Faculty of Computing

Artificial Intelligence
Spring 2025
Lab # 8

Instructor

Ayesha Akram

Submitted by:
Faareha Raza(47431)

Tasks

Question 01:

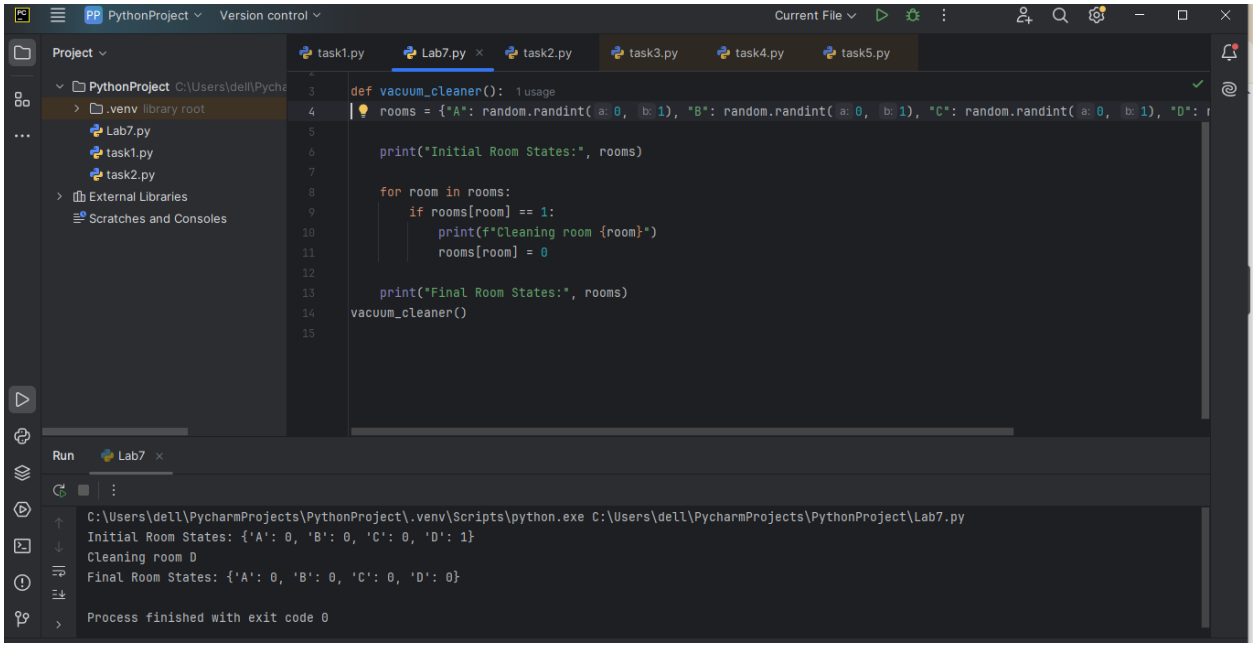
Write a program for a simple reflex agent. The agent will act as a vacuum cleaner. In the first activity, wewill create an environment for the agent.

- The environment is divided into 4 portions A,B,C and D.

- Then define two states for each portion.

- 0 indicates the cleaned state and 1 indicates the dirty state.

- We will initialize each portion with a random state that would be either 0 or 1.



Question 02:

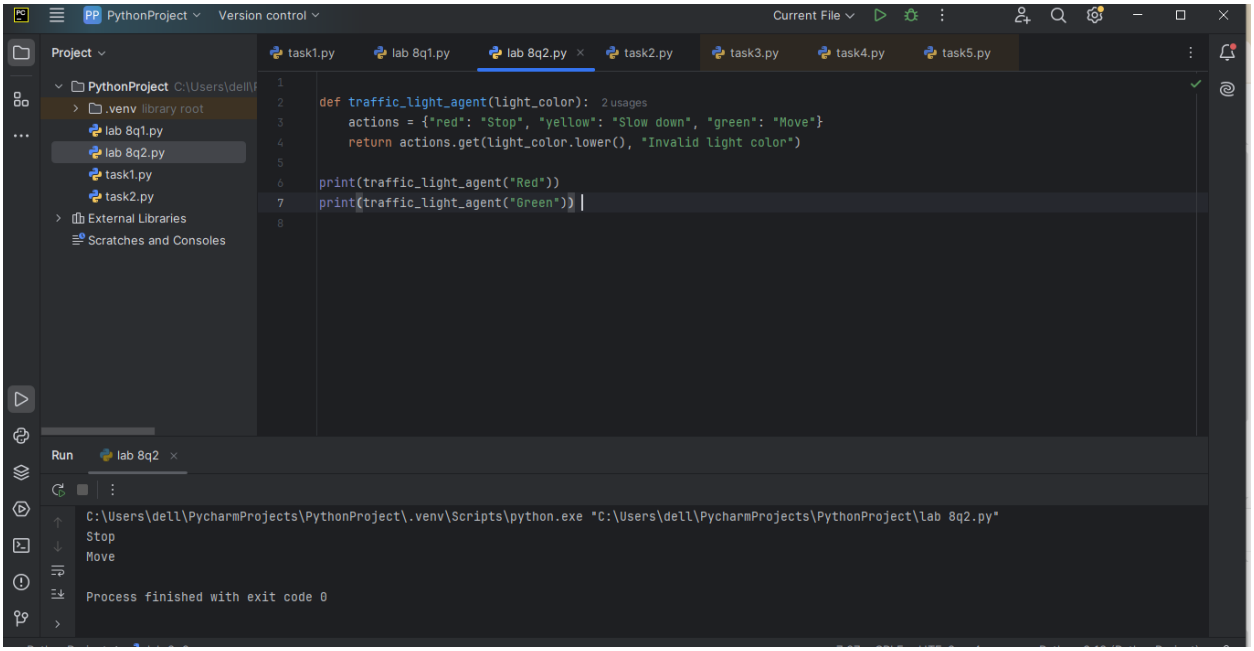
Create a Simple Reflex Agent that:

