# Model-Based Reflex Agent - Smart Home Temperature Control

This Python program implements a simple Model-Based Reflex Agent for a smart home temperature control system. The agent turns the heater ON or OFF based on the current room temperature and remembers the previous action to avoid redundant operations.

Python Code:

class ModelBasedReflexAgent:  
 def \_\_init\_\_(self, desired\_temperature):  
 self.desired\_temperature = desired\_temperature  
 self.previous\_action = None   
  
 def perceive(self, current\_temperature):  
 return current\_temperature  
  
 def act(self, current\_temperature):  
 if current\_temperature < self.desired\_temperature:  
 if self.previous\_action != "Turn on heater":   
 action = "Turn on heater"  
 self.previous\_action = action  
 else:  
 action = "No action (heater already on)"  
 else:  
 if self.previous\_action != "Turn off heater":   
 action = "Turn off heater"  
 self.previous\_action = action  
 else:  
 action = "No action (heater already off)"  
 return action  
  
rooms = {  
 "Living Room": 18,  
 "Bedroom": 22,  
 "Kitchen": 20,  
 "Bathroom": 24  
}  
  
desired\_temperature = 22  
agent = ModelBasedReflexAgent(desired\_temperature)  
  
# Run the agent for each room  
for room, temperature in rooms.items():  
 action = agent.act(temperature)  
 print(f"{room}: Current temperature = {temperature}°C. {action}.")