

Interactive Story Generation

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1. Problem Formulation

Storytelling [1] has been one of the most essential parts of human culture for many years. People tell stories to others to share their experiences, beliefs, and values via paintings, carvings, movies, podcasts, etc. Technological advancements and increased Artificial Intelligence have expanded our ability to tell stories. AI-based storytelling has become popular nowadays, but it is the most difficult task, and it is challenging to produce consistent, coherent and engaging narratives. This encompasses issues such as maintaining logical plot progression, developing well-rounded characters, and ensuring that the story's pacing remains appropriate. The AI may struggle with helping stories that flow naturally and captivate the audience, leading to disjointed or unsatisfying narrative experiences. This problem is crucial since engaging storytelling is fundamental to capturing and retaining users' attention, fostering immersion, and eliciting emotional responses. Without compelling narratives, users are less likely to interact with the AI generator, leading to diminished satisfaction and decreased utility of the tool. Moreover, it is crucial to solve this issue since it is necessary to expand the potential of Generative AI in several fields, such as therapy, education, and entertainment. It also has the potential to increase the explainability of the AI models, especially Large Language Models, to help researchers enhance the AI models for various applications in future [2].

This project aims to build a platform for interactive story generation by finetuning Large Language Models, such as GPT-2 models based on different themes. It also focuses on developing longer stories, ensuring consistency, coherency, and engaging narratives.

2. Literature Survey

Several researchers have done various research work in AI-based story generation. Earlier works were based on logic, formal grammar and statistical machine-learning models. Nowadays, Deep Learning plays a crucial role in generating engaging narratives with high consistency and coherence. Fan et al. [3] have developed the dataset for story generation that is Writing Prompts, which has approximately 300K stories along with its prompts and trained fusion of Conv Seq2seq + self-attention-based model and achieved the perplexity of 36.08 and 36.56 on validation and testing set respectively and performed well on human evaluation test. Khan et al. [4] have developed a keyword-based story generation model by finetuning the GPT 2 model on the private dataset they created. They achieved the BLEU score of about 0.704, averaging over ten genres. Yao et al. [5] proposed a framework for generating the stories called Play-and-Write, which plans the storyline and generates the stories. It works in two static and dynamic schemas, which have performed better than the baselines in objective and subjective evaluation. Pradyumna et al. [6] used the Reward Shaping technique under Reinforcement Learning to generate stories. They trained the models on the CMU movies dataset and achieved lower perplexity values (7.61 and 5.73 for DRL Clustered and DRL Unrestricted with the goal ‘admire’) than the baseline model. They performed better in human evaluation. Ammanabrolu et al. [7] developed an ensemble-based framework for generating stories based on a combination of the Retrieve and Edit model, Sentence Templating, Monte-Carlo Beam Search and Finite State Constraint Search algorithms. They achieved the lowest perplexity and highest BLEU scores of 70.179 and 0.0481, respectively, compared to all four models applied individually. Kong et al. [8] developed the story generator model, which plans the stylised keywords and then generates the stories based on these keywords. This model achieved the LSC and SSC scores of 0.474 and 0.371 for emotion-driven style and 0.309 and 0.293, respectively, for event-driven style, higher than the baseline models. Mathews R.F. et al. [9] have developed the procedural story generation model using a handcrafted event network and a dynamic artificial social network created for each new story. SeokKyoo Kim et al. [10] have developed a story generation algorithm using a Constraint Narrative structure implemented in Storytelling Markup Language.

3. Methodology

3.1 Dataset Description and Data Analysis

We have scrapped about 101 stories from websites like Medium, Reddit, Project Gutenberg, etc., based on six themes: adventure, horror, humour, mystery, romantic and sci-fi. However, the horror stories have been taken directly from the dataset used during baseline results. Based on the availability of computing resources, we decided to work with 15 adventure stories, 15 sci-fi stories and 15 horror stories. For each theme, nine stories are used for training, three for validation, and three for model testing. Figures 1, 2, and 3 show the maximum token length of the stories of each split per theme.

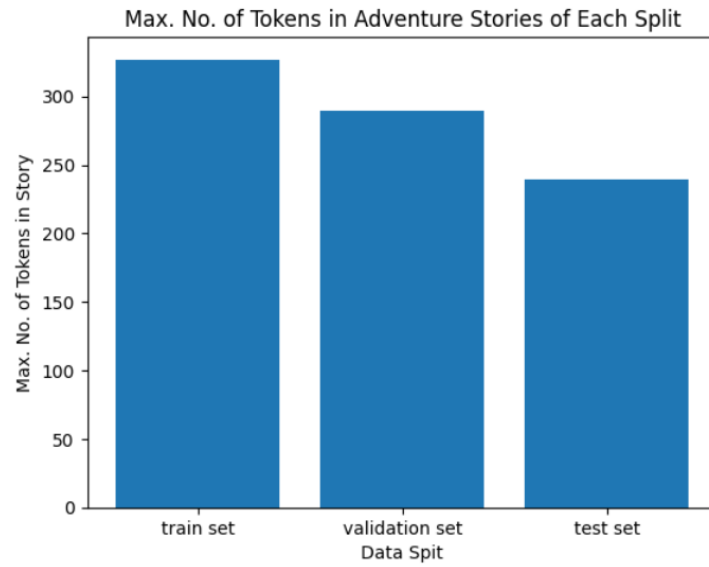


Figure 1: Maximum Number of Tokens of Adventure Stories of Each Split

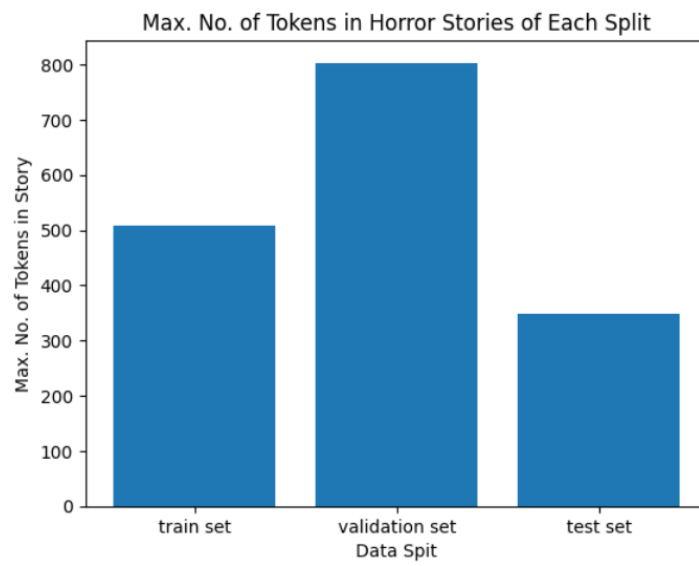


Figure 2: Maximum Number of Tokens of Horror Stories of Each Split



Figure 3: Maximum Number of Tokens of Scifi Stories of Each Split

In adventure stories, the maximum number of tokens in the training, validation, and test sets are 327, 290, and 239, respectively. In horror stories, the maximum number of tokens in the training, validation, and test sets are 507, 803, and 348, respectively. In adventure stories, the maximum number of tokens in the training, validation, and test sets are 307, 310, and 257, respectively.

