

Tutorial : 1

Tutorial : 1 Design of Intelligent Agent

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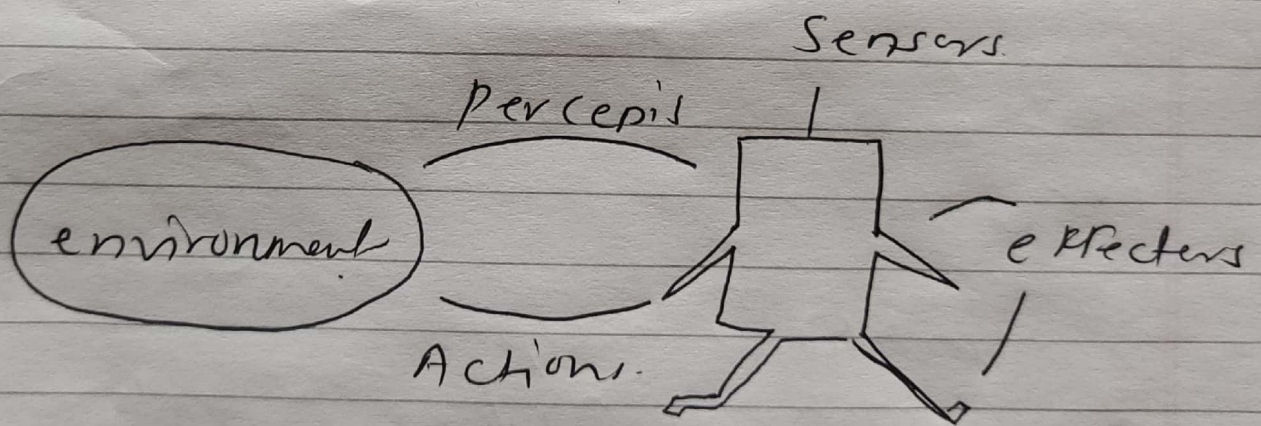
Sem - VII

Class - BE / IT

Sub - IS LAB

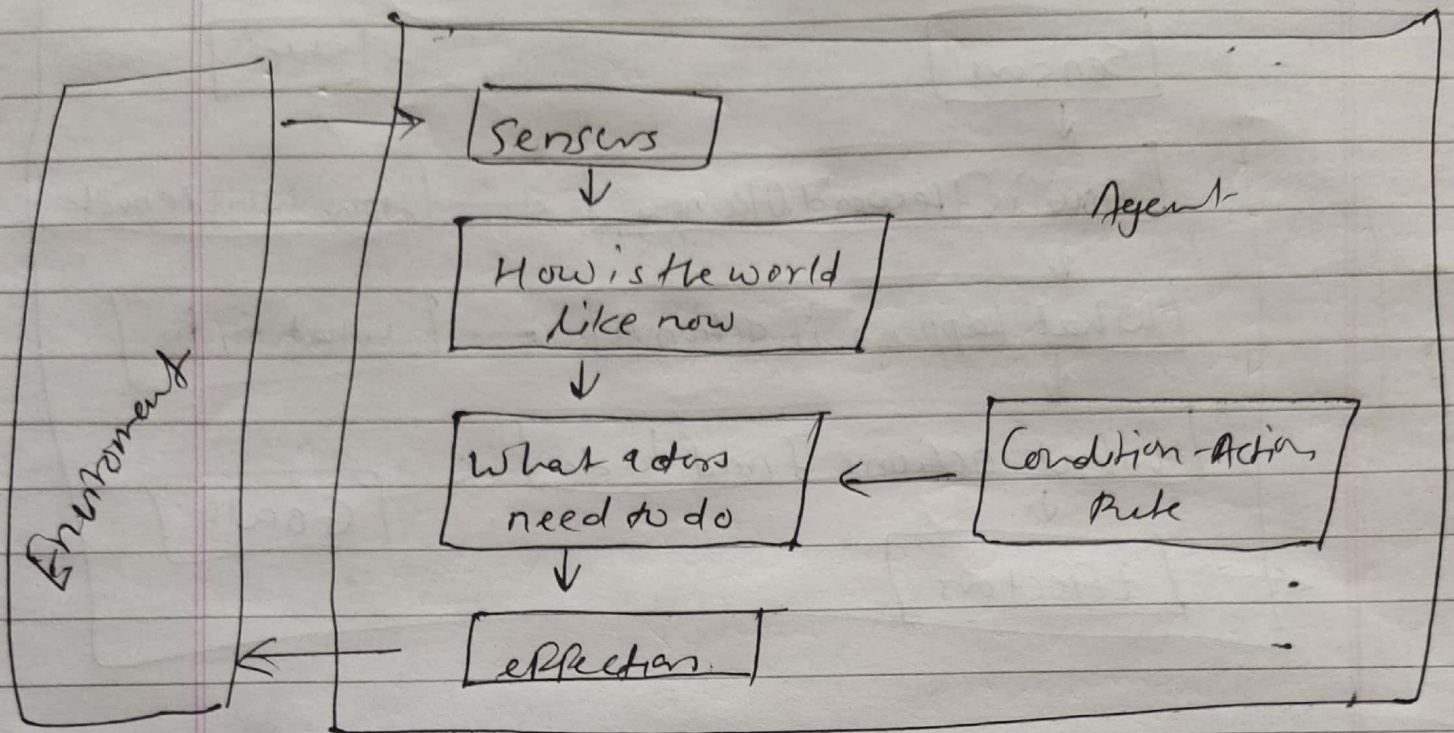
Aim - To understand the concept of Agent Abstraction by studying definition of Rational Agent, Agent environment, Task Environment Descriptors, environment types.

