Exp No 5
Date

Depth First Search - Water Jug Problem

AIM

To implement a python program for water jug problem

Source code

```
from collection import deque
def DFS (a, b, target):
    m = {}
    isSolvable = False
    path = []
    queue = deque ()
    q.append ((0,0))
    while (len (q) > 0):
        u = q.popleft ()
        if ((u[0], u[1]) in m):
            continue
        if ((u[0] > a or u[1] > b or
             u[0] < 0 or u[1] < 0)):
            continue
        path.append ([u[0], u[1]])
        m[(u[0], u[1])] = 1
        if (u[0] == target or u[1] == target);
            is Solvable = True
```

```
if (u[0] == target):
    if (u[1]! = 1):
        path.append ([u[0],0])

else:
    if (u[0] ! = 0):
        path.append ([0,u[1]])
    sz = len (path)
    for i in range (sz):
        print (" (",path [i][0], ",", path [i][1],")
    break
q.append ([u[0],b])
q.append ([a, u[1]])

for ap in range (max (a,b) +1):
    q.append ([c,d])
Jug 1 Jug 2 target = 4,3,2
DFS (Jug1, Jug2, target)
```

Result

~~thn~~ thus the program of water Jug
is successfully executed