# Model Based Reflex Agent

This program is a Model-Based Reflex Agent written in Python.  
It works as a smart heating control system that checks the room temperature,  
compares it with the desired temperature, and decides whether to turn the heater ON or OFF.The program also saves and uses past memory to avoid repeating the same action unnecessarily.

### 2. Class MBReflexAgent

The class MBReflexAgent represents the agent.  
It contains variables, functions, and memory handling for decision making.

### 3. Function Explanations

**• \_\_init\_\_(self, temp, memory\_store="past\_memory.txt")**

Initializes the agent with a desired temperature and creates a memory file for storing previous actions.

**• sensor(self, room, temp)**

Reads the current room name and temperature and stores them.

**• save\_pre\_action(self)**

Reads the memory file and checks the last action taken. If no memory exists, returns None.

**•changing\_memory(self,action)**

Saves the current room, its temperature, desired temperature, and the chosen action into the memory file.

**•performance(self)**

Decides whether the heater should be ON or OFF.  
If the action is the same as the last one stored, it keeps the same action; otherwise, it updates memory.

**• actuator(self)**

Prints the final action for the current room by calling the performance function..

**Program Working**

At the end of the program, a dictionary rooms stores different room names and their temperatures.The MBReflexAgent object is created with the desired temperature of **16°C**.For each room, the agent:

1. Reads its temperature.
2. Compares it with the desired temperature.
3. Turns the heater ON if temperature < 16.
4. Turns the heater OFF if temperature ≥ 16.
5. Saves the action in memory.
6. Moves to the next room.

### 5. Output Explanation

The program prints the room temperature and the decided action.

* If temperature < 16 → prints “Heater is ON”.
* If temperature ≥ 16 → prints “Heater is OFF”.
* If the same action was already taken earlier → prints  
  “From memory there is no change keep Heater is ON/OFF”.

This program demonstrates how a Model-Based Reflex Agent works using sensing, memory, and decision-making.  
It shows how AI agents can act intelligently based on both **current input** and **past memory**.