

National University of Computer and Emerging Sciences

CL 461 Artificial Intelligence

Lab Manual 03

Introduction of Aima3 Library + Agents implementation

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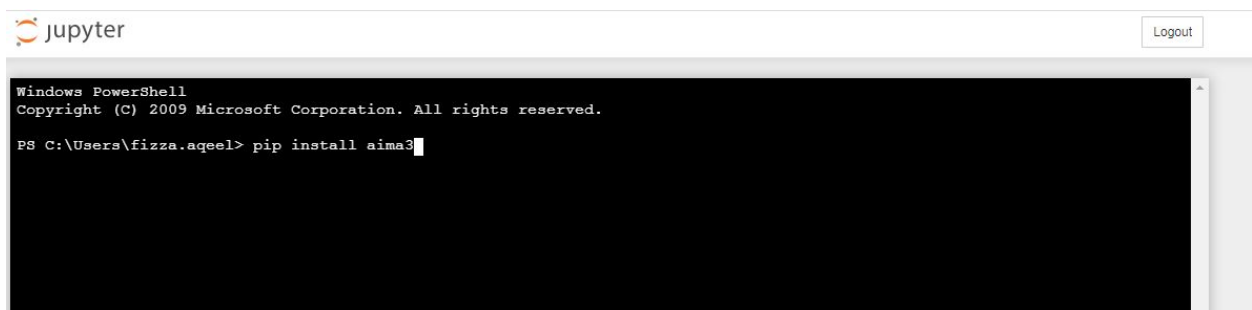
CONFIGURATION OF AIMA3 LIBRARY:

- The drop down from where we create our new .ipynb file, terminal option is also present select that option:



- On the terminal window you write the below given command:

`pip install aima3`



What is aima3?

aima3 stands for 'Artificial Intelligence: A Modern Approach'

AGENT PROGRAMS

An agent program takes the current percept as input from the sensors and returns an action to the actuators. There is a difference between an agent program and an agent function: an agent program takes the current percept as input whereas an agent function takes the entire percept history.

The agent program takes just the current percept as input because nothing more is available from the environment; if the agent's actions depend on the entire percept sequence, the agent will have to remember the percept.

We'll discuss the following agent programs here with the help of the vacuum world example:

- Random Agent Program (For Basic Understanding of agent's working)
- Table-Driven Agent Program (For Basic Understanding of agent's working)
- Simple Reflex Agent Program
- Model-Based Reflex Agent Program
- Goal-Based Reflex Agent (In week5 & week6)
- Utility-Based Reflex Agent (In week5 & week6)
- Learning Based Agent (In week5 & week6)

A WORKING EXAMPLE OF AGENTS:

- We will discuss these agents and their implementation through a notebook file present on classroom named as "Vaccum_world.ipynb".

"A.I is just glorified if statements"



LAB EXERCISES

1. Implement full scenario for every agent for cleaning of 2 locations (loc_A & loc_B) :
 - a. Random Agent Program
 - b. Simple Reflex Agent Program
 - c. Table-Driven Agent Program
 - d. Model-Based Reflex Agent Program
2. **TrivialVacuumEnvironment** generates a random environment every time you run it. You have to read the environment using the function **trivial_vacuum_env.status** in a dictionary. Make an automated program which decides how many steps it has to take in order to clean the environment completely using the data which you have stored in a dictionary.
3. Make a pseudocode for SimpleReflexAgent and ModelBasedReflexAgent for 3 locations.