

OMNI AI

**A UNIFIED AI INTERFACE FOR
MULTI-PROVIDER MODEL
INTEGRATION**



MAJOR PROJECT PRESENTATION

Under the Guidance of-
Dr. Shiladitya Chowdhury

SUBJECT CODE : MCAN 482

DEPARTMENT : MASTERS OF COMPUTER APPLICATION

SEMESTER : 4

INTRODUCTION WITH US



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PROBLEM STATEMENT

AI chat systems like ChatGPT typically depend on paid APIs, cloud infrastructure, and online authentication, which limits access for students, developers, and privacy-focused users. These constraints make it difficult to use such tools in low-resource or offline environments. This project addresses the problem by creating a GUI-based chatbot using the open-source G4F framework, enabling free, customizable, and private interaction with large language models through local or browser-based providers—without requiring expensive subscriptions or constant internet access.

What is OMNI AI?

OMNI AI is a cost-free, locally running ChatGPT alternative built on the G4F framework. It offers a modular, privacy-focused chat interface with customizable settings.

Why OMNI AI?

- ✓ **Cost-Free:** No need for API keys or paid subscriptions.
- 💻 **Local Execution:** Works offline or with local model inference.
- ⚙️ **Modular & Scalable:** Easily extendable with new features, providers, or models.
- ⚙️ **Customizable Interface:** Users can tweak settings, switch models, and export conversations.
- 🔒 **Privacy-First:** User data stays on the local machine, improving trust and confidentiality.

