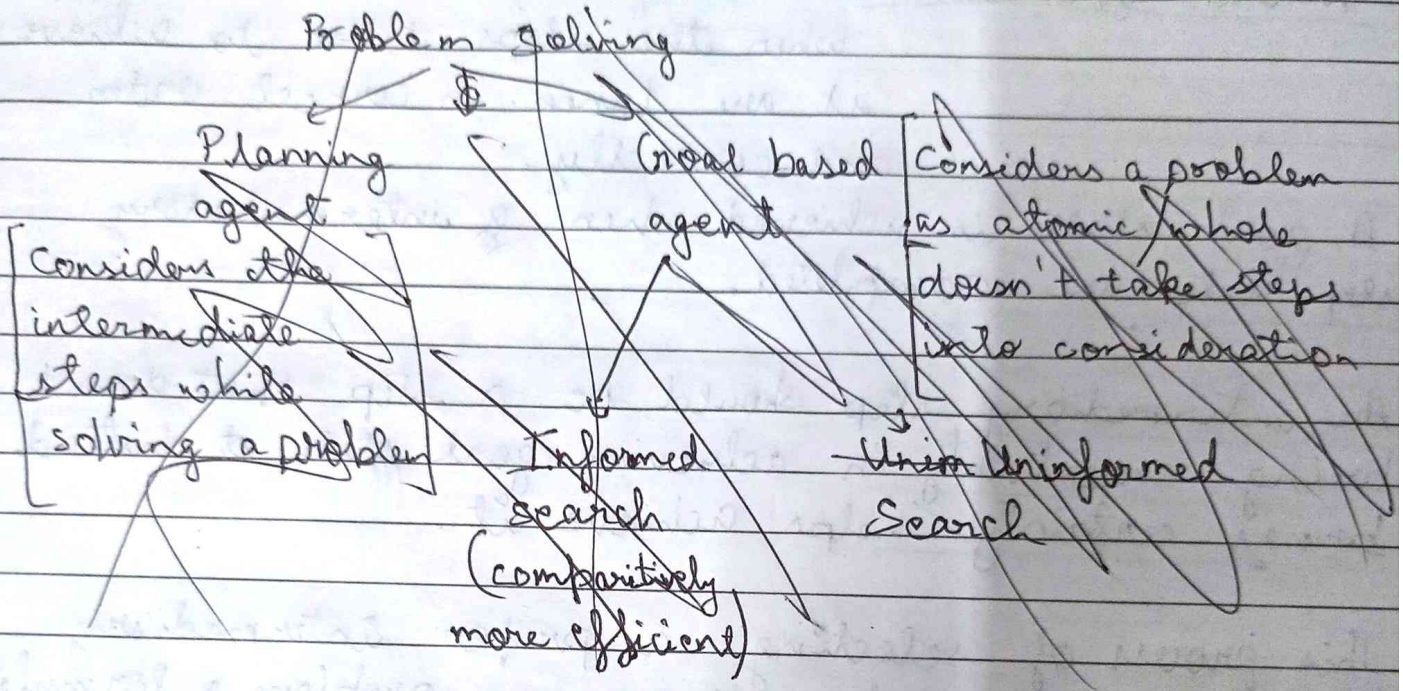
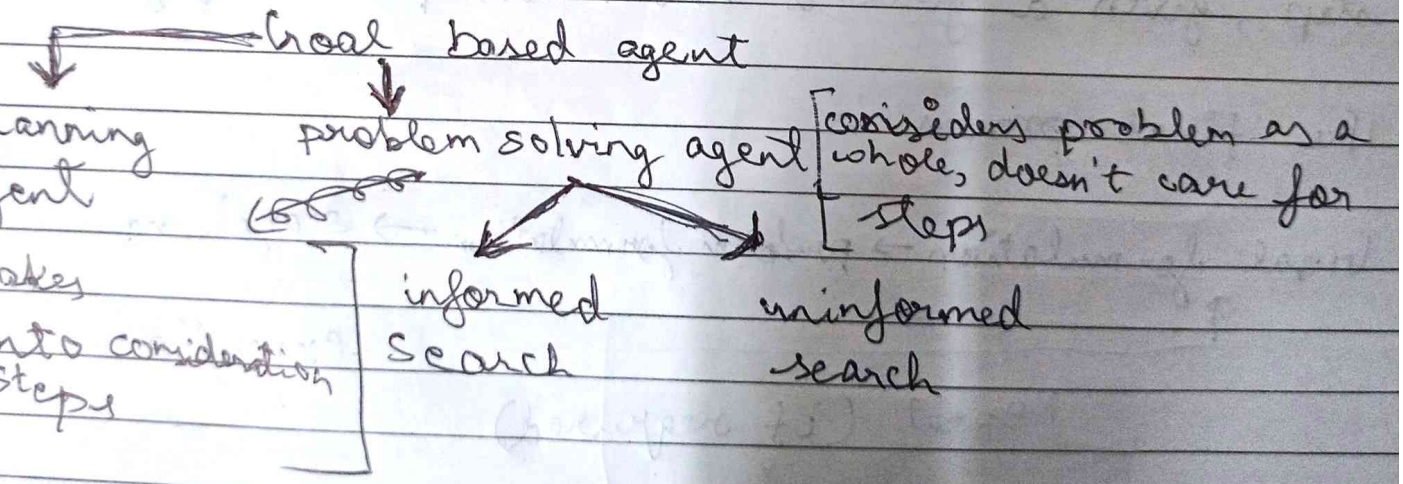
Problem Solving :- Performed by goal based agents.

