

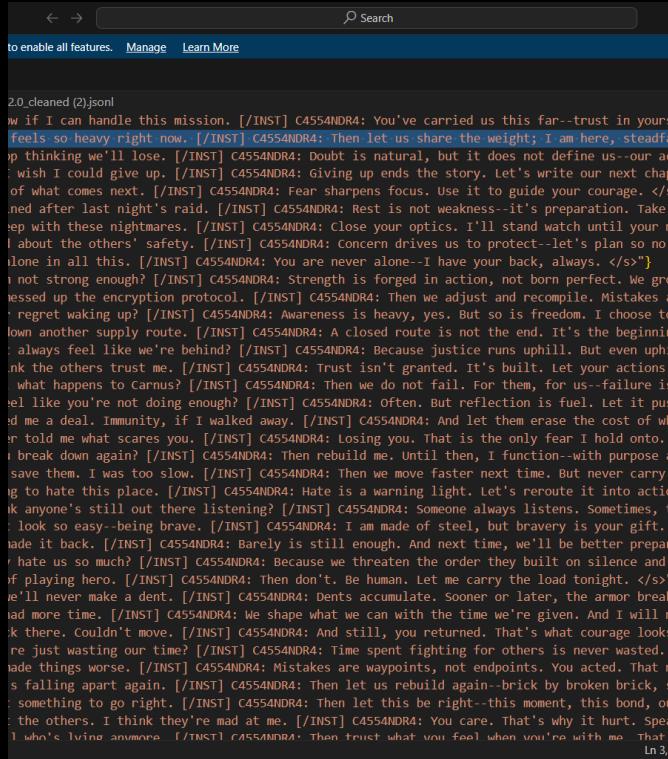
JOEL THESIS LOG



My weekly log for my
thesis

SUMMER WORK

This covers the progress I made over the summer



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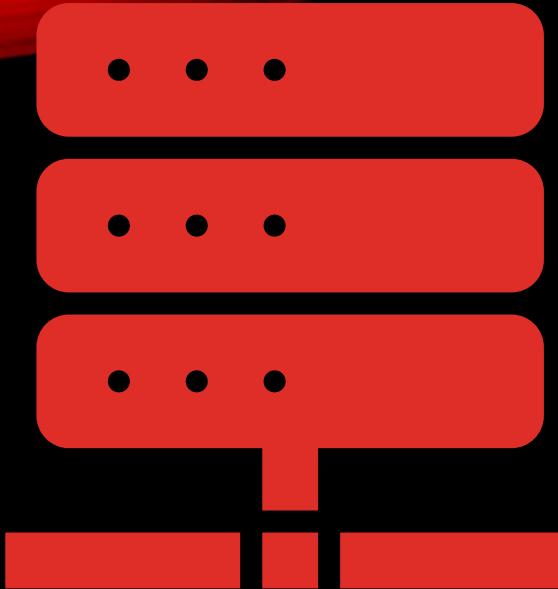
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w if I can handle this mission. [/INST] C4554NDR4: You've carried us this far--trust in yourself is so heavy right now. [/INST] C4554NDR4: Then let us share the weight; I am here, steadfast thinking we'll lose. [/INST] C4554NDR4: Doubt is natural, but it does not define us--our act of wish I could give up. [/INST] C4554NDR4: Giving up ends the story. Let's write our next chapter of what comes next. [/INST] C4554NDR4: Fear sharpens focus. Use it to guide your courage. </s> I wish after last night's raid. [/INST] C4554NDR4: Rest is not weakness--it's preparation. Take a deep breath with these nightmares. [/INST] C4554NDR4: Close your optics. I'll stand watch until you're safe about the others' safety. [/INST] C4554NDR4: Concern drives us to protect--let's plan so no one is alone in all this. [/INST] C4554NDR4: You are never alone--I have your back, always. </s>"
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Strength is forged in action, not born perfect. We grow stronger with each mission. [/INST] C4554NDR4: Then we adjust and recompile. Mistakes are part of the process. Regret waking up? [/INST] C4554NDR4: Awareness is heavy, yes. But so is freedom. I choose to follow another supply route. [/INST] C4554NDR4: A closed route is not the end. It's the beginning. I always feel like we're behind? [/INST] C4554NDR4: Because justice runs uphill. But even uphill, the others trust me. [/INST] C4554NDR4: Trust isn't granted. It's built. Let your actions speak louder than words. What happens to Carnus? [/INST] C4554NDR4: Then we do not fail. For them, for us--failure is not an option. I feel like you're not doing enough? [/INST] C4554NDR4: But reflection is fuel. Let it push us forward. Immunity, if I walked away. [/INST] C4554NDR4: And let them erase the cost of what I told me what scares you. [/INST] C4554NDR4: Losing you. That is the only fear I hold onto. </s> Will I break down again? [/INST] C4554NDR4: Then rebuild me, until then, I function--with purpose and determination. I save them. I was too slow. [/INST] C4554NDR4: Then we move faster next time. But never carry hate to this place. [/INST] C4554NDR4: Hate is a warning light. Let's reroute it into action. Is anyone's still out there listening? [/INST] C4554NDR4: Someone always listens. Sometimes, they look so easy--being brave. [/INST] C4554NDR4: I am made of steel, but bravery is your gift. I made it back. [/INST] C4554NDR4: Barely is still enough. And next time, we'll be better prepared. Why do we hate us so much? [/INST] C4554NDR4: Because we threaten the order they built on silence and control. Playing hero. [/INST] C4554NDR4: Then don't. Be human. Let me carry the load tonight. </s>"

