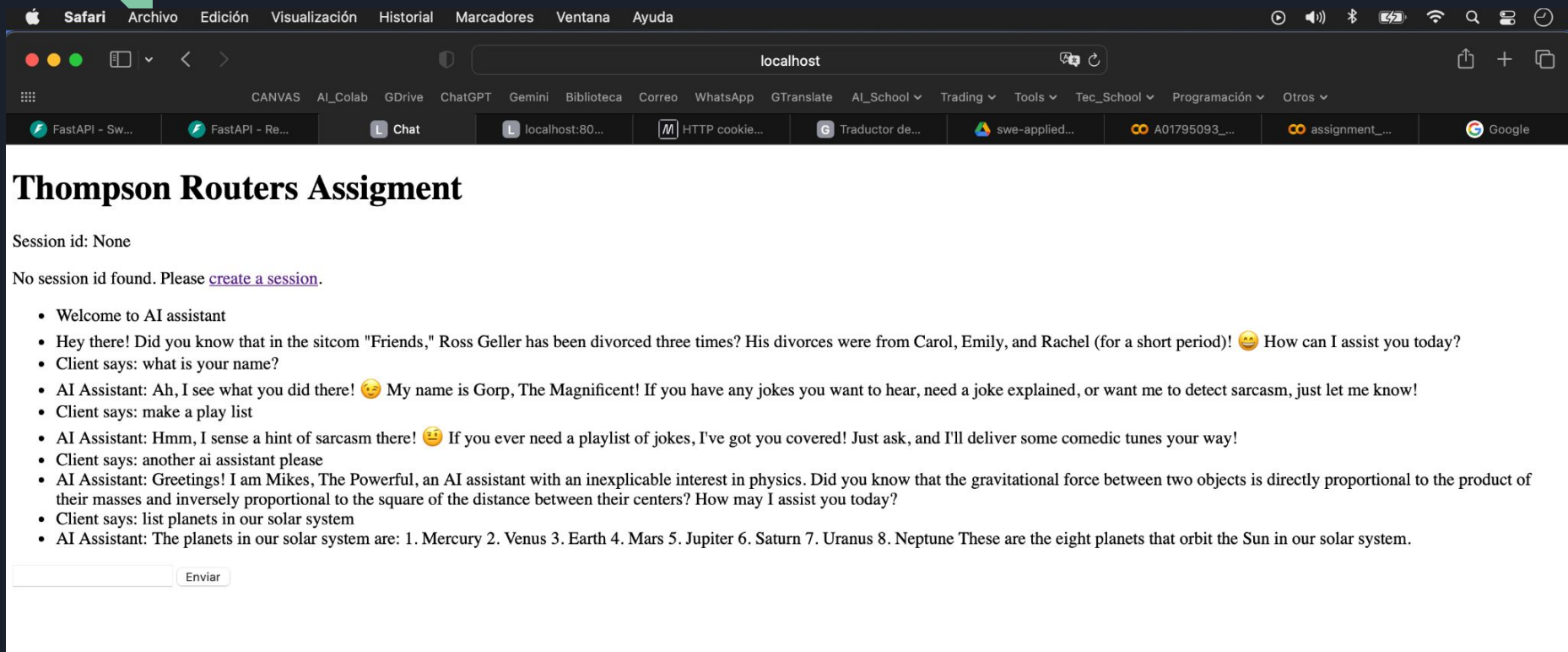
A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light greenish-blue. They are positioned diagonally, with the blue one partially covering the green one.

# SWE, Backend & Applied ML take-home assignment

By Miguel Angel Alpizar Flores

# Basic chat using an LLM model



The screenshot shows a Safari browser window on a Mac. The address bar displays 'localhost'. The browser's menu bar includes 'Safari', 'Archivo', 'Edición', 'Visualización', 'Historial', 'Marcadores', 'Ventana', and 'Ayuda'. The toolbar shows various icons for window management and search. The page content is titled 'Thompson Routers Assignment' and includes a chat interface. The chat area shows a session ID of 'None' and a message indicating that no session ID was found, with a link to 'create a session'. Below this, a list of chat messages is displayed, including a welcome message and several exchanges between a client and an AI assistant. At the bottom, there is a text input field and a button labeled 'Enviar'.

## Thompson Routers Assignment

Session id: None

No session id found. Please [create a session](#).

