Tutorial NO:- 02

Tutorial 2

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Tutorial 2:- To understood State space problem formulation

Aim :- To understand State Space based problem formulation of AI problems so that problem Solving Agent can be applied

Theory:- First we understand the problems Solving agent Algorithm shows in figurs 3 shows agent problem ~~Solving~~ For problem solving agent. Agent first formulates goal and problem, then determines or rather searches an action sequence

functions Simple :- problem - Solving - Agent return or action
Static:- Seq. an action sequence, initially empty
State, "solve description of current world state
goal, a goal, initially null
problem, a problem formulation

State ← Update — State (State, percept)
if Seq. is empty then do
goal ← formulation ← Goal (State)
problem ← Formulate ↔ problem (State, goal)
Seq ← Search (problem)
action ← First (Seq)
Seq ← Rest (Seq)
return action

Fig:- Problem Solving agent Architecture.

defining the problem is referred to as problem Formulation:- it involves defining following five things:-

Initial state: it is the starting state that the problem is in

Action is defines all persen possible action available to the agent given it is in solve state a currently, it is function Action(s) that returns List of all possible actions

Transition model also known as Successo-function Which define which state is the system tried to move to when a particular action is executed by the agent

Goal Test This act as a stopping condition When the state passed to this function is goal state it will return true

path cost it is accumulated cost of performing Certain sequince of actions. This can help in determining wether the action sequence under consideration is optimal.

Working : Based on understanding of problem formulation student need to Formulate following problem

1) Navigate to KLCE Workshop from HOD IT Cabin with minimum of moves. moves can be Climbing or alighting staircase

2) 8 puzzle problem

3) N Queen's problem, Arrange N queens and a M N CLOCS N Chess board where no two queens attack each other.

5) Two room Vaccum eleter world

6] water Jug problem.