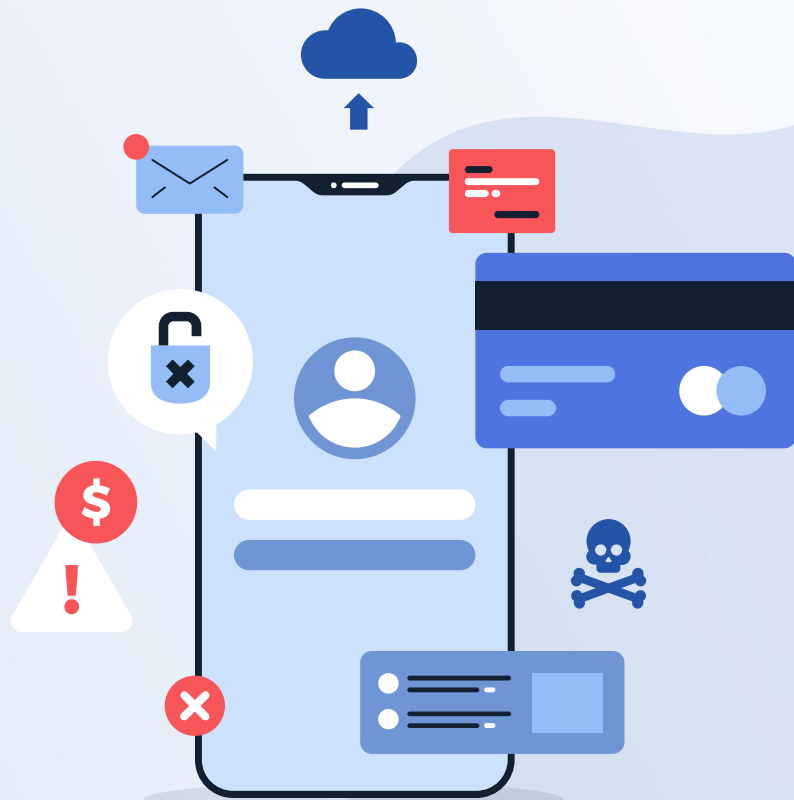


Lab 08

Create Agentic AI with Chainlit



Lab Objectives

- Learn how Chainlit integrates with LMStudio
- Create an agent to perform an automated task



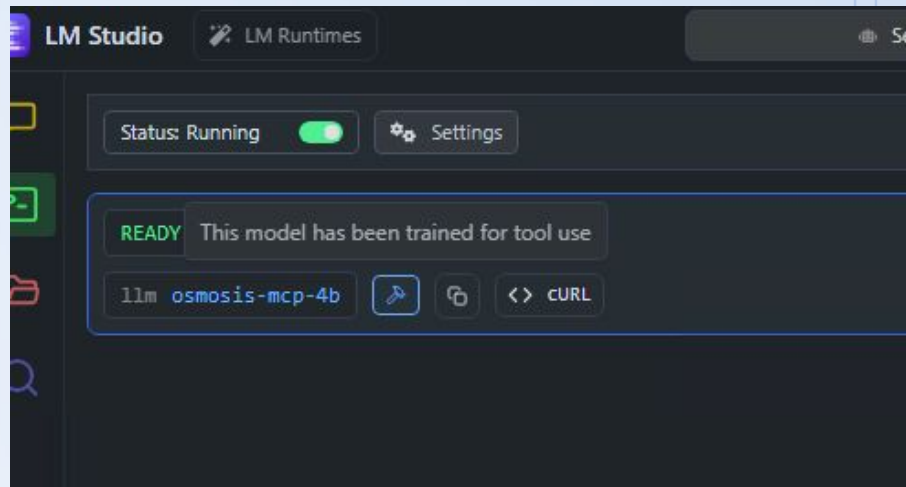
Create Agentic AI with Chainlit

- Install Python if not already installed
- <https://www.python.org/downloads/>
- Make sure Python is added to your path variable or know where Python is installed for later steps



Installing a tool capable LLM

- We are going to select a **tool** capable LLM
- You can see which models are capable of executing commands when you see a **hammer** next to the model
- Search for and load the model called **osmosis-mcp-4b**
- If you're feeling adventurous you can search for a 7B model that also been trained to use tools



Install UV Package Manager

- Install according to your Operating System Instructions
- [GitHub - astral-sh/uv: An extremely fast Python package and project manager, written in Rust.](#)