HISTORY

**1966
ELIZA**

**The first chatbot,
created at MIT,
simulating a
psychotherapist
using pattern
matching.**

**2001
ALICE**

**An award-winning
rule-based chatbot
using AIML, a major
step in
conversational
design.**

**2011 Siri
(Apple)**

**Introduced voice-
based AI assistance
to smartphones,
marking the rise of
virtual assistants..**

**2020 GPT-3
(OpenAI)**

**A deep learning
breakthrough
enabling human-like
text generation and
flexible dialogue.**

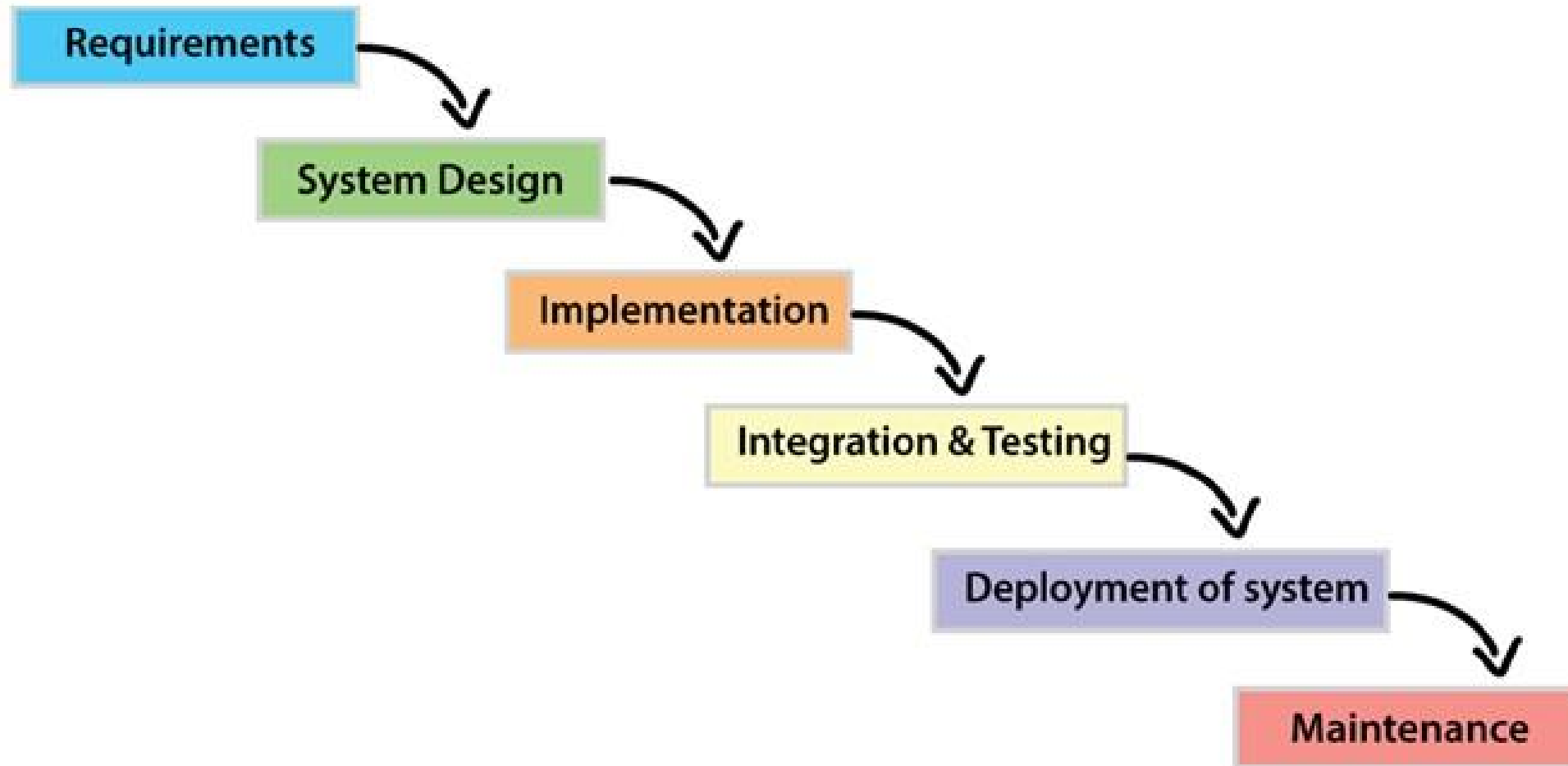
**2022
ChatGPT
(OpenAI)**

**Brought advanced
conversational AI to
the public, setting
new standards for
chatbot interaction.**

INTRODUCTION TO OMNI AI

"Omni AI is a local, open-source chat interface built on the G4F framework. It enables free, API-free interaction with LLMs, focusing on privacy, modularity, and offline access."

SOFTWARE DEVELOPMENT LIFE CYCLE



COCOMO

Feature	Organic	Semi-Detached	Embedded
Project Size	Small to medium	Medium to large	Very large
Complexity	Low	Moderate	High
Application Domain	Well-understood and familiar	Some new elements but mostly known	Novel or strictly constrained domains

Types of Software Projects According to COCOMO Model

Software Projects	a	b	c	d
Organic	2.4	1.05	2.5	0.38
Semi-Detached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

Coefficients and Exponents Values According to Software Projects

COCOMO

$$\text{Effort (PM)} = a * (\text{KLOC}) ^ b$$

$$\text{Development Time (T)} = c * (\text{Effort}) ^ d$$

$$\text{Person Required} = \text{Effort} / \text{Development Time}$$

Where:

- KLOC = Thousands of Lines of Code
- a, b, c, d = constants based on project type