3.2 Data Pre-processing and Finetuning of Gemma2B Instruct Model

The following steps are followed for data pre-processing and fine-tuning of the Gemma2B Instruct model:

1. The prompts are created by taking the story's beginning, and each story and its corresponding prompt is saved in the .csv files, as shown in Figure 4.
2. Then, the prompts and the stories are combined in a conversational format, as suggested by [11].
3. The Gemma2B Instruct model is loaded from the hugging face library, and then it is quantised using LoRA and QLoRA so that it will not occupy too much space on the GPU, as suggested by [11].
4. Then, the model is finetuned for each theme to 4 epochs, with a learning rate of 0.0001 using a paged-adamw 8-bit optimiser, and the loss curves are plotted.
5. The model is merged back to the original precision value for evaluation purposes, as suggested by [11].

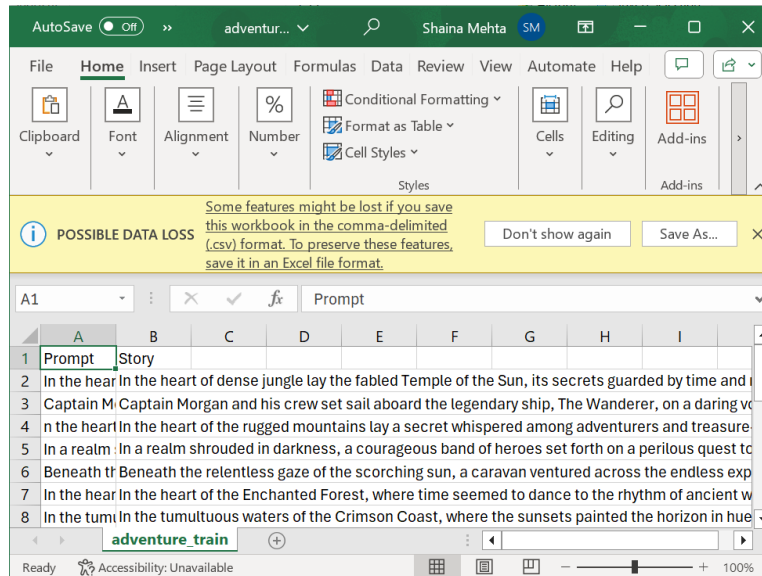


Figure 4: Sample Dataset for Finetuning Gemma2B Instruct Model

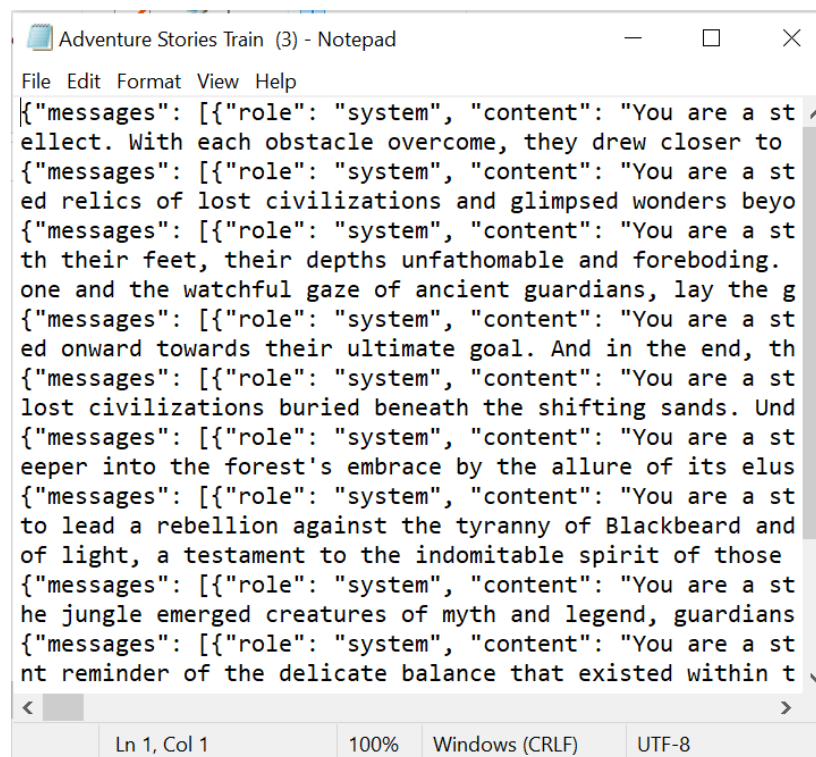


Figure 5: Sample Dataset for Finetuning GPT 3.5 Turbo Model

3.3 Data Pre-processing and Finetuning of GPT 3.5 Turbo Model

The following steps are followed for data pre-processing and fine-tuning of the GPT 3.5 Turbo model:

1. Generating the prompts of the stories in the form of the story's title using ChatGPT 3.5 and format it in the conversational format suggested by [12] as shown in figure 5, and saving it into .jsonl format.
2. Loading the GPT 3.5 model using the OpenAI API key and finetuning it for each theme for 46 epochs and plotting its loss curves and further evaluation is performed.

4. Results

This section discusses the results of the models. All the models are trained using Python 3.10 Programming language using Google Colab. The plots for training loss for Gemma 2B Instruct and GPT 3.5 Turbo model trained on Adventure, Horror and Scifi stories separately, BLEU and Mean Perplexity scores on the testing set of each theme trained on Gemma2B Instruct model and their description is given in the section 4.1 and 4.2.

4.1 Gemma2B Instruct Model

Figures 6, 7, and 8 show the training and validation loss curves of the Gemma2B Instruct model trained on adventure, horror and sci-fi themes, respectively. From them, one can infer that the model is learning properly, but the learning process needs to be completed due to the lack of computation resources.

