

Program 6

You are given two jugs, a 4-litre one and a 3-litre one. Neither has any measuring markers on it. There is a pump that can be used to fill the jugs with water. How can you get exactly 2 litres of water into 4- litre jug? Implement this using Depth First Search.

```
1 def pour(jug1, jug2):
2     max1, max2, fill = 3, 4, 2 #Change maximum capacity and final capacity
3     print("%d\t%d" % (jug1, jug2))
4     if jug2 is fill:
5         return
6     elif jug2 is max2:
7         pour(0, jug1)
8     elif jug1 != 0 and jug2 is 0:
9         pour(0, jug1)
10    elif jug1 is fill:
11        pour(jug1, 0)
12    elif jug1 < max1:
13        pour(max1, jug2)
14    elif jug1 < (max2-jug2):
15        pour(0, (jug1+jug2))
16    else:
17        pour(jug1-(max2-jug2), (max2-jug2)+jug2)
18
19 print("JUG1\tJUG2")
20 pour(0, 0)
```

Output:

JUG1	JUG2
0	0
3	0
0	3
3	3
2	4
0	2