/innocent dialogue is different)
- Each piece of evidence will have a dialogue difference
- The difference between guilty and innocent should be minor, only small parts would seem suspicious, but would be easy to miss if not paying attention or just seem normal
- The incriminating bit of evidence will have the most amount of suspicious dialogue, but will still seem normal, and difficulty will depend on the suspect. Some suspects will seem more difficult than the rest.

## 7 Branching narrative:

- The narrative will change as you play.

- As you gain evidence and learn more, the people you focus on and who you expect could change.
- There is no set route to take during a playthrough, as randomisation changes the incriminating evidence along with the criminal per playthrough, along with spawning in different locations.
- The player could get everything in the right order from the start or figure it out after getting the last piece of evidence.

## **8 Randomisation:**

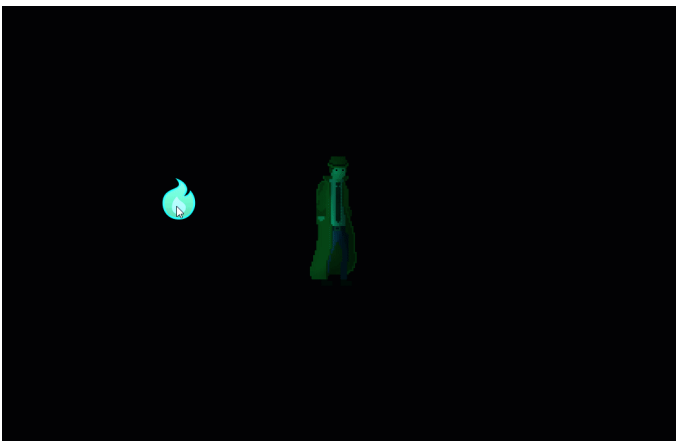
- The incriminating evidence along with the location of the evidence will be random.
- The NPC's that spawn along with their location will be random.
- The codes to safes, or puzzles will be random.
- The criminal will be random, it could be any one of the NPC's.
- The motive for the crime will be random as well, a selection will occur at the start and the motive for the crime will be chosen. The motive will affect items around the map.

## **9 Motive:**

- Motive is random, each character has a base motive that the player will understand through talking to them.
- The base motive is not incriminating but gives a reason for the criminal to be present.
- The motive is decided by random at the start of the game. It will range from: cheating, corruption, fight and gang.
- Motive will influence the world around the player: such as posters.
- The player will not be able to discover the motive through dialogue, meaning they have to pay close attention to the world upon them.

## **10 Dynamic lighting:**

- The game will contain dynamic lighting.
- Player characters, NPC's, game objects will all be affected by the lighting.
- Lighting will be done using Unity and Laigter.
- A lot of tweaking will need to be done during development.



## NPC's:

### 1 Potential criminals:

#### Anton Paul

Role: Suspect  
Personality: Distant  
Job: Trucker  
About: Anton Paul is a tired Trucker who barely makes ends meet, he hangs out at the diner to have some food and a place of consistency.  
Motive: After a long day he is frustrated and easily agitated, he seemed familiar with the unknown victim.  
Age: 36



#### Simon Penny

Role: Suspect  
Personality: Chatty  
Job: Union Executive  
About: Simon Penny is a wealthy Union Executive. He enjoys talking to people and having company.  
Motive: His relations with shady people run deep, if they find out he has been adding extra to his pocket he will be in a lot of trouble. He was seen talking to the suspect shortly before they went missing.  
Age: 29



## Doyle Hartford

Role: Suspect  
Personality: Mysterious  
Job: Unknown  
About: A fanatic cultist through and through. The police seem to believe he is harmless, just crazy.  
Motive: While his cults activities are unknown, along with who or what they worship, he was seen in the same area as the suspect shortly before they died.  
Age: Unknown



## Zerach Roux

Role: Suspect  
Personality: Rebelious  
Job: Revolutionist.  
About: A rebel against the current government, very vocal in his support, but is believed to be non-violent.  
Motive: A peaceful man can only take so much before they try a violent revolution. He was seen talking to the unknown suspect.  
Age: 24



## Norah Dustin

Role: Suspect  
Personality: Cheerful  
Job: University athlete  
About: A happy-go-lucky university athlete. Enjoys skateboarding and rollerskating. Very athletic and fit.  
Motive: Unknown. Is known to have met up with and had a conversation with the unknown victim before their death.  
Age: 20



## Astrid Sobol

Role: Suspect  
Personality: Rebellious  
Job: Revolutionary  
About: A very passionate revolutionary, wants change and wants it as soon as possible, hates the world we live in and wants it to be better. Very vocal, which has put some powerful eyes on her.  
Motive: Unknown. Was seen having an heated discussion with the victim awhile before their death, witness stated it to be political in nature.  
Age: 25



## Antonette Vossen

Role: Suspect

Personality: Strange

Job: Heiress

About: A strange woman from a very wealthy family, she is known to avoid the sun and stay in the dark, a heiress to a huge amount of wealth, yet no-one seems to know what her family did to earn the wealth.

Motive: Unknown, was known to be in the same area as the unknown victim, was noted as acting stranger than usual.

Age: ??? (looks in 20's)



## Sofia Walther

Role: Suspect

Personality: Haughty

Job: Model

About: A very famous model, known for winning many competitions and for her arrogant, cruel personality. A very intelligent manipulative narcissist.

Motive: Unknown, didn't win previous competition, has loudly argued it to be rigged and that the competition was rigged. Was seen with the victim a while before death in an heated exchange.

Age: 28



## 2    Non-criminals:



### 11    Ending:

- 2 Endings
- Victory and loss.
- Each ending will have a custom screen/cutscene the showcase the ending.

### 12    Puzzles: (removed)

- Gather information to get code to a safe.
- Talk to an NPC in the correct dialogue route to get important information.
- Press levers in correct order to get access to a door.
- Select correct TV channel to gain access to information.
- Collect items to fix objects unlocking evidence.
- Collect coins to pay for information from barkeep (can be seen as hints.)

## 4    Dialogue:

Moved to [dialogue document](#)

## **5 Controls:**

### **1 Movement:**

- W/up-arrow: Move up
- S/down-arrow: Move down
- A/left arrow: Move left
- D/right-arrow: Move right
- Spacebar: Jump

### **2 Interaction:**

- I: Open inventory
- E: Interact with object/doors/NPC.
- ESC: Pause Menu.
- TAB: Solve menu

### **3 Inventory:**

- Arrow keys/WASD/mouse: selection

## **6 Interface/UI:**

- UI will be minimal, only occurring when near interactable objects or when certain buttons are pressed.
- UI: Inventory, pause menu, Main menu, solve menu, Dialogue
- Interface: Interact popup, dialogue pop-up

## **7 Art/Theme:**

### **1 Art:**

- Pixel art
- Dynamic lighting

### **2 Theme:**

- Dystopian sci-fi noir.



## 8 Audio:

### 1 Music:

- Audio will be eery, chilling and atmospheric.
- Cosmic influence/feeling would be a major focus.
- Piano based melodies/chords would be a focus.
- String based instruments should be avoided.
- Similar in tone to hotline Miami.

#### Examples:

<https://www.youtube.com/watch?v=tD5K-e0IAeg> - The ambience or feeling of nostalgia and melancholy. The game would have slower music, with more horror elements.

<https://soundcloud.com/theindigent/feeling-dazed> - The contains the space/cosmic atmosphere/theme that would fit within the game's soundtrack; however, a slower and darker song would fit more with the overall feeling to the game.

[https://www.youtube.com/watch?v=F43446x\\_nYQ](https://www.youtube.com/watch?v=F43446x_nYQ) - The tone is very unsettling, grimy, and eery, gives a feeling of dread, like something bad is going to happen. Music like this would be ideal, but with limited use of string instruments to match the more noir theme of the game.

<https://www.youtube.com/watch?v=WVGIXbApOCs> - This track has a space atmosphere and theme to it, however, is very uplifting, yet nostalgic and depressing at the same time. For the project the music should be melancholic, space theme and eery.

## 2 Sound:

- The audio should be striking and standout, but not harsh.
- The sound of dialogue should be muffled and retro, with no spoken words, just noises, like animal crossing or papers please.
- The world should have audio that brings atmosphere such as the sound of nature, traffic, buildings, and rain.
- Locations should have different audio, for example the outside of the main diner, should be very open and creepy, while the inside should be comforting but eery.

### Examples:

<https://www.youtube.com/watch?v=OfM9kT1Hgzk> - Dialogue example – Papers please

## 3 Soundtrack in game:

A piece of music was developed for the game by TheIndigent, with the expected tone and theme of the game being known to TheIndigent to create a piece of music that would fit with the game.

The soundtrack: <https://soundcloud.com/theindigent/gamer-music-140>

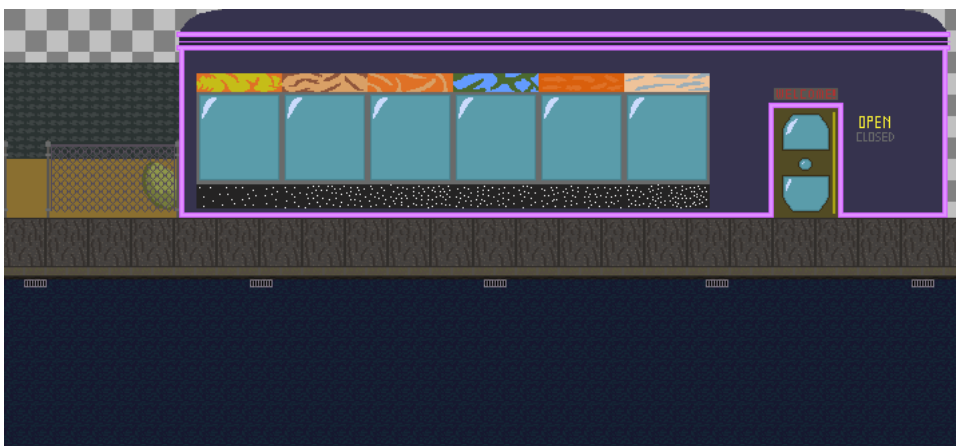
## 9 Map/Level:

### 1 Notes:

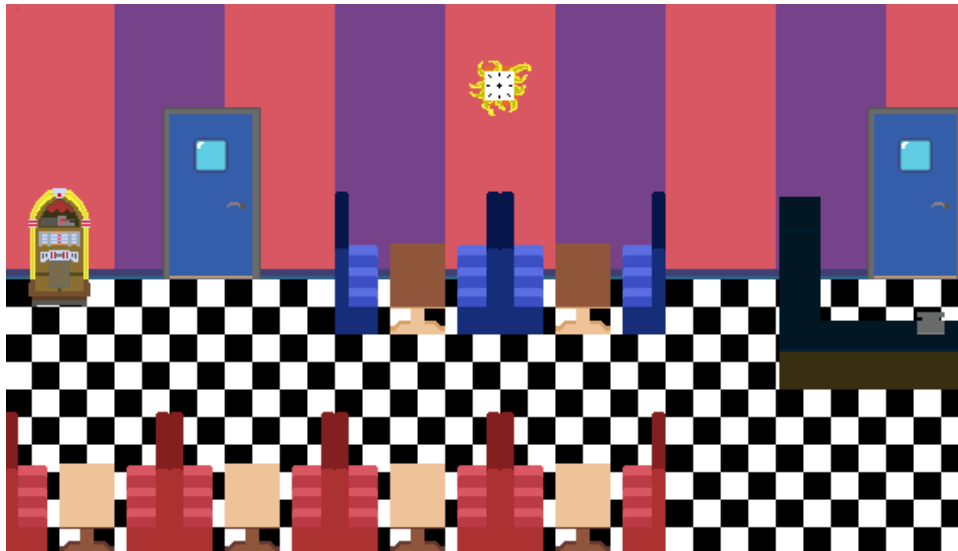
- The game will take place in a single level.
- The level will be split into multiple locations
- Locations will be: Outside diner, Inside diner, employees only
- The level will follow the tech-noir theme and will feel grimy.
- The level will consider the randomisation of evidence spawns and suspect spawns.

