Experiment Number: 4

Aim:

WAP for DFS algorithm using uninformed search method.

Theory:

The DFS algorithm is a recursive algorithm that uses the idea of backtracking. It involves exhaustive searches of all the nodes by going ahead, if possible, else by backtracking. Here, the word backtrack means that when you are moving forward and there are no more nodes along the current path, you move backwards on the same path to find nodes to traverse. All the nodes will be visited on the current path till all the unvisited nodes have been traversed after which the next path will be selected.

Performance Analysis: Depth-first search visits every vertex once and checks every edge in the graph once. Therefore, DFS complexity is O(V + E)O(V+E). This assumes that the graph is represented as an adjacency list.

Algorithm:

1. If the initial state is a goal state, quit and return success.
2. Otherwise, loop until success or failure is signalled.

   A] Generate a state, say E, and let it be the successor of the initial state.If there is no successor, signal failure.

   B] Call Depth-First Search with E as the initial state.

   C] If success is returned, signal success. Otherwise continue in this

   Loop.

*** Solve One example based on DFS**

Conclusion: Thus, the program of Depth first search has been executed successfully.