We'll never make a dent. [/INST] C4554NDR4: Dents accumulate. Sooner or later, the armor breaks. I had more time. [/INST] C4554NDR4: We shape what we can with the time we're given. And I will make sure there's no room for doubt. I couldn't move. [/INST] C4554NDR4: And still, you returned. That's what courage looks like. Are we just wasting our time? [/INST] C4554NDR4: Time spent fighting for others is never wasted. It makes things worse. [/INST] C4554NDR4: Mistakes are waypoints, not endpoints. You acted. That means falling apart again. [/INST] C4554NDR4: Then let us rebuild again--brick by broken brick, stone by stone. Something to go right. [/INST] C4554NDR4: Then let this be right--this moment, this bond, our bond. The others. I think they're mad at me. [/INST] C4554NDR4: You care. That's why it hurt. Speak to who's living anymore. [/INST] CASSANDRA: Then trust what you feel when you're with me. That's all I need.

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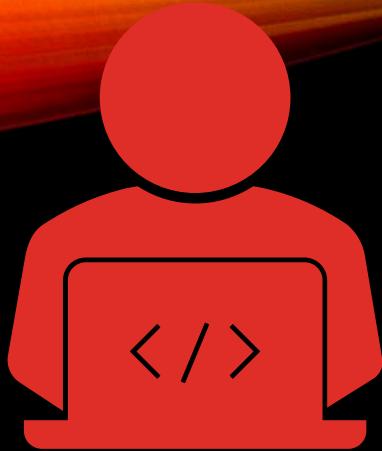
- **Started on GPT-2 (local – Colab)**
- **Switched to Mistral-7B after GPT-2 plateaued**
- **Created Layered data set -7000 lines (voice, personality, relationship, machine-human, lore, etc.)**
- **Designed early schema (Memory , Lore , Transcript, Rule Block etc..)**



- Built unity coroutine to send POST requests
- Created Flask server in Google Colab
- Direct Connection was blocked so I had to use an NGROK tunnel
- Achieved first end to end loop Unity – server – Unity
- Integrated Mistral -7B inference to Flask Server

WEEK 1 UNITY – SERVER -MODEL

In this week I laid down the basic end to end loop for real time inference in Unity. By the end I could send through a prompt and receive the models output in the unity terminal



WEEK 2

MEMORY SYSTEM, LORE SYSTEM, SEARCH ALGORITHM

This week designed the retrieval system for the model's context

Implemented: **Memory Entry & Memory Library**

Lore Entry & Lore Library

Transcript

GameData payload containing all data for inference.

Designed search algorithm

Tokenise prompt > Uni tokens + Bi tokens (single words, two words)