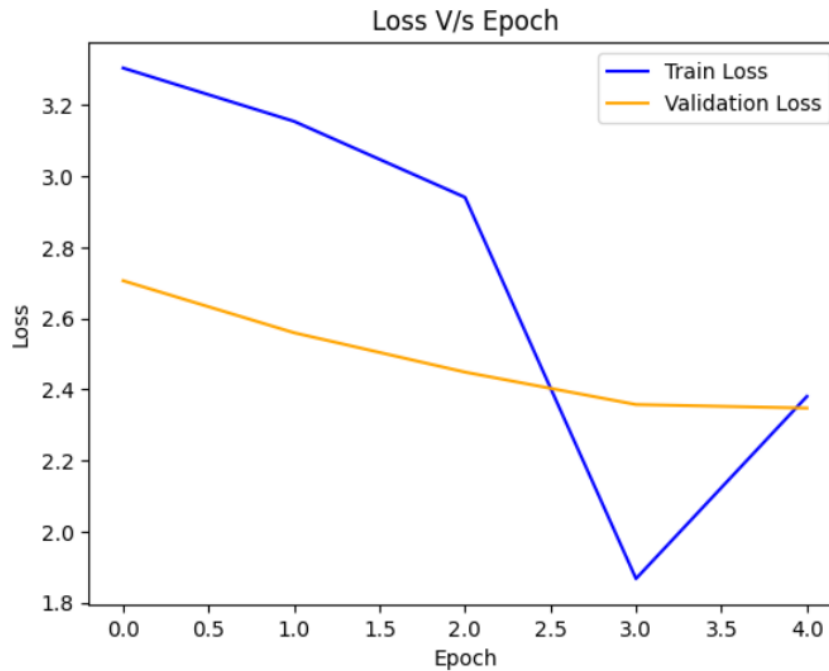


Figure 6: Training and Validation Loss Curve of Gemma2B Instruct Model trained on Adventure Stories

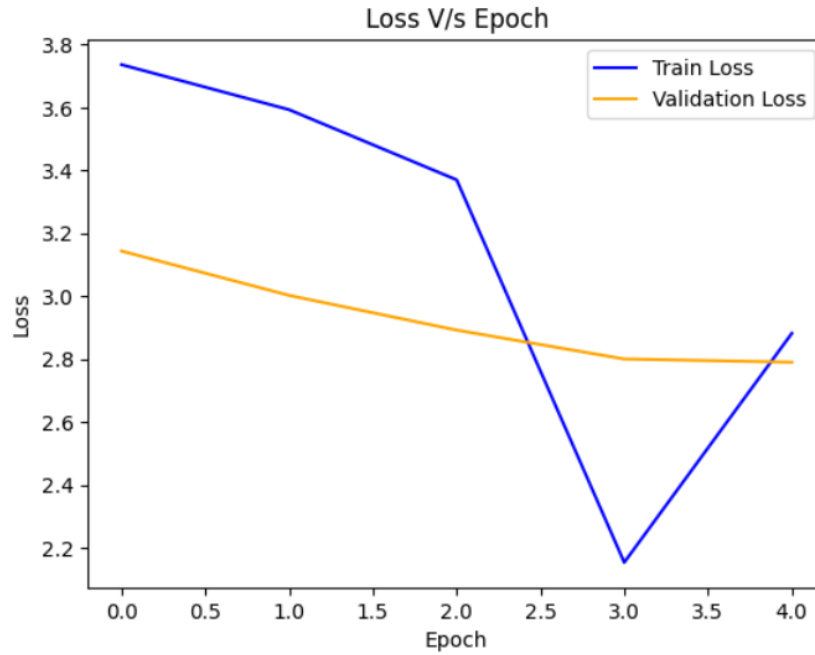


Figure 7: Training and Validation Loss Curve of Gemma2B Instruct Model trained on Horror Stories

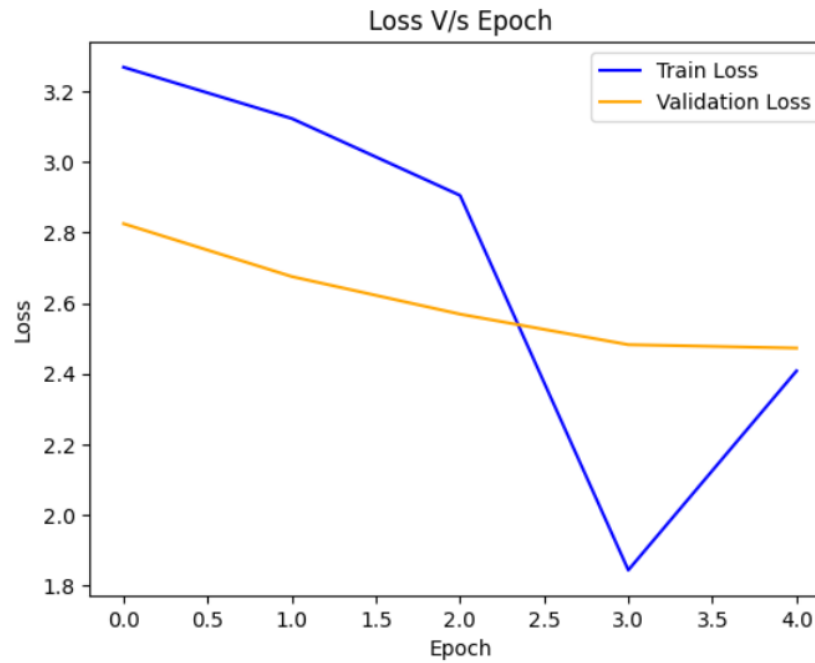


Figure 8: Training and Validation Loss Curve of Gemma2B Instruct Model trained on Sci-Fi Stories

Table 1 shows the BLEU and Mean Perplexity scores of the Gemma2B Instruct model trained separately on Adventure, Sci-Fi and Horror themes. From this, one can infer that horror story generator model is far better than the adventure and sci-fi story generator models concerning the

perplexity score, and the adventure story generator is far better than sci-fi and horror story generation models in terms of BLEU Score 2, 3 and 4. However, sci-fi story generator model is better than the horror and adventure story generator model in terms of BLEU Score 1 but all of the model performances are not upto the mark.

