

Assignment AIR

Title :- Constraint satisfaction problem.

problem definition :- Use Heuristic Search techniques to implement Hill climbing algorithm.

Objective:- To learn and implement Hill climbing algorithm using heuristic search technique.

Outcome:- Students will be able to implement hill climbing algorithm using Heuristic search techniques.

s/w and h/w requirements:-

OS :- 64 bit OS linux

programming lang :- Java | python

Theory :-

- i) Hill climbing is heuristic search used for mathematical optimization problems in field of AI.
- ii) Mathematical optimisation problems implemented that hill climbing solves the problems where we need to maximize or minimize given real function by choosing values from given input

* Features of hill climbing.

Variant of generate and test algorithm

It is a variant of generate & test algorithm the generate and test algorithm is as follows:-

1. Generate a possible solution.
- 2 Test to see if this expected solution
3. If the solⁿ has been found quit else go

Simple hill climbing Algorithm.

step1: Evaluate the initial state. If it is a goal state then stop and return success otherwise make initial state as current state

step2: Loop until the solⁿ state is found or there are no new operators present which can be applied to current state

a) select a state that has not been yet applied to the current state & apply it to produce a new state.

b) perform these to evaluate new state

i) If the current state is goal state then stop & return success.

ii) If it is better than the current state then make it current state & proceed further.

Conclusion:- we have successfully implemented the hill climbing algorithm using heuristic search techniques.