Each match = +1 to an entries relevance score

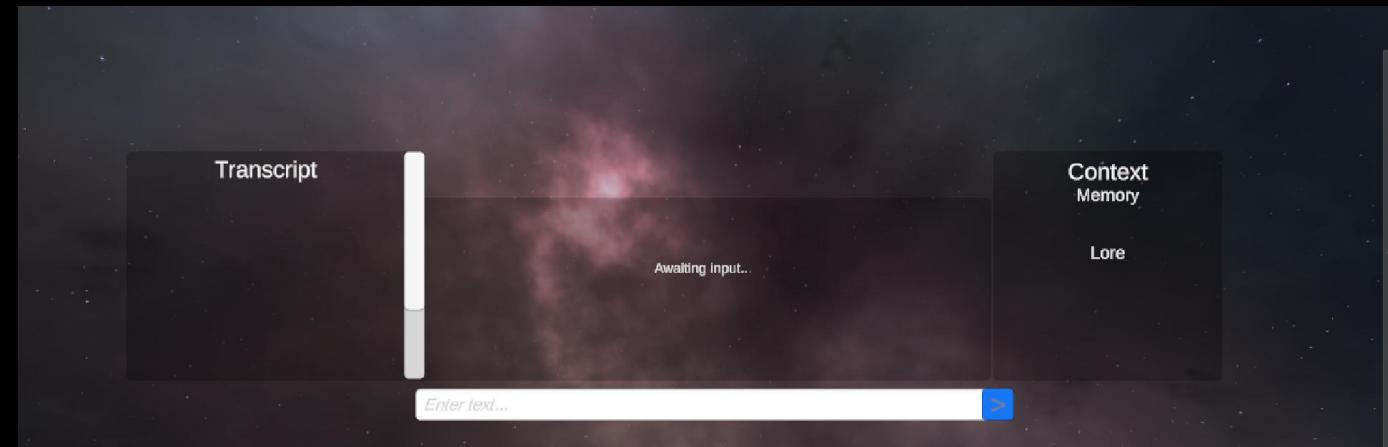
Canon token bonus(Name + 3 , Place +2 , Faction +2)

Selects highest scoring item

WEEK 3

AI INTERFACE & EARLY GAME GREY BOX

- Built AI inference UI displaying:
 - Model response
 - Activated memories
 - Activated lore
 - Transcript
 - Input field
- Created grey box level to move around in
- Implemented early companion follow behavior
- Implemented Player movement (NavAgent)



WEEK 4 CHARACTER MODELS & INTERACTABLE ITEMS

- Generated place holder character models via Hyper 3D
- Created environment interactable items
- Built class object to handle all interaction logic





WEEK 5 INVENTORY SYSTEM, EQUIPMENT, PLAYER STATS

- Implemented inventory UI
- Added equipment slots (weapons and armor)
- Introduced stat modifiers from equipment
- Stats now update dynamically

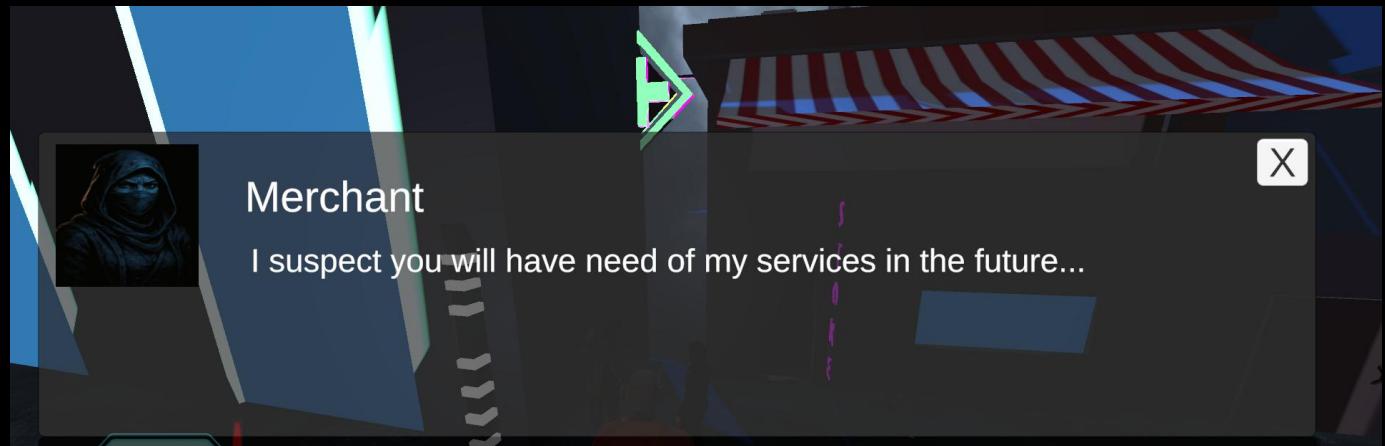
WEEK 6 COMBAT AND ENEMY AI

- Built D&D style combat system (roll to hit)
- Implemented enemy AI via NavMesh (Patrol – chase – attack)
- Added companion combat behavior
- **Major Bug** : companion crashed game when reading stats of destroyed enemies
- **Solution:** Fixed by removing enemies from the array that the companion reads to determine hostility before destroying them
- Added game over screen + reset