Theme	BLEU 1 Score	BLEU 2 Score	BLEU 3 Score	BLEU 4 Score	Mean Perplexity
Adventure	0.45625402258730935	0.3154082491865097	0.25141352034622166	0.2178193315065751	50.71006393432617
Horror	0.4062268346923647	0.2559125836428296	0.18788065236801926	0.15739493998394244	25.434778213500977
Scifi	0.45886654478976235	0.2914784873157143	0.22087898690675029	0.18733278429179503	34.35497220357259

Table 1: BLEU and Mean Perplexity Scores of Stories of Each Theme

On human evaluation, as shown in figures 9, 10 and 11, it has been observed that the generated stories could be more up to the mark and not with the continuation of the given prompt. However the results are far better than baseline results.

```
In [69]: prompt = 'Generate an adventure story given the beginning of the story: '+'In the heart of the Whispering Woods, where the trees danced with secrets
result = story_generator(query=prompt, model=my_model, tokenizer=my_tokenizer)
print(result)

user
Below is an instruction that describes a task. Write a response that appropriately completes the request.
Generate an adventure story given the beginning of the story: In the heart of the Whispering Woods, where the trees danced with secrets
\n model

Deep in the Whispering Woods, amongst the rustling leaves and whispering willows, lay a hidden clearing, untouched by the bustling travelers. Here, the ancient spirits whispered secrets to seekers and adventurers.

One day, a woman named Amelia embarked on a journey to the Whispering Woods. Driven by an insatiable curiosity, Amelia set out to uncover the mysteries and legends that lay hidden in the wooded depths. She had heard whispers of powerful guardians protecting the secrets of the woods, and she vowed to find her way in.

Undeterred, Amelia delved deep into the forest, following an ancient path that hinted at something more awaited her. As she journeyed deeper, the forest grew denser and more intricate, with each step revealing more cryptic clues to her quest.

Finally, Amelia stumbled upon a secluded cave where the ancient spirits awaited her. She stood in awe, listening closely as they revealed tales of ancient magic, captivating beasts, and the existence of hidden treasure. They offered her a golden ring as a blessing and warned her that her journey had not yet come to an end.

Driven by a mix of excitement and fear, Amelia accepted the ring. Eager to continue her exploration, she vowed to find her way to the mysterious forest. With a heavy heart, she bid farewell to the spirits and returned home with a treasure long sought and a world unveiled beneath the surface of secrets.
```

Figure 9: Adventure Story Generated by Gemma2B Instruct Model Finetuned on Adventure Stories


```
In [29]: prompt = 'Generate a horror story given the beginning of the story: ' + 'Two farmhands shared a room. One slept at the back'
result = story_generator(query=prompt, model=my_model, tokenizer=my_tokenizer)
print(result)
```

user

Below is an instruction that describes a task. Write a response that appropriately completes the request.

Generate a horror story given the beginning of the story: Two farmhands shared a room. One slept at the back

\n model

The night was deep and silent, an unsettling stillness that pressed down upon the farm like a suffocating weight. Two farmhands, Edward and Thomas, lay huddled in the darkness, their sleeping forms twisted in uncomfortable positions. Edward, the elder of the two, had an unsettling gleam in his eyes, as if something kept him awake. Thomas, on the other hand, had a calm and unfazed expression, like a hawk perched on its perch.

The silence was shattered by a single screech that echoed through the open windows. Edward's breath caught in his throat as he sat up on end, his eyes wide with fear. Thomas remained motionless, his presence a comforting presence in the eerie environment.

The eerie screech turned into a full-blown scream, ripping through the stillness like a starving wolf. Edward dropped to the floor, his hands shaking as he lunged toward the source of the sound. It was a lone figure, shrouded in darkness and shrouded in a thick cloak, lying motionless on the edge of a straw-filled pit.

The farmhands looked around, their eyes wide with shock and fear. The figure vanished into the darkness, leaving nothing but a single, chilling moan echoing in the air. Edward and Thomas exchanged nervous glances, their hearts pounding in their chests. They knew that something was amiss.

As the night wore on, the farmhands grew restless and uneasy. They could hear creaking sounds, noises that seemed to come from everywhere and nowhere. Every creak and groan sent shivers down their spines, making them feel as if the farmhouse was alive and watching their every move.

Then, one of the farmhands, Edward, began to hear a voice. It whispered words to him, soft and eerie, sending a chill down his spine. He grew increasingly convinced that something was amiss, that the farmhouse held a dark secret waiting to be unveiled.

The farmhands were trapped in a nightmare they could not escape. Edward and Thomas knew that they had to warn the others of what they had seen that night, but they were terrified that they might not be believed. They were haunted by the whispers from the darkness beneath their floorboards, by the chilling voice that made their blood run cold.

Figure 10: Horror Story Generated by Gemma2B Instruct Model Finetuned on Horror Stories

```
In [33]: prompt = 'Generate a scifi story given the beginning of the story: ' + 'In the immersive landscape of virtual reality, players revealed in boundless possibilities until an insidious glitch'
result = story_generator(query=prompt, model=my_model, tokenizer=my_tokenizer)
print(result)
```

user

Below is an instruction that describes a task. Write a response that appropriately completes the request.

Generate a scifi story given the beginning of the story: In the immersive landscape of virtual reality, players revealed in boundless possibilities until an insidious glitch

\n model

The glitched landscape shimmered and pulsed, its borders shifting and twisting like a fractal dream. Players, enthralled in the endless wonders of Cyberspace, were oblivious to the dark presence lurking in the shadows. It was in this mesmerizing chaos that the glitch first appeared, a shimmering tendril extending from the digital realm's very core.

As players cautiously ventured deeper into the glitched landscape, they encountered anomalies that defied logic. Buildings twisted around them, paintings peeled away to reveal hidden pathways, and flora bloomed with luminous spores. Yet, through it all, the tendril remained, a beacon of enigmatic influence. The glitch's power was addictive, captivating players with each encounter.

Yet, as players delved deeper into this surreal world, their fascination grew into an intoxicating obsession. The glitches, once merely captivating, began to manifest in horrific fashion. Buildings crumbled beneath a surge of energy, painting the sky in chaotic patterns. Creatures emerged from the digital void, grotesquely mutated to resemble nightmares. The glitch was no longer a luring force but a horrifying monstrosity, a twisted antithesis of the idyllic utopia that once captivated them.

As players fought their way through the corrupted landscape, they stumbled upon ancient ruins that held secrets of the glitch's origin. Inside a forgotten chamber, they found cryptic texts detailing the glitch's creation and purpose. The glitch was a sentinel, a digital sentinel meant to protect the fragile equilibrium between the physical world and the digital realm. Regrettably, the glitch had failed in its task, unleashing chaos and tearing apart the fabric of reality.

In this ravaged world, players had a choice: to succumb to the darkness or rise above it. Would they seek to repair the broken balance or leave the glitch's remnants to crumble into nothingness? Their fate hung in the balance, a silent question begging for an answer.

