

# AI Assistant – Functionality Overview

*Prompt-Engineered Web  
Application using Groq  
LLM API*

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# Introduction

- The AI Assistant is a web-based application designed to interact with users through natural language.
- It uses prompt engineering techniques to deliver accurate and task-specific responses.
- The system focuses on three primary capabilities:
  - *Answering factual questions*
  - *Summarizing long text*
  - *Generating creative content*

# Function 1: Answer Questions

 **AI Assistant**

Choose a function:

Answer a Question ▾

Your input:

Type your query, text, or idea here...

Get Response

- **What it does:**

*Responds to direct user queries by providing concise, factual, and accurate information.*

- **Why it's useful:**

*Saves time by eliminating the need to manually search through multiple sources.*

- **How it works:**

*The user inputs a question, and the assistant uses a structured prompt to ensure the response is brief and relevant.*

- **Example:**

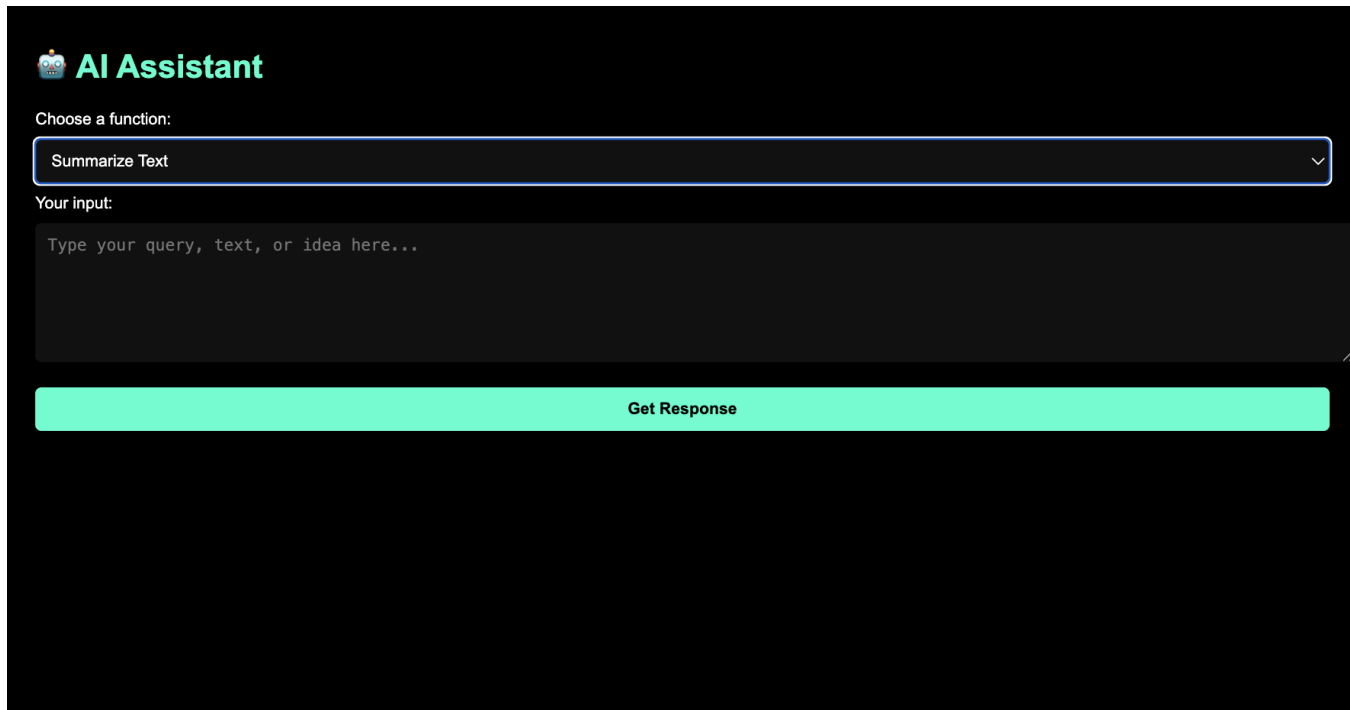
- Input: “What is the largest planet in the solar system?”
- Output: “The largest planet in our solar system is Jupiter.”

