

Lab task 3

Model-Based Reflex Agent

Class Initialization (`__init__`):

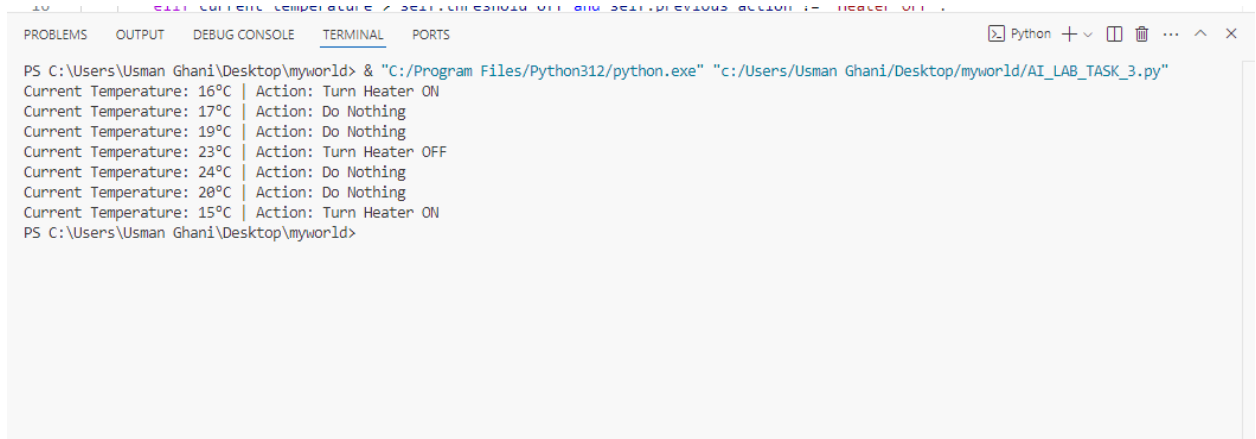
- The agent is initialized with two threshold values:
 - threshold on: Below this temperature, the heater should turn on (default is 18°C).
 - threshold off: Above this temperature, the heater should turn off (default is 22°C).
- The previous action is initialized as None, meaning no action has been taken yet.

Decide action() Method:

- This method takes current temperature as input and decides what action the agent should take based on the environment's state and the previous action:

Decision Making:

- **Turn Heater ON:** If the current temperature is below threshold on (18°C by default) and the previous action was not "Heater ON", the agent turns the heater on. It updates the previous action to "Heater ON" and returns "Turn Heater ON".
- **Turn Heater OFF:** If the current temperature is above threshold off (22°C by default) and the previous action was not "Heater OFF", the agent turns the heater off. It updates the previous action to "Heater OFF" and returns "Turn Heater OFF".
- **Do Nothing:** If the current temperature is within the acceptable range (between threshold on and threshold off), the agent doesn't need to change the heater's state. If no action has been taken before or if the previous action was already "No Action", it returns "Do Nothing".
- If the agent's previous action was the same as the current action, it will return "Do Nothing" because the agent does not want to repeat unnecessary actions (like turning the heater on and off repeatedly).



```
PS C:\Users\Usman Ghani\Desktop\myworld> & "C:/Program Files/Python312/python.exe" "c:/Users/Usman Ghani/Desktop/myworld/AI_TASK_3.py"
Current Temperature: 16°C | Action: Turn Heater ON
Current Temperature: 17°C | Action: Do Nothing
Current Temperature: 19°C | Action: Do Nothing
Current Temperature: 23°C | Action: Turn Heater OFF
Current Temperature: 24°C | Action: Do Nothing
Current Temperature: 28°C | Action: Do Nothing
Current Temperature: 15°C | Action: Turn Heater ON
PS C:\Users\Usman Ghani\Desktop\myworld>
```