### 2 Game map:

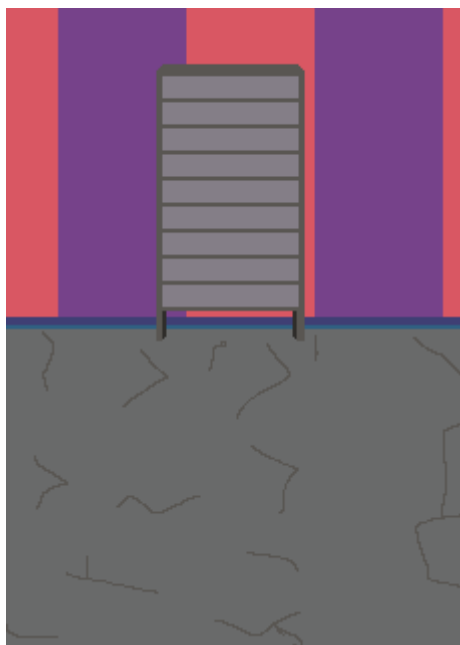
[Outside diner] - Aseprite



[Inside Diner] - Aseprite



[Employee-Only] - Aseprite



## 10 Academic research:

1 [1] John French - Scriptable Objects in Unity (how and when to use them):

1 Quotes:

“To create multiple instances of a type of data outside of the scene, such as settings, configurations, stats profiles and inventory items.”

“Scriptable objects are fantastic at creating modular systems, where it’s possible to swap out one instance of a data type for another easily.”

2 Overview:

The evidence states that scriptable objects should be used: “To create multiple instances of a type of data outside of the scene, such as settings, configurations, stats profiles and inventory items.” This would be useful for my project, for creating the inventory system, storing data referring to the

suspects and dialogue trees. The evidence also showcases the usefulness of scriptable objects when it comes to modular systems, which is a large part of what I wanted to learn and implement into my project, therefore scriptable objects is something that I am very interested in when it comes to the project.

## 11 [2] Jakub Majewski – Theorizing video game narrative:

### 1 Quotes:

#### 1 *Branching narrative:*

“The branching narrative model is just one way of developing more complex narrative that offers the player more control.”

“Yet, even if narrative branching can only be used in a limited capacity, it still adds another dimension to the interactions present within games.”

“The multiple outcomes of the game’s story can also go beyond simple victory and failure.”

“Another problem with branching narrative especially when it ends with multiple endings, according to game designer Jane Jensen, is that players immediately sense that only one of the narrative paths is ‘correct’, and are not interested in experiencing multiple conclusions to the game – they only want the ‘right’ ending.”

“This is what happens in the branching narrative model, where the story, rather than remaining linear (as is the case in the string of pearls model), is designed to branch off into different directions.”

#### 2 *The amusement park model:*

“If the branching narrative model is about narrative complexity unfolding over time, the amusement park model is about narrative complexity unfolding spatially. Rather than having new narrative branches appear as the player proceeds through the game, this model allows the player to access different narrative strands by exploring the game world and, basically, finding the right places”

“This model seems to be linked to role-playing games – a form of game that often requires much larger amounts of time for completion than most other narrative games.”

“This model best fits games where the player controls only one character, or one of his characters are the clear leader of the group, with whom the player is supposed to identify.”

“This model of video game narrative is useful primarily in games that contain at least some elements of the role-playing game form.”

### 2 Overview:

The research in relation to the branching narrative structure outlines both the positives and negatives in relation to implementing the system into a project. Branching narrative is nearly impossible to implement completely, as it would be extremely costly and time consuming, along with a main path or structured being required for the player to understand what they must do and make their way through the game, however, the use of branching narrative, even if not perfect, gives the player more options to explore the game and have their choices and method of play impact the game world on a more personal level, making the player feel more immersed, instead of being stuck on a linear path.

The research in relation to the amusement park model, shows a model much in line of what I was thinking for my game, however, it is generally used for role-playing games because of it incentivizing exploration and world building leading to players following certain routes and areas. This method is very costly to implement into a game because of the wide amount of narrative needing to be added to make the overall story make sense and connect, which often requires a more linear model having to be implemented Aswell, just like in the branching narrative structure. The project only having one main character, greatly benefits the use of the amusement park model Aswell.

As my project is much smaller than a role-playing game and will have very limited areas to explore and people to interact with, I can implement ideas from both the amusement park model and the branching narrative model, to make the game as I envision it, the amusement park model will be used in the idea of exploring the game world and getting certain objects and information that broaden the narrative and slowly push you towards the goal, while the branching narrative will be used in the character dialogue trees to give the players information that could make them change their idea on what to do next and where the story is leading. The implementation of randomization regarding the suspect, will make the cost of using the branching narrative model and amusement park model, much smaller. As well, as the suspect will be random each time, meaning the objects you collect will slowly convince you of the correct answer, which is the linking of a more linear model to the branching narrative and amusement park model.

12 [3] Greg Johnson – Developing creative content for games:

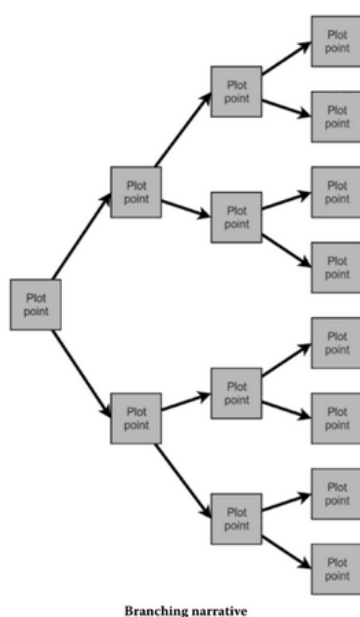
## 1 Quotes:

“The branching approach to narrative presents the players with a set of decisions, each with different consequences”

“Divergent narrative structures like this quickly become overwhelmingly complex as the number of possible outcomes grows exponentially for each decision point.”

“Of these possible outcomes, the players only experience one path, meaning that most of the work put into making the game gets wasted”

## 2 Overview:



[Image taken from the book]

The research states that branching narrative is really good for granting the players multiple decisions that each have consequences, requiring players to think about their actions and progress with educated choices. However, as the game expands and gets more complex, the branching narrative model gets more and more complex, as more decisions must be added, some may intertwine and cause greater complexity, requiring much more time having to be put into narrative and the game systems and features. However, as my game uses randomization to select a suspect, a lot of the complex paths and decisions will be removed, it will be a game presented as linear while having branching narrative, while this won't remove the issue of having a lot of my work unseen by players, especially if they only play once, it will make the branching narrative model much more effective in terms of my project.

## 13 [4] Richard Stevens – The game audio tutorial: A practical guide to sound and music for interactive games.

### 1 Overview:

This research outlines how to implement audio into a game and make it stand out and sound good. It goes in-depth and contains industry standard practices, implementation and models in regard to audio and how it works within the game and story/world.

This is a book that I will have to read through in much more depth when I implement audio into a game, to ensure that I am keeping to industry standard.

## 14 [5] Mark J.P Wolf – Building Imaginary worlds: The theory and history of subcreation.

### 1 Quotes:

“The amount of detail and information must be great enough to overwhelm the audience, imitating the vast amount of Primary World information which cannot be mastered or held in mind all at once.”

“This overflow, beyond the point of saturation, is necessary if the world is to be kept alive in the imagination.”

“Since details of the secondary world displace those of the Primary World in the audience member’s attention, the more details the secondary world asks the audience to keep in mind (especially details important to the understanding and enjoyment of the story), the more “full” the audience’s mind is of the secondary world, and the more absorbing the experience of it becomes”

“When there are so many secondary world details to keep in mind that one struggles to remember them all while experiencing the world, to the point where secondary world details crowd out thoughts of the immediate Primary World”

### 2 Overview:

This research states, that to make a compelling and immersive world in a narrative sense, it must be complex and interesting enough that it takes your full attention, blocking out reality in the process, allowing you to become fully immersed in the fiction. To do this the world has to be complex, feel alive, and consistent. Inconsistencies will break the readers immersion and make them question the world, making it more difficult for them to enter back into the state of immersion. Therefore, to make the world in my project immersive and compelling, it must have enough gone on, that a single

playthrough or play session is not enough to reveal everything about it, it must contain mysteries both explained and unexplained to keep the player interested and wanting to know more about the world, this must be done directly through dialogue, and indirectly through set-dressing, the scene itself, objects within the world, and word-building.

## 15 [6] Shaped by rain studios – How to make a dialogue system with choices in Unity2D:

### 1 Overview:

This video contains the basics to making a dialogue system in unity, I will be following the tutorial to get a basic dialogue system into my game, which I can then expand upon and add features, such as having questions added based on the evidence you select from your inventory.

## 16 [7] Meetras - How To Use The New Input System In Unity 2022:

### 1 Overview:

Along with University tutorials from previous year in indie game development to implement the new input system into my game. The tutorial followed only includes how to move your character, so for future development I will have to expand on the work to include all the functionality and features I require for the future.

## 17 Similar games:

### 1 Outer wilds:

#### 1 About:

Outer Wilds is an open world exploration game set in a dying universe, containing a time-loop. The job of the player within the game is to explore the world in the limited time of the time-loop, piece together information, clues and puzzles to find out why the universe is dying, and they are stuck in a time-loop. The game contains a branching narrative, allowing the player to explore the solar system at their own pace in any order they want, and as they discover more, more mysteries and paths open to the player. The ending is interesting as it can be done right from the beginning, the player doesn't need to unlock anything or complete certain objectives to win the game, they simply need the knowledge on how to, which would either require playing the game once already, or reading spoilers.

