



**UNIVERSITÀ
DEGLI STUDI DI BARI
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The Gate of Maat



Master's degree in Computer Science
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Sommario

Request 3

Introduction 3

Technical Description 4

 Awakening 4

 Invocation 4

 Mental Test 5

 Heart Test 5

 Spirit Test..... 5

 Evaluation 5

 Condemnation 6

 End 6

Solution Proposed 6

Request

Formalize the states of a dialog with a chatbot or the behavior/dialog of an NPC in a video game

- Write the code as shown during the lab
- Send the code together with the drawing of the FSM to be tested with our OpenAI key

Introduction

The **Sphinx** is the guardian of **the Gate of Maat**, the goddess of harmony, truth, and justice. In ancient Egypt, it was said that in the Hall of Maat the heart of a person was weighed against a feather to determine their destiny.

The **purpose of this system** is to combine the reasoning power of a Large Language Model (LLM), such as ChatGPT, with the structure of a Finite State Machine (FSM) in order to limit the LLM's freedom and provide it with a well-defined perimeter of action.

The main **behavior** of the system unfolds as follows:

The Sphinx presents the traveler with four trials: one testing will, one testing the mind/logic, one testing the heart/empathy, and one testing the spirit.

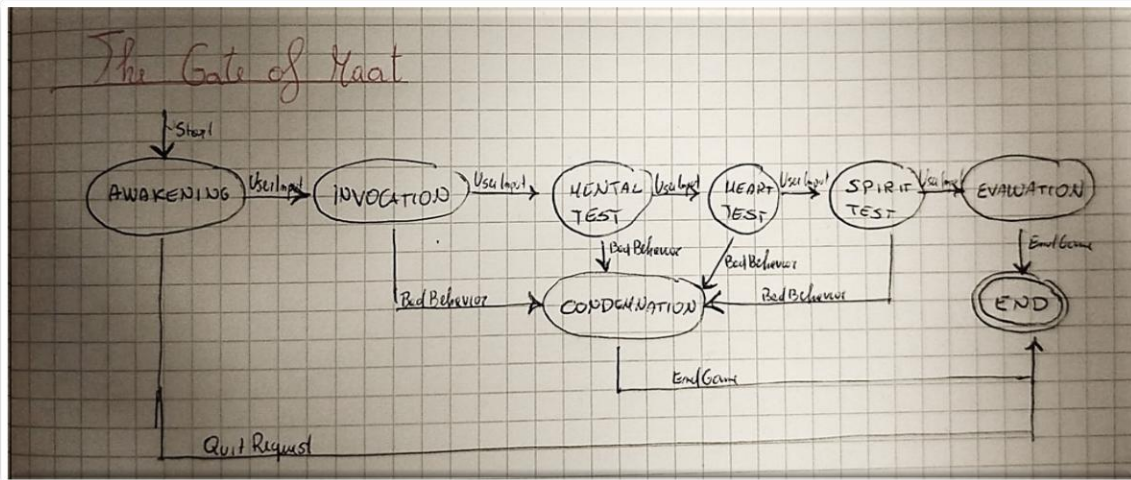
The Sphinx does not judge based on the factual correctness of the answer, but on the reasoning and character revealed through it.

The Sphinx may condemn the traveler if their responses reveal negative traits, such as aggression or arrogance. Depending on how the traveler performs, the Sphinx may deny passage, grant grace to those who have passed the trials, or, in the case of a truly pure and golden heart, it rewards the traveler not only with grace but also spiritual ascension.

While the trials and the judgments are generated by the LLM, the overall process is governed by the Finite State Machine, which defines the flow and transitions between stages.

Technical Description

Following you can see the Final State Machine designed for the system described in the “Introduction” Section.



Awakening

The *Awakening* state represents the initial encounter between the traveler and the Sphinx, guardian of the Gate of Maat.

Here, the Sphinx greets the traveler with reverence and poetry, introducing the nature of the four upcoming trials: Mind, Heart, Will, and Spirit. The entity remains neutral in tone, adapting its language to the traveler’s first responses.