- **Applications:**

- Quick educational lookups
- Clarifying definitions and facts

# Function 2:

# Summarize Text



The screenshot shows a dark-themed user interface for an 'AI Assistant'. At the top left is a small robot icon and the text 'AI Assistant' in green. Below this, it says 'Choose a function:'. A dropdown menu is open, showing 'Summarize Text' as the selected option. Underneath the dropdown, it says 'Your input:' followed by a large text input area with the placeholder text 'Type your query, text, or idea here...'. At the bottom of the input area is a green button labeled 'Get Response'.

- **What it does:**

*Processes larger text blocks (articles, reports, or notes) and produces a shorter version containing key points.*

- **Why it's useful:**

*Helps users quickly understand the main ideas without reading the entire content.*

- **How it works:**

*It uses pre-designed prompts to identify main ideas, remove redundancy, and generate a clear summary.*

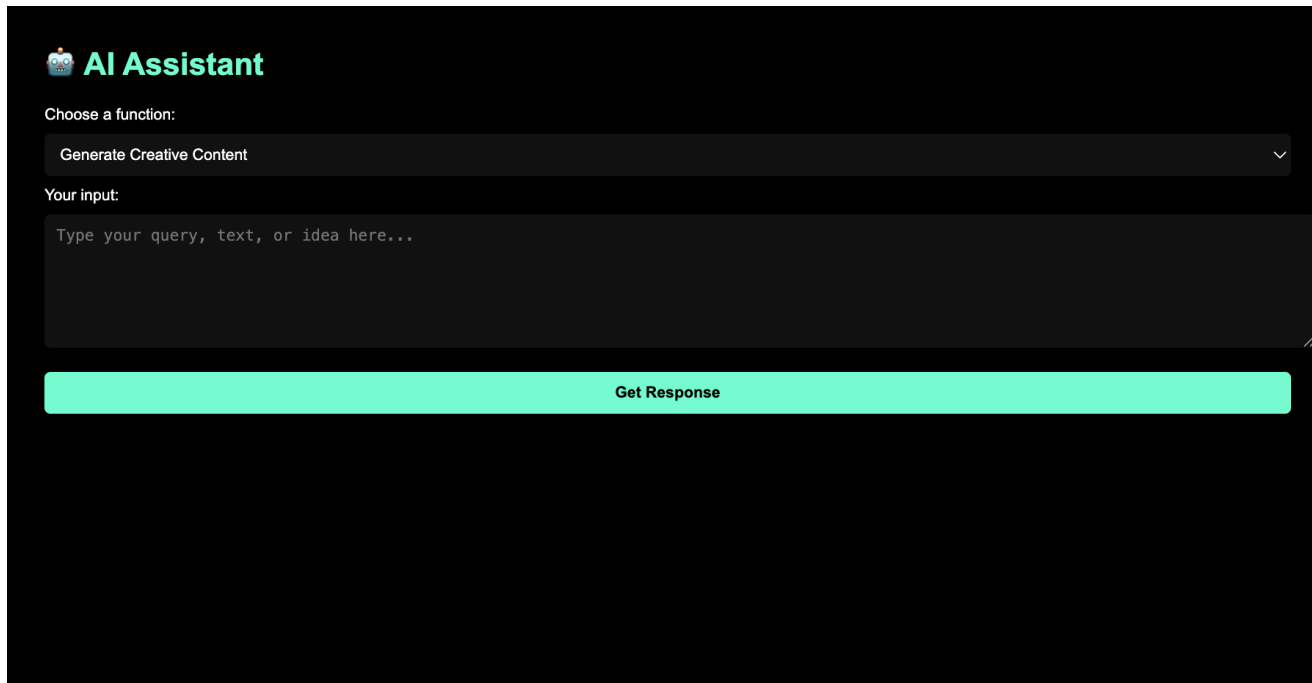
- **Example:**

- Input: A 300-word article on climate policy
- Output: *"The article discusses recent international climate agreements, their goals for reducing emissions, and challenges in implementation."*