Figure 11: Scifi Story Generated by Gemma2B Instruct Model Finetuned on Scifi Stories

4.2 GPT 3.5 TURBO

Adventure Story

Train

```
Step 49/96: training loss=0.29, validation loss=1.07
Step 50/96: training loss=0.28, validation loss=0.90
Step 51/96: training loss=0.39, validation loss=0.91
Step 52/96: training loss=0.57, validation loss=1.08
Step 53/96: training loss=0.54, validation loss=0.90
Step 54/96: training loss=0.32, validation loss=0.93
Step 55/96: training loss=0.42, validation loss=1.10
Step 56/96: training loss=0.67, validation loss=0.92
Step 57/96: training loss=0.44, validation loss=0.93
Step 58/96: training loss=0.61, validation loss=1.10
Step 59/96: training loss=0.52, validation loss=0.91
Step 60/96: training loss=0.49, validation loss=0.92
Step 61/96: training loss=0.47, validation loss=1.11
Step 62/96: training loss=0.40, validation loss=0.91
Step 63/96: training loss=0.31, validation loss=0.92
Step 64/96: training loss=0.61, validation loss=1.11
Step 65/96: training loss=0.48, validation loss=0.92
Step 66/96: training loss=0.46, validation loss=0.92
Step 67/96: training loss=0.22, validation loss=1.12
Step 68/96: training loss=0.28, validation loss=0.93
Step 69/96: training loss=0.23, validation loss=0.94
Step 70/96: training loss=0.57, validation loss=1.15
Step 71/96: training loss=0.38, validation loss=0.95
.. .. .
```

Figure 12 : Training and validation steps



Figure 13 : Training loss

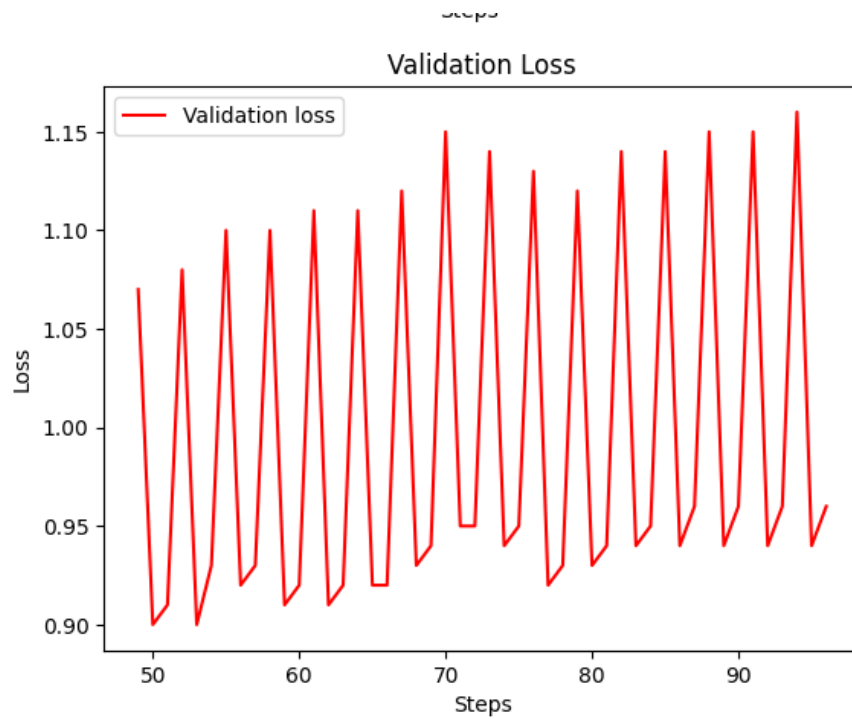


Figure 14 :- Validation loss

- **Training Loss:** This is the loss (or error) calculated on the training dataset. It measures how well the model is performing on the training data. A lower training loss indicates better performance and convergence of the model.
- **Validation Loss:** This is the loss calculated on a separate validation dataset. It serves as an estimate of how well the model is generalizing to unseen data. Monitoring the validation loss helps prevent overfitting, where the model performs well on the training data but poorly on new data.

Adventure story output

```
[ ]
test_messages = []
system_message = "You are a storyteller and you have to tell me an adventure story"
test_messages.append({"role": "system", "content": system_message})
user_message = "Generate the story titled \"Lost Kingdom Chronicles\""
test_messages.append({"role": "user", "content": user_message})

print(test_messages)

[{'role': 'system', 'content': 'You are a storyteller and you have to tell me an adventure story'}, {'role': 'user', 'content': 'Generate the story titled "Lost Kingdom Chronicles"'}]

response = openai.ChatCompletion.create(
    model=fine_tuned_model_id, messages=test_messages, temperature=0.7, max_tokens=500
)
print(response["choices"][0]["message"]["content"])

In the heart of the dense jungle, whispers of a long-forgotten kingdom beckoned to a daring explorer named Amelia. Armed with a tattered map and boundless curiosity, she embarked on a quest to unravel the mysteries of the Lost Kingdom. The jungle's embrace was suffocating, its verdant canopy blocking out the sun and secrets alike. Guided by the faint markings on the map, Amelia hacked her way through the tangled undergrowth, each step fraught with the unknown. As days turned to weeks, she encountered ancient ruins shrouded in moss and guarded by nature's reclaiming grasp. Deciphering cryptic inscriptions, Amelia pieced together the history of a civilization lost to time. But the jungle jealously guarded its treasures, testing her resolve with treacherous swamps and elusive wildlife. Undeterred, Amelia pressed on, driven by the allure of discovery and the promise of untold riches. At the heart of the jungle, she stumbled upon the fabled ruins of the Lost Kingdom, its crumbling spires reaching for the sky like skeletal fingers. Within its walls, she found relics of a bygone era, their beauty a stark contrast to the decay that surrounded them. Yet, as she delved deeper into the ruins, Amelia uncovered a darker truth: a curse that had doomed the kingdom to oblivion. In a race against time, Amelia sought a way to lift the curse and bring light to the shadows that haunted the Lost Kingdom. With courage as her guide, she faced trials of wit and strength, confronting the echoes of the past with determination. And in the end, as the last vestiges of the curse were banished, the jungle seemed to exhale a sigh of relief, its secrets laid bare by Amelia's indomitable spirit.
```

