# Get input values for jug capacities and states

a = int(input("Enter Jug A Capacity: "))

b = int(input("Enter Jug B Capacity: "))

ai = int(input("Initially Water in Jug A: "))

bi = int(input("Initially Water in Jug B: "))

af = int(input("Final State of Jug A: "))

bf = int(input("Final State of Jug B: "))

# Display available operations

print("\nList of Operations You Can Perform:")

print("1. Fill Jug A Completely")

print("2. Fill Jug B Completely")

print("3. Empty Jug A Completely")

print("4. Empty Jug B Completely")

print("5. Pour from Jug A until Jug B is full or Jug A is empty")

print("6. Pour from Jug B until Jug A is full or Jug B is empty")

print("7. Pour all water from Jug B to Jug A")

print("8. Pour all water from Jug A to Jug B")

# Loop until the final state is reached

while (ai != af or bi != bf):

    op = int(input("\nEnter the Operation Number: "))

    if op == 1:

        ai = a  # Fill Jug A

    elif op == 2:

        bi = b  # Fill Jug B

    elif op == 3:

        ai = 0  # Empty Jug A

    elif op == 4:

        bi = 0  # Empty Jug B

    elif op == 5:

        transfer = min(ai, b - bi)  # Amount that can be poured

        ai -= transfer

        bi += transfer

    elif op == 6:

        transfer = min(bi, a - ai)  # Amount that can be poured

        bi -= transfer

        ai += transfer

    elif op == 7:

        ai += bi  # Pour all from Jug B to Jug A

        bi = 0

    elif op == 8:

        bi += ai  # Pour all from Jug A to Jug B

        ai = 0

    else:

        print("Invalid operation! Please enter a number between 1 and 8.")

    print(f"Current State: Jug A = {ai}, Jug B = {bi}")