EXP 3 :-

PROGRAM :-

from collections import deque

def water\_jug\_problem(capacity\_a, capacity\_b, target):

visited = set()

queue = deque([(0, 0)]) # Start with both jugs empty

while queue:

a, b = queue.popleft()

if (a, b) in visited:

continue

visited.add((a, b))

if a == target or b == target:

return True

# Fill Jug A

queue.append((capacity\_a, b))

# Fill Jug B

queue.append((a, capacity\_b))

# Empty Jug A

queue.append((0, b))

# Empty Jug B

queue.append((a, 0))

# Pour A to B

pour\_to\_b = min(a, capacity\_b - b)

queue.append((a - pour\_to\_b, b + pour\_to\_b))

# Pour B to A

pour\_to\_a = min(b, capacity\_a - a)

queue.append((a + pour\_to\_a, b - pour\_to\_a))

return False

# Example usage

capacity\_a = 4

capacity\_b = 3

target = 2

result = water\_jug\_problem(capacity\_a, capacity\_b, target)

print("Can we measure the target amount?", result)

OUTPUT :-

