**Model-Based Reflex Agent with Memory (Python)**

**Overview**

This project implements a **Model-Based Reflex Agent** that controls an Air Conditioner (AC) based on room temperature.

Unlike a **Simple Reflex Agent**, which recalculates the action every time, this agent maintains a **memory file (mem.txt)** to avoid redundant decisions.

* If a temperature has already been processed, the agent retrieves the stored action from memory.
* If it is a new temperature, the agent calculates the action and saves it for future use.

This demonstrates the concept of an **agent with memory** in Artificial Intelligence.

**How It Works**

**1. Initialization**

* The agent is initialized with a desired temperature threshold.
* A memory file mem.txt is created if it does not already exist.

**2. Perceive**

* The agent senses the current temperature (simulated with room data).

**3. Check History**

* The agent opens mem.txt and checks if the current temperature exists.
* If found → reuse stored action (no calculation needed).
* If not found → continue to decision-making.

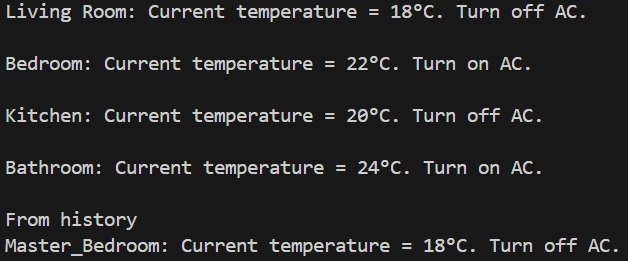
**4. Decide**

* If temperature > desired → Turn ON AC
* Else → Turn OFF AC

**5. Act & Update Memory**

* Perform the action.
* Save the (temperature, action) pair in mem.txt for future reuse

**Sample Output:**

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