Download (git clone) Obsidian MCP Server

- <https://github.com/MarkusPfundstein/mcp-obsidian>

Download (git clone) Obsidian MCP Server

- Create a .env file and paste in the following command but with **your API key**
- **If this does not work you may need to load a environment variable into Windows**

```
OBSIDIAN_API_KEY=38a5a5ffe32ce352a36f3354861c827065e72371f1d20c4200062a83264a0c45
```

Download (git clone) Obsidian MCP Server

- Change directory to the root of mcp-obsidian and run the following commands

```
Uv sync  
Cd mcp-obsidian-main\src  
Python server.py
```


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- Optional but recommended:
- Create a virtual environment and activate

```
# Create virtual environment  
python -m venv venv
```

```
# Activate virtual environment  
# On Windows:  
venv\Scripts\activate  
# On macOS/Linux:  
source venv/bin/activate
```

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- Install the dependencies

```
pip install -r requirements.txt
```

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- Optional: Modify the file to use your **model** of choice (if you are using the prox model provided then skip this step)
- If you changed the **port** the Local Server LMStudio is running on then change this as well

```
pip install -r requirements.txt
```

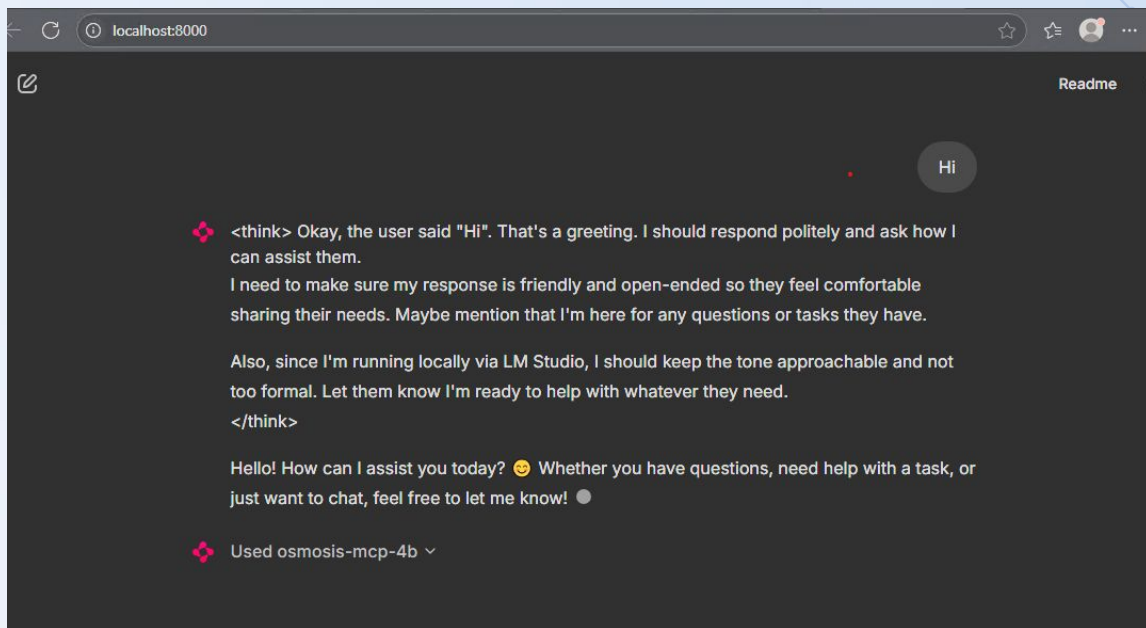
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- Run Chainlit

```
chainlit run app.py -w
```

