**Session 2025-2026**

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| **Session** | **2025-26 (ODD)** | | **Course Name** | **AI Lab** | |
| **Semester** | **5** | | **Course Code** | **23ADS1502** | |
| **Roll No** | **36** | | **Name of Student** | Chaitanya Awale | |
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| **Practical Number** | | **02** | | | |
| **Course Outcome** | | To implement and analyze the working of a simple reflex agent in a two-room environment using condition–action rules. | | | |
| **Aim** | | Two-Room Vacuum Cleaner Agent Simulation | | | |
| **Problem Definition** | | Implement a vacuum cleaner agent that works in a two-room environment: Room A and Room B. Each room may be clean or dirty. The agent starts in Room A and follows a simple rule: If the current room is dirty, clean it. If the current room is clean, move to the other room. Repeat until both rooms are clean. | | | |
| **Theory** | | A vacuum cleaner agent is one of the classical examples of a simple reflex agent. It operates in a two-room world (A and B) where each room can be dirty or clean. The agent starts in Room A and checks the condition of the current room. If the room is dirty, it cleans it; if clean, it moves to the other room. This continues until both rooms are clean. The agent makes decisions only based on the current percept without remembering past actions. This model explains how intelligent agents can perform tasks in simple environments. | | | |
| **Procedure and Execution** | |  Input the status (clean/dirty) of Room A and Room B.   Start in Room A.   If Room A is dirty, clean it; otherwise, move to Room B.   In Room B, if dirty, clean it; otherwise, move back to Room A.   Stop when both rooms are clean.   Print the actions performed. | | | |
| **Code:-**  **room\_a = input("Is Room A dirty? (yes/no): ").strip().lower()**  **room\_b = input("Is Room B dirty? (yes/no): ").strip().lower()**  **print("Vacuum Cleaner starting in Room A")**  **if room\_a == "yes":**  **print("Cleaning Room A")**  **room\_a = "no"**  **else:**  **print("Room A is clean. Moving to Room B")**  **if room\_b == "yes":**  **print("Cleaning Room B")**  **room\_b = "no"**  **else:**  **print("Room B is clean. Moving back to Room A")**  **if room\_a == "no" and room\_b == "no":**  **print("Both rooms are clean now!")** | | | |
| **Output:** | | | |
| **Output Analysis** | | The agent successfully cleans all dirty rooms and stops only when both rooms are clean. | | | |
| **Link of student Github profile where lab assignment has been uploaded** | | **https://github.com/DeepaTech19/Artificial\_Intelligence/blob/main/practical\_2\_AI.ipynb** | | | |
| **Conclusion** | | I have successfully implemented the program and got the desired output and understood the concept of making agent. | | | |
| **Plag Report (Similarity index < 12%)** | | Similarity Index = < 8% | | | |
| **Date** | | 06 / 08 / 2025 | | | |