**AIM:Write a program to implement water jug problem**

**Solution:**

n1=int(input("Enter the capacity of first jug: "))

n2=int(input("Enter the capacity of second jug: "))

n3=int(input("In which jug to be filled :"))

n4=int(input("How much to be filled: "))

class Waterjug:

    def \_\_init\_\_(self,am,bm,a,b,g):

        self.a\_max = am;

        self.b\_max = bm;

        self.a = a;

        self.b = b;

        self.goal = g;

    def fillA(self):

        self.a = self.a\_max;

        print ('(', self.a, ',',self.b, ')')

    def fillB(self):

        self.b = self.b\_max;

        print ('(', self.a, ',', self.b, ')')

    def emptyA(self):

        self.a = 0;

        print ('(', self.a, ',', self.b, ')')

    def emptyB(self):

        self.b = 0;

        print ('(', self.a, ',', self.b, ')')

    def transferAtoB(self):

        while (True):

            self.a = self.a - 1

            self.b = self.b + 1

            if (self.a == 0 or self.b == self.b\_max):

                break

        print ('(', self.a, ',', self.b, ')')

    def main(self):

        while (True):

            if (self.a == self.goal or self.b == self.goal):

                break

            if (self.a == 0):

                self.fillA()

            elif (self.a > 0 and self.b != self.b\_max):

                self.transferAtoB()

            elif (self.a > 0 and self.b == self.b\_max):

                self.emptyB()

def pour(jug1, jug2):

       max1, max2, fill = n1, n2, n4

       print("%d\t%d" % (jug1, jug2))

       if jug2 is fill:

         return       elif jug2 is max2:

          pour(0, jug1)

       elif jug1 != 0 and jug2 is 0:

          pour(0, jug1)

       elif jug1 is fill:

         pour(jug1, 0)

       elif jug1 < max1:

        pour(max1, jug2)

       elif jug1 < (max2-jug2):

        pour(0, (jug1+jug2))

       else:

        pour(jug1-(max2-jug2), (max2-jug2)+jug2)

print("JUG1\tJUG2")

if(n3==2):

    pour(0, 0)

elif(n3==1):

  print ('(', '0',',', '0', ')')

  waterjug=Waterjug(n1,n2,0,0,n4);

  waterjug.main();

**OUTPUT:**

