

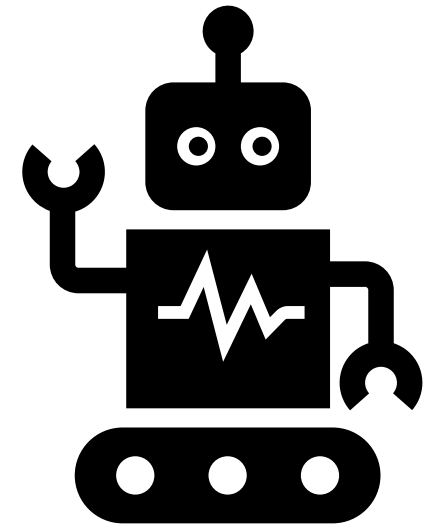


CCLS LLM Workshop – Agents Section

What is an AI Agent?

- **Key Features:**
- Has a goal or objective
- Can take actions
- May interact with users or other systems
- Uses reasoning to plan steps

An AGENT is an autonomous or semi-autonomous system that perceives its environment and takes actions to achieve goals.

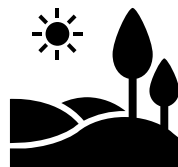


Agent Setup

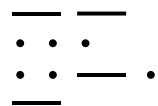
Tools



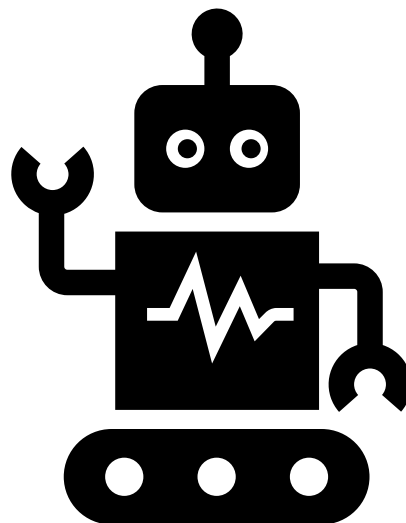
Environment



Output



Agent



Memory



Knowledge



Fine Tuning



Our Example:



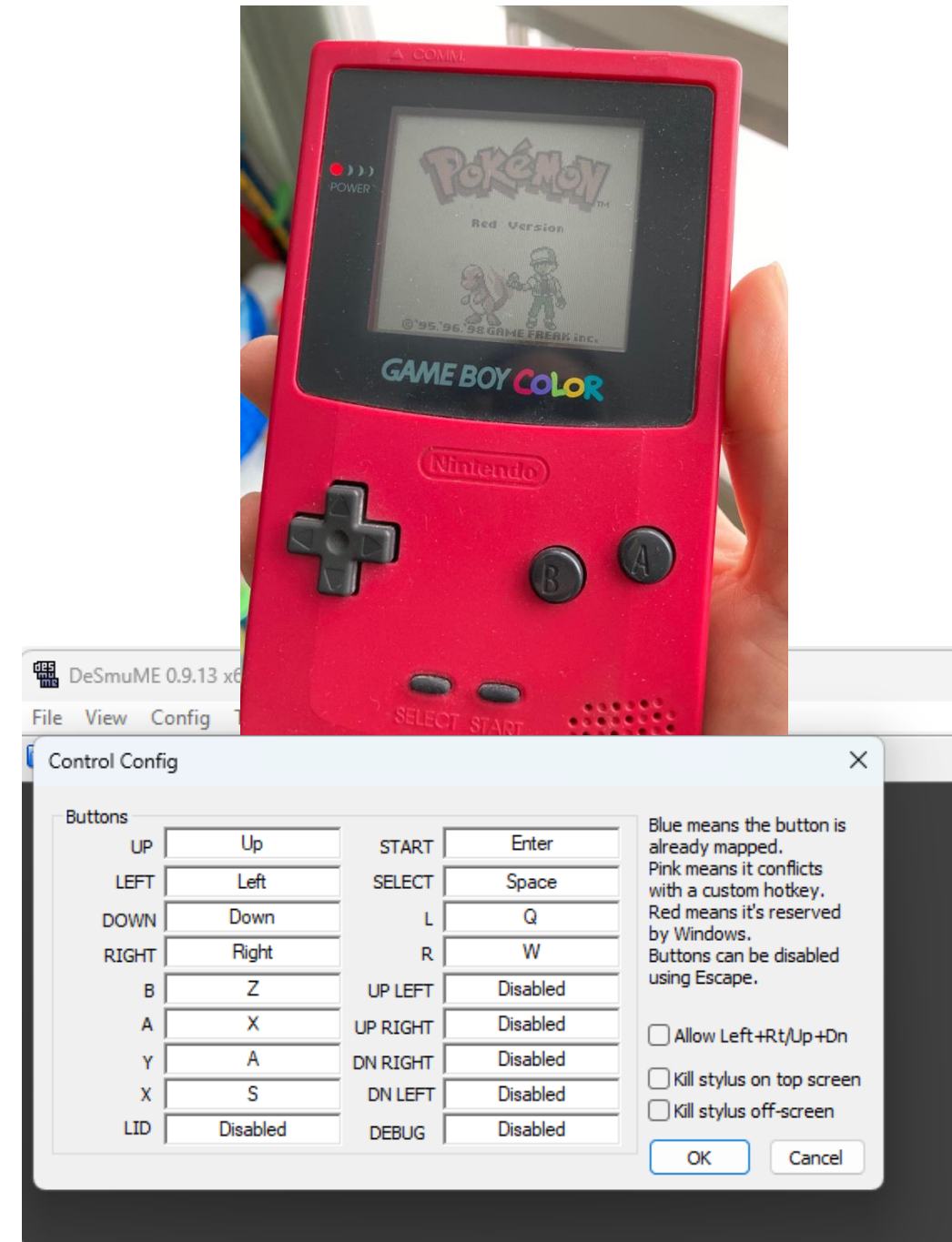
What are ^{Tools} ?