$$\text{Total LOC} = 1500 \text{ (i.e, 1.5 KLOC)}$$

Assuming the project is of organic type,

$$\text{Effort} = 2.4 * (1.5) ^ 1.05 = 3.673 \text{ person-months}$$

$$\text{Development Time} = 2.5 * (3.673) ^ 0.38 = 4 \text{ months}$$

SPECIFICATION WE USED

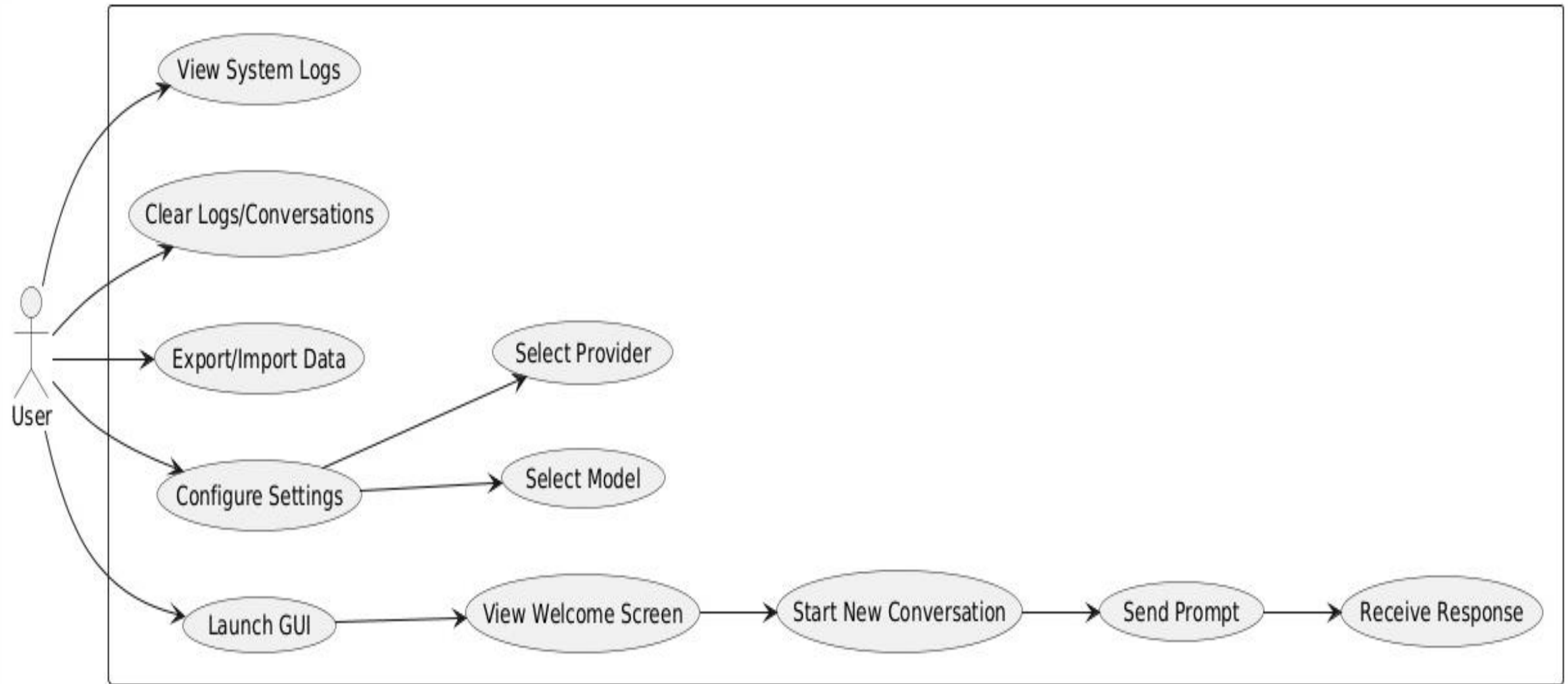
Processor : Intel(R) Core(TM) i5-1035G1 CPU @ 1.00Ghz

Installed RAM : 8.00 GB (7.77 GB usable)

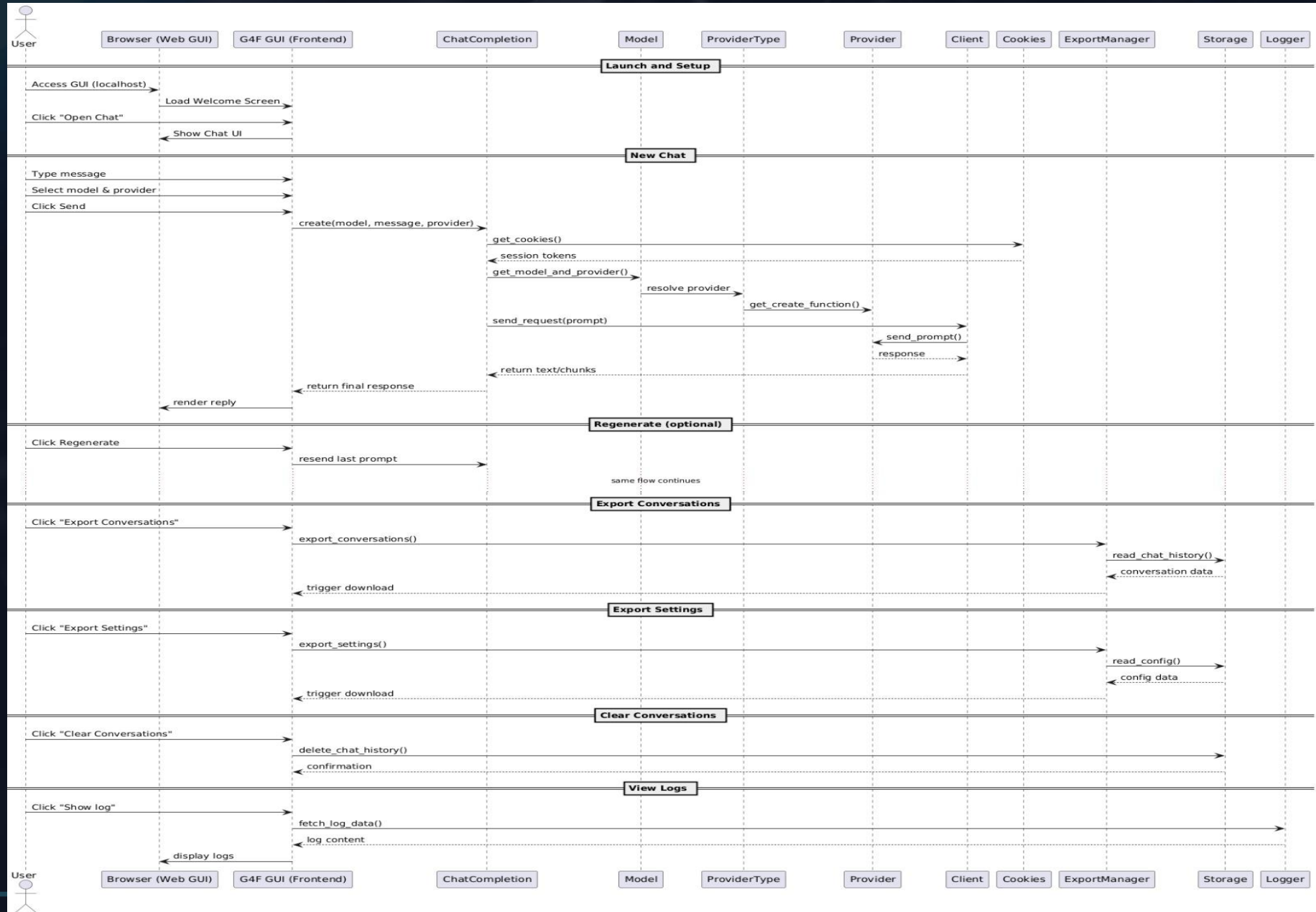
Graphics Card : NVIDIA GeForce MX250 (2 GB), Intel(R) UHD Graphics (128 MB)