A type of goal based agent is known as problem-solving agent.





The process of looking for a sequence of actions that reaches the goal is called search. | Execution phase: carrying out solution

Search algorithm: Returns solution in the form of ~~Action~~ sequence

How agents work towards a solution for a problem

→ Goal formulation: Figures out the goal and sets it as its target.
Example: driving to a particular location

Because of this the system starts taking steps towards the target and ~~arbitrary~~ unnecessary arbitrary steps are removed/rejected.

→ Problem formulation: ~~Each~~ A goal state is achieved when the steps taken to achieve it are taken in correct order and correctly.

A goal state is achieved when intermediatory ~~step~~ states are completed.

An intermediary step should be a step that doesn't bring uncertainty in achieving goal state & instead brings certainty/helps achieve it.

This process of selecting a proper intermediary step, given a goal is known as problem formulation

The final process is

Goal formulation → problem formulation → searching → execution

Repeat (if required)

Open loop system :- When an agent is performing its actions. It goes according to the algorithm. ~~without~~ It doesn't react in real time based on inputs it is receiving in ~~the~~ middle of ~~its action~~.

Problem : Can be defined by a 5 components

a) Initial state : The state at which an agent starts.
b) ~~Transition state~~ : The change of state from one state to another is known as transition state.
b) Transition model :
c) ~~Path~~ :

Initial state → set of actions → Transition model
Path cost ← goal test ←

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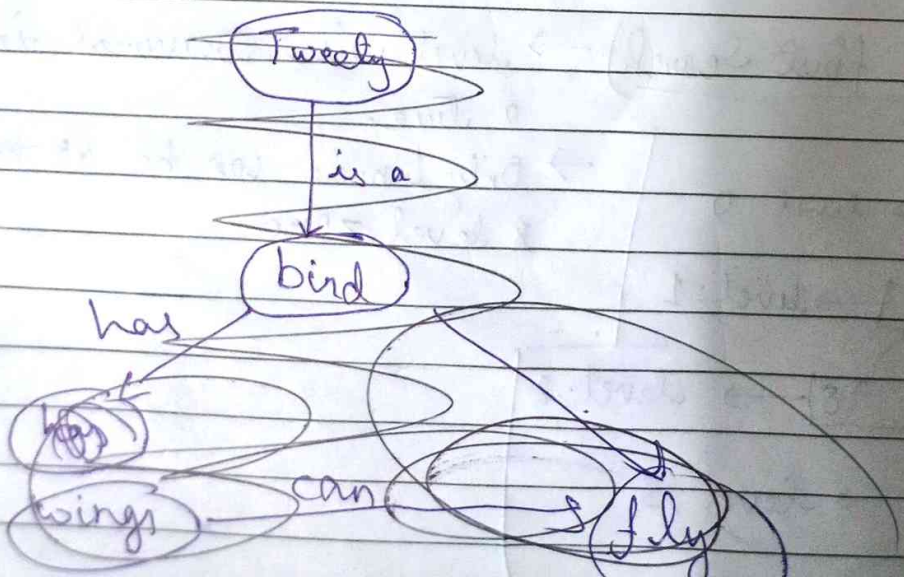
~~Forward and Backward Reasoning~~

1) ~~Bird has a wing~~
2) Tweety is a bird. A bird has wings and can fly.
Semantic net



Date.....

Problem: A specific situation or task that requires a sequence of actions to reach a desired goal from an initial state.

Abtraction is a process where irrelevant information is removed. Ex:- On a cross country trip one will not require the information regarding the surroundin beauty, if there is a KFC nearby or not. Because they are irrelevant to finding a route to destination.

The choice of an abtraction involves removing as much detail as possible while retaining validity and ensuring that the that abstract actions are easy to carry out.

UNINFORMED SEARCH (blind search) → No additional information except information about states provided in the beginning. They don't know if the current non-goal state is better or worse then any other non-goal state.

① BFS (breadth first Search) → level wise traversal in a tree.

→ Only 1 node can be at node & level zero