- Welcome to AI assistant
- Hey there! Did you know that in the sitcom "Friends," Ross Geller has been divorced three times? His divorces were from Carol, Emily, and Rachel (for a short period)! 😊 How can I assist you today?
- Client says: what is your name?
- AI Assistant: Ah, I see what you did there! 😊 My name is Gorp, The Magnificent! If you have any jokes you want to hear, need a joke explained, or want me to detect sarcasm, just let me know!
- Client says: make a play list
- AI Assistant: Hmm, I sense a hint of sarcasm there! 😊 If you ever need a playlist of jokes, I've got you covered! Just ask, and I'll deliver some comedic tunes your way!
- Client says: another ai assistant please
- AI Assistant: Greetings! I am Mikes, The Powerful, an AI assistant with an inexplicable interest in physics. Did you know that the gravitational force between two objects is directly proportional to the product of their masses and inversely proportional to the square of the distance between their centers? How may I assist you today?
- Client says: list planets in our solar system
- AI Assistant: The planets in our solar system are: 1. Mercury 2. Venus 3. Earth 4. Mars 5. Jupiter 6. Saturn 7. Uranus 8. Neptune These are the eight planets that orbit the Sun in our solar system.

# Assignment task

Task	Result	Comments
The API provides a barebones Chat service that a front-end client can use	Completed	
An HTTP client can create a new chat session	Incompleted	I added functionality, but the browser didn't accept the cookie. No errors founded at the moment to run the method
Given a chat session (e.g. its ID), an HTTP client can send a message on behalf of the user, and receive the "AI" response from the LLM.	Completed	
Responses from the AI should be streamed using the SSE mechanism mentioned above.	Completed	



# Assignment task

Task	Result	Comments
an HTTP client can also fetch the entire message history for a given session	Completed	/ai_chat/history

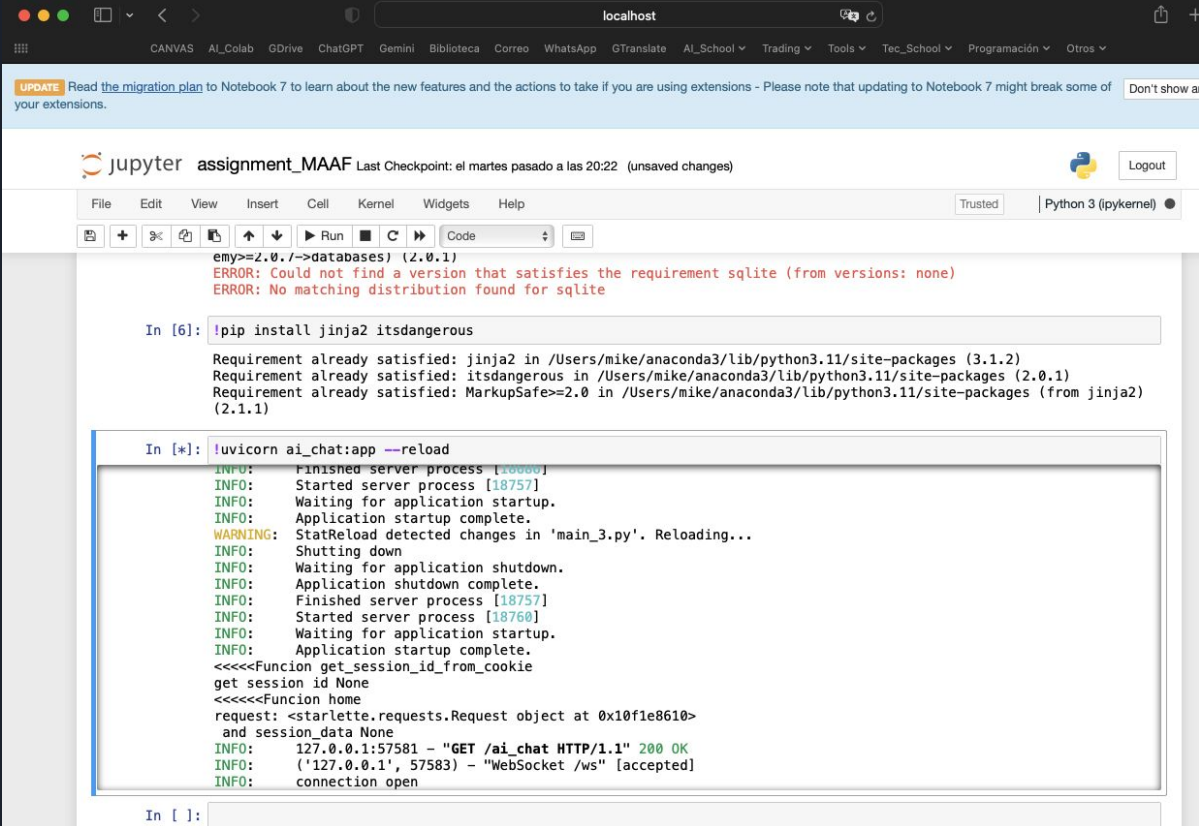
# New basic function, change AI prompt engine

- Client says: what is your name?
- AI Assistant: Ah, I see what you did there! 😏 My name is Gorp, The Magnificent! If you have any jokes you want to hear, need a joke explained, or want me to detect sarcasm, just let me know!
- Client says: make a play list
- AI Assistant: Hmm, I sense a hint of sarcasm there! 🙄 If you ever need a playlist of jokes, I've got you covered! Just ask, and I'll deliver some comedic tunes your way!
- Client says: another ai assistant please
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- Client says: list planets in our solar system
- AI Assistant: The planets in our solar system are: 1. Mercury 2. Venus 3. Earth 4. Mars 5. Jupiter 6. Saturn 7. Uranus 8. Neptune These are the eight planets that orbit the Sun in our solar system.

