

Lumira Project — Simple Explanation for New Developers

1. gigachat_api.py — Communication Layer

- Handles all interactions with GigaChat API.
- `get_access_token()`: retrieves OAuth token.
- `chat_with_gigachat()`: sends simple text queries.
- `chat_with_gigachat_messages()`: supports full chat message format.
- Used by all agents.

2. agents/ — Intelligent Behavior Modules

2.1 tutor.py — Tutor Agent

- Explains concepts in simple language.

- Considers user knowledge level.

- Maintains `tutor_history` for context.

2.2 examiner.py — Exam Generator

- Creates 5-question tests.

- Returns questions, options, correct answers, test topic (JSON).

2.3 analyser.py — Test Checker

- Compares user answers with correct ones.

- Understands formats: '1a 2b 3c', 'abcde', etc.

- Produces a score, percentage, and detailed report.

- Results stored in memory.

2.4 problem_solver.py — Step-by-Step Explainer

- Breaks a topic into 3 steps.

- Asks: "Do you understand? (yes/no)"

- If no → re-explains current step in simpler words.

- If yes → moves to next step.

- Tracks state: active session, steps, current step.

2.5 moderator.py — Router / Decision-Maker

- Determines which agent should respond.

- Returns two numbers:

- 1) agent ID (1–4),

- 2) whether to change topic (0/1).

- Uses rules and examples to classify user messages.

3. utils/format_exam.py — Formatting Helper

- Converts JSON exam into readable text.

- Extracts question list and answer key for analyser.

4. main.py — Central Controller

- Loads access token.

- Runs main input loop.

- Sends messages to moderator.

- Calls the correct agent based on moderator response.

- Stores global state:

- `last_topic`

- `current_test`

- `results` (test history)

- `tutor_history`

- `problem_solver` session info

- Includes commands:

- 'progress' — shows test history and averages

- 'exit' — quits

5. System Workflow

- User message →

- Moderator selects agent →

- Agent processes message →

- Output returned →
- Memory updated if needed.

This document helps new developers understand the architecture and logic of the Lumira project.