SUPERIOR UNIVERSITY

Artificial Intelligence (Lab)

Assignment - 3

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Department:

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Program:

Artificial Intelligence.

Section:

BSAI-3A

Question # 1:

Task: Model-Based Reflex Agent:

This agent not only checks the current temperature but also remembers the previous action to avoid turning the heater on or off unnecessarily.

Explanation:

In this program, we were required to make a simple reflex agent but it was required that this program should remember its previous agent. So, we simply a class by the name and initialize the temperature the user wanted for each room. Once that's entered the we give the program a pre-defined dictionary that contains the temperature of each room. After that the program goes through each element (room) and their key (related temperature) and then compares them with the desired temp after that it makes the decision to either turn the heater on or off based on the condition.

Code:

As it remembers the previous action it is no longer a simple reflex agent.

```
class SimpleReflexAgent:
    def __init__(self, desired_temperature):
        self.desired_temperature = desired_temperature
        self.previous_action=None

    def percept(self, current_temperature):
        return current_temperature

    def act(self, current_temperature):
        if current_temperature<self.desired_temperature:
            action = "Turn on heater"
        elif current_temperature>self.desired_temperature:
            action = "Turn off heater"
        else:
```

```
            action = self.previous_action

        if action != self.previous_action:
            self.previous_action=action
        return action

rooms = {
    "Bedroom1": 22,
    "Kitchen": 18,
    "Living Room": 20,
    "Bedroom2": 24,
    "Bathroom": 23
}

desired_temperature = 22
agent = SimpleReflexAgent(desired_temperature)

for room, temperature in rooms.items():
    action = agent.act(temperature)
    print(f"{room}: Current temperature = {temperature}°C. {action}.")
```

Output:

```
E:\Uni\3rd Semester\2) Artificial Intelligence (Lab)\Assignments\Assignment 3>python task.py
Bedroom1: Current temperature = 22°C. Turn off heater.
Kitchen: Current temperature = 18°C. Turn on heater.
Living Room: Current temperature = 20°C. Turn on heater.
Bedroom2: Current temperature = 24°C. Turn off heater.
Bathroom: Current temperature = 23°C. Turn off heater.
```