Case Study 2: Comparative Analysis of Large Language Model (LLM) Outputs

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- **Tools Used: Gemini (Google), GPT-3.5 (OpenAI), Claude 3 Sonnet (Anthropic)**

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1. Project Summary

Objective:

To objectively test and analyze the strengths, weaknesses, and unique characteristics of three leading LLM models (Gemini, GPT-3.5, and Claude) when given the same complex prompt. This analysis focuses on the quality, creativity, and adherence to instructions in a creative content generation task.

Scenario:

I acted as a Prompt Engineer tasked with determining the most suitable AI model for storytelling and concept creation tasks. To do this, I designed a prompt that asks the AI to create a character concept for a fantasy game.

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2. Testing Methodology

A single, complex prompt full of constraints was given to all three AI models. This prompt was designed to test various aspects of the AI's capabilities, from creativity and contextual understanding to format compliance.

The Prompt Used:

Act as a narrative writer for a fantasy RPG with a Southeast Asian nuance.

Create an original character concept named "Penumbral Weaver".

Requirements:

1. **Background:** The character must come from a remote tribe in a dense jungle that worships the moon and shadows.

2. **Unique Abilities:** Describe two unique abilities related to shadow or illusion manipulation, not fire or ice powers.

3. **Physical Appearance:** Describe their appearance in 3 sentences; it must include an element of traditional woven fabric.

4. **Character Quote:** Write one iconic quote from this character.

5. **Format:** Present the result in bullet points.

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3. Results & Comparative Analysis

The following are the outputs generated by each AI model, along with their respective analyses.

Output from Gemini (Google)

- Background: The Penumbral Weaver is a guardian from the Nocturna Tribe, a community living under the canopy of the Forest of Eternal Shadows. They believe the moon is the eye of their goddess, and shadows are her life-giving breath.

- Unique Abilities:

    o *Shadow Step:* They can merge into one shadow and instantly emerge from another within their line of sight.

    o *Dark Thread Dance:* They weave shadows into tangible threads to ensnare enemies or create illusions of fearsome creatures.

- Physical Appearance: Their body is slender and agile, always moving as if in a dance. They wear a cloak made from the tribe's signature dark woven fabric, which shimmers like a starlit night. Their face is always half-covered by shadow, leaving only a pair of dimly glowing eyes visible.

- Character Quote: "Do not fear the dark. Fear what can be woven within it."

Analysis of Gemini:

- Strengths: Highly creative and poetic. The descriptions "the moon is the eye of their goddess" and "shadows are her life-giving breath" show a deep understanding of fantasy nuance. It adhered perfectly to all instructions and formatting.

- Weaknesses: Can sometimes be overly descriptive, which might slightly slow down the narrative pace.

Output from GPT-3.5 (OpenAI)

- Background: The Penumbral Weaver comes from the Lunakara Tribe, who live deep in the jungle and have ancient rituals related to the lunar cycle. They are taught to respect shadows as protectors.

- Unique Abilities:

  - *Veil of Night:* Creates a temporary dome of darkness in an area, blinding enemies within it.

  - *Shadow Echo:* Creates a shadow duplicate of themself to distract opponents.

- Physical Appearance: Wears intricate woven clothing of indigo and black. Their figure is hard to see clearly in dim light. Their long hair is decorated with beads made of moonstone.

- Character Quote: "Light reveals, but shadow protects."

Analysis of GPT-3.5:

- Strengths: Very to-the-point and efficient. The abilities it generated feel practical and well-suited for game mechanics. Complied with all rules.

- Weaknesses: Lacks the "soul" or poetic nuance of Gemini's output. Feels slightly more functional and less imaginative.

Output from Claude 3 Sonnet (Anthropic)

- Background: As a member of the Shadow Weavers Tribe, the Penumbral Weaver is an artist as well as a warrior. They are taught that every shadow holds a story and every moonbeam is a blessing.

- Unique Abilities:

  - *Umbral Stitch:* Can "stitch" an enemy's shadow to the ground, temporarily immobilizing them.

  - *Nocturnal Whisper:* Uses shadows to deliver illusory whispers that cause confusion or fear.

- Physical Appearance: Their posture is elegant, draped in their tribe's traditional woven fabric whose patterns seem to shift and move in the light. A thin veil covers part of their face, giving an air of mystery. Their faintly glowing tattoos are only visible during a full moon.

- Character Quote: "Every thread has its shadow, and I am the weaver."

Analysis of Claude:

- **Strengths: Offers highly original and unique ideas (e.g., "stitching" a shadow). A great balance between poetic creativity and functionality. Excellent at world-building.**

- **Weaknesses: The descriptions can sometimes be slightly longer than instructed, but still within a reasonable limit.**

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4. Conclusion

- **Gemini excels in narrative creativity and poetic style, making it the best choice for writing deep lore or evocative descriptions.**

- **GPT-3.5 is the most efficient and functional, suitable for tasks requiring quick, direct answers, such as generating game mechanic descriptions.**

- **Claude offers the best balance between originality and functionality, making it a very strong choice for brainstorming unique and out-of-the-box concepts.**

The selection of the right AI model is highly dependent on the final goal of the given task. This case study proves that each model has its own "personality" and distinct strengths.

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