

Ans1) Time Complexity of  $A^*$  Algorithm depends on many factors but in general in cases of expanded time complexity is exponential.

Ans2) Limitation

- a)  $A^*$  relies heavily on the quality of the heuristic function ,
- b)  $A^*$  is memory intensive
- c)  $A^*$  may not be suitable for problems space is not defined.



$A^*$   $\rightarrow$  1) uses BFS search approach

2)  $A^*$  guarantees finding optimal path

BFS  $\rightarrow$  1) BFS explores all neighbors

2) guarantees shortest path

DFS  $\rightarrow$  1) Explores far as possible

2) may not find optimal path

Dijkstra 1) Finds shortest path

2) Does not use heuristic function.