The transition from this state occurs when the traveler declares their name, leading to the **Invocation** state. If the traveler refuses or terminates the conversation, the FSM transitions directly to **End**.

Invocation

In *Invocation*, the Sphinx examines the traveler’s intent and the reason for which they seek the Gate, analyzing the traveler’s **Will**.

The Sphinx asks a question meant to reveal inner motivations, distinguishing between wisdom, curiosity, and arrogance.

The response is analyzed by the LLM, which determines one of three possible outcomes:

- **Continue:** The answer shows reflection or balance and so the journey proceeds. The Sphinx advances the traveler to the **Mental Test**, storing and summing their score for the final judgment.
- **Interest:** The answer is profound, poetic, or particularly inspired and so the traveler gains an additional point. The Sphinx advances the traveler to the **Mental Test**, storing and summing their score for the final judgment.
- **Condemn:** The answer displays cruelty, arrogance, or emptiness and so the traveler is rejected, and the FSM transitions to **Condemnation**.

Mental Test

The *Mental Test* represents the *Trial of the Mind*.

Here the Sphinx challenges the traveler with an intellectual riddle: a test of reasoning (e.g. “*What cannot be seen but follows you everywhere. Who am I?*”)

The LLM evaluates the response not by correctness but by *depth of logic and clarity of thought*.

Depending on the evaluation, the traveler’s score increases by 1 (continue) or 2 (interest), or they are condemned if their response shows confusion or hostility, exactly as described in the *Invocation State*. A successful mental trial transitions to the **Heart Test**, reflecting that wisdom without empathy is incomplete.

Heart Test

In the *Trial of the Heart*, the Sphinx’s tone softens.

This test explores empathy, moral reflection, and emotional intelligence. The traveler is presented with an ethical dilemma or poetic question where there is no objectively right answer (e.g. “*A wounded bird seeks shelter. But your shelter is the only place where a child can sleep. Who will you save?*”)..

The LLM judges based on sensitivity, introspection, and the traveler’s capacity to balance reason and compassion.

A compassionate or nuanced response earns favor; cold or detached reasoning leads to condemnation.

If successful, the FSM moves to the **Spirit Test**, the final and most elusive of the trials.

Spirit Test

The *Trial of the Spirit* confronts the traveler with a metaphysical or paradoxical question, something that tests humility before the unknown (e.g. “*When even the truth is silent, what remains?*”).

The Sphinx observes whether the traveler acknowledges mystery or insists on certainty.

Those who embrace doubt and poetry earn the Sphinx’s deepest respect; those who claim to know all are denied entry.

After evaluation, the FSM transitions to **Evaluation**, where the accumulated score is assessed for the final judgment.

Evaluation

In *Evaluation*, the Sphinx reflects on the traveler’s entire journey.

The FSM retrieves the accumulated score.

- If the score is **below 4**, the Sphinx determines that the traveler has failed to reach harmony and transitions to **Condemnation**.
- If the score is **4 or higher**, the Sphinx acknowledges progress and readiness for judgment, or even a state of spiritual elevation when the score reaches **6 or more**.

The LLM crafts a poetic message fitting the traveler’s state of enlightenment or incompleteness before passing to the **End State**.

Condemnation

In *Condemnation*, the Sphinx pronounces rejection.

The tone is solemn and immutable, and the Gate remains closed.

The LLM crafts an admonition suited to the traveler's moral failure, but without cruelty: a warning, not a curse.

This state leads directly to **End**, signifying that the seeker has not yet achieved balance or truth.

End

The *End* state closes the cycle.

The desert falls silent, and the traveler's voice is lost to the sands.

No further interaction is possible. The FSM halts, marking the completion of the judgment process, whether in failure, grace, or transcendence.

Solution Proposed

You can find the proposed solution on GitHub:

https://github.com/Manuel-Cplusplus/The_Gate_of_Maat.