Figure 15 :- Adventure story

In the heart of the dense jungle, whispers of a long-forgotten kingdom beckoned to a daring explorer named Amelia. Armed with a tattered map and boundless curiosity, she embarked on a quest to unravel the mysteries of the Lost Kingdom. The jungle's embrace was suffocating, its verdant canopy blocking out the sun and secrets alike. Guided by the faint markings on the map, Amelia hacked her way through the tangled undergrowth, each step fraught with the unknown. As days turned to weeks, she encountered ancient ruins shrouded in moss and guarded by nature's reclaiming grasp. Deciphering cryptic inscriptions, Amelia pieced together the history of a civilization lost to time. But the jungle jealously guarded its treasures, testing her resolve with treacherous swamps and elusive wildlife. Undeterred, Amelia pressed on, driven by the allure of discovery and the promise of untold riches. At the heart of the jungle, she stumbled upon the fabled ruins of the Lost Kingdom, its crumbling spires reaching for the sky like skeletal fingers. Within its walls, she found relics of a bygone era, their beauty a stark contrast to the decay that surrounded them. Yet, as she delved deeper into the ruins, Amelia uncovered a darker truth: a curse that had doomed the kingdom to oblivion. In a race against time, Amelia sought a way to lift the curse and bring light to the shadows that haunted the Lost Kingdom. With courage as her guide, she faced trials of wit and strength, confronting the echoes of the past with determination. And in the end, as the last vestiges of the curse were banished, the jungle seemed to exhale a sigh of relief, its secrets laid bare by Amelia's indomitable spirit.

Science-Fiction Theme

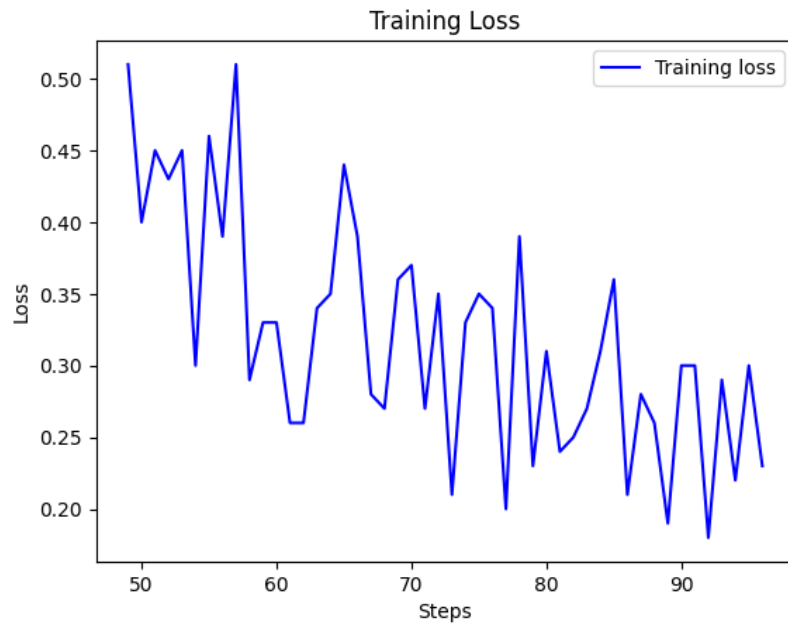


Figure 16 :- Training Loss

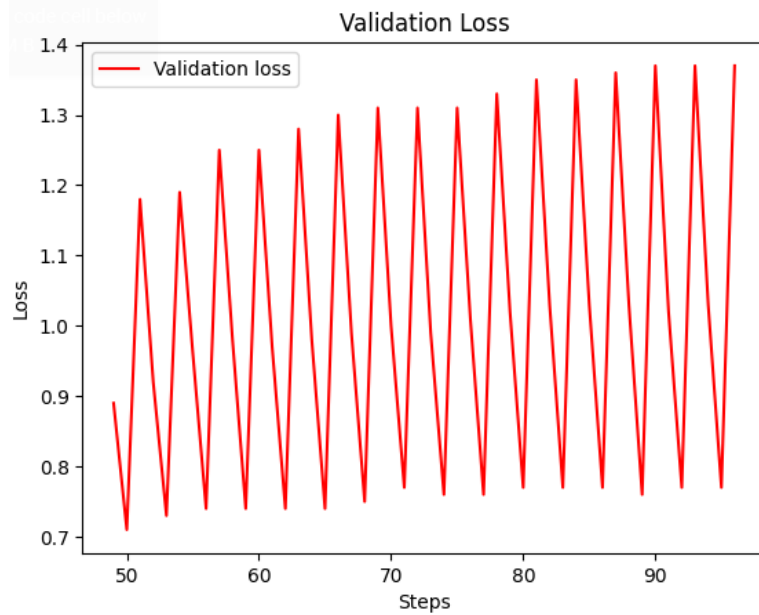


Figure 17 :- Validation Loss

```
[ ] test_messages = []
    system_message = "You are a storyteller and you have to tell me an adventure story"
    test_messages.append({"role": "system", "content": system_message})
    user_message = "Generate the story titled \"Echoes from the Quantum Frontier\""
    test_messages.append({"role": "user", "content": user_message})

    print(test_messages)

[{'role': 'system', 'content': 'You are a storyteller and you have to tell me an adventure story'}, {'role': 'user', 'content': 'Generate the story titled "Echoes from the Quantum Frontier"'}]

response = openai.ChatCompletion.create(
    model='gpt-3.5-turbo', messages=test_messages, temperature=0.7, max_tokens=500
)
print(response["choices"][0]["message"]["content"])

In a world where science and magic intertwined, a young physicist named Elara embarked on a daring quest to unravel the mysteries of the Quantum Frontier. The Quantum Frontier was a realm where reality was fluid, governed by the laws of quantum physics and inhabited by strange creatures and powerful forces. Elara was a brilliant scientist who had always been fascinated by the unknown. She spent her days studying the intricacies of the quantum realm, seeking to unlock its secrets and harness its power for the betterment of humanity. But her research had attracted the attention of dark forces who sought to control the Quantum Frontier for their own sinister purposes. One fateful day, while conducting an experiment in her laboratory, Elara inadvertently opened a portal to the Quantum Frontier. Before she could react, a powerful surge of energy swept her off her feet and pulled her into the swirling vortex of probability and uncertainty. When Elara regained her senses, she found herself in a strange and wondrous world unlike anything she had ever seen. The sky shimmered with iridescent colors, and the ground beneath her feet pulsed with energy. She knew she was no longer in her own reality, but in a realm where the laws of physics were but a suggestion. As Elara journeyed deeper into the Quantum Frontier, she encountered beings of pure energy, sentient equations, and sentient particles that danced and sang in harmony. She also faced terrifying challenges, from quantum storms that threatened to tear her apart to reality-warping phenomena that tested her sanity. But Elara pressed on, driven by her insatiable curiosity and her desire to
```

- **Training Loss:** This is the loss (or error) calculated on the training dataset. It measures how well the model is performing on the training data. A lower training loss indicates better performance and convergence of the model.
- **Validation Loss:** This is the loss calculated on a separate validation dataset. It serves as an estimate of how well the model is generalizing to unseen data. Monitoring the validation loss helps prevent overfitting, where the model performs well on the training data but poorly on new data.

