**AIM:** Write a program to implement dfs with using a fix limit and return the path to traverse till input node.

**SOURCE CODE:**

from collections import defaultdict

class Graph:

def \_\_init\_\_(self,vertices):

self.V = vertices

self.graph = defaultdict(list)

def addEdge(self,u,v):

self.graph[u].append(v)

def DLS(self,src,target,maxDepth):

if src == target : return True

if maxDepth <= 0 : return False

for i in self.graph[src]:

if(self.DLS(i,target,maxDepth-1)):

return True

return False

def IDDFS(self,src, target, maxDepth):

for i in range(maxDepth):

if (self.DLS(src, target, i)):

return True

return False

g = Graph (7);

g.addEdge(0, 1)

g.addEdge(0, 2)

g.addEdge(1, 3)

g.addEdge(1, 4)

g.addEdge(2, 5)

g.addEdge(2, 6)

target = int(input("enter the node to be searched"));

maxDepth = int(input("enter the depth"));

src = 0

if g.IDDFS(src, target, maxDepth) == True:

print ("Target is reachable from source " +

"within max depth")

else:

print ("Target is NOT reachable from source " +

"within max depth")

**OUTPUT:**