Storage : 932 GB HDD ST1000LM035-1RK172, 238 GB SSD NVMe SAMSUNG MZVLB256HBHQ-000L2

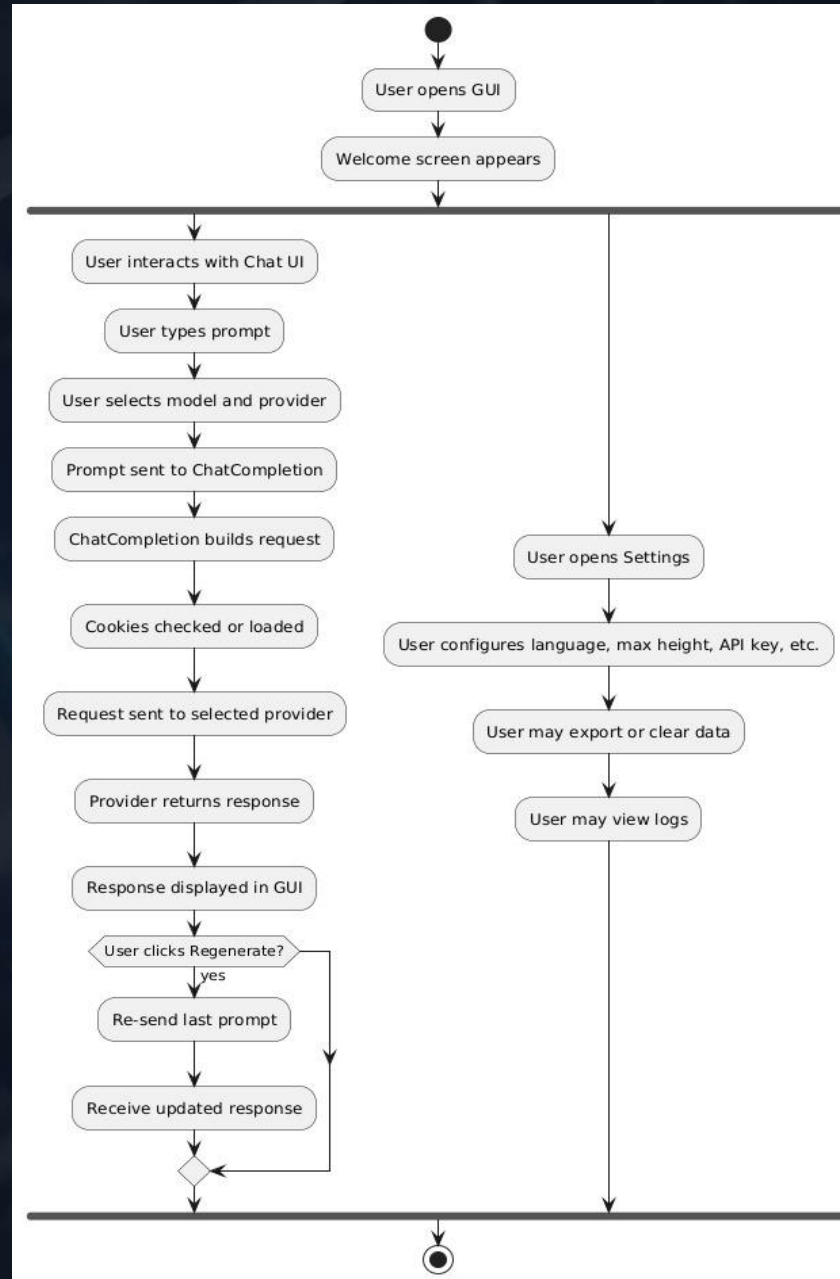
USE CASE DIAGRAM



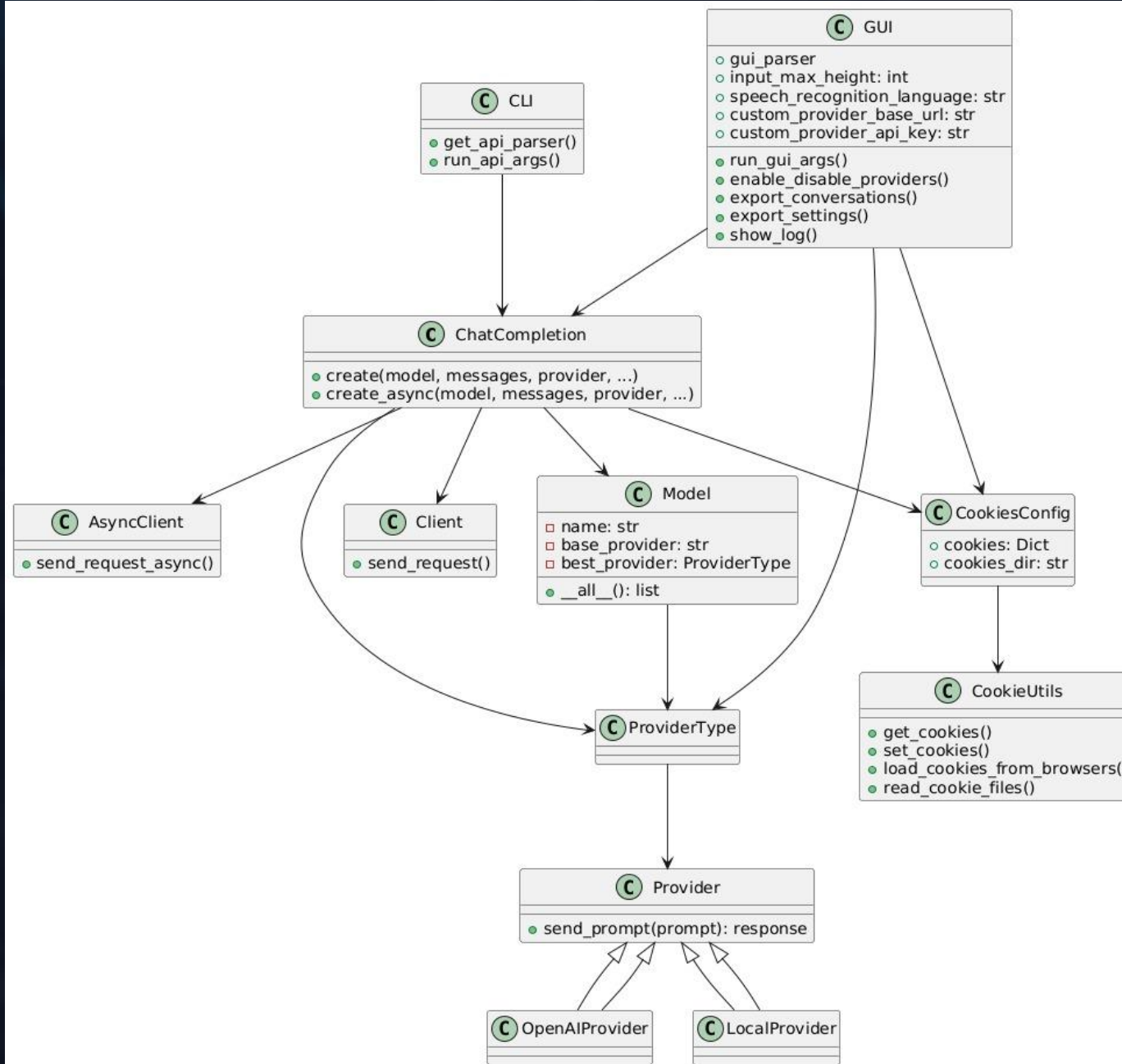
SEQUENCE DIAGRAM



ACTIVITY DIAGRAM



CLASS DIAGRAM



RESULT SET ANALYSIS

OMNI AI

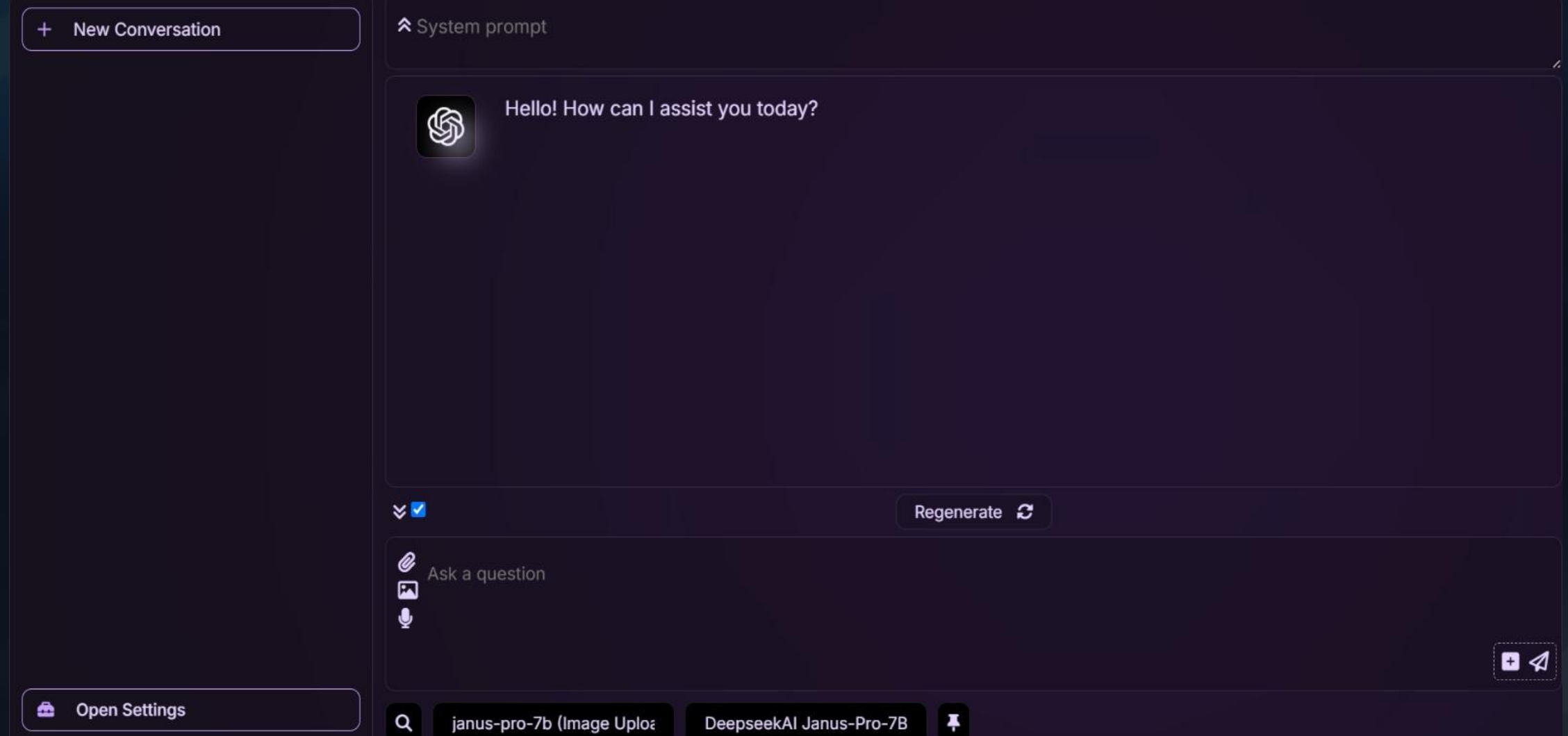
Welcome to the Omni AI!
Your AI assistant is ready to assist you.

Open Chat

© 2025 Omni AI. All Rights Reserved.

Welcome Screen


RESULT SET ANALYSIS



Chat History on the left side, Query Submission and Response on the right side

RESULT SET ANALYSIS

+ New Conversation

 Open Settings

Settings

Enable Dark Mode

☒

Web Access with DuckDuckGo

☐

Disable Conversation History

☐

Hide System-prompt

☐

Download generated images

☒

Refine files with spaCy

☐

Track usage

☐

Report errors

☒

Count words and tokens

☒

Settings Page

RESULT SET ANALYSIS

+ New Conversation

Count words and tokens ☒

System prompt You are a helpful assistant.

