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**Task: Model Based Reflex Agent**

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**AI LAB TASK 3**

**Introduction**

This program is about a **Model-Based Reflex Agent** which is used for temperature control in different rooms. The agent checks the current temperature of a room and compares it with a fixed desired temperature. Based on this, it decides whether the heater should be turned on, turned off, or simply kept in the same state. Unlike a simple reflex agent, this model also remembers the previous action so that the heater does not keep switching unnecessarily.

**Features**

* Takes a desired temperature as input.
* Reads the current temperature of each room.
* Decides whether to turn the heater on, off, or keep the same state.
* Avoids unnecessary switching by remembering the last action.

**Problems Faced While Writing the Code**

While writing this code, I faced three problems. The first problem was that in the beginning I wrote the constructor incorrectly, which caused an error. I fixed this by using the correct \_\_init\_\_ function. The second problem was that the agent was repeating the same action again and again even if nothing had changed. To solve this, I added a condition to compare the new action with the previous action.

**Advantages**

* Saves energy by avoiding repeated switching.
* Works for multiple rooms easily.
* Simple to understand and implement.
* More realistic than a simple reflex agent.

**Disadvantages**

* Only supports heating, no cooling option.
* Same desired temperature for all rooms.
* Cannot handle complex cases like faulty sensors or sudden weather changes.