SUPERIOR UNIVERSITY

Artificial Intelligence (Lab)

Assignment - 3

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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 ModelBasedReflexAgent:
    def __init__(self,temp):
        self.desired_temp=temp
        self.previous_action=None
    def act(self,temp):
        if temp>self.desired_temp and self.previous_action!="On":
            action_taken="On"
            result=(f"Temperature: {temp}, Action: Turn the Heater off....")
        elif temp<self.desired_temp and self.previous_action!="Off":
            action_taken="Off"
            result=(f"Temperature: {temp}, Action: Turn the Heater on....")
        else:
            action_taken=self.previous_action
            result=(f"Temperature: {temp}, Action: No action required....")
```

```
        self.previous_action=action_taken
        return result
obj3=ModelBasedReflexAgent(int(input("Enter the desired temperature: ")))
rooms={
    "Living room": 22,
    "Dining room": 20,
    "Bedroom": 16,
    "Library": 12,
}
for room,temperature in rooms.items():
    print(f"{room}: {obj3.act(temperature)}.")
```

Output: