**Name: Sundas Shoukat**

**Roll no: 057**

**Section: BSDS-2A**

**Introduction**

This project is about a Model-Based Reflex Agent.  
The agent is used to control a heater in different rooms.  
It not only checks the current temperature, but also remembers the previous action.  
Because of this, the heater does not turn ON or OFF again and again without need.

### How the Code Works

1. **Class and Constructor**

* A class Model Based Reflex Agent is created.
* It takes a value of desired\_ temp (like 22°C).
* It also has last\_ action to remember if the heater was ON or OFF before.

1. **Sensor Method**
   * The sensor() method reads the current room temperature.
2. **Performance Method**
   * If the temperature is less than desired → heater should **Turn ON**.
   * If the temperature is equal or more → heater should **Turn OFF**.
   * Before changing, it checks the **previous action**.
     + If the action is the same → it prints **“No change”**.
     + If the action is different → it updates and applies the new action.
3. **Actuator Method**
   * It shows the current temperature and the final action taken.
4. **Rooms Example**
   * A list of rooms with temperatures is given.
   * The agent goes through each room, checks the temperature, and decides the action.

### Why This Approach?

* A simple agent only looks at current temperature and keeps turning ON/OFF unnecessarily.
* The model-based agent **remembers the past action**, so it avoids waste.
* This makes the program more **realistic and efficient**, just like real smart homes.

