# Smart Temperature Agent

This document explains the working of a Model-Based Reflex Agent implemented in the SmartTemperatureAgent.ipynb notebook. The explanation is written without including any programming code.

## 1. Concept

The Smart Temperature Agent is a model-based reflex agent. Unlike a simple reflex agent that only reacts to the current situation, this agent uses memory of previous actions and maintains a history to make more intelligent decisions.

## 2. Working Mechanism

The agent works in the following steps:

1. It receives the current temperature of a room.

2. It compares the temperature with the desired temperature.

3. If the same condition (room and temperature) has already been encountered, the agent uses its history to repeat the same action.

4. If the condition is new, it decides whether to turn ON the heater, turn OFF the heater, or keep the previous action unchanged.

5. Every decision is stored in the history for future use.

## 3. Key Features

- Uses desired temperature as reference.

- Remembers the previous action to avoid unnecessary switching.

- Maintains a complete history of decisions.

- Reuses history when the same condition appears again.

## 4. Example Scenario

Suppose the desired temperature is 22°C. When the agent checks the Living Room at 18°C, it decides to Turn ON the Heater. Later, if the Living Room temperature is again 18°C, the agent recalls its history and reuses the same action instead of making a new decision. This makes the system efficient and avoids repetitive calculations.

## 5. Conclusion

The Smart Temperature Agent demonstrates how model-based reflex agents can be used to create intelligent systems. By remembering previous actions and storing history, the agent ensures consistent and efficient decision-making in temperature control.