Prediciting house price in machine learning

AI

Problem solving in AI

The aim to Artificial intelligence is to develop a system which can solve the various problems on its own. But the challenge is, to understand a problem, a system must predict and convert the problem in its understandable form. That is, when an <u>agent</u> confronts a problem, it should first sense the problem, and this information that the agent gets through the sensing should be converted into machine-understandable form. For this, a particular sequence should be followed by the agent in which a particular format for the representation of agent's knowledge is defined and each time a problem arises, the agent can follow that particular **approach to find a solution to it**.

● Types of Problems in AI

The types of problems in artificial intelligence are:

1. Ignorable Problems

In ignorable problems, the solution steps can be ignored.

2. Recoverable Problems

In recoverable problems, the solution steps which you have already implemented can be undone.

3. Irrecoverable Problems

In irrecoverable problems, the solution steps which you have already implemented cannot be undone.

●Steps for Problem Solving in AI

I. Define a problem

Whenever a problem arises, the agent must first define a problem to an extent so that a particular state space can be represented through it. Analyzing and defining the problem is a very important step because if the problem is understood something which is different than the actual problem, then the whole problem-

solving process by the agent is of no use.

II. Form the state space

Convert the problem statement into state space. A state space is the collection of all the possible valid states that an agent can reside in. But here, all the possible states are chosen which can exist according to the current problem. The rest are ignored while dealing with this particular problem.

III. Gather knowledge

collect and isolate the knowledge which is required by the agent to solve the current problem. This knowledge gathering is done from both the pre-embedded knowledge in the system and the knowledge it has gathered through the past experiences in solving the same type of problem earlier.

IV. Planning-(Decide data structure and control strategy)

A problem may not always be an isolated problem. It may contain various related problems as well or some related areas where the decision made with respect to the current problem can affect those areas. So, a well-suited data structure and a relevant control strategy must be decided before attempting to solve the problem.

V. Applying and executing

After all the gathering of knowledge and planning the strategies, the knowledge should be applied and the plans should be executed in a systematic way so s to reach the goal state in the most efficient and fruitful manner.

- ## Components to Formulate the Associated Problem
  a. Initial state
  b. Action
  c. Transition
  d. Goal Test
  e. Path Costing