



RAMA UNIVERSITY

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FACULTY OF ENGINEERING

ARTIFICIAL INTELLIGENCE LECTURE-05

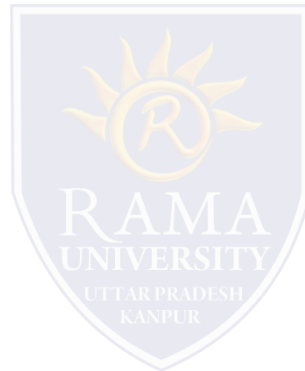
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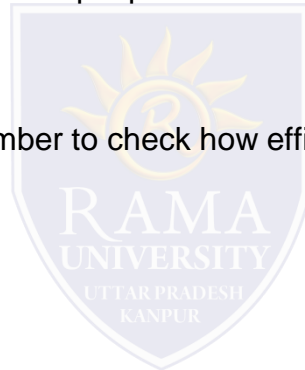
OUTLINE

- ❖ **Utility-based agents**
- ❖ **Learning Agents**
- ❖ **MCQ**
- ❖ **References**



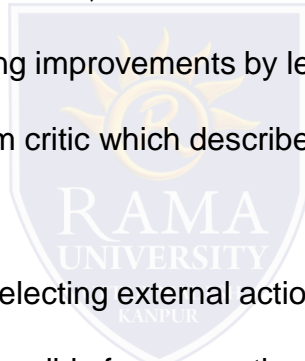
Utility-based agents

- These agents are similar to the goal-based agent but provide an extra component of utility measurement which makes them different by providing a measure of success at a given state.
- Utility-based agent act based not only goals but also the best way to achieve the goal.
- The Utility-based agent is useful when there are multiple possible alternatives, and an agent has to choose in order to perform the best action.
- The utility function maps each state to a real number to check how efficiently each action achieves the goals.

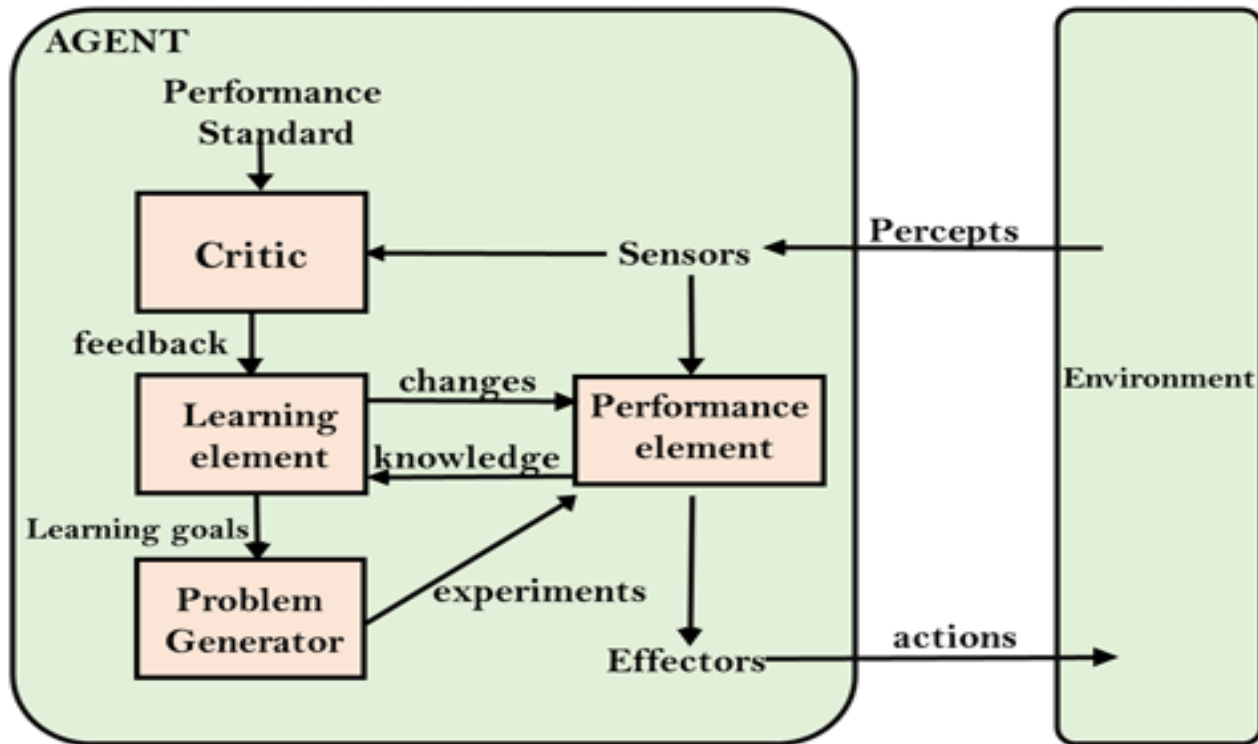


Learning Agents

- A learning agent in AI is the type of agent which can learn from its past experiences, or it has learning capabilities.
- It starts to act with basic knowledge and then able to act and adapt automatically through learning.
- A learning agent has mainly four conceptual components, which are:
 - Learning element: It is responsible for making improvements by learning from environment
 - Critic: Learning element takes feedback from critic which describes that how well the agent is doing with respect to a fixed performance standard.
 - Performance element: It is responsible for selecting external action
 - Problem generator: This component is responsible for suggesting actions that will lead to new and informative experiences.
- Hence, learning agents are able to learn, analyze performance, and look for new ways to improve the performance.



Learning Agents



1. DARPA, the agency that has funded a great deal of American Artificial Intelligence research, is part of the Department of _____

- a) Defense
- b) Energy
- c) Education
- d) Justice

2. Which of these schools was not among the early leaders in Artificial Intelligence research?

- a) Dartmouth University
- b) Harvard University
- c) Massachusetts Institute of Technology
- d) Stanford University



3. A certain Professor at the Stanford University coined the word 'artificial intelligence' in 1956 at a conference held at Dartmouth college. Can you name the Professor?

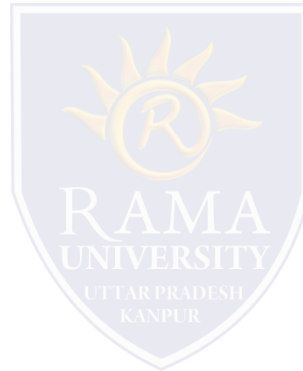
- a) David Levy
- b) John McCarthy
- c) Joseph Weizenbaum
- d) Hans Berliner

4. In LISP, the function (copy-list <list>)

- a) returns a new list that is equal to <list> by copying the top-level element of <list>
- b) returns the length of <list>
- c) returns t if <list> is empty
- d) all of the mentioned

5. Who is the “father” of artificial intelligence?

- a) Fisher Ada
- b) John McCarthy
- c) Allen Newell
- d) Alan Turning



References

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- Elaine Rich and Kevin Knight, "Artificial Intelligence", McGraw-Hill.
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