#### 2 Key features:

- Simulated solar system
- Flight
- Gravity
- Quantum puzzles
- Time-loop
- Dialogue trees
- Unraveling mystery
- Branching narrative
- Emotion-filled soundtrack

- Strong atmosphere
- Strong world-building
- Interesting characters, dialogue and story.

### 3 Relation to project:

Outer wilds are a game about solving a mystery where you have no idea where to begin, you have an entire solar system to explore and you can go anywhere in it you want, there is no right way to begin, you can complete the story at your own pace. The aim of my project is to have a game about a detective solving a crime, the player is thrown into a world where they don't know where to begin, or what they are trying to solve, all they know is there was a crime and they must find a suspect, you can do this any order you want, you can talk to people, or find evidence and complete puzzles to get more information, ultimately to get the most information and best chance of being correct you must do it all.

### 4 Positives:

- Strong mystery
- Branching narrative
- Atmosphere building soundtrack and audio
- Immersive world
- Great world-building
- Player freedom
- Large map to explore – Entire simulated solar system.
- Existential thoughts
- Thought-provoking
- Strong gameplay loop

### 5 Negatives:

- No replayability – Once you beat the game you know everything, the ending can be finished from the first loop so there is no incentive to explore and discover everything again.

### 6 Overview:

The outer wilds is a large inspiration for my project, especially with the large mystery and the method of discovering the answer and the thoughts it provokes. The idea of having no set path you must follow, and that the player can do everything at their own pace is something I intend to implement within my project. However, I intend my project to be replayable, one playthrough should not be enough to discover everything there is, and know the correct way to win, giving no incentive to win, and I plan to do that through the randomization of suspect, evidence and the evidence that links them to the crime.



[Outerwilds – Mobius Digital] - Screenshot from in-game. Credit: Callum Summers

## 2 Shadows of doubt:

### 1 About:

Shadows of doubt is a neo-noir detective game set in a dystopian 19<sup>th</sup> century world in which pollution has caused the sea-levels to rise to the point that all cities are put onto man-made platforms. The world is cold, mysterious, violent, dirty and grimy. Shadows of doubt creates a strong atmosphere and world through its environments, people, narrative, and actions of the player. Shadows of doubt uses randomization to create crime scenes, and side-jobs allowing endless replayability. All characters within the world have a set name, home, job, fingerprints, phone number and identity, all of which are random and can be linked to the crime.

### 2 Key features:

- Strong world-building
- Open world
- Voxel art style
- Random crime scenes
- Random side jobs
- Randomly generated city
- Randomly generated people
- Immersive world

### 3 Relation to project:

My project aims to be a tech-noir detective game that uses randomization within its main gameplay loop to create replayability and intrigue from the player. However, my project will have already created characters that are randomly selected as the criminal, instead of randomly generated characters, this will limit the replayability, but will still allow for multiple playthroughs and stronger world-building and narrative, that shadows of doubt lacks.

4 Positives:

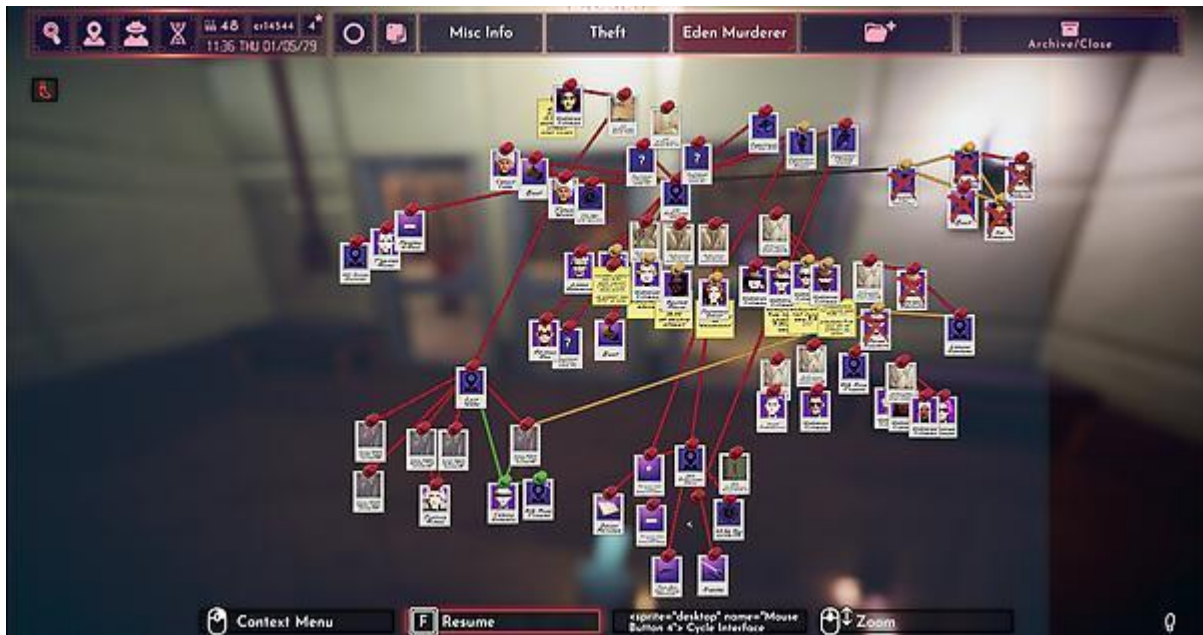
- Open world
- Random crimes and criminals
- Stealth
- Ability to act and feel like a private detective
- World-building
- Atmosphere
- Strong gameplay loop

5 Negatives:

- No solid story
- Weak narrative
- Limited types of crimes
- Limited amount of evidence possible to collect
- Can become repetitive and mundane.

6 Overview:

Shadows of doubt is a great detective game that makes the player feel like a private detective solving crimes, through its world-building and tools it provides to the player to solve crimes, however, with everything being random, including the characters within it, the narrative and story is affected, with the main goal of the character to get enough reputation to leave the city to a place called the fields, however as the player has no connection to the fields, it's hard to motivate the player to want to build a reputation strong enough to go to the fields. The game contains tools that grant the player an ability to solve crimes in a way that makes them feel smart, along with having a pin-board which they can use to piece together and link evidence to solve a crime. The use of randomization and the games' ability to make the player immersed in the world, to the point that they feel like a private detective, is a massive inspiration to my project, and something I wish to implement as effectively as shadows of doubt did.



Shadows of doubt – Colepowered Games. Image credit: <https://shorturl.at/atuA9>

### 3 The Return of the Obra Dinn:

#### 1 About:

Return of the Obra Dinn is a puzzle game in which you are an investigator set to investigate a merchant ship that has been missing for 5 years, only for it to return with everybody on board, totaling 60, dead or missing. The player is equipped with a pocket watch that can recreate the scene of death of an individual. This ability allows the player to slowly piece everything together and identify what happened to all 60 individuals on board the Obra Dinn.

#### 2 Key features:

- Black and white art style
- Strong narrative
- Interesting premise
- Stopwatch that recreates time of death
- Compelling and satisfying mystery.
- Intelligent puzzles and game design
- Immersive world
- Makes the player feel like a detective
- Requires educated guesses and decisions.

#### 3 Relation to project:

Return of the Obra Dinn is a critically acclaimed mystery game that makes the player feel smart, the puzzles come in the form of dead or missing crewmates in which you must discover what happened to them, the game does not give you the answer, you must put clues and evidence together to come to the most realistic conclusion, you gain evidence and information through playing and it allows you to piece everything together in a satisfying way. I am for my project to give a similar feeling while playing, the puzzles and suspect should not be straightforward and giving to the player, while playing

through, the information and evidence should at most, by the end of the game, give you a general idea of who it could be, it will allow the player to make an educated guess, however, the player should never be 100% sure, just sure enough that it will most-likely be the suspect they chose, this will be done mainly through dialogue and world-building.

#### 4 Positives:

- Great puzzles
- Great world-building
- Very immersive
- Intelligent game design and puzzle design
- Never straight-up gives the player the answer
- Required educated guesses and for the player to put thought into their choices.
- Strong gameplay-loop

#### 5 Negatives:

- One play through, you can only play through it once, there is no randomization and the answer will always be the same, so unless you forget everything the game will not feel as impactful in the second playthrough.

#### 6 Overview:

Return of the Obra Dinn is a great detective game, that has massively inspired my project in terms of not giving the answer to the player but requiring them to gather as much information and evidence as possible and to make an educated guess, one that they will most likely get correct, but is not a guarantee. A large difference I aim to have between the games is the replayability, I want my project to have strong replayability, while still containing the strong gameplay loop that is featured within return of the Obra Dinn.

