

Prompt Engineering 1 Project

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1. Tokenization and Data Utilization

Prompt: Explain tokenization in AI and provide an example of how a sentence is tokenized.

AI Response: Tokenization is the process of breaking down text into smaller units called tokens, which can be words, characters, or subwords. For instance, the sentence "Tokenization is useful" might be tokenized into `["Tokenization", "is", "useful"]`. Subword tokenization could break it further into `["Token", "ization", "is", "use", "ful"]`.

Tokenization is vital in Natural Language Processing (NLP) because it allows models to process text effectively, particularly for tasks like translation, sentiment analysis, and summarization.

Documented Token Count: This response contains 73 tokens (tracked using token counters in development tools).

2. AI Hallucination Management

Prompt: Who invented the light bulb?

AI Response (Hallucination): The light bulb was invented by Nikola Tesla in 1879.

Correction:

The AI's response is incorrect. The light bulb was commercially viable due to Thomas Edison's development in 1879, although other inventors like Joseph Swan also contributed earlier designs.

Revised Prompt and AI Response: Provide details about the development of the light bulb, including Edison's role.

AI Response: Thomas Edison is credited with inventing the first practical and commercially viable light bulb in 1879. Other inventors, such as Joseph Swan, made early contributions, but Edison's design was innovative due to its long-lasting filament and reliable vacuum technology.

3. Multimodal AI Task Execution

Task 1 Prompt: Write a Python function to calculate the factorial of a number.

AI Response:

```
def factorial(n):  
  
    if n == 0 or n == 1:  
        return 1  
    else:  
        return n * factorial(n-1)
```

Task 2 Prompt: Generate a concept for a short sci-fi story set in the year 3000.

AI Response: In the year 3000, humans have abandoned Earth to live on floating cities above a ruined planet. An orphaned child discovers a device capable of restoring Earth's atmosphere but must evade a corrupt government to use it.

4. Prompt Design and Iteration

Prompt 1 (Unguided): Describe the life cycle of a star.

AI Response: A star is born in a nebula, goes through a main-sequence phase, and eventually dies, forming a white dwarf, neutron star, or black hole.

Prompt 2 (Guided): Explain the life cycle of a star, emphasizing the supernova stage.

Revised AI Response: Stars undergo several stages: nebula, protostar, main sequence, and red giant. Massive stars end their life cycle in a dramatic supernova explosion, ejecting elements into space and potentially leaving behind a neutron star or black hole.

Prompt 3 (Iterated): Provide a detailed explanation of the supernova process.

AI Response: A supernova occurs when a massive star exhausts its nuclear fuel, causing the core to collapse under gravity. This collapse triggers a powerful explosion, releasing immense energy and scattering heavy elements into the universe.

5. Text and Image Generation Workflow

Text Generation Example 1:

Prompt: Write me a short poem about synchrony skills academy

AI Response:

At Synchrony Skills, we learn and grow,
Building minds with skills to show.
A place where knowledge takes its flight,
And futures shine both bold and bright.

With every class, a step we take,
To forge a path, no dreams forsake.
Together we rise, a united crew,
At Synchrony Skills, we find what's true.

Text Generation Example 2:

Prompt: Write me a few short sentences about the american revolution

AI Response: The American Revolution (1775-1783) was a fight for independence from British rule. Colonists were upset by taxation without representation and a lack of political power. Key battles like Lexington and Concord, Saratoga, and Yorktown led to American victory. The Treaty of Paris (1783) officially recognized the United States as a free nation. The revolution helped inspire democratic ideals and shaped the country's future.

Image Generation Example 1:

Prompt: Generate me an image of a mix between a tiger, shark, and spider

Image:



Image Generation Example 2:

Prompt: Generate me an image of a futuristic city floating in space

Image:

