**EXPERIMENT 3**

Write the python program for Water Jug Problem

**AIM:**

The aim is to solve the water jug problem using python program.

**PROGRAM:**

def min\_moves(x, y, z):

if x == y:

return z

if x == z or y == z or x + y == z:

return 0

if x == 0 or y == 0:

return "Can't measure exactly " + str(z) + " liters using these jugs."

if x < y:

return min\_moves(z, y, x)

if x > y:

return min\_moves(x - y, y, z) + y

return min\_moves(x, y - x, z) + 1

else:

return min\_moves(x - y, y, z) + 1

def solve\_water\_jug\_problem(x, y, z):

if x + y < z:

return "Can't measure exactly " + str(z) + " liters using these jugs."

if x == y and x == z:

return "All jugs are already full."

if x == y and x == 0:

return "All jugs are already empty."

if x == z:

return "Measure exactly " + str(z) + " liters into the first jug."

if y == z:

return "Measure exactly " + str(z) + " liters into the second jug."

if x == 0:

return "Measure exactly " + str(z) + " liters from the second jug into the first jug."

if y == 0:

return "Measure exactly " + str(z) + " liters from the first jug into the second jug."

if x > y:

return "Measure exactly " + str(y) + " liters from the first jug into the second jug. Then, measure exactly " + str(z - y) + " liters from the second jug into the first jug."

if y > x:

return "Measure exactly " + str(x) + " liters from the second jug into the first jug. Then, measure exactly " + str(z - x) + " liters from the first jug into the second jug."

moves = min\_moves(x, y, z)

return f"Measure exactly {z} liters using {moves} moves."

x = 4

y = 3

z = 2

z = 0

print(solve\_water\_jug\_problem(x, y, z))

**INPUT:**

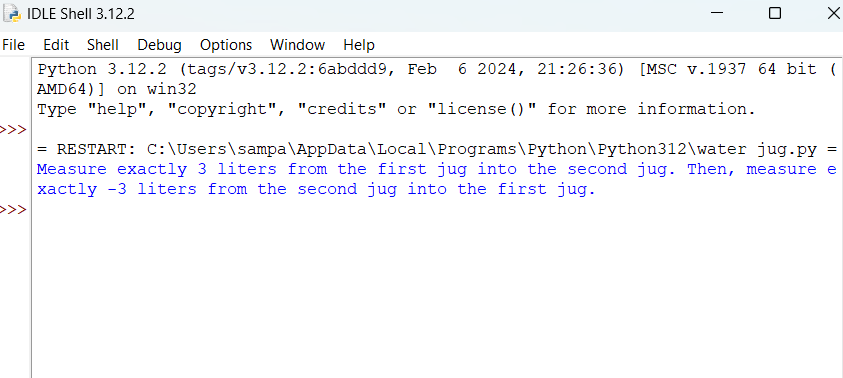
X=4

Y=3

Z=2

Z=0

**OUTPUT:**



**RESULT:**

The water jug problem using python executed successfully.