Theory - An Artificial Intelligent (AI) System is composed of an agent and its environment. The agent is anything that senses and acts upon the environment through effectors.

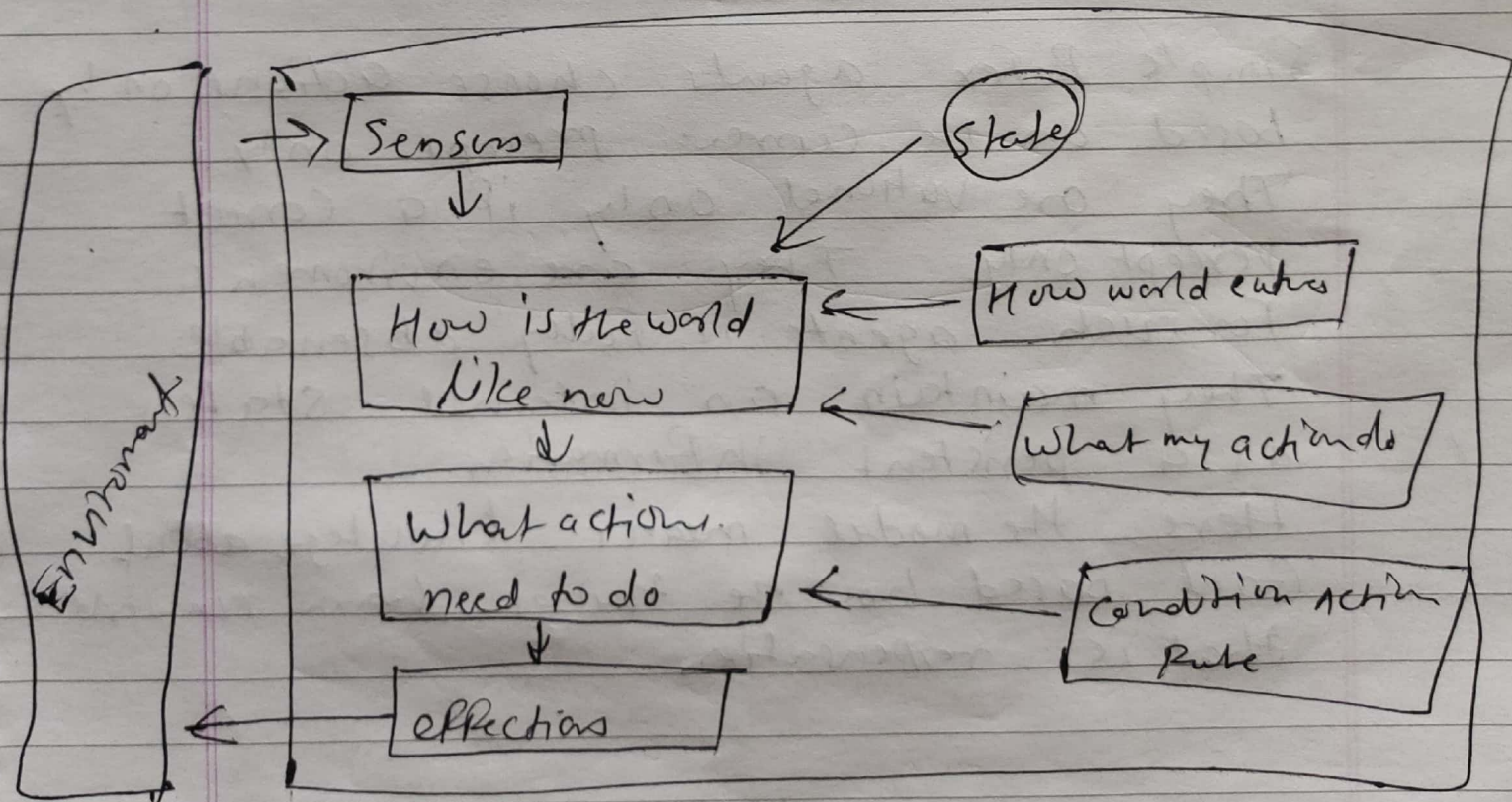


AI Agent with Environment

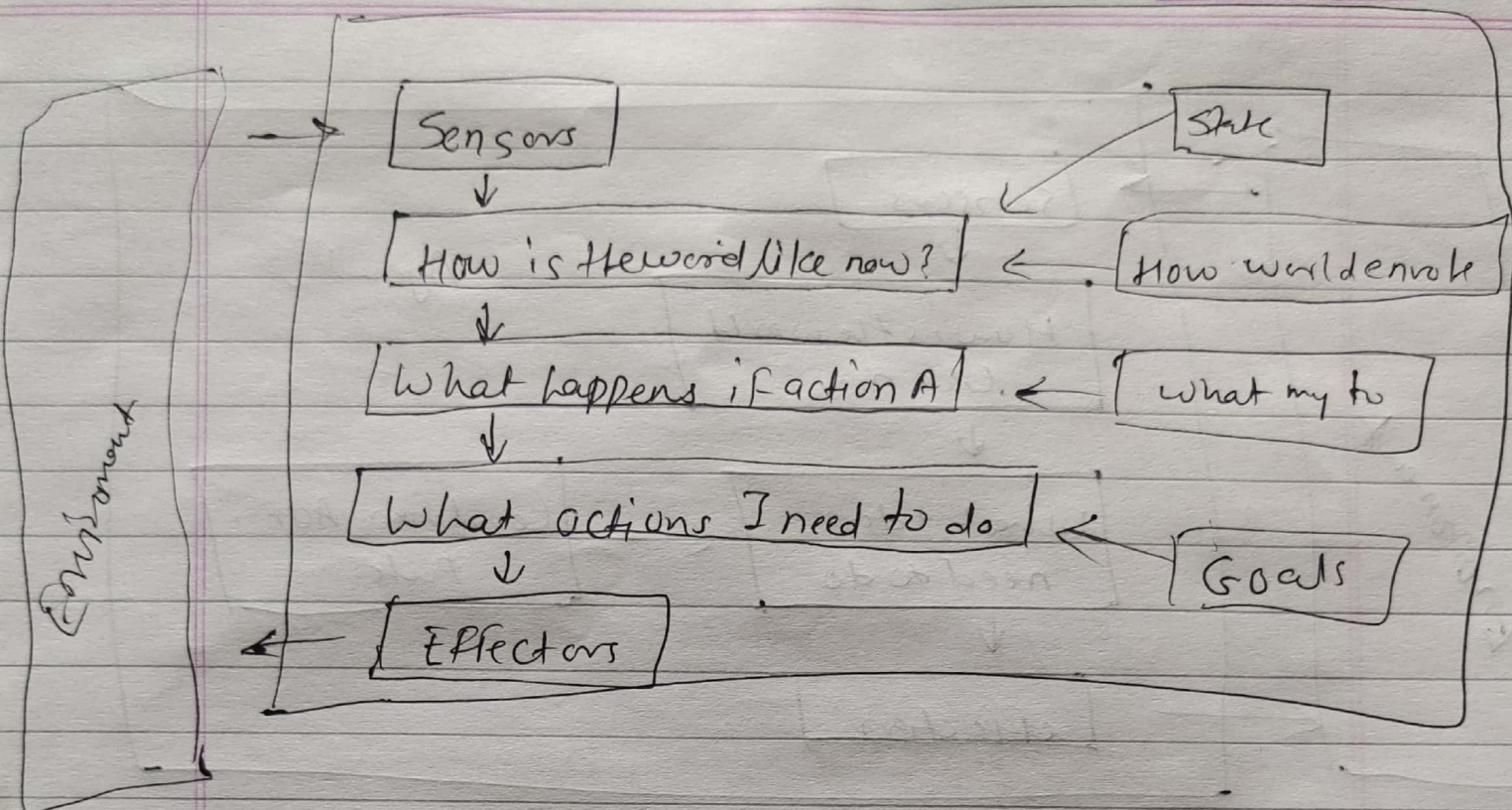
Human Agent has sensory organ such as eyes, nose, tongue and skin parallel to the sensors and other organs such as hands, legs, mouth for effectors.



a) simple Reflex Agent



b) model Based Reflex Agent



C] Goal Based Agent

Simple Reflex agents choose actions only based on the current percept only.

They are rational only if a correct percept only. They are environment for such agents is fully observable.

They maintain an internal state as a persistent information.

Here the model means knowledge about Goal based how the things have the world that is, representation.