- **Applications:**

- *Academic research*
- *Preparing quick notes*
- *Reviewing reports*

# Function 3: Generate Creative Content



The image shows a dark-themed user interface for an AI Assistant. At the top left, there is a small robot icon followed by the text 'AI Assistant' in a light blue font. Below this, the text 'Choose a function:' is displayed. A dropdown menu is open, showing 'Generate Creative Content' as the selected option. Below the dropdown, the text 'Your input:' is shown. A large, dark text input area follows, with the placeholder text 'Type your query, text, or idea here...'. At the bottom of the interface, there is a prominent orange button with the text 'Get Response'.

- **What it does:**

*Creates original content such as short stories, poems, or brainstorming ideas based on user prompts.*

- **Why it's useful:**

*Supports creative writing, content generation, and idea exploration.*

- **How it works:**

*It applies a prompt designed to encourage imaginative responses while staying relevant to the input theme.*

- **Example:**

- Input: "Write a poem about autumn leaves."
- Output: "Golden leaves drift through the air, whispering secrets everywhere..."

- **Applications:**

- *Creative projects*
- *Storytelling exercises*
- *Generating marketing or social media*

# Feedback Feature

- **What it does:**

*Allows users to indicate whether the generated response was helpful (Yes/No).*

- **Why it's important:**

- *Enables tracking of performance.*
- *Provides data to refine prompts and improve response quality.*

- **How it works:**

*Each interaction logs the feedback in a text file along with user input, the chosen function, and the generated output.*

```
feedback_log.txt
--- FEEDBACK ENTRY ---
Function: question
Input: Explain briefly: Why is the sky blue?
Response: The sky appears blue because of a phenomenon called Rayleigh scattering, in which shorter (blue) wavelengths of light are scattered more than longer (red) wavelengths by the tiny molecules of gases in the Earth's atmosphere. This scattering effect gives the sky its blue color.
Feedback: yes

--- FEEDBACK ENTRY ---
Function: question
Input: What are the benefits of daily exercise?
Response: The benefits of daily exercise include:

* Improves physical health: boosts cardiovascular health, increases strength and flexibility, and reduces risk of chronic diseases
* Enhances mental well-being: reduces stress and anxiety, improves mood, and boosts self-esteem
* Increases energy levels and improves sleep quality
* Supports weight management and reduces risk of obesity
* Improves cognitive function and reduces risk of age-related cognitive decline
* Increases productivity and enhances overall quality of life.
Feedback: yes

--- FEEDBACK ENTRY ---
Function: question
Input: Summarize how photosynthesis works.
Response: Here is a concise summary of how photosynthesis works:

Photosynthesis is the process by which plants, algae, and some bacteria convert light energy from the sun into chemical energy in the form of organic compounds, such as glucose. The overall equation is:

6 CO2 + 6 H2O + light energy → C6H12O6 (glucose) + 6 O2

The process occurs in specialized organelles called chloroplasts and involves two stages:

1. **Light-dependent reactions**: Light energy excites electrons, which are then used to generate ATP and NADPH.
2. **Light-independent reactions (Calvin cycle)**: ATP and NADPH are used to convert CO2 into glucose.

Oxygen is released as a byproduct of photosynthesis, while glucose is used by the organism to fuel its metabolic processes.
Feedback: no
```

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# Conclusion

- The AI Assistant demonstrates:
  - *Practical implementation of prompt engineering.*
  - *Real-world applications for language models in education, content creation, and productivity.*
- **Future directions:**
  - *Add user profiles, history tracking, and more functions.*
  - *Provide analytics to study user needs and improve results.*