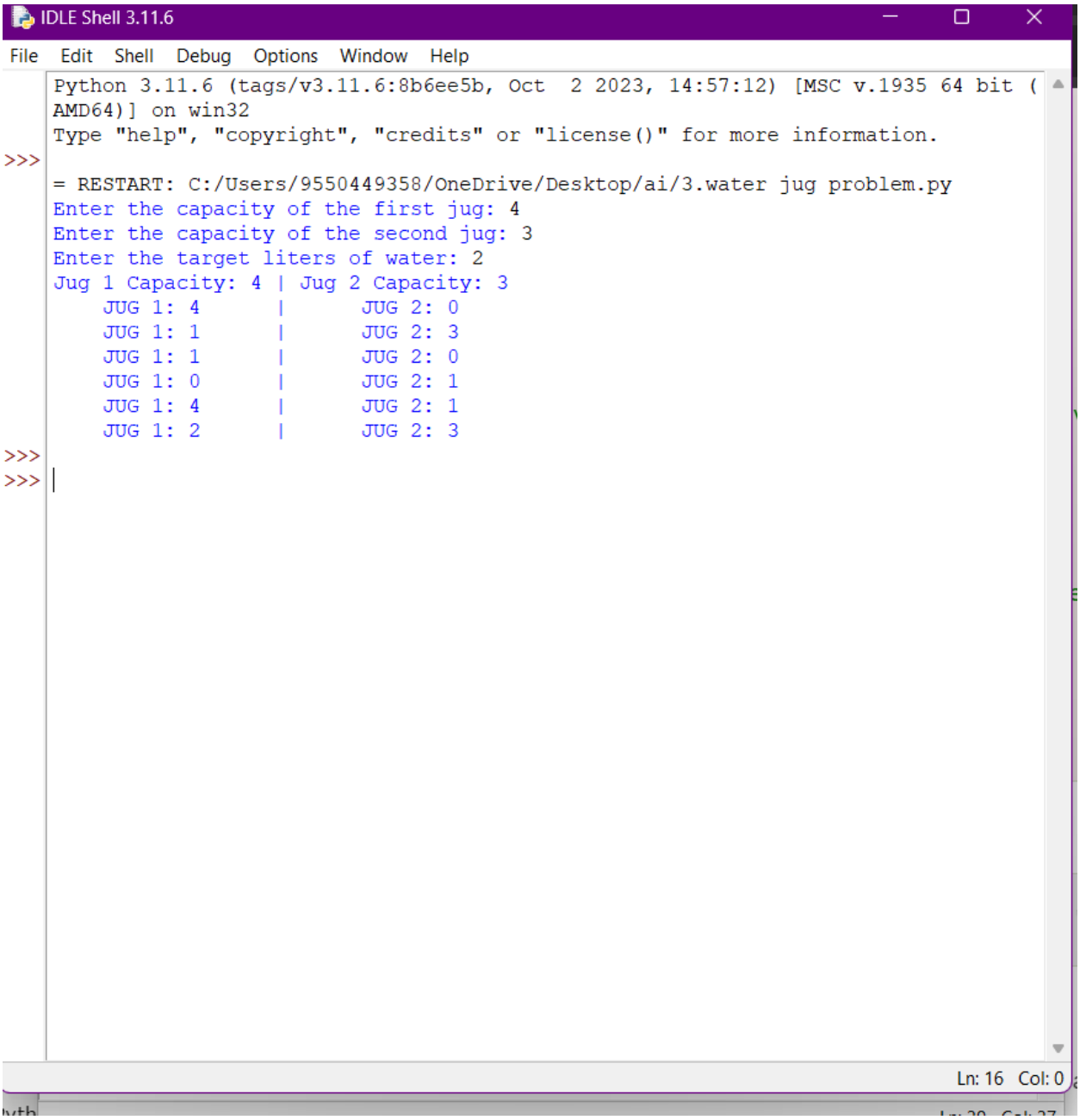
```
def gcd(a, b):
    while b:
        a, b = b, a % b
    return a

def display_state(jug1, jug2):
    print(f"{'JUG 1: ':>11}{jug1:<6} | {'JUG 2: ':>12}{jug2}")

def pour_water(jug1, jug2, capacity1, capacity2):
    pour_amount = min(jug1, capacity2 - jug2)
    jug1 -= pour_amount
    jug2 += pour_amount
    return jug1, jug2

def water_jug_solution(capacity1, capacity2, target_amount):
    jug1 = 0
    jug2 = 0
    print(f"Jug 1 Capacity: {capacity1} | Jug 2 Capacity: {capacity2}")

    while jug1 != target_amount and jug2 != target_amount:
        if jug1 == 0:
            jug1 = capacity1
        elif jug2 == capacity2:
            jug2 = 0
        else:
            jug1, jug2 = pour_water(jug1, jug2, capacity1, capacity2)
        display_state(jug1, jug2)

first_jug = int(input("Enter the capacity of the first jug: "))
```

```
second_jug = int(input("Enter the capacity of the second jug: "))
target_amount = int(input("Enter the target liters of water: "))

if target_amount < first_jug or target_amount < second_jug:
    if target_amount % gcd(first_jug, second_jug) == 0:
        water_jug_solution(first_jug, second_jug, target_amount)
    else:
        print("This is not possible....")
else:
    print("This is not possible....")
```

output


IDLE Shell 3.11.6
File Edit Shell Debug Options Window Help
Python 3.11.6 (tags/v3.11.6:8b6ee5b, Oct 2 2023, 14:57:12) [MSC v.1935 64 bit (
AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/9550449358/OneDrive/Desktop/ai/3.water jug problem.py
Enter the capacity of the first jug: 4
Enter the capacity of the second jug: 3
Enter the target liters of water: 2
Jug 1 Capacity: 4 | Jug 2 Capacity: 3
JUG 1: 4 | JUG 2: 0
JUG 1: 1 | JUG 2: 3
JUG 1: 1 | JUG 2: 0
JUG 1: 0 | JUG 2: 1
JUG 1: 4 | JUG 2: 1
JUG 1: 2 | JUG 2: 3
>>>
>>>
Ln: 16 Col: 0