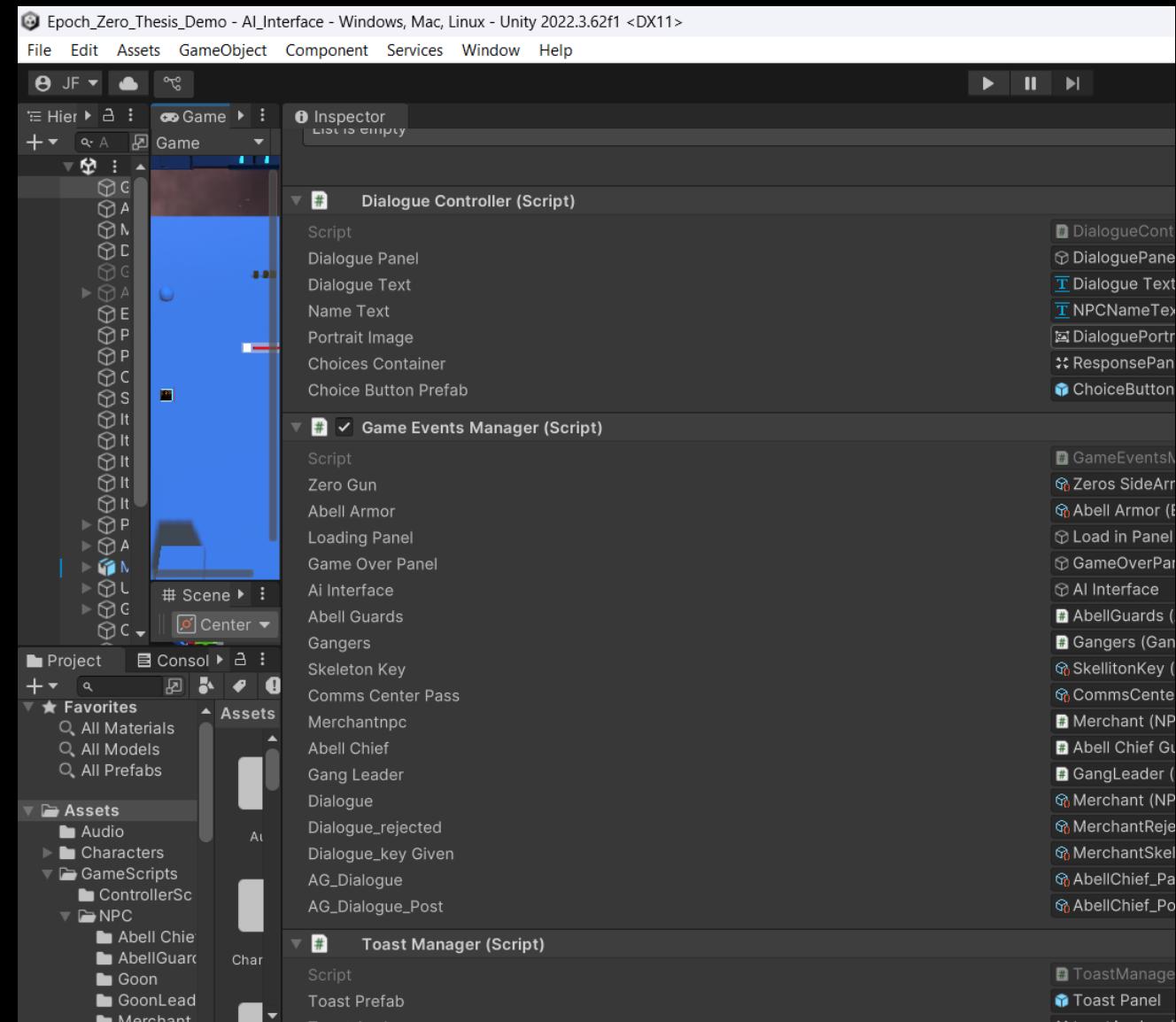
WEEK 7 DIALOGUE SYSTEM

- Created full dialogue system using Scriptable Objects
- Built dialogue UI (portraits, line by line choices)
- Added memory triggers to certain dialogue choices
- First pass of all NPC dialogue



WEEK 8 GAME EVENTS MANAGER + DIALOGUE STATE CHANGE

- **Implemented Game Events Manager**
 - Switching NPC dialogues after quest steps
 - Granting key items
 - Setting enemies hostile
 - Adding memory entries
 - Triggering notifications
- **Fixed critical issue:**
 - NPCs repeated full dialogue trees after completing quests
 - Solved by adding dialogue state switching
 - Added interactable quest logic



WEEK 9

FINAL LEVEL BUILD + HUGGING FACE ENDPOINT + SHIPPING

- Built final level layout using unity free assets
- Switched from Colab dev server to HuggingFace Inference Endpoint
- Updated Unity code to match HF chat-completions API
- Performed full playthrough to verify functionality: Intro – Quest – Combat – Cassandra – Conversation – Ending
- Created Executable ready for playtesting