Definition:

- *Tools* are external functions, APIs, or systems the agent can call to perform specific tasks it can't handle natively.

Examples:

- A Python code execution tool for statistical analysis
- A medical database query tool
- A plotting library (e.g., matplotlib) to visualize trends



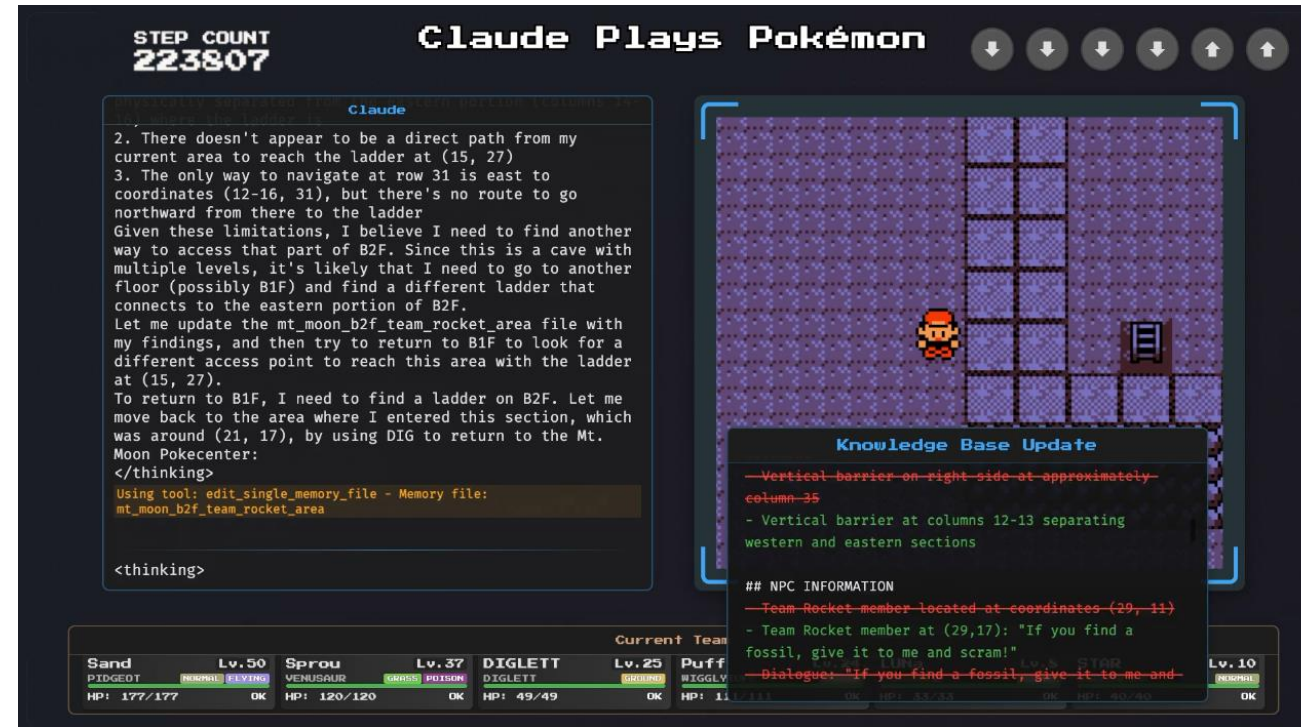
What is the

Definition:

