



LIRA UNIVERSITY

GROUP ONE PRESENTATION COURSE WORK

FACULTY OF MANAGEMENT SCIENCE.

COURSE UNIT: ARTIFICIAL INTELLIGENCE

COURSE CODE: LCS 2206

S/N	NAME	REG NUMBER
1	ACEN PRISCILLA FAITH	20/U/0590/LCS
2	OPOLOT NELSON	20/U/0586/LCS
3	AKWERO SHARON	20/U/0581/LCS

GOAL-BASED AI AGENT

Defining Goal-Based Agents

A goal-based agent is an artificial intelligence agent that responds to its environment and adjusts accordingly to achieve a goal.

A goal-based agent has an agenda, you might say. It operates based on a goal in front of it and makes decisions based on how best to reach that goal. Unlike a simple reflex agent that makes decisions based solely on the current environment, a goal-based agent is capable of thinking beyond the present moment to decide the best actions to take in order to achieve its goal. In this regard, a goal-based agent operates as a search and planning function, meaning it targets the goal ahead and finds the right action in order to reach it. This helps a goal-based agent to be proactive rather than simply reactive in its decision-making.

You may take a goal-based approach to tasks at work. For example, you might set a goal for yourself to become a more efficient typist, which will help you in completing assignments more quickly. A step toward that goal, then, might be to enroll in a typing course or to devote 15 minutes a day to practice in order to increase your word count per minute. Your decisions are flexible, a hallmark of goal-based agents, but the focus is always on achieving the goal ahead.

Although the goal-based agent appears less efficient, it is far more flexible. If it starts to rain, the agent can update its knowledge of how effectively its brakes will operate; this will automatically cause all of the relevant behaviors to be altered to suit the new conditions.

The specification and design of goal-based agents involves answering the following questions:

1. What is the goal to be achieved? This involves describing a situation we want to achieve, a set of properties that we want to hold (when the agent succeeds at its goal), etc. This requires defining a goal test so which captures what it means to have achieved/satisfied the goal.
2. What are the actions that are available to the agent? We need to specify precisely all of the primitive actions (including their preconditions and their expected effects on the environment) that are sufficient (at least in principle) to achieve the goal.
3. What information is necessary to encode about the world to sufficiently describe aspects of the world that are relevant for accomplishing the goal? Early AI systems assumed that all the information necessary for choosing an action is available in each percept so that each state is a complete description of the current world. What to encode in a state is the knowledge representation problem.

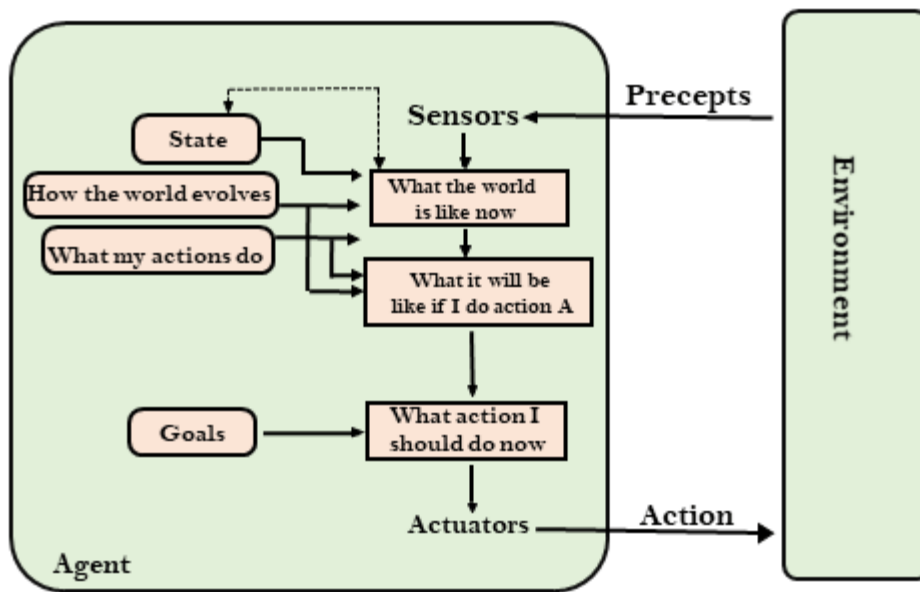
Goal-Based Agent Expansion

Goal-based agents expand on the concept of model-based agents because of the presence of the goal itself. A model-based agent uses percept history and internal memory to make sense of the world around it. A goal-based agent takes this model one step further by implementing a desirable outcome, or goal, and then making decisions about how best to proceed toward it.

Advantages of goal-based agent

- The knowledge of the current state environment is not always sufficient to decide for an agent to what to do.
- The agent needs to know its goal which describes desirable situations.
- Goal-based agents expand the capabilities of the model-based agent by having the "goal" information.
- They choose an action, so that they can achieve the goal.
- These agents may have to consider a long sequence of possible actions before deciding whether the goal is achieved or not. Such considerations of different scenario are called searching and planning, which makes an agent proactive

Diagram of a goal-based agent with explicit goals



References:

www.javatpoint.com

<https://study.com>

<https://geeksforgeeks.com>