**1. Introduction**

This project implements a Model-Based Reflex Agent designed to control a heater based on temperature readings. The agent decides whether to turn the heater ON or OFF depending on a predefined threshold temperature.

**2. Implementation Details**

**2.1 Model-Based Reflex Agent**

* The agent is initialized with a threshold temperature (22°C in this case).
* It tracks:
* Current temperature (initially set to 20°C).
* Last action taken (either "ON" or "OFF").

**2.2 Core Functionalities**

* Updating Temperature: The agent updates its current temperature whenever a new reading is received.
* Decision Making:
* If the temperature drops below the threshold and the heater is OFF → Turn the heater ON.
* If the temperature exceeds the threshold and the heater is ON → Turn the heater OFF.
* Otherwise, maintain the current state.
* Processing a Sequence of Temperature Readings The program processes a predefined list of temperature readings and determines the appropriate heater action for each.

**3. Features & Behavior**

* The heater turns ON when the temperature drops below 22°C
* The heater turns OFF when the temperature rises above 22°C.
* Prevents unnecessary toggling by maintaining the previous action.
* The program prints the current temperature and corresponding heater action at each step.

**Example Output:**

* Current Temperature: 20°C
* Heater turned ON
* Current Temperature: 22°C
* Heater is already ON
* Current Temperature: 23°C
* Heater turned OFF

**4. Suggested Improvements**

* Allow user input for temperature readings instead of a predefined list.
* Implement real-time sensor integration for practical applications.
* Store temperature logs in a file or database for tracking trends.
* Introduce additional features to enhance user interaction.

**5. output**