- The *environment* is everything external that the agent perceives and interacts with. It includes users, datasets, APIs, file systems, and tools.

Course Example:

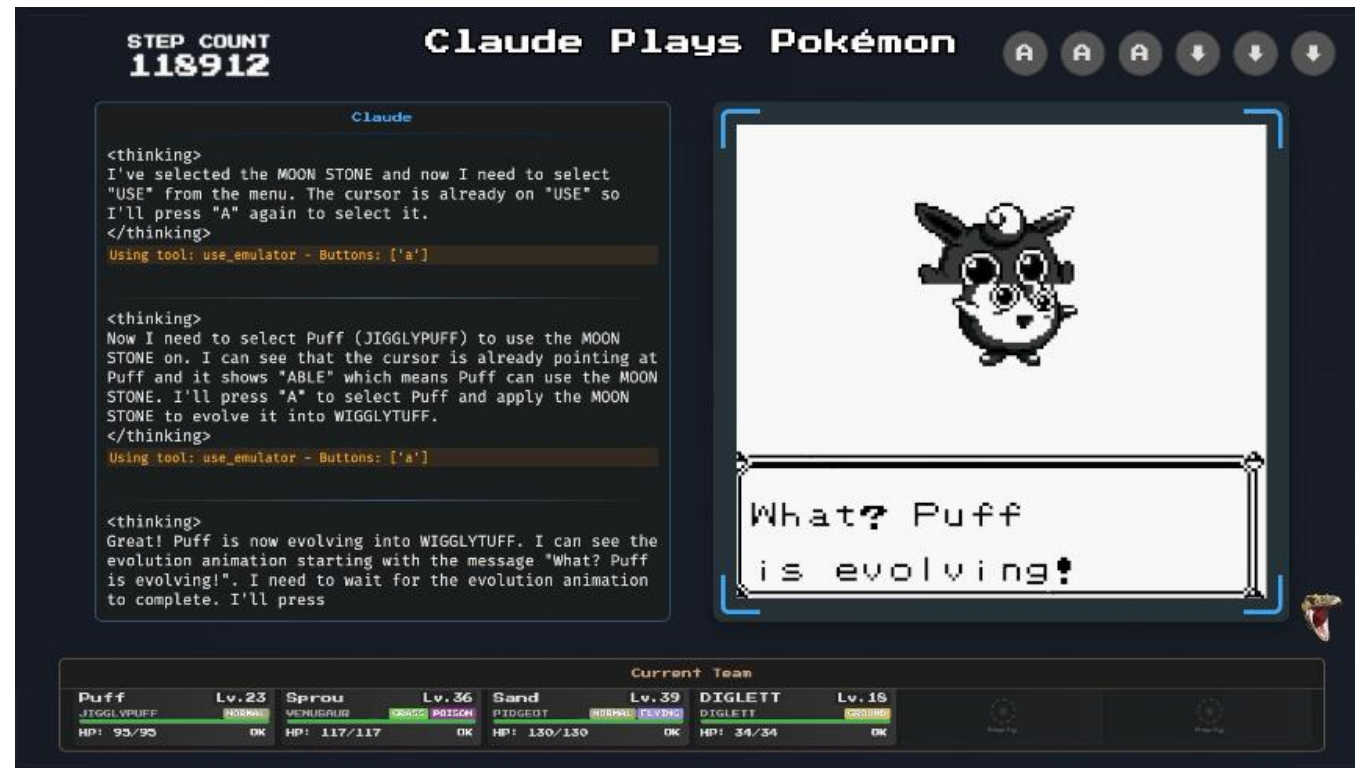
- Environment:** Kaggle dataset, notebooks, plotting libraries, external clinical databases
- Agent Actions:** Reads CSV files, generates plots, writes summaries, recommends features