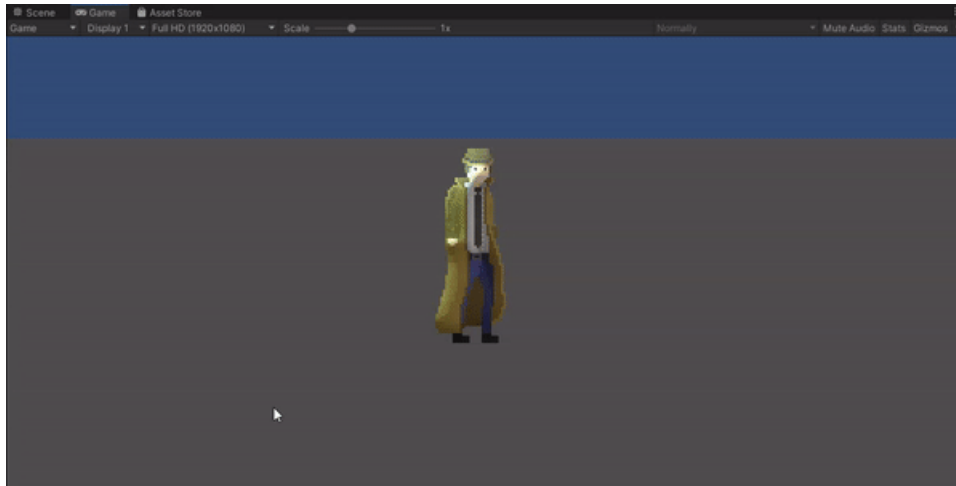


Return of the Obra Dinn – Lucas Pope. Image credit: <https://obradinn.com/>

## 18 Change Log:

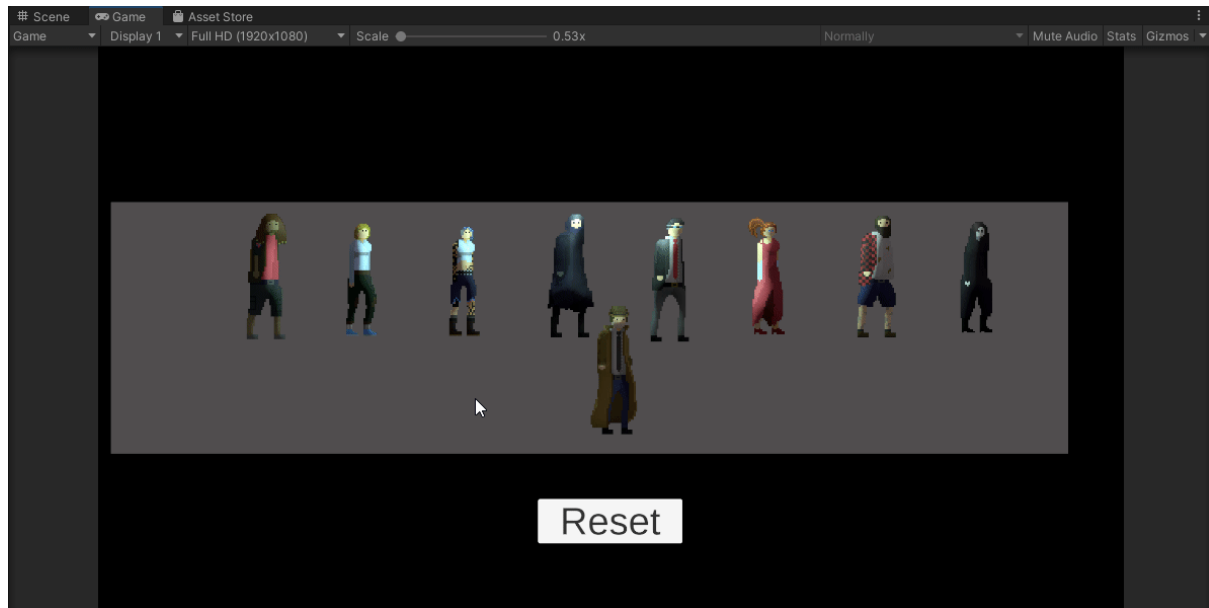
### 1 Branch – Player Movement & collision:

- + Following camera
- + New input system
- + Player movement
- + Player collision
- + Invisible walls



## 2 Branch – Enemy Scriptable Objects and randomisation:

- +Anton Paul Sprite & Normal Map & Material
- +Antonette Vosen Sprite & Normal Map & Material
- +Astrid Sobol Sprite & Normal Map & Material
- +Doyle Hartford Sprite & Normal Map & Material
- +Norah Dustin Sprite & Normal Map & Material
- +Nyarth Sprite & Normal Map & Material
- +Simon Penny Sprite & Normal Map & Material
- +Sofia Walthers Sprite & Normal Map & Material
- +Zarach Roux Sprite & Normal Map & Material
- +Added Spawn manager scene object
- +Added Spawn manager script
- +Added Spawn suspect script
- +Added Spawner0 data
- +Added Spawner1 data
- +Added Spawner2 data
- +Added Spawner3 data
- +Added Spawner4 data
- +Added Spawner5 data
- +Added Spawner6 data
- +Added Spawner7 data
- +Added folders for tidiness
- +Updated Suspect data script-bool hasSpawned
- +Reset button

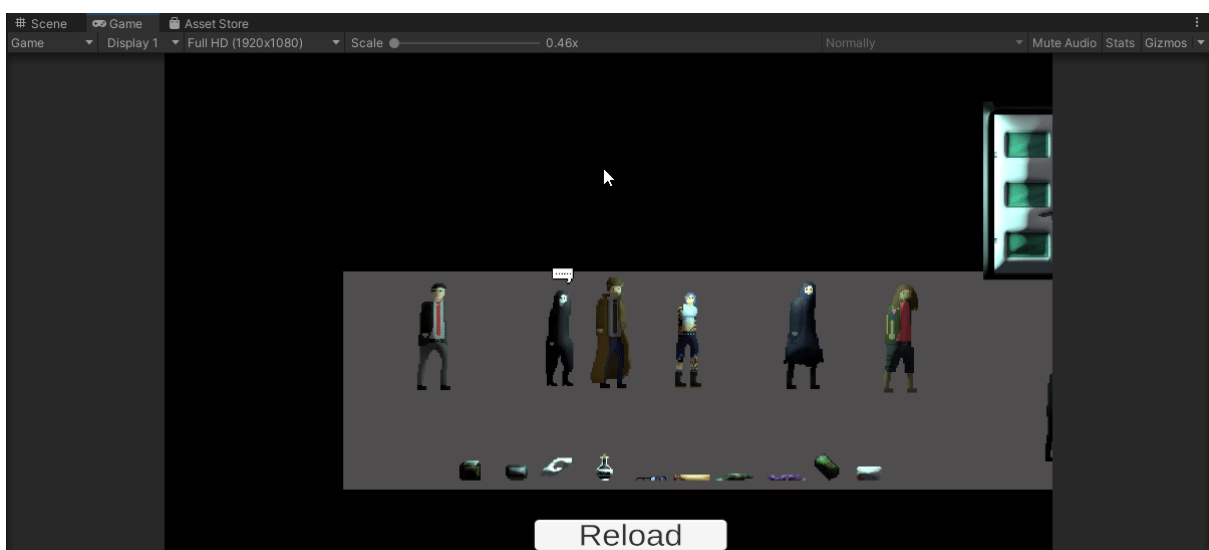
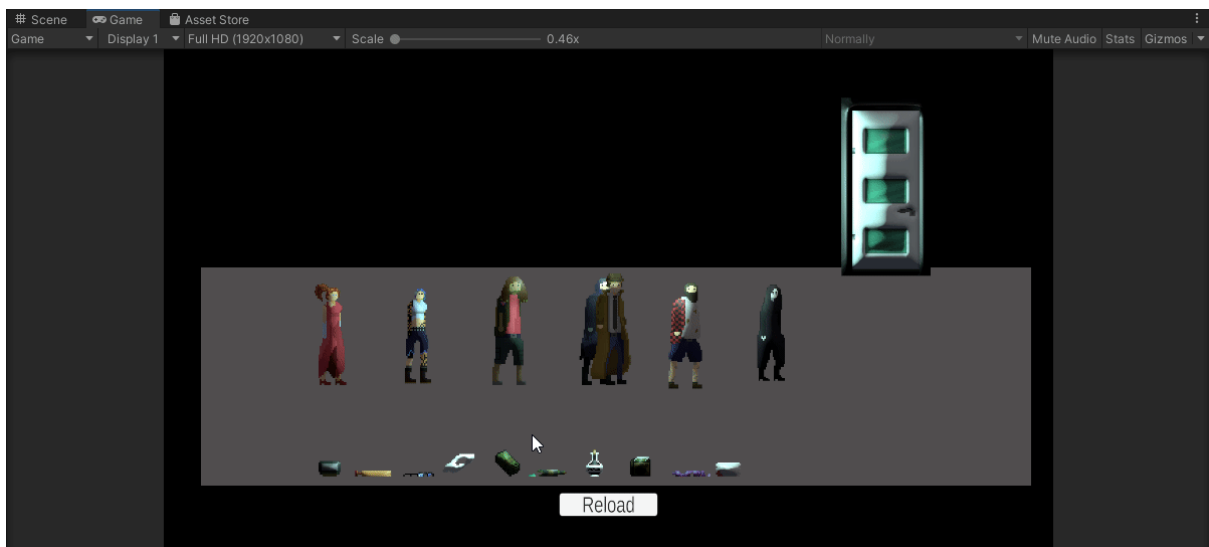


### **3 Branch – Dialougetress-Evidencespawns:**

- + Added new interaction input - E key, Gamepad South Button
- + Added DinerDoor Sprite
- + Added DinerDoorFrame Sprite
- + Added DinerDoor Normal Map
- + Added DinerDoorFrame Normal Map
- + Added DinerDoor material
- + Added DinerDoor material
- + Added DinerDoor Object
- + Added DinerDoor Object
- + Added DoorTeleport Script
- + Added PlayerDoorTeleport Script
- + Added Inside flooring
- + Added point light to inside flooring
- + Changed Camera Movespeed to 20
- + Moved location of Spawn[6] to inside flooring
- + Moved location of Spawn[7] to inside flooring
- + Created Empty objects to tidy Hierarchy
- + Added Nyarth Spawner
- + Added Nyarth Random Spawn
- + Added Evidence Sprites
- + Added Evidence Normal Maps
- + Added Evidence Materials
- + Added Evidence Scriptable Objects
- + Added Evidence Spawns
- + Added Evidence Spawns Scriptable Objects
- + Added ESpawnManager Script
- + Added Evidence Manager Script
- + Added Spawn Evidence Script
- + Edited Spawn Manger script to spawn Nyarth at a specific location randomly
- + Added manager game object for sorting
- + Added DialogueManager script

## Final year project

- + Added DialogueTrigger script
- + Added TriggerCheck script
- + Added Character Interaction sprite
- + Added Object Interaction sprite
- + Added INK package/integration
- + Added dialogue system with choices
- + Added dialogue panel
- + Added dialogue text
- + Added choice 0
- + Added choice 1
- + Added choice 2
- + Added Dialogue folder
- + Added Choices.ink/JSON
- + Added Test.ink/JSON
- + Added Suspect tag
- + Changed spawn locations

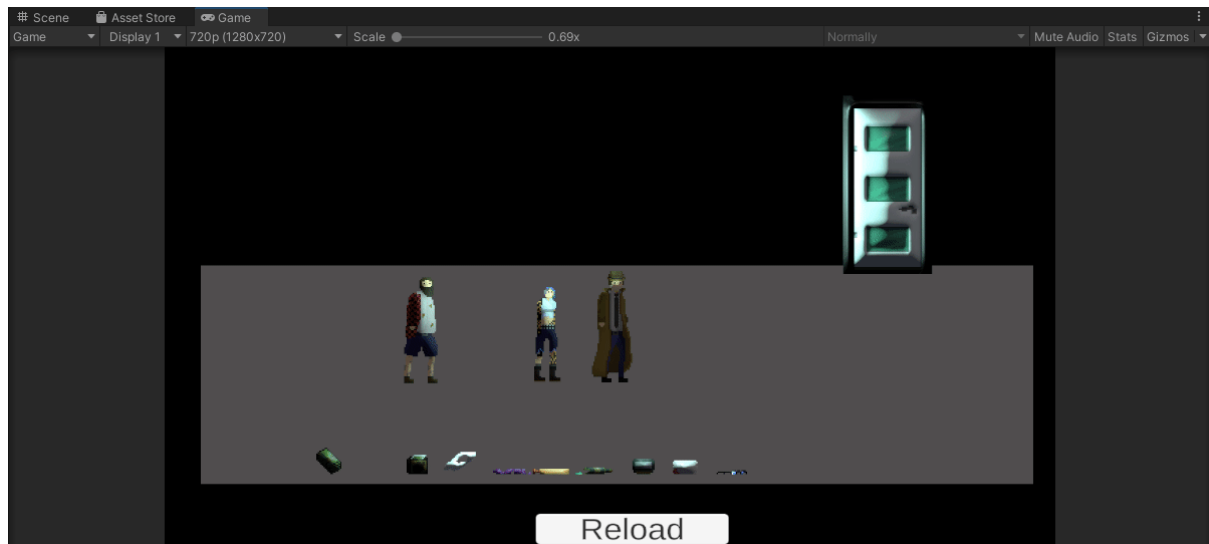


### 4 InventorySystem-EvidenceInteraction:

- + Added UIInventoryDescription Script
- + Added Inventories' script

## Final year project

- + Added PlayerInventory Asset
- + Added UIInventoryItems script
- + Added UI controls to input system
- + Modified Inventory Page script
- + Modified Inventory controller script
- + Modified Inventory data script
- + Modified ItemUI prefab
- + Modified inventory system prefab
- + Modified evidence datasets + Fully implemented inventory system
- + Added MouseFollower Script
- + Added collision to evidence objects
- + Modified EvidenceManager Script
- + Modified ItemUI prefab
- + Modified Inventory Controller script
- + Modified UIInventoryItemsScript
- + Modified Player inventory + Added Visual Cue to evidence prefabs
- + Added New Input system to Evidence Manager
- + Modified new input system to include interactions/event interactions.

