3. Gather knowledge

collect and isolate the knowledge which is required by the agent to solve the current problem.

9. Planning

A problem may not always be an isolated problem. It may contain various related problem as well as same related areas where where the decision made with respect to the current problem can affect those areas.

4. No question Ans

a

Problem solving agent in Artificial Intelligence is goal-based agents that focus on goals is one embodiment of a groups of algorithms, and techniques to solve a well defined

9. Duplicating Outcomes:- David Czechouski, computer science and technology teacher at Hyde Park Central School, explains this example.

5. Traffic Light:- Czechouski adds. Here's an algorithm we frequently experience, the next time you're in your car Stuck at a red Light consider the algorithm the traffic light is executing.

6. Bus Schedules:- Every weekday morning thousands of buses criss-cross neighborhoods picking up Student. Mapping out efficient Bus routes is an overwhelming manual task to execute without an algorithm to

automate increa levlications and schedule the right students for the right address atthe right time.

2 No question Ans

a

States:- A] Problem can be represented as a well formaed set of possible states. State can be initial state i.e. starting point Croal state i.e. desfination point and varicas other possible states betucen tham which are formed by applying certain of rules.

Initial State:- the state that the agent starts in. Its in a typical planning problem, where the world is fully observable and deterministic, the initial state is defined by specifying the value for each feature of for the initial time.

cheapest solution so long as the path cost is a function of the depth of the solution. But if this is not the case, then breadth first search is not guaranteed to find the best solution.

* Depth-First Search: Depth first search explores one branch of a tree before it starts to explore another branch. It can be implemented adding newly expanded nodes at the front of the queue.

* Depth-Limited Search: The problem with depth first search is that the search can go down an infinite branch and thus never return the algorithm can be implemented using the general search algorithm by using operators to keep track of the depth

b

Six Example of Real World algorithm.

1 sorting papers:- Imagine a teacher sorting their student papers according to the alphabetical order of their first names.

2 Facial Recognition:- Every day we see someone we know a loved one a coworker or even an eccentric neighbor. When we recognize somebody face we're drawing upon data we've previously collected on the size and position that person's facial features.

3. Google Search:- Even an action as seemingly simple as a Google search is only possible with the help of algorithms.

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1No question Ans

a

Blind Searches algorithm.

* Breadth First Search: Using a breadth first strategy we expand the root level first and then we expand all those nodes (ie. those at level) before we expand any nodes at level 2.

* Uniform Cost Search: We have side that breadth first search finds the shallowest goal state and that this will be the

15 No question Ans

a

Avoiding Repeated States

* Do not return to the parent state (eg. in 8 puzzle problem, do not allow the up move right after a down move)
* Do not create solution paths with cycles
* Do not generate any ~~keeping~~ repeated states.
* this is done by keeping a list of expanded states i.e., states whose daughter have already been put of the enqueued list. This entails removing states from the enqueued list and placing them on an expanded list.

b

Four general step of problem solving

1. Define 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.

2. Form the state space

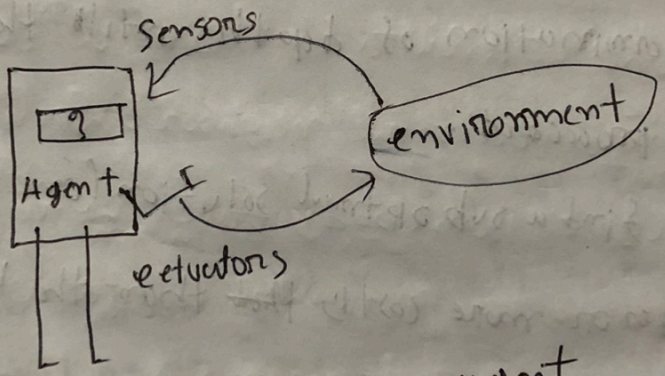
Convert the problem statement into state space. A state space is the collection of all the possible valid states that an agent can reside in. But here, all the possible states are chosen which can exist according to the current problem.

b

Limitation of DFS

* Not Guaranteed that it will give you a solution.
* Cut-off depth is smaller so time complexity is more
* Determination of depth until the search has proceeded.
* May find a suboptimal solution (one that is deeper or more costly than the best solution)
* Without a depth bound one may not find a solution even if one exists.

Problem in the area of Artificial Intelligence. And these agents are different from reflex agents who just have to map state into actions and can't ~~no~~map when storing and learning both are bigger.



Problem-Solving agent

Action:- Action selection in AI systems is a basic system in which the problem can be analyzed by the ai machine to understand what it has to do next to get closer to the solution of the Problem.

Goal test:- It is a function which observe the current state and returns whether the goal state is achieved or not.

~~Patch cost:- The path cost is usually given by the definition of the problem you're trying~~

Path cost:- Function that assigns a cost to a path. Cost of a path is the sum of costs of individual actions along the path.

*Iterative Deepening Search :- the problem with depth limited search is deciding on a suitable depth parameter.

* Checking for Repeated States :- In this section we have looked at five different blind search algorithms. Whilst these algorithms are running it is possible that the same state will be generated more than once.