Input max. height 200

Speech recognition language en-US

Custom Provider (Base Url): http://localhost:8080/v1

Custom Provider: api_key

Providers (Enable/Disable) ▼

Providers API key ▼

Open Settings

Clear Conversations

Export Conversations

Export Settings


Show log

Settings Page. Options for Clear, Export Conversations, Export Settings and Log View


RESULT SET ANALYSIS

+ New Conversation

09/05, 19:00 Seven wonders of th... ⋮




Temperature in kolkata
(3 words, 20 chars, 4 tokens) + ↺




Microsoft Copilot with Copilot
Right now in **Kolkata, West Bengal**, it's **34°C**, but it feels like **35°C** due to humidity. The air quality index is **118**, which is considered moderate. The forecast for today is **sunny**, with a high of **40°C** and a low of **31°C**.
If you're heading out, stay hydrated and keep cool! Need more details? You can check the full forecast [here](#).
(82 words, 307 chars, 124 tokens) + ↺

^ System prompt



Seven wonders of the world (just the names)
(8 words, 34 chars, 10 tokens) + ↺



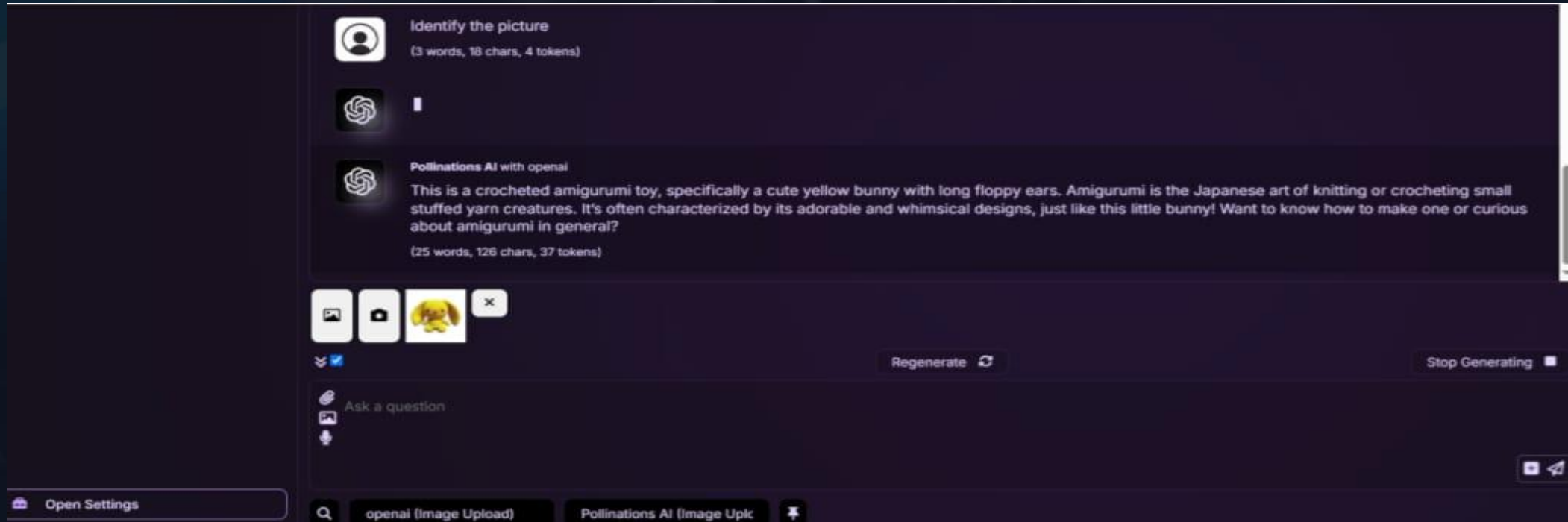
Microsoft Copilot with Copilot
Sure! Here are the Seven Wonders of the World:

1. Great Wall of China
2. Petra (Jordan)
3. Christ the Redeemer (Brazil)
4. Machu Picchu (Peru)
5. Chichen Itza (Mexico)
6. Colosseum (Italy)
7. Taj Mahal (India)

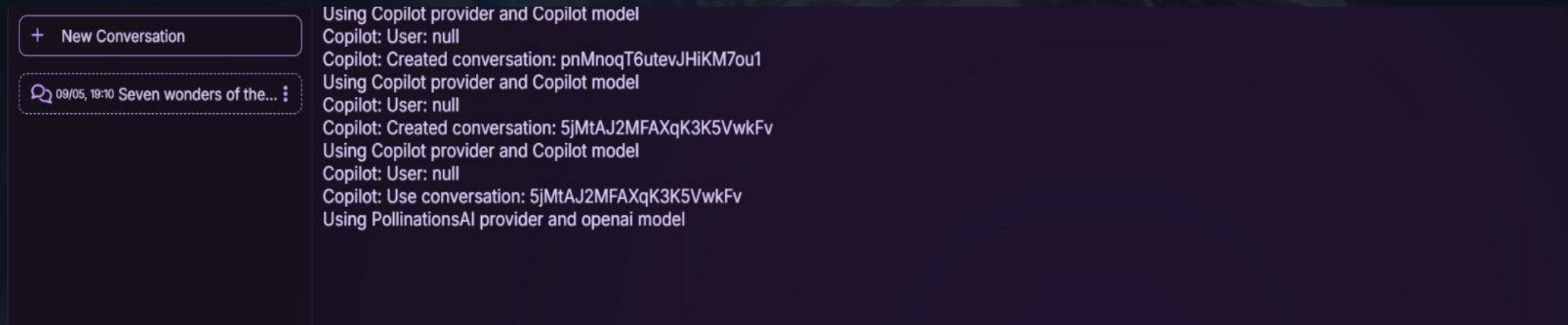
Each of these places holds immense historical and cultural significance. Let me know if you'd like to explore more about any of them!
(61 words, 260 chars, 102 tokens) + ↺