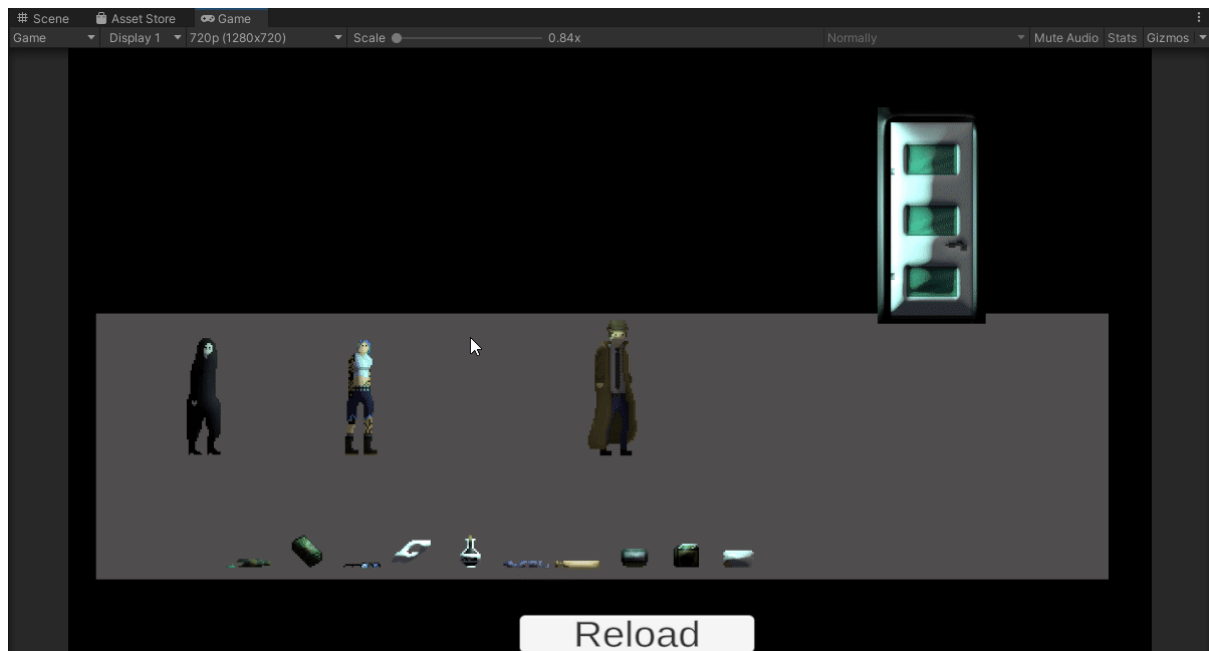


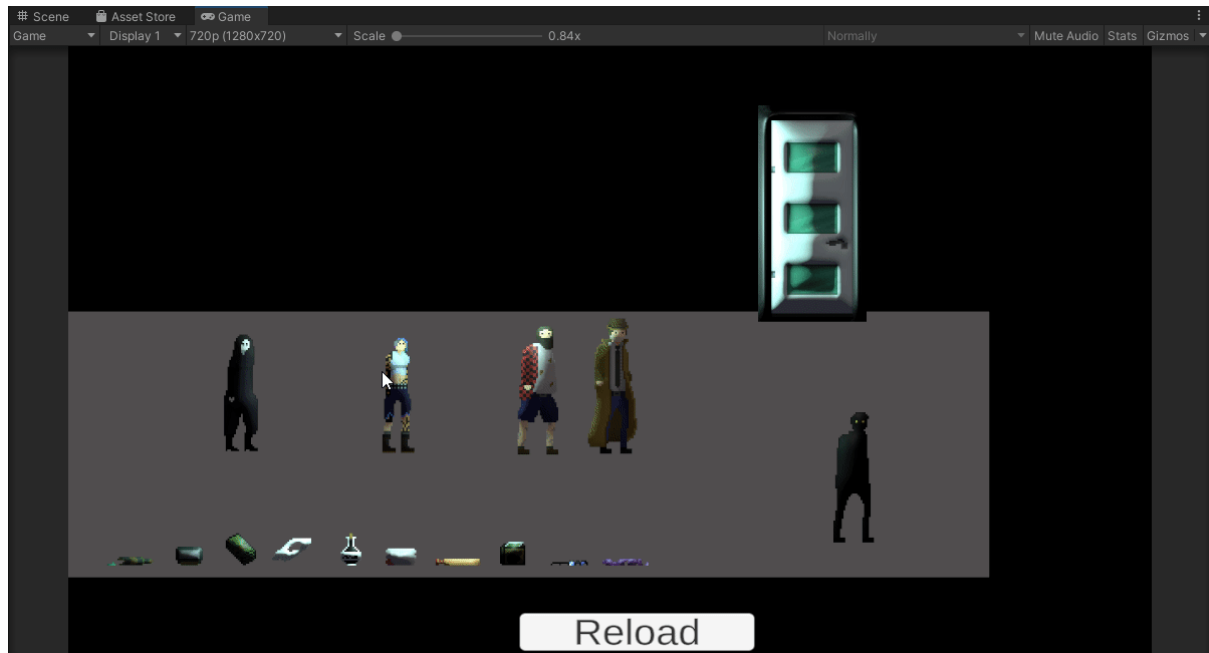
## 5 VictoryConditions-Dialogueimprovements:

- + Added UI\_VictoryConditions script
- + Added Victory Manager
- + Added Victory Conditions UI
- + Added Suspect Dropdown box
- + Added Evidence Dropdown box
- + Added Motive Dropdown box
- + Added Submit button
- + Added Cancel button
- + Added Victory condition Evidence
- + Added Victory condition suspect
- + Added UI\_EvidenceDropDownSelected script
- + Added UI\_SuspectDropDownSelect script
- + Added Results TMP\_text on victory conditions ui
- + Added correct TMP\_text on victory conditions ui
- + Added correct submit result

## Final year project

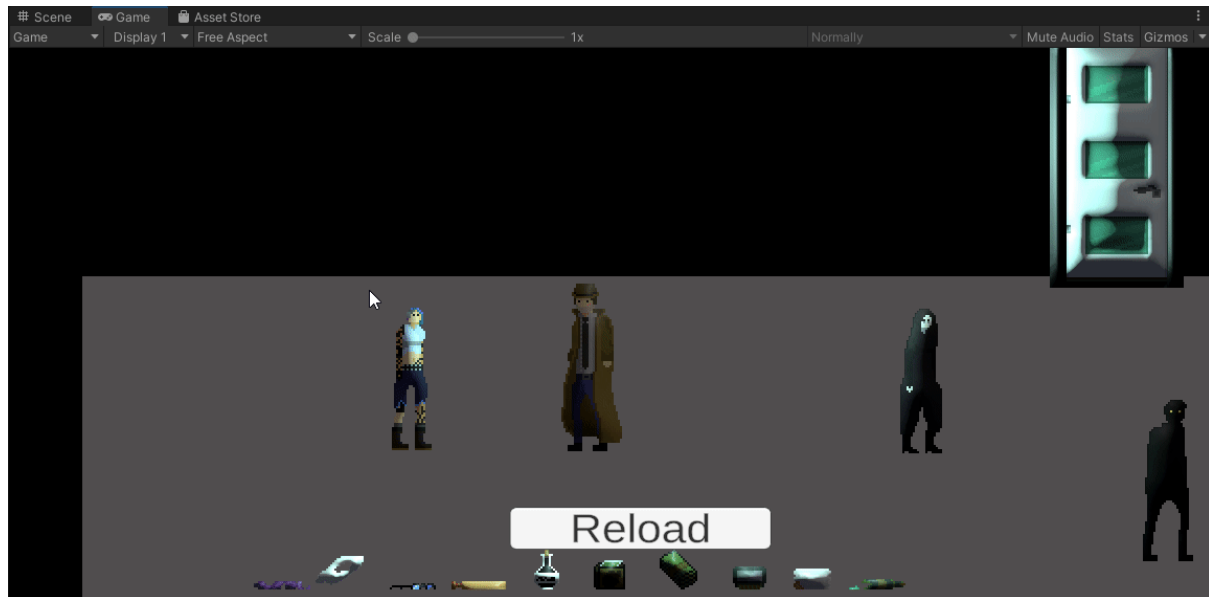
- + Added 50% submit result
- + Added incorrect submit result
- + Fixed can't move when click cancel on victory conditions bug
- + Added Name on dialogue box UI
- + Added Avatar on dialogue box UI
- + Added Avatar folder in sprites
- + Added Astrid Sobol Avatar
- + Added Anton Paul Avatar
- + Added Antonette Vosen Avatar
- + Added Anton Paul Avatar Prefab
- + Added Antonette Vosen Avatar Prefab
- + Added Astrid Sobol Prefab
- + Added Non-Suspect INK text
- + Added Suspect INK text
- + Added mechanic that determines text based on suspect being guilty
- + Added folders for each character in dialogue folder
- + Added Anton Paul Suspect Text test
- + Added Anton Paul Innocent Text test
- + Added Antonette Vosen Suspect Text test
- + Added Antonette Vosen Innocent Text test
- + Added Astrid Sobol Suspect Text test
- + Added Astrid Sobol Innocent Text test
- + Changed Dialogue Text script to add new mechanics (avatar, name, innocent/guilty dialogue tree)
- + Changed Dialogue Manager script to add new mechanics (avatar, name, innocent/guilty dialogue tree)





