**🔧 System Overview**

This script uses a **Large Language Model (LLM)** (Gemini by Google) and **Selenium WebDriver** to create a dynamic, AI-informed TikTok scraper. The LLM chooses trending hashtags, and the scraper collects metadata-rich video content from TikTok search pages based on those hashtags.

**🧠 Step-by-Step Breakdown**

**1. Gemini LLM Trend Discovery**

* The script begins by prompting Gemini (using your API key) with a prewritten prompt asking for 3–5 trending TikTok hashtags.
* Gemini responds in structured JSON format, providing:
  + A relevant TikTok **category**
  + A list of **hashtags** with popularity scores

**2. Parsing Hashtags**

* The JSON is parsed and cleaned to extract hashtag strings (e.g., ["BookTok", "ComedyTok"]).
* If parsing fails, it falls back to default hashtags like "fashion" or "style".

**3. Selenium Scraper Setup**

* A headless Chrome browser is launched using undetected\_chromedriver or webdriver\_manager.
* For each hashtag:
  + It navigates to the corresponding https://www.tiktok.com/tag/<hashtag> page.
  + Scrolls and loads posts until it gathers enough TikTok video links (you configured this to ~1000 or a timeout threshold).

**4. Rich Metadata Extraction**

* For each video link:
  + The script opens the video page.
  + Extracts detailed metadata like:
    - Video **URL**
    - **Description** (caption)
    - **Like count**
    - **Comment count**
    - **Share count**
    - **Scraped timestamp**

**5. Saving Results**

* All collected metadata is saved as structured JSON.
* Output file: tiktok\_combined\_llm\_rich.json is stored in your specified directory.
* You can optionally move it to another folder using shutil.move(...).