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**Subject:** AI (Lab)

# Task 03

## 1. Objective

The purpose of this lab task is to implement and understand the working of two types of reflex agents in Artificial Intelligence:  
1. Simple Reflex Agent  
2. Model-Based Reflex Agent  
  
These agents take decisions based on the current state (environment perception) and perform actions accordingly to maintain the desired room temperature.

## 2. Code Explanation

### A. Simple Reflex Agent

The agent only reacts to the current temperature without considering any previous states. If the temperature is higher than the desired level, it turns on the AC; otherwise, it turns it off.

Sample Output:

Living Room: Current temperature = 31°C. Turn on Ac  
Bedroom: Current temperature = 25°C. Turn off Ac  
Kitchen: Current temperature = 34°C. Turn on Ac  
Store Room: Current temperature = 29°C. Turn off Ac

### B. Model-Based Reflex Agent

This agent maintains memory of previous actions. It not only checks the current temperature but also compares it with the previous action. If the same action is needed repeatedly, it avoids unnecessary repetition by saying 'No change needed'. It also keeps a history of all actions taken for each room.

Sample Output:

Living Room:  
Current temperature is: 30 = Turn on AC  
Current temperature is: 31 = No change needed  
Current temperature is: 27 = Turn off AC  
Current temperature is: 33 = Turn on AC  
Current temperature is: 26 = Turn off AC  
Bedroom:  
Current temperature is: 25 = No change needed  
Current temperature is: 29 = Turn on AC  
Current temperature is: 31 = No change needed  
Current temperature is: 33 = No change needed  
  
..Temperature Control History..  
In Living Room, when temperature is 30 = Turn on AC  
In Living Room, when temperature is 31 = No change needed  
In Living Room, when temperature is 27 = Turn off AC  
In Living Room, when temperature is 33 = Turn on AC  
In Living Room, when temperature is 26 = Turn off AC  
In Bedroom, when temperature is 25 = No change needed  
In Bedroom, when temperature is 29 = Turn on AC  
In Bedroom, when temperature is 31 = No change needed  
In Bedroom, when temperature is 33 = No change needed