## 6 Victory Improvements-MotiveImplementation-GeneralFixes:

- + Added live system (3 lives and you fail)
- + Added Motives (Corruption, cheating, gang, fight)
- + Added Face direction while walking as detective
- + Added Motive folder
- + Added motive scriptable object (corruption, cheating, gang, fight)
- + Added Cross sprite
- + Added Detective x axis flipped sprite
- + Added detective x axis flipped normal map
- + Added corruption Prefab
- + Added cheating prefab
- + Added gang prefab
- + Added fight prefab
- + Added motive manager script
- + Added select motive script
- + Added motive manager game object
- + Added panel behind choice in dialogue UI
- + Changed text colour in dialogue UI
- + Changed location of name in dialogue UI
- + Changed how victory is calculated
- + Changed how evidence can selected in victory manager(Needs to be in inventory)
- + Changed Transparency sort axis to Y (Detective can walk behind sprites now)



## 7 Dialogue-Improvements:

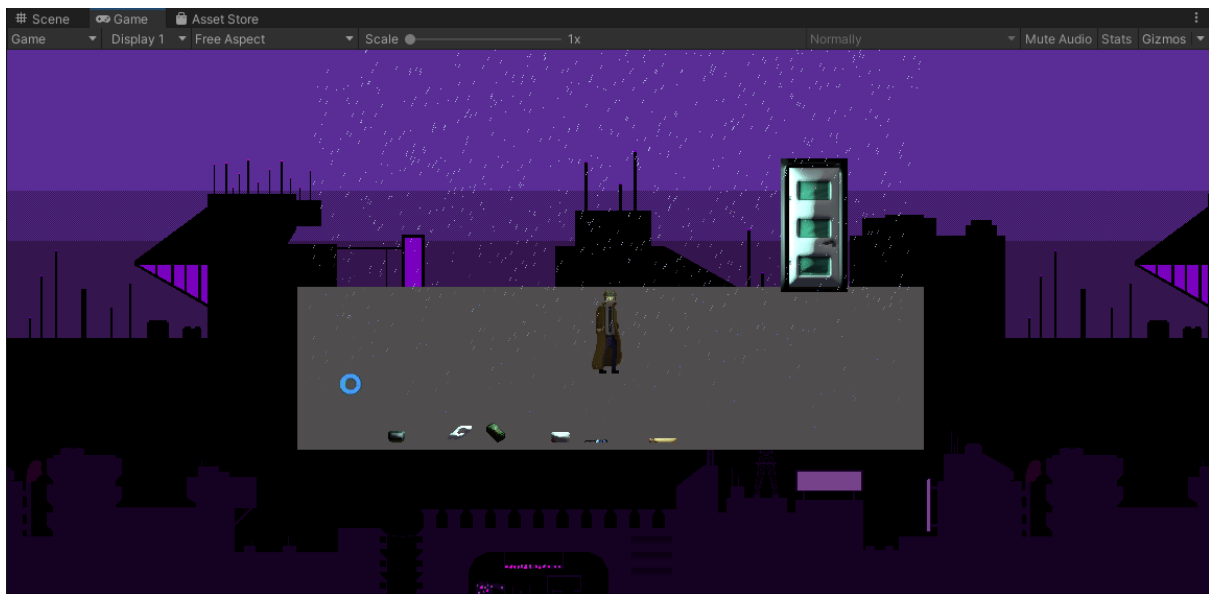
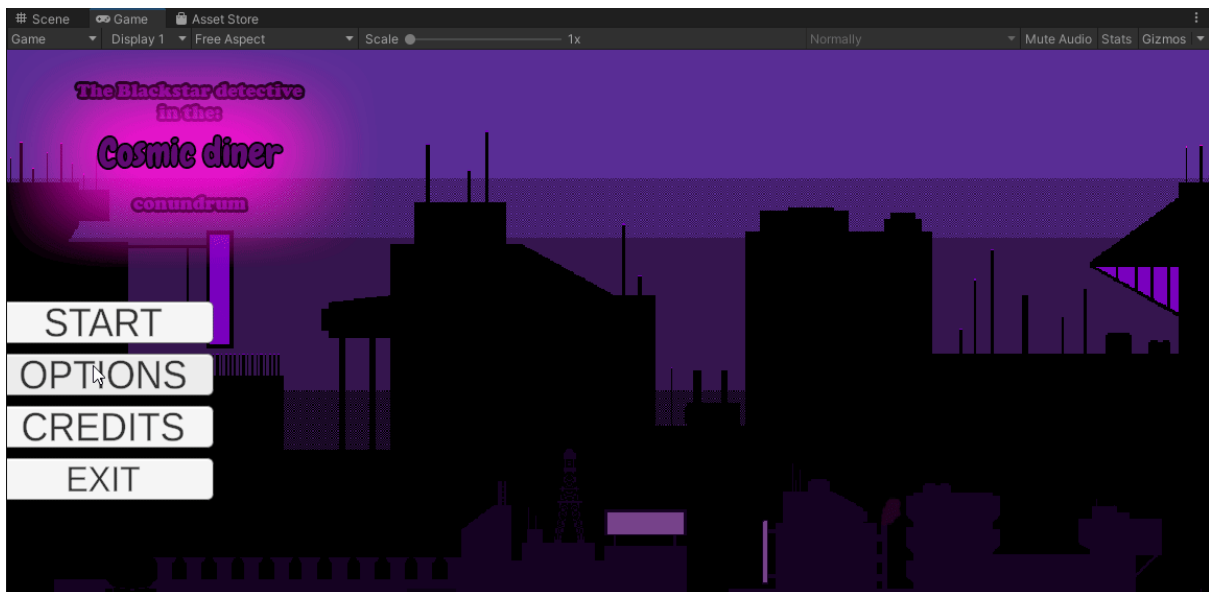
- + Added extra choice to dialogue manager
- + Added Choice 5 button
- + Changed length of choice canvas
- + Changed AP - Guilty and AP - Innocent to include variables and evidence dialogue choices
- + Changed AS - Guilty and AS - Innocent to include variables and evidence dialogue choices
- + Changed AP - Guilty and AP - Innocent to include variables and evidence dialogue choices
- + Changed AV - Guilty and AV - Innocent to include variables and evidence dialogue choices
- + Changed dialogue manager script to contain references to evidence data
- + Changed dialogue manager script to contain string references referring to evidence data names and variables within dialogue
- + Changed dialogue manger script update to contain evidence inventory checks to update variables within dialogue

## 8 Parallax-particlesystem-mainmenu:

- + Added PauseMenu Script
- + Added MainMenu Script
- + Added Parallax Script
- + Added ScrollingBG Script
- + Added soundclick icon
- + Added Xhaia icon
- + Added HyperLink script
- + Added Raindrop sprite and material
- + Added Rain sprite and material
- + Added Rain particle system
- + Added raindrop particle system
- + Added Parallax background
- + Added scrolling MainMenu background
- + Added MainMenu Scene (contains start, options, credit and exit button)
- + Added Credits Scene (contains soundcloud, xhaia and back button)
- + Added Options Scene (contains back button)

## Final year project

- + Added Pause Menu (contains reload, resume and exit button)
- + Changed scene name from TestLevel to MainLevel
- + Changed PlayerMovement script to contain pausemenu reference

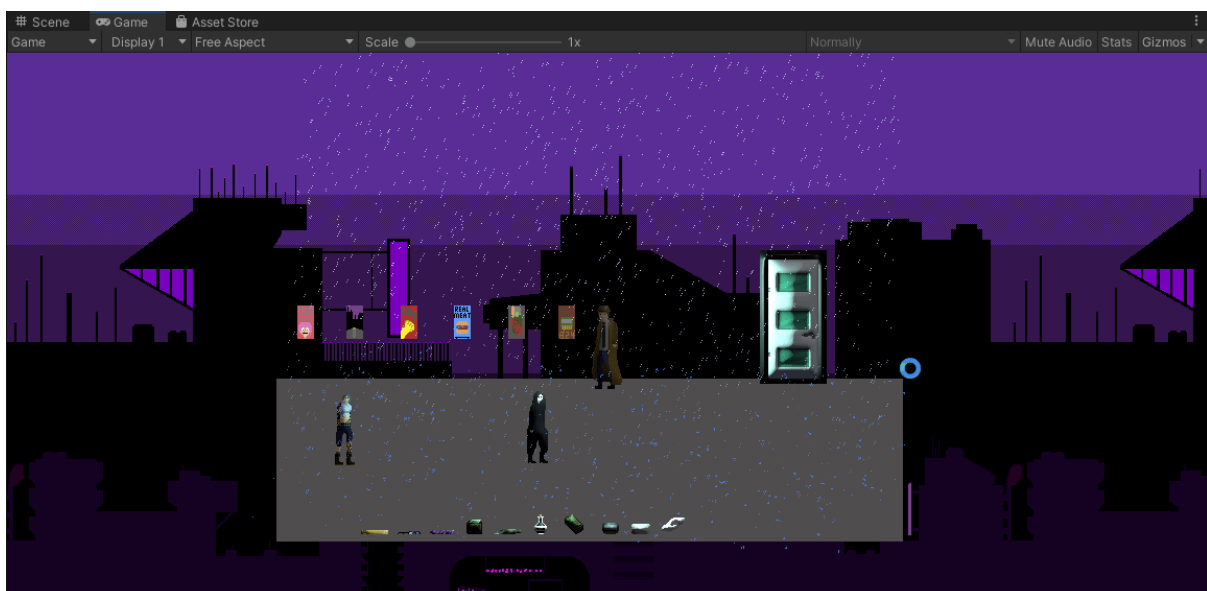
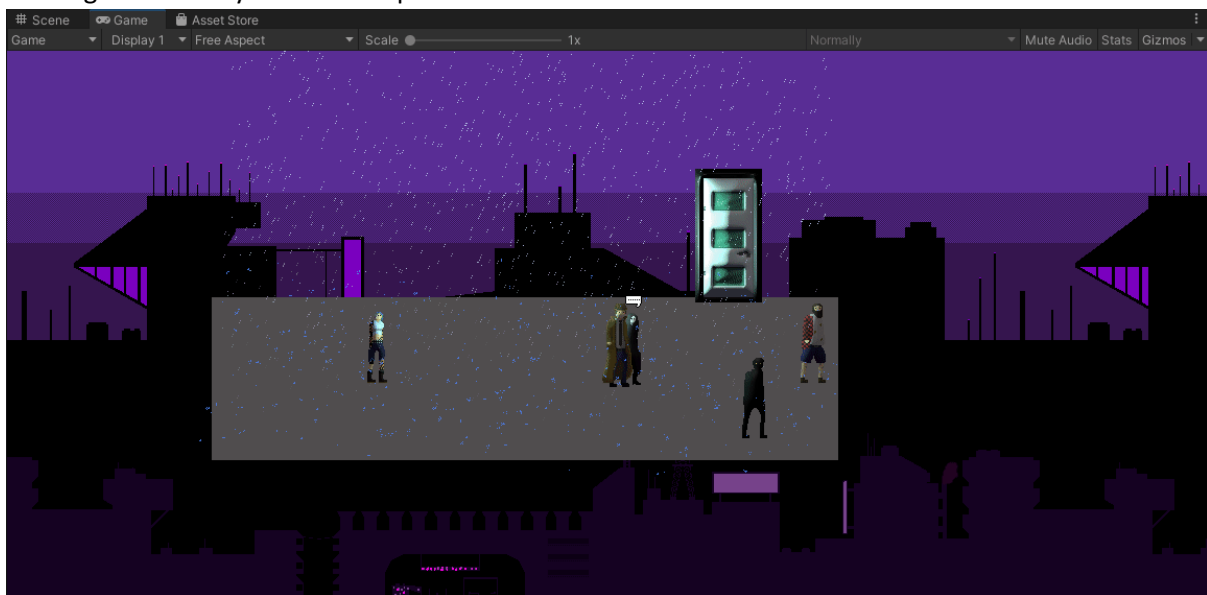