- Observes traffic light color (red, yellow, green).
- Takes an action based on the light:

  Red → Stop

  Yellow → Slow down

  Green → Move

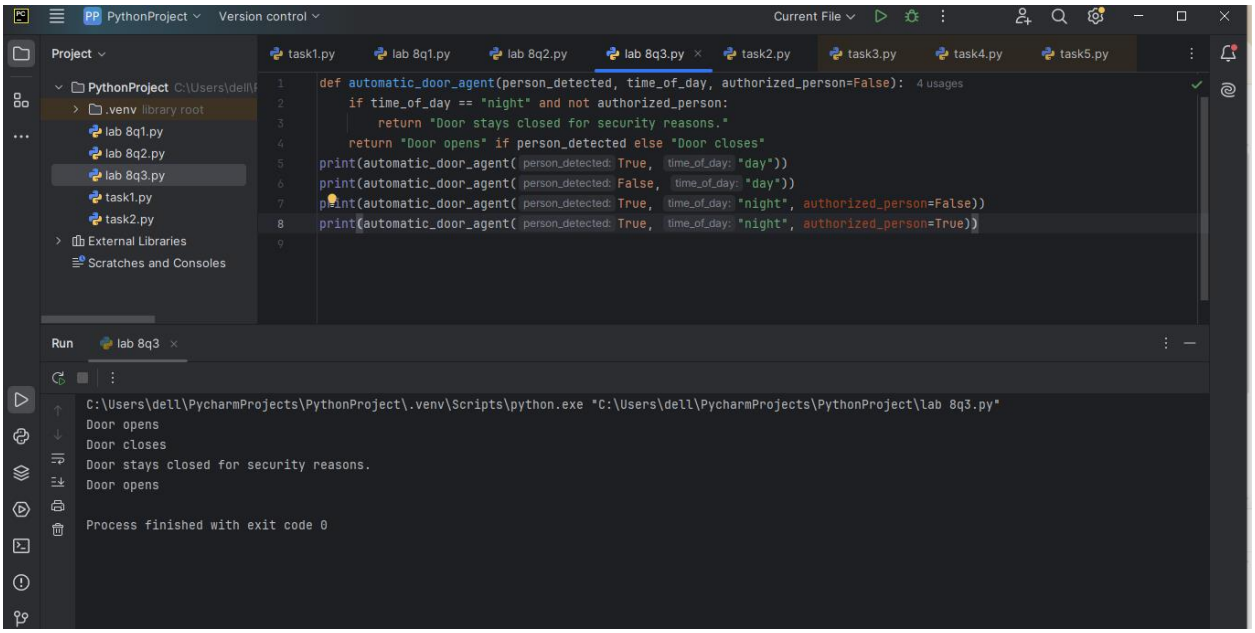


Question 03:

Implement an automatic door agent that:

- Opens if it detects a person near the door.
- Closes if no person is detected.

Add a security feature where the door stays closed at night unless an authorized person is detected.


PythonProject
Version control
Current File
Project
PythonProject C:\Users\dell\
.venv library root
lab 8q1.py
lab 8q2.py
lab 8q3.py
task1.py
task2.py
External Libraries
Scratches and Consoles
task1.py
lab 8q1.py
lab 8q2.py
lab 8q3.py
task2.py
task3.py
task4.py
task5.py
def automatic_door_agent(person_detected, time_of_day, authorized_person=False): 4 usages
if time_of_day == "night" and not authorized_person:
return "Door stays closed for security reasons."
return "Door opens" if person_detected else "Door closes"
print(automatic_door_agent(person_detected: True, time_of_day: "day"))
print(automatic_door_agent(person_detected: False, time_of_day: "day"))
print(automatic_door_agent(person_detected: True, time_of_day: "night", authorized_person=False))
print(automatic_door_agent(person_detected: True, time_of_day: "night", authorized_person=True))
Run
lab 8q3
C:\Users\dell\PycharmProjects\PythonProject\.venv\Scripts\python.exe "C:\Users\dell\PycharmProjects\PythonProject\lab 8q3.py"
Door opens
Door closes
Door stays closed for security reasons.
Door opens
Process finished with exit code 0