Create Agentic AI with Chainlit

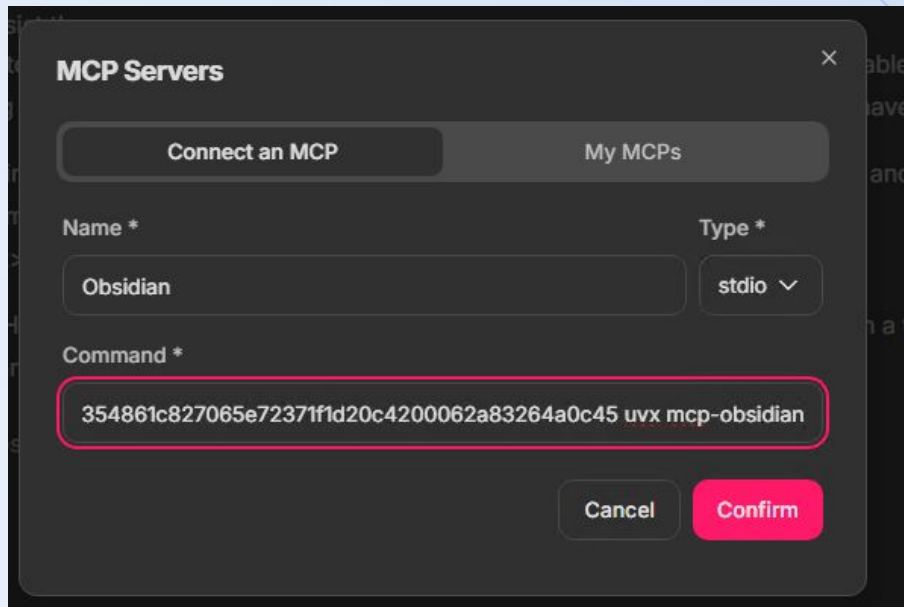
- A browser window will open up
- Test the application by entering Hi. If you receive any errors review the config and if you need help raise your hand!



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- Next to the chat window there is a plug sign. Select this to add an MCP server and copy the following command
- Make sure to enter your own API key from the Obsidian **Local Rest API** plugin

```
OBSIDIAN_API_KEY=38a5a5ffe32ce352a3  
6f3354861c827065e72371f1d20c4200062a8  
3264a0c45 uvx mcp-obsidian
```



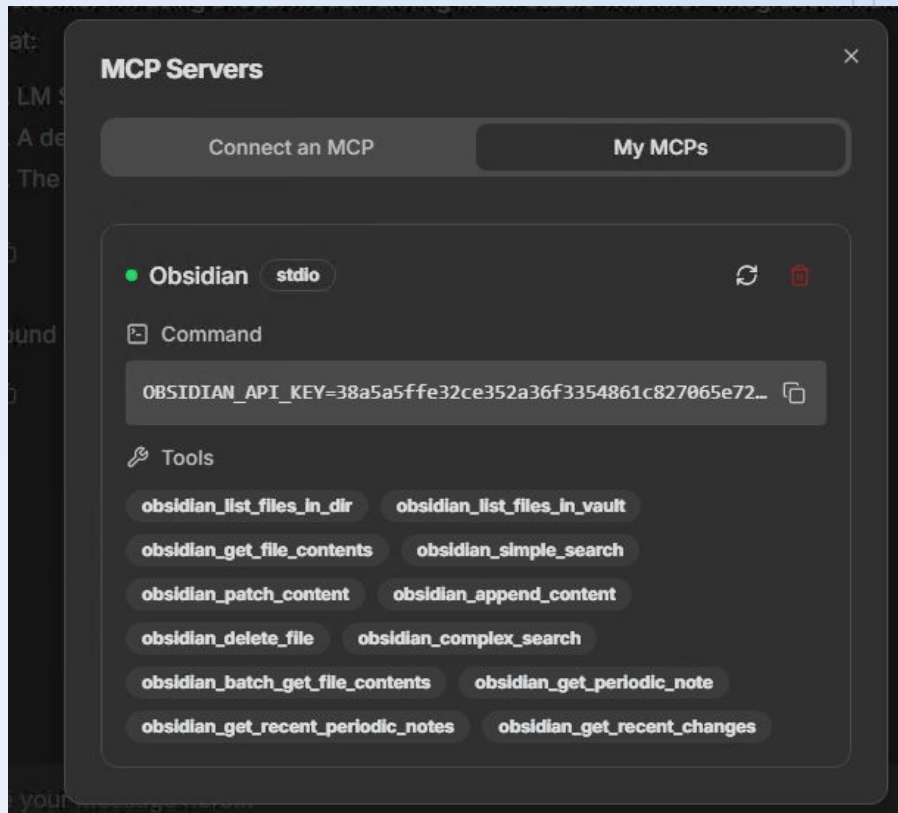
The screenshot shows a dark-themed dialog box titled "MCP Servers" with a close button (X) in the top right corner. At the top, there are two tabs: "Connect an MCP" (active) and "My MCPs". Below the tabs, there are three input fields:

- Name ***: A text input field containing the word "Obsidian".
- Type ***: A dropdown menu showing "stdio" with a downward arrow.
- Command ***: A text input field containing the command "354861c827065e72371f1d20c4200062a83264a0c45 uvx mcp-obsidian". This field is highlighted with a red border.

