EXP NO : 2

DATE :

DEPTH FIRST SEARCH

AIM:

To implement depth first search algorithm using python.

ALGORITHM:

1) Input the start node

2) Initialize an empty set visited to track visited nodes

3) Call DFS with the start node and the graph:

-> If the node has n't been visited:

* Print the node
* Add the node to the visited set
* Recursively call DFS on all neighboring nodes of the current node

4) Repeat the process until all reachable nodes from the start nodes are visited.

Program:

```
graph = {
  'A' : ['B', 'C'],
  'B' : ['A', 'D', 'E'],
  'C' : ['A', 'F'],
  'D' : ['B'],
  'E' : ['B', 'F'],
  'F' : ['C', 'E']
}

def dfs(graph, node, visited):
    if node not in visited:
        print(node, end='')
        visited.add(node)
        for neighbor in graph[node]:
            dfs(graph, neighbor, visited)
visited = set()
start_node = input("Enter a letter")
print("DFS starting from node", start_node, ":")
dfs(graph, start_node, visited)
```

Output :

Enter a letter A

DFS starting from node A :

A B D E F C

RESULT

Thus the python program is implemented for Depth First Search algorithm.