# ReflexAgent

**Overview:**  
This is a model based reflex agent which shows whether to turn ON the heater or turn OFF the heater based on temperature changes to avoid turning the heater on or off unnecessarily.

**Original code:**

class ReflexAgent:  
 def \_\_init\_\_(self):  
 self.last\_action = None  
   
 def decide(self,temperature):  
 if temperature <= 22 and self.last\_action != "ON":  
 self.last\_action = "ON"  
 return "Heater ON"  
 elif temperature > 22 and self.last\_action != "OFF":  
 self.last\_action = "OFF"  
 return "Heater Off"  
 else:  
 return f"No Change, Heater {self.last\_action}"  
  
agent = ReflexAgent()  
temperatures = [20, 21, 22, 23, 24, 25, 26, 18]  
  
for t in temperatures:  
 print(f"Temperature: {t}°C, {agent.decide(t)}")

**Explanation:**

**class ReflexAgent:**Creates a new class ReflexAgent.

**def \_\_init\_\_(self):**Constructor of this class.

**self.last\_action = None**Use none as no previous action yet.

**def decide(self, temperature):**A method that takes the current temperature and decides whether to change the heater's state.

**if temperature <= 22 and self.last\_action != 'ON':**If the temperature is 22°C or colder and the heater is not already ON, the agent will turn it ON.

**self.last\_action = 'ON' / return 'Heater ON'**Sets the agent's last action to 'ON' and returns the message 'Heater ON'.

**elif temperature > 22 and self.last\_action != 'OFF':**If the temperature is above 22°C and the heater isn't already OFF, the agent will turn it OFF.

**self.last\_action = 'OFF' / return 'Heater Off'**Sets the last action to 'OFF' and returns 'Heater Off'. Note: capitalization is inconsistent ('OFF' vs 'Off').

**else: return f"No Change, Heater {self.last\_action}"**If neither condition triggers (i.e., the required action would repeat the last one), the agent returns a 'No Change' message.

**Why `last\_action` is used:**

initialize the agent’s memory: no previous action yet.

|  |  |  |
| --- | --- | --- |
| **Temperature (°C)** | **Agent output** | **last\_action after decision** |
| 20 | Heater ON | ON |
| 21 | No Change, Heater ON | ON |
| 22 | No Change, Heater ON | ON |
| 23 | Heater Off | OFF |
| 24 | No Change, Heater OFF | OFF |
| 25 | No Change, Heater OFF | OFF |
| 26 | No Change, Heater OFF | OFF |
| 18 | Heater ON | ON |

Console output lines (exact):

Temperature: 20°C, Heater ON

Temperature: 21°C, No Change, Heater ON

Temperature: 22°C, No Change, Heater ON

Temperature: 23°C, Heater Off

Temperature: 24°C, No Change, Heater OFF

Temperature: 25°C, No Change, Heater OFF

Temperature: 26°C, No Change, Heater OFF

Temperature: 18°C, Heater ON