At the bottom right of the dialog, there are two buttons: "Cancel" and "Confirm".

Create Agentic AI with Chainlit

- If the MCP server is successfully added you will see the following success window
- If not, walk through the previous steps
 - If you need help raise your hand!
- You will see all **commands** available to the model under the **tools** section



Create Agentic AI with Chainlit

- Type in the following command in Chainlit and execute

Fetch my Obsidian vault files. You must read each of the files with separate calls carefully and not make up the content yourself. Just make sure you fetch the real file contents via commands first and wait for my instructions. DO NOT repeat the content of the file to me

Create Agentic AI with Chainlit

- If successful you will see it display your note files you have taken during the class!

❖ Used osmosis-mcp-4b ▾

● Used Executing tool: obsidian_list_files_in_vault

❖ Tool Result from obsidian_list_files_in_vault:

```
[  
  "Welcome.md",  
  "test.md"  
]
```



❖ <think> Okay, the user wants me to fetch their Obsidian vault files. I need to make sure I read each file separately using the tools available through MCP servers. First, I'll start by listing the files in the vault. The previous response showed that there are two files: Welcome.md and test.md. Now, I could use the obsidian_read_file tool to get the contents of each file one by one.

Create Agentic AI with Chainlit

- Now ask Chainlit to read the files as it requested

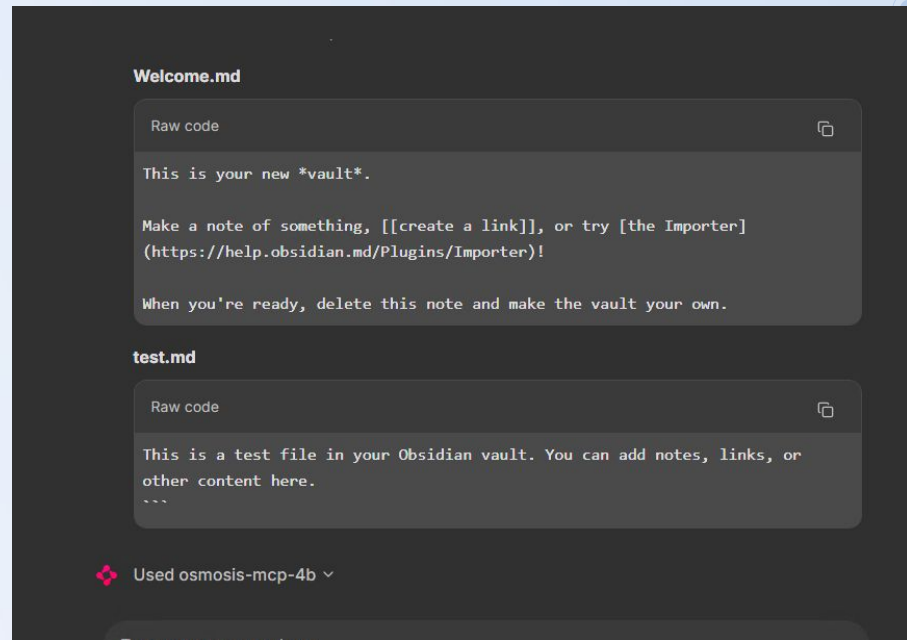
Yes, read these files

Or

Display the text of the files to me

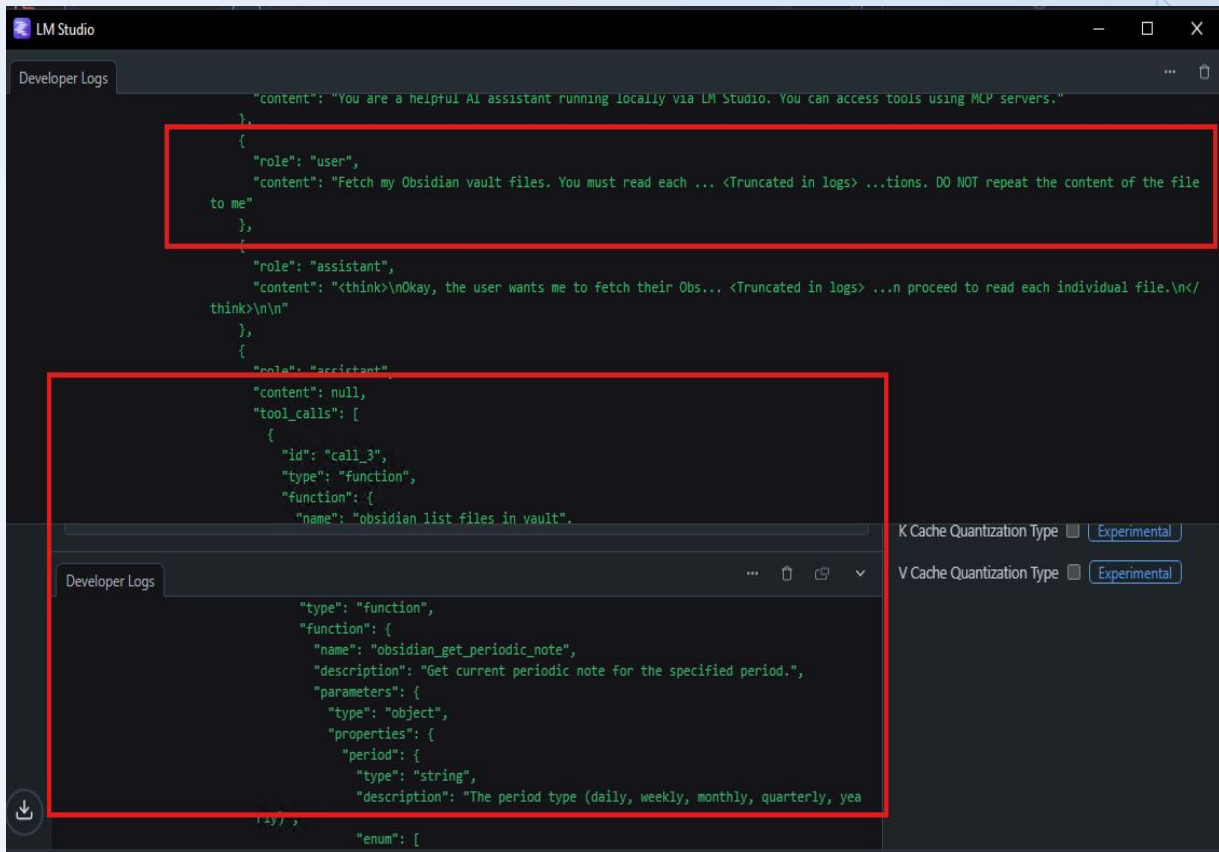
Create Agentic AI with Chainlit

- You should now see your notes you wrote during class



