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TEMPERATURE CONTROL REFLEX AGENTS

**Documentation: AI Lab Task 3**

**Description**

In this task, I created a program that shows how reflex agents work in artificial intelligence. There are two main agents used in this file: a **Simple Reflex Agent** and a **Model-Based Reflex Agent**. Both agents take temperature as input and decide whether to turn the heater on or off based on the given condition.

**Features**

1. **Simple Reflex Agent**
   * Takes the current environment state (temperature).
   * Compares it with the desired temperature.
   * Decides whether to **turn on** or **turn off** the heater.
2. **Model-Based Reflex Agent**
   * Works similar to the simple agent but **maintains internal state (memory)**.
   * Stores previous actions and makes improved decisions using both **current** and **past** states.
   * Simulates more realistic intelligent behavior.
3. **Multiple Environment Simulation**
   * Several rooms (Living Room, Bedroom, Kitchen, etc.) each with different temperatures are tested.
   * The agent’s actions are displayed for each room.

**Logic Used**

* **Condition–Action Rules:**
  + If current temperature < desired temperature → **Turn on heater**
  + Else → **Turn off heater**
* The **Simple Reflex Agent** follows only the current input.
* The **Model-Based Agent** adds memory to decide better actions when sensor data is limited or uncertain.