**PROGRAM 8**

**Aim:** Write a program to implement the following searching techniques: BFS and DFS.

**Code: BFS**

graph = {'A': ['B','C'],

'B': ['A','D','E'],

'C': ['F','G','A'],

'D': ['B'],

'E': ['H','B'],

'F': ['C'],

'G': ['C'],

'H': ['E']

}

def bfs(graph, root):

visited, queue = set([root]), collections.deque([root])

while queue:

vertex = queue.popleft()

visit(vertex)

for node in graph[vertex]:

if node not in visited:

visited.add(node)

queue.append(node)

def visit(n): print(n)

bfs(graph, 'A')

**DFS**

graph = {'A': ['B','C'],

'B': ['A','D','E'],

'C': ['F','G','A'],

'D': ['B'],

'E': ['H','B'],

'F': ['C'],

'G': ['C'],

'H': ['E']

}

def dfs(graph,start,end,route,list):

route+=[start]

if start == end:

list.extend(route)

else:

for node in graph[start]:

if node not in route:

dfs(graph,node,end,route,list)

def dfs\_route(graph,start,end):

list = []

dfs(graph,start,end,[],list)

return list

print(dfs\_route(graph,'A','G'))

**Output:**