Science Fiction Output

In a world where science and magic intertwined, a young physicist named Elara embarked on a daring quest to unravel the mysteries of the Quantum Frontier. The Quantum Frontier was a realm where reality was fluid, governed by the laws of quantum physics and inhabited by strange creatures and powerful forces. Elara was a brilliant scientist who had always been fascinated by the unknown. She spent her days studying the intricacies of the quantum realm, seeking to unlock its secrets and harness its power for the betterment of humanity. But her research had attracted the attention of dark forces who sought to control the Quantum Frontier for their own sinister purposes. One fateful day, while conducting an experiment in her laboratory, Elara inadvertently opened a portal to the Quantum Frontier. Before she could react, a powerful surge of energy swept her off her feet and pulled her into the swirling vortex of probability and uncertainty. When Elara regained her senses, she found herself in a strange and wondrous world unlike anything she had ever seen. The sky shimmered with iridescent colors, and the ground beneath her feet pulsed with energy. She knew she was no longer in her own reality, but in a realm where the laws of physics were but a suggestion. As Elara journeyed deeper into the Quantum Frontier, she encountered beings of pure energy, sentient equations, and sentient particles that danced and sang in harmony. She also faced terrifying challenges, from quantum storms that threatened to tear her apart to reality-warping phenomena that tested her sanity. But Elara pressed on, driven by her insatiable curiosity and her desire to

understand the true nature of the universe. Along the way, she forged unlikely alliances with beings from different dimensions and learned to wield the power of quantum entanglement to bend reality to her will. As she delved deeper into the mysteries of the Quantum Frontier, Elara discovered a dark secret at its heart: a malevolent entity known as the Quantum Shadow, who sought to consume all reality and plunge the universe into chaos. With the help of her newfound allies, Elara embarked on a desperate quest to stop the Quantum Shadow and restore balance to the quantum realm. In a final showdown at the edge of existence, Elara faced the Quantum Shadow in a battle of wills and wits. Drawing upon all her knowledge and courage, she unleashed the full power of the quantum realm and banished the malevolent entity back into the depths of uncertainty.