Text Generation

RESULT SET ANALYSIS



Text Generation with Image Upload



Log View

TESTING

Requirement ID	Description	Design Module	Implementation Code	Test Case ID
FR-01	Chat Interface Validation	GUI → Chat Window	gui.py	TC-01
FR-02	Query Submission & Response	GUI + Provider Interface	gui.py, provider.py	TC-02
FR-03	Model Communication	ChatClient & Model Provider	client.py, provider.py	TC-03
FR-04	Session Persistence	Cookies & Session Manager	cookies.py	TC-04
FR-05	Error Handling	Error Catching Layer	errors.py	TC-05

Testing Table

TESTING

Test Case ID	Description	Result	Status
TC-01	Validate input field in chat	Text box does not send empty or invalid inputs	PASS
TC-02	Send query and receive reply	Model responds with generated output upon valid query	PASS
TC-03	Verify API call to model provider	Proper API payload sent, and valid response parsed correctly	PASS
TC-04	Cookie/session data stored	Session ID is saved and reused properly for consistent interaction	PASS
TC-05	Error response on failure	When model API fails, error is caught and user is shown friendly message	PASS

Testing Status

FUTURE SCOPE

1

Voice Interaction and TTS: Enhancing the speech recognition feature by integrating text-to-speech (TTS) would enable a full voice-based AI assistant. This would be valuable in accessibility-focused use cases or mobile deployments.

2

Browser Plugin and Web App Deployment: By extending the application as a browser extension or deploying it as a web app, users could have real-time AI support across different platforms or integrate it directly into their workflow.

3

Multi-language and Translation Features: Supporting multiple languages and integrating real-time translation features would increase the global usability of the platform, especially for users who prefer to chat in non-English languages.

4

Integration of Local LLMs: Future versions of the system can include support for fully local LLMs like LLaMA 3 or Mistral, removing even the need for remote APIs. This would provide complete offline functionality, ideal for educational institutions or restricted environments.

CONCLUSION

In conclusion, the G4F-based ChatGPT system successfully demonstrates a practical and cost-free alternative to commercial LLM platforms. By combining the flexibility of the G4F backend with a user-friendly GUI, the project provides an accessible conversational AI experience that can be customized, extended, and deployed locally. Its modular design, provider abstraction, and configuration options make it suitable for both casual users and developers.

REFERENCES / BIBLIOGRAPHY

- **Ian Sommerville, “Software Engineering” (10th Edition):** Used for guidelines on software project planning, design methodologies, SRS documentation, and quality assurance principles.
- **Roger S. Pressman, “Software Engineering: A Practitioner’s Approach” (7th Edition):** Provided foundational concepts on risk management, procedural design, and modular software architecture.
- **Stuart Russell and Peter Norvig, “Artificial Intelligence: A Modern Approach” (3rd Edition):** Referenced for understanding AI systems, natural language processing, and large language model behaviors.
- **Python Documentation:** Official reference for Python syntax, modules like tkinter, asyncio, and standard development practices used in the project.
- **Jan.ai Documentation:** Used to explore local LLM APIs and OpenAI-compatible interface design.
- **OpenAI API Reference:** Studied to emulate request-response formats and token usage features within the GUI.
- **IEEE Software Engineering Standards (IEEE 830-1998):** Helped structure the Software Requirements Specification (SRS) and quality planning sections.

An aerial, high-angle view of a city's street grid, rendered in a dark, monochromatic blue-grey tone. A bright, glowing cyan line runs diagonally from the top-left towards the bottom-right, passing through the center of the image. Overlaid on this grid is the text 'THANK YOU' in a bold, cyan, sans-serif font. The text is centered horizontally and vertically. The entire composition is framed by a thin, light blue border that has a stepped, architectural appearance, with small circular dots at the corners and midpoints of the sides.

THANK YOU