📘 Water LLM Engine - Full Function Logic (Layman Version)

## get\_integration\_config(location)

This function retrieves the configuration settings for the given location (like London). These settings tell the system where to find things: the SCADA system API, sensor endpoints, weather APIs, and communication brokers like MQTT. Think of it like opening a map and contact list for the water system in that city.

## actuate\_asset(command, location)

Sends out commands like 'open valve' or 'start pump' to physical systems in the field. It tries every available method (SCADA, MQTT, OPC-UA, Modbus). For example, if a pipe is flooding, this function sends a message to physically stop it. It then reports which ones worked or failed.

## fetch\_weather\_data(location)

Pulls live or forecast weather info, like how much rain is expected in London. It helps decide if there's a risk of flooding or overflow.

## fetch\_sensor\_data(location)

Grabs real-time data from field sensors. For example, it reads how full the tank is, how fast water is flowing in, and other such vital info for water control decisions.

## call\_gpt(prompt, temperature)

This function asks GPT-4 (an AI brain) to give expert advice or insights. You give it a prompt like 'What do I do in a heavy rain?' and it gives a professional answer. Used for reports, suggestions, and context-sensitive guidance.