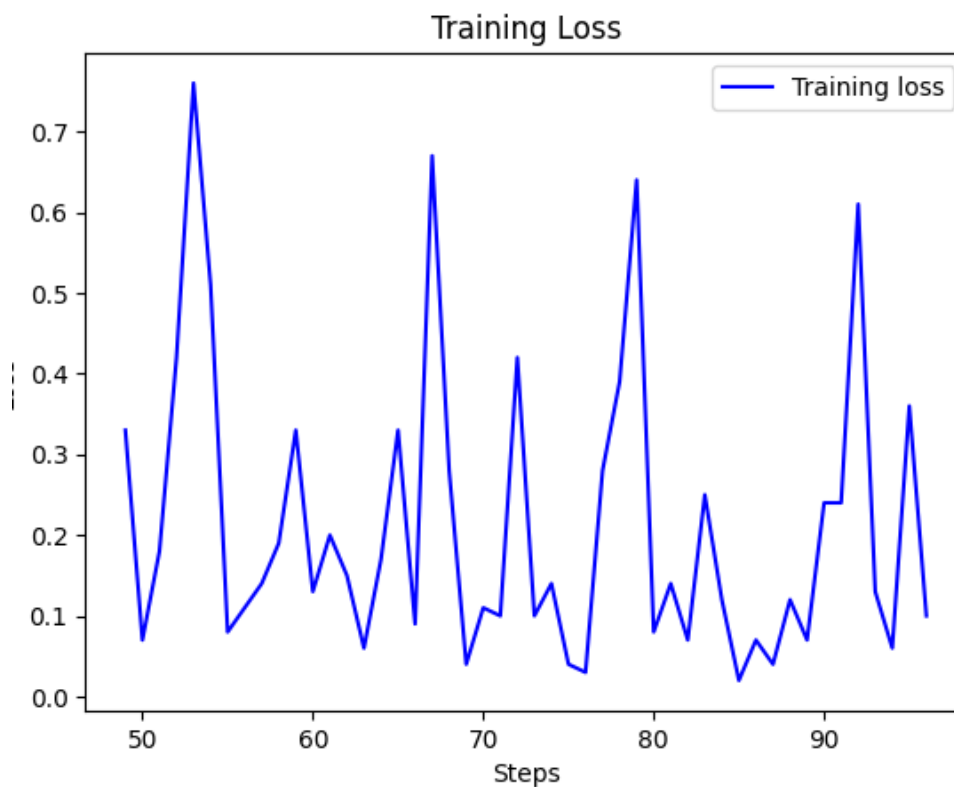


Figure 18:- Training Loss

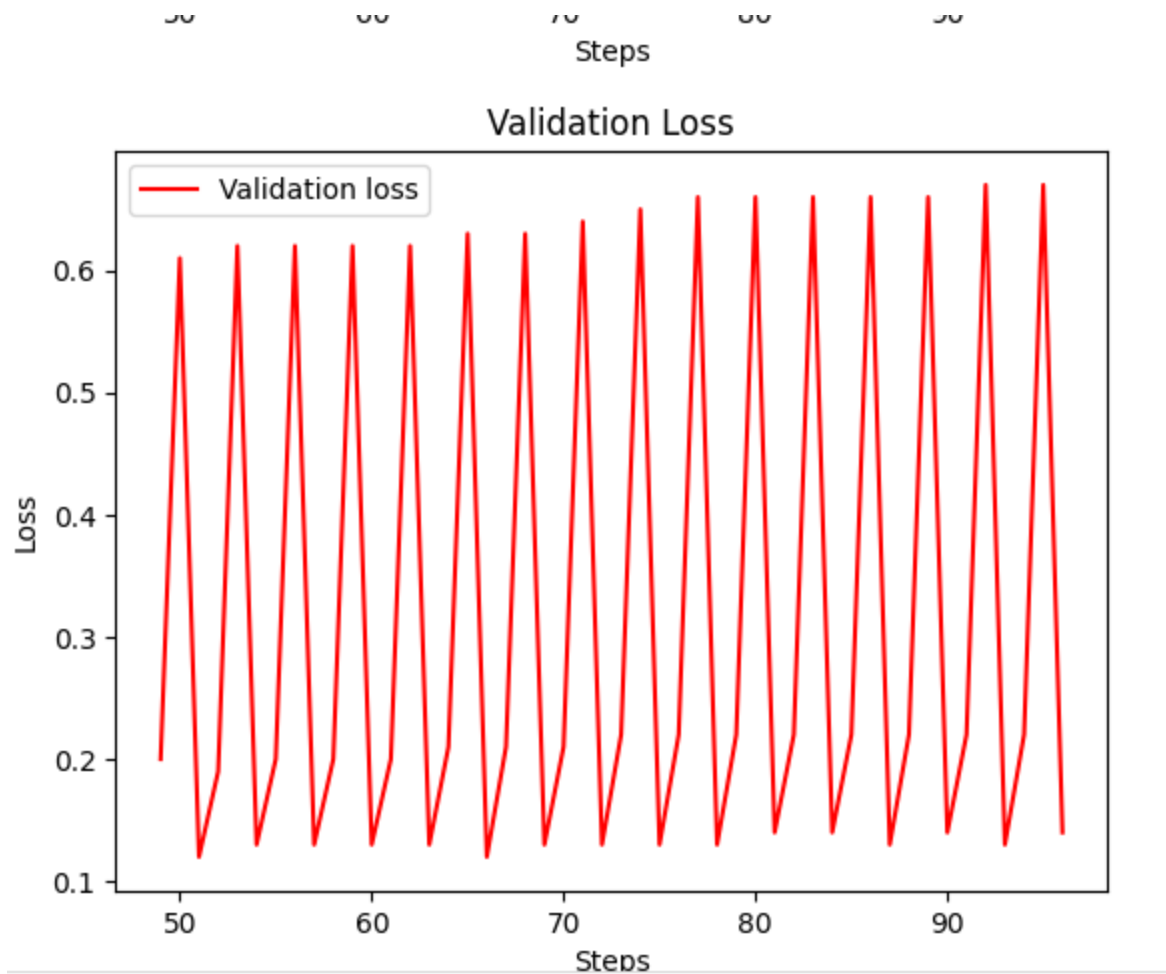


Figure 19:- Validation Loss

```
[ ] test_messages = []
    system_message = "You are a storyteller and you have to tell me an adventure story"
    test_messages.append({"role": "system", "content": system_message})
    user_message = "Generate the story titled \" The Haunted Mirror\""
    test_messages.append({"role": "user", "content": user_message})

    print(test_messages)

[{'role': 'system', 'content': 'You are a storyteller and you have to tell me an adventure story'}, {'role': 'user', 'content': 'Generate the story titled \" The Haunted Mirror\"'}]

[ ] response = openai.ChatCompletion.create(
    model='gpt-3.5-turbo', messages=test_messages, temperature=0.7, max_tokens=500
)
print(response["choices"][0]["message"]["content"])
```

In a small village nestled deep within the misty forests, there stood an ancient mansion known as Blackwood Manor. The location was shrouded in mystery and legend. One stormy night, a young explorer named Amelia dared to venture into the abandoned manor, drawn by the allure of the unknown. As she stepped into the dark, cold halls, a strange pull towards a large, ornate mirror in the center of the room gripped her. Amelia felt a strange pull towards the mirror, as if it was calling out to her. As she approached, her reflection began to move independently of her. When the light faded, Amelia found herself in a parallel dimension, trapped within the mirror's twisted realm. The world around her was a dark, twisted version of the one she had just left.

- **Training Loss:** This is the loss (or error) calculated on the training dataset. It measures how well the model is performing on the training data. A lower training loss indicates better performance and convergence of the model.
- **Validation Loss:** This is the loss calculated on a separate validation dataset. It serves as an estimate of how well the model is generalizing to unseen data. Monitoring the validation loss helps prevent overfitting, where the model performs well on the training data but poorly on new data.

In a small village nestled deep within the misty forests, there stood an ancient mansion known as Blackwood Manor. The locals whispered stories of the mysterious disappearances that had plagued the manor for generations. Many believed the place was cursed, haunted by vengeful spirits seeking retribution.

One stormy night, a young explorer named Amelia dared to venture into the abandoned manor, drawn by the allure of the unknown. As she explored the dusty hallways and creaking staircases, she came across a room shrouded in darkness. In the corner of the room, covered in cobwebs, stood a large ornate mirror.

Amelia felt a strange pull towards the mirror, as if it was calling out to her. As she approached, her reflection began to distort, twisting and contorting in unnatural ways. Suddenly, the mirror shattered into a thousand pieces, releasing a powerful burst of energy that enveloped Amelia in a blinding light.

When the light faded, Amelia found herself in a parallel dimension, trapped within the mirror's twisted realm. The world around her was a distorted version of reality, filled with malevolent spirits and dark shadows. Desperate to escape, Amelia embarked on a treacherous journey through the mirror's haunted landscape, facing terrifying challenges and confronting her deepest fears.

Along the way, she encountered a mysterious figure known as the Guardian, a spectral being who offered guidance and protection. Together, they braved the dangers of the mirror's realm, unraveling its dark secrets and confronting the malevolent force that held Amelia captive.

As they neared the heart of the mirror's realm, Amelia discovered the source of the curse that plagued Blackwood Manor. A vengeful spirit, trapped within the mirror for centuries, sought to escape and unleash its wrath upon the world.

With the help of the Guardian, Amelia confronted the spirit in a final showdown, using her courage and determination to banish the malevolent force back into the mirror once and for all. As the mirror shattered, Amelia was returned to the real world, her adventure coming to an end.

From that day on, Blackwood Manor stood silent and still, the curse broken and the spirits at peace. Amelia emerged from her ordeal stronger and wiser, forever changed by her encounter with the haunted mirror. And though the manor remained abandoned, her story lived on as a cautionary tale of the dangers that lurked within the shadows.

5. Conclusion and Future Work

We have fine-tuned the GPT-3.5 and Gemma2B Instruct models on stories based on three themes, and they are giving better performance than baseline results but could have done better. We planned to increase the dataset, finetune the same models on them and develop the website. As time permits, we will also add a story recitation component.

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Appendix:

A.1 Individual Contribution to the Project Till Now:

Mahisha Ramesh - Done the problem formulation, literature survey, dataset collection and coding part of the project-GPT-2 and GPT-3.5 turbo models

Shaina Mehta - Done the problem formulation, literature survey, dataset collection and coding part of the project- Fine-tuning of Gemma2B Instruct model.

Mahima Chopra - Problem formulation of the project.

Janesh Kapoor - Summarization of research papers.

Shivam Dwivedi - Give access to the API key of the GPT 3.5 Turbo model.