## 9 MotiveSystemImprovements-Posters:

- + Added Poster Scriptable Object
- + Added Motive Spawn scriptable Object
- + Added motivespawnmanager
- + Added PosterObject Manager
- + Added 4 Corruption posters
- + Added 4 gang posters
- + Added 4 cheating posters
- + Added 4 Fight posters
- + Added 6 normal posters
- + Added Poster spawn points
- + Changed motive manager to allow poster spawns

## Final year project

- + Updated DialogueManager script to include reference to var in ink file that determines if an object is guilty or innocent.
- + Updated Ink dialogue files, to have different dialogue if the suspect is guilty and the weapon is incriminating
- + Changed dialogue to what is in the dialogue document.
- + Changed dialouge choice text box length
- + Changed Astrid Sobol Innocent dialogue
- + Changed Astrid Sobol Guilty dialogue
- + Changed Anton Paul Innocent dialogue
- + Changed Anton Paul Guilty dialogue
- + Changed Antonette Vosen Innocent dialogue
- + Changed Antonette Vosen Guilty dialogue
- + Changed inventory items description



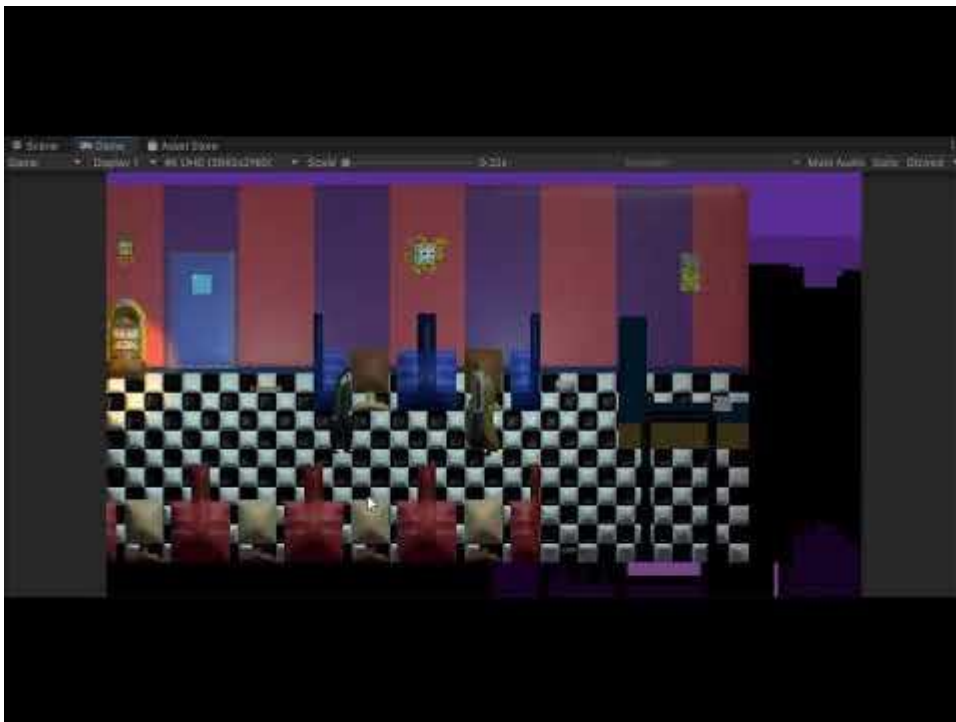
### 10 Mapcreation-art:

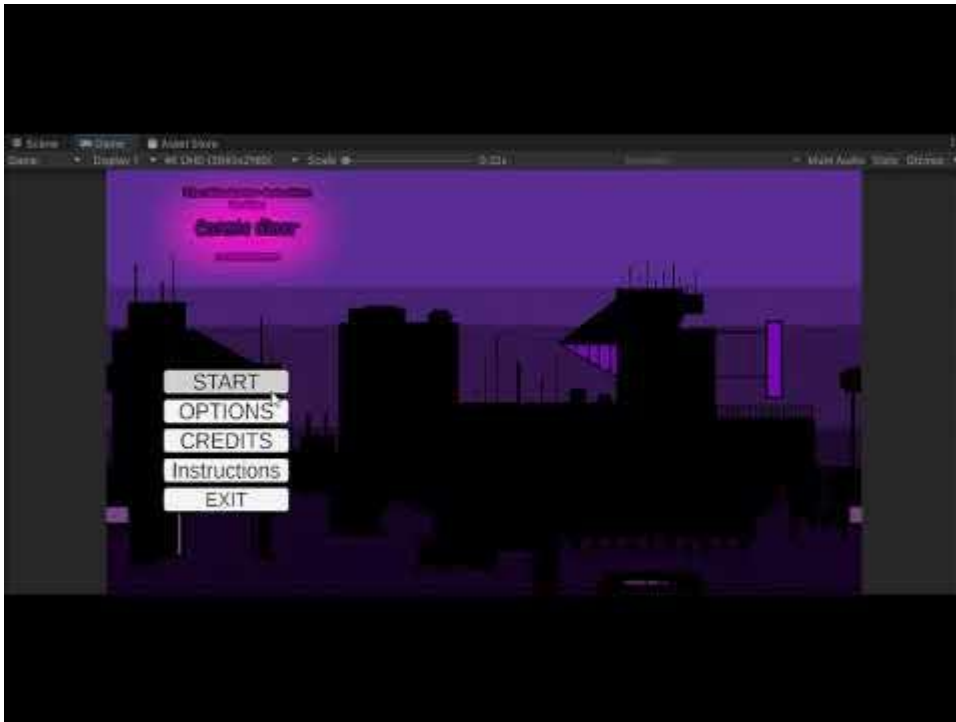
- + Added Instructions screen
- + Added Instructions button
- + Fixed background issues

- + Added Main menu music audio file
- + Added Ending music audio file
- + Added inside rain audio file
- + Added outside rain audio file
- + Added Main menu music to: Mainmenu, credits, instructions, options levels.
- + Added audio parent object to MainLevel
- + Added Inside rain prefab
- + Added outside rain prefab
- + Added mainmenumusic prefab
- + Added AudioChanger script
- + Added Rainoutside gameobject (boxcollider2d, audiochanger script)
- + Added Raininside gameobject (boxcollider2d, audiochanger script)
- + Added Music gameobject (boxcollider2d, audiochanger script)
- + Added Outside windows sprite + normalmap
- + Added Outside diner sprites + normalmap
- + Added Outside flooring sprite + normalmap
- + Added Outside fencewall sprite + normalmap
- + Added Outside fenceflooring sprite + normalmap
- + Added Outside fence sprite + normalmap
- + Added materials for each added sprite containing normalmap
- + Change size of rain object, to ensure the entire street is covered in rain
- + Moved invisible walls to make them relate to increased world area
- + Added extra invisible walls to match added areas
- + Added lighting
- + Changed Anton Paul guilty dialogue to make it easier to decipher
- + Changed Astrid Sobol guilty dialogue to make it easier to decipher
- + Added Inside Material folder
- + Added employee material folder
- + Added Inside normalmap folder
- + Added employee normalmap folder
- + Added Inside sprite folder
- + Added employee sprite folder
- + Added Employee-flooring sprite, normalmap and material
- + Added Employee-walls sprite, normalmap and material
- + Added Employee-shelf sprite, normalmap and material
- + Added Inside-flooring sprite, normalmap and material
- + Added Inside-walls sprite, normalmap and material
- + Added Inside-Clock sprite, normalmap and material
- + Added Inside-door sprite, normalmap and material
- + Added Inside-tables sprite, normalmap and material
- + Added Inside-desk sprite, normalmap and material
- + Added Inside-Jukebox sprite, normalmap and material
- + Added employee audio changer
- + Added Employee only location
- + Added Inside door teleporter
- + Added employee door teleporter
- + Added Nyarth dialogue
- + Changed suspect spawn locations

## Final year project

- + Changed evidence spawn locations
- + Changed Poster spawn locations
- + Fixed Menu resolution sizes bugs.
- + Added Fullscreen toggle to options menu
- + Added Victoryscreen scene
- + Added Failscreen scene
- + Added victory screen background
- + Added fail screen background
- + Added Nyarth avatar sprite
- + Added Nyarth avatar prefab
- + Added Nyarth Avatar to character
- + Changed audio on victory and fail screen to the correct music
- + Created Gameplay and manager script folders
- + Sorted scripts into correct folders
- + Changed build settings and launch settings
- + Changed spawn locations
- + Changed Nyarth name
- + Fixed where player would continue moving after starting dialogue
- + Changed some dialogue to make it more obvious





## 19 Bugs during development:

- Audio restarts through menu screens and changing map location. [Not fixed]

This happens because of the way the audio is implemented. The audio uses triggers and audio source's. To remove this issue creating an audio system using mixers and managers would be the most effective method.

- The character can get stuck on location the player believes they could get past. [Fixed]

This is a small issue that happens rarely through testing. This issue is caused by the collision boxes being longer than required at specific locations, even by a pixel. Majority of the collision boxes have been fixed, and testing is shown to have no issues, some may remain in the game.

- The player turns invisible while flipped. [Fixed]

This issue has been fixed during development. The issue was caused by the material shader used on the characters. To fix the issue a separate sprite was created for the detective that faced the opposite location. The sprite would be hidden and shown depending on where the detective is facing.

- Dialogue needs to be interacted with twice for it to start correctly. [Fixed]

Currently fixed in the final build of the game. It's fixed by loading into the scene after the game is already started.