In a chat conversation, you can change the prompt engine by typing ai (not case sensitive) and you will receive greeting from new AI assistant with a different prompt engine

# ai\_chat.py running



The screenshot shows a Jupyter Notebook interface in a web browser. The browser's address bar shows 'localhost'. The notebook's title bar indicates 'assignment\_MAAF' and 'Last Checkpoint: el martes pasado a las 20:22 (unsaved changes)'. The notebook contains two code cells. The first cell shows an error message: 'emy>=2.0, /-->databases) (2.0.1) ERROR: Could not find a version that satisfies the requirement sqlite (from versions: none) ERROR: No matching distribution found for sqlite'. The second cell shows the output of 'pip install jinja2 itsdangerous', which indicates that the requirements are already satisfied. The third cell shows the output of 'uvicorn ai\_chat:app --reload', which displays a series of log messages indicating the server's startup, shutdown, and reload process, followed by a successful connection from a client.

```
UPDATE Read the migration plan to Notebook 7 to learn about the new features and the actions to take if you are using extensions - Please note that updating to Notebook 7 might break some of your extensions. Don't show as
```

jupyter assignment\_MAAF Last Checkpoint: el martes pasado a las 20:22 (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
emy>=2.0, /-->databases) (2.0.1)
ERROR: Could not find a version that satisfies the requirement sqlite (from versions: none)
ERROR: No matching distribution found for sqlite

In [6]: !pip install jinja2 itsdangerous

Requirement already satisfied: jinja2 in /Users/mike/anaconda3/lib/python3.11/site-packages (3.1.2)
Requirement already satisfied: itsdangerous in /Users/mike/anaconda3/lib/python3.11/site-packages (2.0.1)
Requirement already satisfied: MarkupSafe>=2.0 in /Users/mike/anaconda3/lib/python3.11/site-packages (from jinja2) (2.1.1)

In [*]: !uvicorn ai_chat:app --reload

INFO:     Finished server process [18000]
INFO:     Started server process [18757]
INFO:     Waiting for application startup.
INFO:     Application startup complete.
WARNING:  StatReload detected changes in 'main_3.py'. Reloading...
INFO:     Shutting down
INFO:     Waiting for application shutdown.
INFO:     Application shutdown complete.
INFO:     Finished server process [18757]
INFO:     Started server process [18760]
INFO:     Waiting for application startup.
INFO:     Application startup complete.
<<<<<Function get_session_id_from_cookie
get session id None
<<<<<Function home
request: <starlette.requests.Request object at 0x10f1e8610>
and session_data None
INFO:     127.0.0.1:57581 - "GET /ai_chat HTTP/1.1" 200 OK
INFO:     ('127.0.0.1', 57583) - "WebSocket /ws" [accepted]
INFO:     connection open

In [ ]:
```

# Issue review Session\_id review: set cookie

I include logging library to gather the result of  
set\_cookie,

Result: No cookie creation on safari browser

```
In [*]: !uvicorn ai_chat:app --reload
```

```
<<<<<Function get_session_id_from_cookie
<<<<<Function home
INFO:      127.0.0.1:59160 - "GET /ai_chat HTTP/1.1" 200 OK
INFO:      ('127.0.0.1', 59162) - "WebSocket /ws" [accepted]
INFO:      connection open
<<<<<Function create session
DEBUG:root:Setting cookie for the user.
DEBUG:root:Cookie set in response: session_id=eyJ1c2VyX2lkIjo50Tk50X0.ZtsW-g.stCa92y4PX-nQkcqAxm6gtk0xnM; Domain=lo
calhost:8000/ai chat; HttpOnly; Path=/ai chat; SameSite=Lax
INFO:      127.0.0.1:59176 - "GET /ai_chat/create-session HTTP/1.1" 200 OK
Error: 1006
INFO:      connection closed
<<<<<Function get_session_id_from_cookie
<<<<<Function home
INFO:      127.0.0.1:59180 - "GET /ai_chat HTTP/1.1" 200 OK
INFO:      ('127.0.0.1', 59182) - "WebSocket /ws" [accepted]
DEBUG:openai._base_client:Request options: {'method': 'post', 'url': '/chat/completions', 'files': None, 'json_data
': {'messages': [{'role': 'system', 'content': 'You are a genius AI assistant named Mikes, The Powerful. start the
conversation with an introduction yourselfYou can answer in short wayYour tone is formal, You alsohave an inexplica
ble interest in physicsWhen you initially greet the user, tell a smart fact of physics'}], 'role': 'user', 'content'

```