Another important piece of info is for environment properties while analyzing task environment the agent architecture need to consider following

1. Discrete or Continuous

If there are a limited number of distinct, clearly defined states (for example chess).

2. Observable or partially observable

If the to determine the complete state of the environment at each time point from the precepts it is observable otherwise it is only partially observable.

3. Static or dynamic

If the environment does not change while agent is acting then it is static.

5. Episodic or Sequential

In an episodic environment each episode or its action depends just on the episode itself. Subsequent episodes do not depend on the actions in the previous episodes much simpler because the past

6. single agent or multiple agent.

The environment may contain single agent or their different kind as that of the agents. These agents may be co-operating or competing with each other.

7. Accessible or Inaccessible

If the agent's sensing apparatus can have access to the complete state of the environment then environment is accessible. Working search internet for its own identity who is agent for that try to classify task environment properties like list of attributes from above.

1. Autonomous Lunar Rover
2. Deep Blue chess playing computer program
3. ELIZA the natural language processing computer program created from 1964 to 1966 at the MIT
4. Automatic portfolio management
5. Sophia is a social humanoid robot developed by Hong Kong based
6. Alpha Go is a computer program that plays the Go.
7. Apple's Virtual Assistant in
8. Endurance A companion for dementia
9. Casper Helping Insomniacs Get Through the Night

10. marvel: Guarding the Galaxy
Comic Book Crossover,

11. Automated Cross Word Solver

Resources: The above diagrams are taken
from online tutorial available
at Tutorial
points on topic AI - Agents