```
print("Baban Yadav, 187")
#This () is used to initialize the dict element with the default value
from collections import defaultdict
#Jug 1 and jug 2 for Max capacity in respective jugs and aim is the amt of water to be m
jug1, jug2, aim = 4,3,2

#initialize dictionary with false value
visited = defaultdict(lambda:False)
#amt 1 and amt 2 are the amt of water present in both jugs at a certain point of time
def waterJugSolver(amt1,amt2):
  #check for required goal and return true if achieved
  if(amt1 == aim and amt2 == 0) or (amt2 == aim and amt1 == 0):
    print(amt1,amt2)
    return True
#check if combination already visited or Not if Not then proceed further
  if visited[(amt1,amt2)] == False:
      print(amt1,amt2)
#changes the boolean value of the combination as it is visited
      visited[(amt1,amt2)] = True
#checks for all 6 possibilities and see if a solution is found in any one of them
      return (waterJugSolver(0,amt2) or
              waterJugSolver(amt1,0) or
              waterJugSolver(jug1,amt2) or
              waterJugSolver(amt1,jug2) or
              waterJugSolver(amt1 + min(amt2,(jug1-amt1)),amt2 - min(amt2,(jug1-amt1))) 
              waterJugSolver(amt1 - min(amt1, (jug2-amt2)),amt2 + min(amt1,(jug2-amt2)))
#return false if combination is already visited to avoid repetition or else recursion wi
  else:
      return False

print("Steps: ")

waterJugSolver(0,0)
```

```
Baban Yadav, 187
Steps:
0 0
4 0
4 3
0 3
3 0
3 3
4 2
0 2
True
```

✓ 0s completed at 20:56

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