# Simple Reflex Agent - Explanation Document

This document explains the working of a Simple Reflex Agent program in Python. The agent is designed to control the air conditioning (AC) system based on room temperatures.

## How It Works:

1. The agent is initialized with a fixed temperature (desired temperature to maintain).  
2. For each room, the agent reads the current temperature using the sensor.  
3. The performance function decides the action:  
 - If the current temperature is greater than the fixed temperature → Turn on the AC.  
 - Otherwise → Turn off the AC.  
4. The actuator executes the action. To avoid unnecessary repetition:  
 - If the same room with the same temperature is encountered again, the agent recalls the action from history.  
 - If the temperature is different, a new decision is made and history is updated.  
5. A history is maintained to record the last action taken for each room along with the temperature.

## Example Execution:

Rooms and their temperatures:  
- Living Room: 20  
- Drawing Room: 22  
- Kitchen: 34  
- Living Room Again: 20 (same as before)  
  
Execution Flow:  
- For Living Room (20): Action → Turn on the AC.  
- For Drawing Room (22): No unnecessary change (AC remains ON).  
- For Kitchen (34): No unnecessary change (AC remains ON).  
- For Living Room Again (20): Retrieved from history → Turn on the AC.

## History Record:

The agent maintains a dictionary as history where each room is mapped to its last temperature and the corresponding action. For example:  
  
Living Room => (20, 'Turn on the AC')  
Drawing Room => (22, 'Turn on the AC')  
Kitchen => (34, 'Turn on the AC')  
Living Room Again => (20, 'Turn on the AC')

## Conclusion:

This Simple Reflex Agent shows how artificial intelligence concepts can be applied to control devices based on environmental conditions. By maintaining history, the agent avoids unnecessary actions and becomes more efficient.