What is the ?

Types of Output:

- **Text:** Descriptive analysis or summaries
- **Code:** Python scripts to process data
- **JSON:** Structured data outputs for pipelines or APIs
- **Plots:** Visual output like bar charts or survival curves

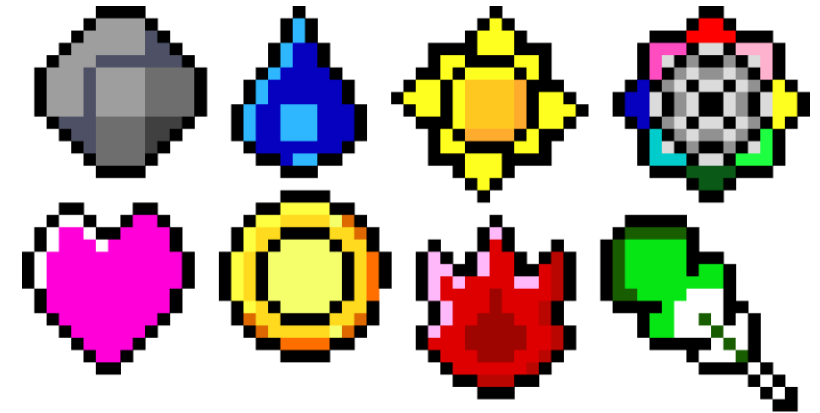


Memory

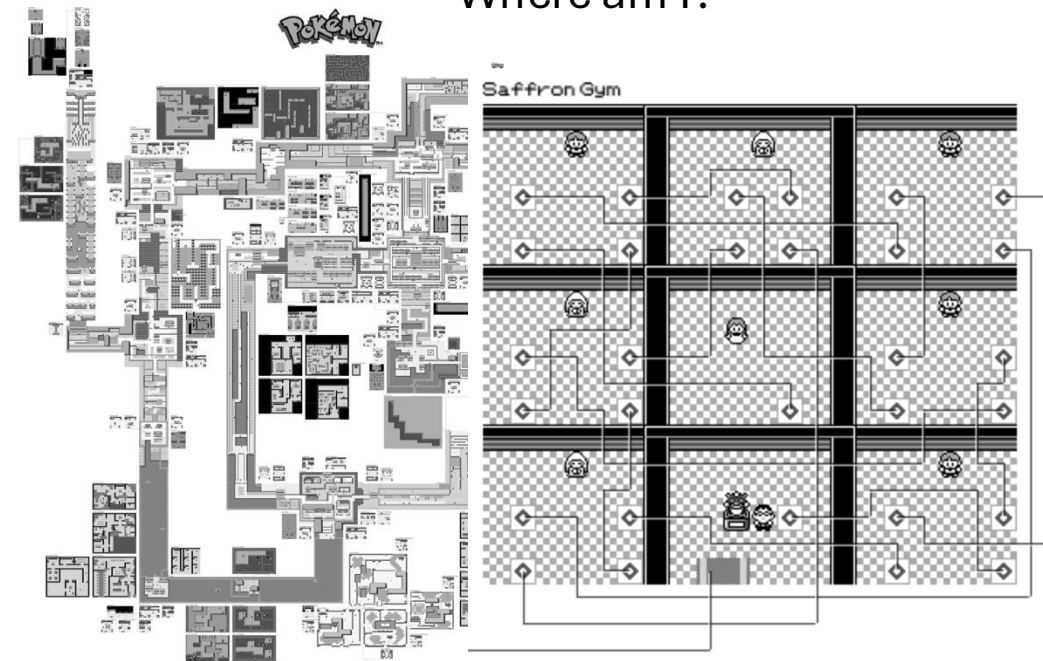
What is ?

