

Defining the problem as state space search.

state space search.

* It is complete set of states including start & goal states where the answer of the problem is to be searched.

Problem.

* It is the question which is to be solved. For solving the problem it needs to be precisely defined.

* The definition means defining the start state, goal state other valid states & transitions.

* A state space representation allows for the formal definition of a problem which makes the movement from initial state to the goal state quite easily.

* So we can say that various problems like planning, learning, theorem proving etc.,

* It is a process used in the field of computer science including AI in which successive configurations or states.

Example

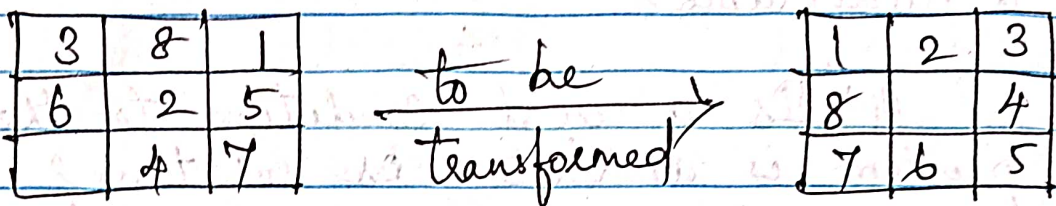
Eight Tiles puzzle problem

3x3

→ Numbered from 1 to 8.

→ 1 square is empty.

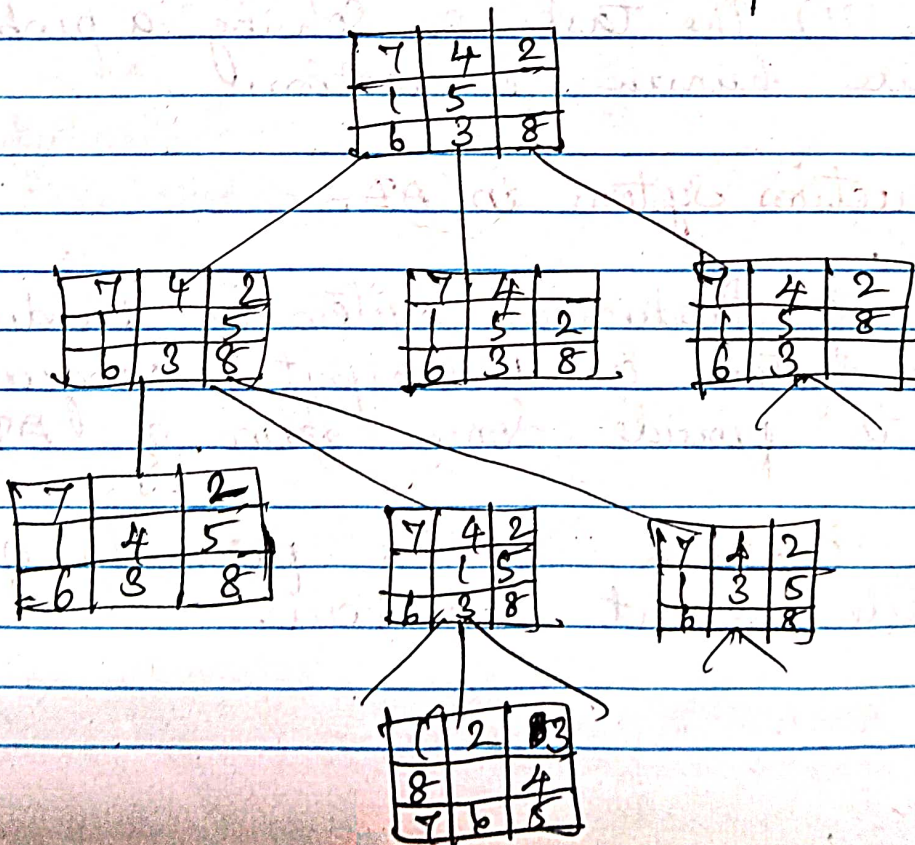
→ Allowing adjacent tiles to be shifted.



→ Moves

- left
- right
- up
- down

→ Path cost — Each step cost 1.



Problem characteristics.

(1) problem decomposable into small sub problems which are easy to solve.

(2) Can solution steps be ignored or undone?

(3) Is the universe of the problem is predictable?

(4) Is a good condition to the problem is absolute or relative?

(5) Is the solution to the problem a state or path?

(6) What is the role of knowledge in solving a problem using AI.

(7) The task of solving a problem require human interaction.