WATER JUG PROBLEM

NAME: J.L.PUGAZH MUKILAN

REG NO: 22BCE9292 SLOT :L7+L8

1)Solve the water jug problem

CODE:

```
#water jug problem
from collections import defaultdict

jug1 =4
jug2 = 3
aim = 2

#initilizing  the matrix to default False

visited  = defaultdict(lambda : False)

def Solve_Jug( a1,a2):



    if (a1==aim and a2==0)or(a2==aim and a1==0):

        print(a1,a2)
        return True

    if (visited[(a1,a2)]==False) :
        print(a1,a2)
        visited[(a1,a2)] =True

        return( Solve_Jug(0,a2)or Solve_Jug(a1,0) or Solve_Jug(jug1,a2) or
Solve_Jug(a1,jug2) or
                Solve_Jug(jug1,a2-(4-a1)if a2-(4-a1)>=0 else 0) or
Solve_Jug(a1-(3-a2) if a1-(3-a2)>=0 else 0,3)or
                Solve_Jug(a1+a2,0) or Solve_Jug(0,a1+a2))
    else:
        return False
print("Solution: ================================")
Solve_Jug(0,0)
```

OUTPUT:

```
C:\Users\Pugazh Mukilan\Desktop\SEM - 4\Artifical Intellgence - F2\LAB>WaterJug.py
Solution: ================================
0 0
4 0
4 3
0 3
3 0
3 3
4 2
0 2
```