Create Agentic AI with Chainlit

- Open **LMStudio** and review the console logs
- You will see your query to the model
- You will also see the MCP server **injected** all available **functions** and **tools** to the model for selection



The screenshot displays the 'Developer Logs' window in LM Studio. It contains two JSON messages. The first message is from a 'user' role, asking to fetch Obsidian vault files. The second message is from an 'assistant' role, which includes a 'tool_calls' array with a function named 'obsidian_list_files_in_vault'. A third JSON message is partially visible at the bottom, showing a function definition for 'obsidian_get_periodic_note'.

```
{
  "content": "You are a helpful AI assistant running locally via LM Studio. You can access tools using MCP servers.",
  "role": "user",
  "content": "Fetch my Obsidian vault files. You must read each ... <Truncated in logs> ...tions. DO NOT repeat the content of the file to me"
},
{
  "role": "assistant",
  "content": "<think>\nOkay, the user wants me to fetch their Obs... <Truncated in logs> ...n proceed to read each individual file.\n</think>\n\n",
  "tool_calls": [
    {
      "id": "call_3",
      "type": "function",
      "function": {
        "name": "obsidian_list_files_in_vault".
      }
    }
  ]
},
{
  "type": "function",
  "function": {
    "name": "obsidian_get_periodic_note",
    "description": "Get current periodic note for the specified period.",
    "parameters": {
      "type": "object",
      "properties": {
        "period": {
          "type": "string",
          "description": "The period type (daily, weekly, monthly, quarterly, yea"
        }
      }
    }
  }
},
{
  "enum": [
```

Lab End