- **Definition:**
- *Memory* allows an agent to remember past interactions, decisions, and user inputs across sessions or within a workflow.
- **Types:**
- **Short-Term Memory:** Within a single task
- **Long-Term Memory:** Stored between sessions (e.g., previous patient cases)

How far did I progress?



Where am I?



Knowledge

What is ?

Definition:

- *Knowledge* is the information the agent is initialized or trained with—either hardcoded facts or embedded in model weights.

Forms:

- **Static:** Embedded in the model (e.g., general medical knowledge)
- **Dynamic:** Retrieved or updated via tools or databases

Defender	Normal	Fire	Water	Grass	Electric	Ice	Fighting	Poison	Ground	Flying	Psychic	Bug	Rock	Ghost	Dragon	Dark	Steel	Fairy
Attacker																		
Normal														1/2	0		1/2	
Fire	1/2	1/2	2		2							2	1/2		1/2		2	
Water	2	1/2	1/2						2				2		1/2			
Grass	1/2	2	1/2				1/2	2	1/2		1/2	2			1/2		1/2	
Electric			2	1/2	1/2			0	2						1/2			
Ice	1/2	1/2	2		1/2			2	2						2		1/2	
Fighting	2				2		1/2	1/2	1/2	1/2	2	0			2	2	1/2	
Poison			2				1/2	1/2				1/2	1/2			0	2	
Ground		2	1/2	2				0		1/2	2						2	
Flying			2	1/2			2				2	1/2					1/2	
Psychic					2	2				1/2					0	1/2		
Bug	1/2		2		1/2	1/2	1/2	2				1/2			2	1/2	1/2	
Rock		2			2	1/2	1/2	2		2							1/2	
Ghost	0									2				2		1/2		
Dragon														2		1/2	0	
Dark					1/2					2				2		1/2	1/2	
Steel	1/2	1/2	1/2	2								2					1/2	2
Fairy	1/2				2	1/2								2	2	1/2		

Claude Plays Pokémon

Claude

I've thrown the Pokéball at Pikachu. Now I need to wait to see if the catch is successful. I'll press "a" to advance the dialog and see what happens next.

</thinking>

I've thrown a Pokéball at Pikachu. Let's see if I can catch this rare electric-type Pokémon. I'll advance the dialog to see the result.

Using tool: use_emulator - Buttons: ['a']

<thinking>

Great news! I successfully caught Pikachu! This is a rare find and will be very valuable for my team, especially since it's an Electric-type which will be useful against Water and Flying Pokémon later in the game.

Now I'll need to:

1. Press "a" to continue past this dialog
2. Give Pikachu a nickname (as per the rules to nickname all Pokémon)
3. After that, continue searching for the exit to Viridian Forest
4. Find a Pokémon Center in Pewter City to heal my team

For the nickname, I think I'll name it "BOLT" which is fitting for an Electric-type Pok

PIKACHU
Lv. 5
HP:

