**AL LAB TASK 3**

**Explanation of the Agent Program**

This program is about an **agent** that decides whether to turn an AC **on** or **off** in different rooms. It uses two things:

1. A **current temperature** for each room (given in a dictionary inside the program).
2. A **history file** that stores past temperatures for rooms.

**1. The Agent Class**

* The program starts by creating a class called **modelbasereflexagent**.
* An object of this class represents the agent.
* The agent has two important pieces of information:
  + A **fixed temperature** (the threshold for deciding hot or cold).
  + A **history file** name where past temperatures are stored.

**2. Constructor (\_\_init\_\_)**

* When the object is created, it saves:
  + the target temperature (fixed value),
  + and the history file name.

**3. Checking Past Temperatures**

* The agent has a method to look into the history file.
* It goes line by line, cleans the line, and splits it into two parts:
  + room name
  + temperature
* It only keeps the temperatures that belong to the room we are checking.
* If it finds numbers, it calculates the **average temperature** for that room.
* If it doesn’t find anything, it returns **None** (no past data).

**4. Performance**

* The agent then decides whether to turn the AC on or off.
* It compares two things:
  + the **current temperature** (from the dictionary),
  + the **past average temperature** (from the file).
* If no past data is found, it just uses the current temperature as past data.
* Rule:
  + If both current and past temperatures are higher than the fixed target → **turn on AC**.
  + Otherwise → **turn off AC**.

**5. Output**

* Another method prints out the decision clearly.
* The output shows:
  + the room name,
  + the current temperature,
  + the average past temperature,
  + and the action (on/off).

**6. Current Room Temperatures**

* The program has a dictionary that stores room names with their current temperatures.
* Example: Living Room has 20, Kitchen has 34, etc.

**7. Creating the object**

* An agent object is created with:
  + a fixed temperature value (example: 16),
  + and the name of the history file (example: "history.txt").

**8. Running the Agent**

* The program loops through all rooms in the dictionary.
* For each room, it asks the agent to check and decide.
* The agent then prints out the result.