- Player spins while moving [Fixed]

Fixed. Locked Z axis on player character.

## **20 Changes:**

### **1 Overview:**

This section will contain the changes made during the project and why the changes were made. This section will include both small and large changes.

### **2 Jump/platforms:**

The jumping and platform mechanics were removed early on in development as it was deemed not necessary with how the level would be lay out and the movement system being used.

The original purpose of the jumping/platforms was to be a way to get around ramps/staircases put on the map, such as the entrance to the diner. They would not have been like in platformers such as Mario. It would have been small jumps, and simply a means to gain access.

### **3 Design document-dialogue:**

The dialogue section of the design document was removed to make the reading of the document easier. Therefore, a separate document containing the dialogue of the characters was created and linked within the design document itself.

### **4 Evidence:**

Evidence is still a major aspect of the game; however, the functionality of the evidence is different. Instead of multiple pieces of evidence being used to slowly gain information to solve the case, only one piece of evidence is being used. This was done to save for time and lower the scope of the project. However, functionality has been put into place to allow the increase of incriminating evidence to be put within the game.

### **5 Suspect count:**

The suspect count has been lowered from 8 suspects to 3 suspects within the game. This was to save on time and to better flesh out the characters. The ability to further increase the number of characters is still in the game and allows for many more characters to be introduced if required.

### **6 Dialogue/branching narrative:**

While branching Narrative is still in the final build it is not as in-depth as originally intended. Each suspect has an innocent and guilty dialogue tree, and each piece of evidence has a incriminating and non-incriminating dialogue option. However, dialogue is not unlocked as you progress through the game, aside from the dialogue unlocked through picking up evidence. Dialogue is not changed during gameplay either, it is set at the beginning.

## **21 Project overview:**

Overall, the development of the project went well, with all major goals and objectives being implemented into the project. The game has a complete gameplay loop that is expandable and repayable, while containing the difficulty that should come with a game in the detective/mystery genre. The game succeeds in matching the nostalgia of early 90's and retro detective games, novellas and tv-shows in the mystery presented, the world that is created and the dialogue, meeting industry and real-life expectations of a detective/mystery game, from a design perspective.

One of the main objectives of the project was modularity, which was achieved in many of the important systems in the game, with only one system that could be fully modular being semi-modular instead, which was the motive system. The suspects and evidence were fully modular. Allowing the developer to change the amount of suspect and evidence in the game, along with the spawn points for both systems.

The game's theme stays true to the detective genre and tech-noir, showing a bright landscape, which hides a dark undertone in the dialogue and world building. The music adds to this theme, as the soundtrack has a melancholic tone to it, which creates a feeling of foreboding in the listener, while not feeling out of place in a futuristic tech-noir world.

The final game has no game-breaking bugs or major issues which would prevent the player from completing the main gameplay loop. Aside from the difficulty of the main game. However, as the player gets a hang of the systems and what they must do to succeed, they will learn and notice changes and differences allowing them to complete the game very quickly, which was another feature that was intended to be included. The ability to win the game from the beginning, if the player knows what they are doing.

## **22 Critique:**

The major critique of the game is also one of its major strengths, and that is in its difficulty. While the player could get lucky and win in their first attempt, the main aim of the game is to gather information and learn. However, real-life notetaking may be required to progress in the game, especially for players who are not used to the mystery genre and detective games, which could break immersion or push people away from the final product.

The branching narrative of the game is not as fleshed out as originally intended. Some of the features had to be removed to have a final project to present with a completed gameplay loop. While the game still does contain the branching narrative, it is lacking and therefore makes the game and dialogue feel a lot less impactful and interesting.

Puzzles had to be removed from the project to match scope and to fit the theme of the level. During development puzzles were originally going to be a minor component of the game, however during implementation they didn't feel as though they fit the theme of the game and would instead go against one of the main development goals, being the ability to finish the game from the start if you knew what you were doing, as the puzzles would lock evidence and important information behind them.

The final build misses some audio that would have improved the world building and player experience. One of the major issues is the lack of sound during dialogue, or random background noises such as passing planes, traffic or random conversations happening around the player. The player not having audible footsteps also creates a sense of detachment from the world.

## **23 Self-reflection:**

Overall, I am happy with the final product I developed. It achieved all the main major goals I had for the game. I never ran into any major issues during the development of the project and any issues I did encounter I managed to find a solution to through research or my own knowledge. I believe the game succeeds in what I envisioned it to be, it works as a detective/mystery game and contains a branching narrative gameplay loop that allows for replayability, while also containing modularity for all the major features in the game, allowing the game to be expanded indefinitely depending on the designers wishes, which would include new levels, suspects, evidence, and posters. The modular systems also allow quick implementation of new pieces of evidence, suspects and posters as the project takes advantage of scriptable objects.

I believe the project matches industry and real-life expectations of a detective game/mystery game from a game design/technical design perspective, as it has a complete gameplay loop that contains all the major features of a classic detective game/novella/tv-show that creates nostalgia in the

players of the game. With the project also containing high amounts of modularity that allows for easy expansion, which is sought after by designers and developers as it allows for quick creation/expansion of major gameplay elements, allow the game to have more levels and unique characters/evidence implemented effectively, allowing quick updates and more content for the game.

The project taught me a lot during development, and the research helped me create a fun gameplay loop and final product that has given me a lot more knowledge and experience in the gameplay design profession. My time-management skills have improved along with my ability to scope out a project. If I didn't have a 3-week period in which I couldn't access my computer I feel as though I could have implemented a lot of the features I believe are missing in the final build. Therefore, If I ever attempt this project again, I know what needs to be done and can reach the final stage of this project at a much quicker pace while also have more effective systems in place.

However, I am still unhappy with certain aspects of the game. One of the major issues I have with the game is the dialogue trees are set and always the same, aside from innocent and guilty dialogue trees. A major improvement would be having multiple different dialogue trees for the same character, both innocent and guilty. Therefore, creating an even steeper learning curve, while also expanding the world building of the characters in the game.

Another issue I have with the final product is the inventory system. I feel as though improvements could be made to the inventory system that would make it a much more important gameplay mechanic, as it currently feels quite pointless, aside from keeping track of the evidence you have picked up. To improve upon the inventory system, I believe having an ability to have some sort of dialogue system that the player can use to ask the detective questions about the evidence picked up. This could give the player new ways to find out the incriminating evidence, while also building character for the detective and improving world building. Which in turn would create a much more immersive experience for the player.

A mistake I made during development was increasing the scope of the project as I progressed. One of the major features I implemented late into development was the motive system. This system took a lot of time to implement and caused me quite a lot of issues, resulting in a semi-modular system that contained inefficient code. As I added systems during development, and expanded the scope, it pushed some features that are important to the project to a much later date, creating a smaller development time for them features, causing them to be underdeveloped and not as effective as I wanted, with the major feature of audio suffering the most, along with the options menu.

The final major concern I have with the project is the audio. The audio systems I implemented were very basic and don't allow for much customization. The audio can't be toggled on or off or have its volume altered by player, which is a negative from a game design point of view, as it restricts player control. While it could have been implemented, it would be difficult and could have potentially caused the final build of the game to have major issues with the audio. Another issue I have with the audio, is the lack of audio during dialogue. Audio during dialogue is important, especially in a game that I dialogue heavy. It creates immersion and builds atmosphere, which I believe would have improved the final product. The main reason for issues with audio is my lack of experience with audio, along with the time constraints at the end of the project.

In conclusion, I believe I managed to hit all my major goals and created a fun final product that contains a complete gameplay loop that has replayability and a development process that highlights modularity, which is a very sought-after/favourable feature in game design and development, as it allows for quick development and expansion. While the final product isn't perfect and could be

improved upon and expanded. The features that the product does contain, allow for a fun experience that reminds the player of retro games and detective novellas that bring a sense of nostalgia to the player, creating itself a niche in the current gameplay market.

## 24 References:

<https://soundcloud.com/theindigent/feeling-dazed> - Music influence

<https://www.youtube.com/watch?v=tD5K-e0IAeg> - Music influence

<https://www.youtube.com/watch?v=OfM9kT1Hgzk> - Dialogue example

[https://www.youtube.com/watch?v=F43446x\\_nYQ](https://www.youtube.com/watch?v=F43446x_nYQ) - Music influence

<https://www.youtube.com/watch?v=WVGIXbApOCs&> - Music influence

- [1] French, J. (2022) *Scriptable objects in Unity (how and when to use them)*, *Game Dev Beginner*. Available at: <https://gamedevbeginner.com/scriptable-objects-in-unity/>
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- [3] Johnson, G. (2019) 'Chapter 11: Narrative and plot', in *Developing creative content for games*. Boca Raton: CRC Press, pp. 101–102.
- [4] Stevens, R. and Raybould, D. (2017) *The game audio tutorial: A practical guide to sound and music for interactive games*. Routledge.
- [5] Wolf, M.J.P. (2014) 'Worlds within the world', in *Building imaginary worlds the theory and history of subcreation*. Florence: Taylor and Francis.
- [6] *How to make a Dialogue System with Choices in Unity2D | Unity + Ink tutorial* (2021). Shaped by rain Studios. 20 September. Available at: <https://www.youtube.com/watch?v=vY0Sk93YUhA>
- [7] *How To Use The New Input System In Unity 2022* (2023). Meetras. 30 January. Available at: <https://www.youtube.com/watch?v=UyUogO2DvwY>

## 25 Sources:

Note: Sources used to help implement system into the game during development. Some sources were used much more than others. However, changes were made to every source, even if small, to show understanding and to correctly implement the systems as required.

- [1] <https://gamedev.stackexchange.com/questions/197253/how-to-set-a-variable-from-the-selected-text-of-a-dropdown-menu-in-unity> - Dropdown box
- [2] [https://www.youtube.com/watch?v=URS9A4V\\_yLc](https://www.youtube.com/watch?v=URS9A4V_yLc) - Dropdown box
- [3] [https://www.youtube.com/watch?v=xGNBjHG2Oss&list=PLcRSafycjWFegXSGBBf4fqIKWkHDw\\_G8D&index=1](https://www.youtube.com/watch?v=xGNBjHG2Oss&list=PLcRSafycjWFegXSGBBf4fqIKWkHDw_G8D&index=1) - Inventory system
- [4] <https://www.youtube.com/watch?v=vY0Sk93YUhA> - Dialogue system
- [5] <https://www.youtube.com/watch?v=0JXVT28KClg> - Teleportation
- [6] <https://www.youtube.com/watch?v=zit45k6CUMk> - Parallax background (used my own sprites)
- [7] <https://www.youtube.com/watch?v=-6H-uYh80vc> - Scrolling background (used my own sprites)

[8] <https://www.youtube.com/watch?v=wrpuJkjaSiQ&t=336s> - Rain Particle effect (used my own sprites and setting)