**Session 2025-2026**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Session** | **2025-26 (ODD)** | | **Course Name** | **AI Lab** | |
| **Semester** | **5** | | **Course Code** | **23ADS1502** | |
| **Roll No** | **36** | | **Name of Student** | Chaitanya Awale | |
|  |  | |  |  |  |
| **Practical Number** | | **01** | | | |
| **Course Outcome** | | To understand the working of a simple reflex agent and apply it to a real-life situation like smart home automation. | | | |
| **Aim** | | Smart Light Agent (Simple Reflex Agent) | | | |
| **Problem Definition** | | Design and implement a simple reflex agent to simulate a smart light system for a room. The agent decides whether to turn the indoor light ON or OFF based on two percepts: Outside light (sunlight available or not) Human presence (someone present in the room or not) The light should behave as follows: If human is present and outside light is not available, the agent should turn ON the light.In all other cases, the light should be turned OFF. | | | |
| **Theory** | | A simple reflex agent works by mapping conditions (percepts) to actions using predefined rules. It does not use memory of past states. In this case, the agent senses two percepts: outside light (sunlight available or not) and human presence (present or not). Based on these inputs, the agent takes action: if a person is present and sunlight is not available, it switches the light ON; otherwise, it keeps the light OFF. Such agents are easy to design and useful for basic automation systems like smart homes and energy-efficient devices. | | | |
| **Procedure and Execution** | |  Input the percepts: whether outside light is available and whether a human is present in the room.   * If human is present **and** outside light is not available → Turn ON the light. * Otherwise → Turn OFF the light.    Print the action taken by the agent.   Test the agent with different cases. | | | |
| **Code:-**  **def smart\_light(outside\_light, human\_presence):**  **if human\_presence and not outside\_light:**  **return "ON"**  **else:**  **return "OFF"**  **outside\_light = input("Is outside light available? (yes/no): ").strip().lower() == "yes"**  **human\_presence = input("Is human present in the room? (yes/no): ").strip().lower() == "yes"**  **light\_state = smart\_light(outside\_light, human\_presence)**  **print(f"Smart Light is: {light\_state}")** | | | |
| **Output:** | | | |
| **Output Analysis** | | The system behaves correctly according to rules. The light is only ON when both conditions (human present & no sunlight) are satisfied. | | | |
| **Link of student Github profile where lab assignment has been uploaded** | | **https://github.com/DeepaTech19/Artificial\_Intelligence/blob/main/practical\_1\_AI.ipynb** | | | |
| **Conclusion** | | I have successfully implemented the program and got the desired output. | | | |
| **Plag Report (Similarity index < 12%)** | | Similarity Index = < 10% | | | |
| **Date** | | 06 / 08 / 2025 | | | |