



Q-3 Write a program to implement DFS Water Jug Problem.

```
def water_jug_dfs (x, y, z):  
    stack = [(0, 0)]  
    visited = set()  
  
    while stack:  
        a, b = stack.pop()  
  
        if (a, b) in visited:  
            continue  
  
        visited.add((a, b))  
  
        if a == z or b == z:  
            print ("Solution found: {a}, {b}")  
            return True  
  
        stack.append((x, b))  
        stack.append((a, y))  
        stack.append((0, b))  
        stack.append((a, 0))  
        stack.append((a - min(a, y - b), b + min(a, y - b)))  
        stack.append((a + min(b, x - a), b - min(b, x - a)))
```




```
print("No solution possible")  
return False
```

```
water_jug_dfs(4, 3, 2)
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS  
PS C:\Users\karan\OneDrive\Desktop\New folder\python\Practical 3> python water_jug.py  
Solution found: 4, 2  
PS C:\Users\karan\OneDrive\Desktop\New folder\python\Practical 3> |
```

W. H. K.
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