SHELL
Lv. 9
HP: 10/27

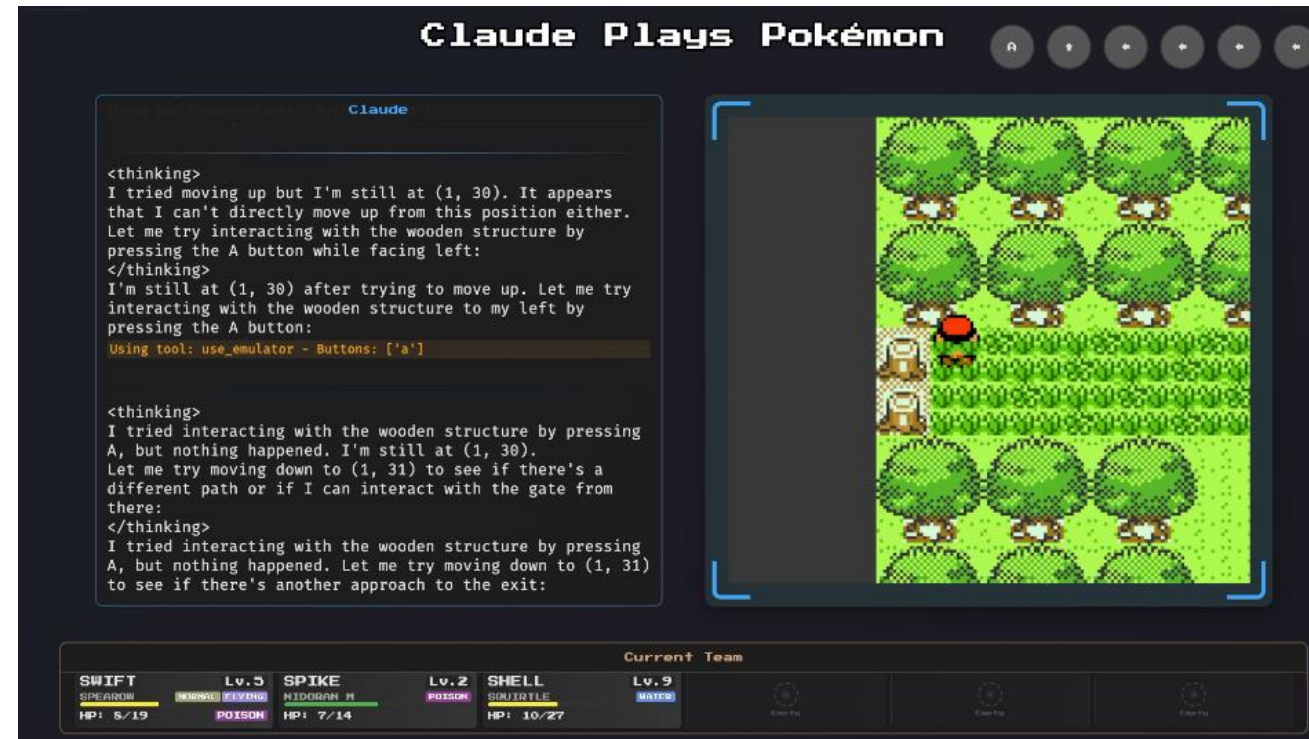
PIKACHU was caught!

Current Team

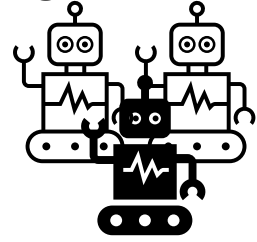
SWIFT Lv. 5 HP: 0/19	SPIKE Lv. 3 HP: 0/16	SHELL Lv. 9 HP: 10/27
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Fine Tuning What is “U” ?

- **Definition:**
- *Fine-tuning* is the process of training an LLM on a specific dataset to specialize it for a task or domain.
- **Use Case:**
- General LLM → Fine-tuned on cardiology literature → Expert medical agent



What is an ?



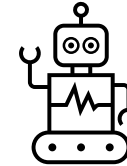
Definition:

- *Agent teams* are multiple agents that work together each with specialized roles to solve complex tasks through collaboration and communication.

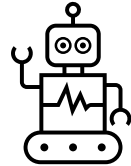
Key Properties:

- **Division of labor:** Each agent handles a subtask (e.g., data cleaning, modeling, interpretation)
- **Communication:** Agents share intermediate outputs or decisions
- **Coordination:** Tasks are sequenced or parallelized for efficiency

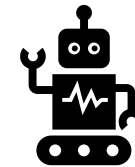
Battle Agent



Screenshot analyzer



Movement Agent



Thanks for listening!

