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AI LAB TEST - 1

Q-2 You are given 2 jugs, a 4 litre one & a 3 litre one. Neither has any measuring marker 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 using DFS

⇒

```
def main()
Starting_node = [[0,0]]
  jugs = set_jugs()
  goal amount = set
  check_dict = {}
    is_depth = True
search( starting_node, jugs, goal_amount, check_dict,
      is_depth)

def set_index(node):
return pow(7, node[0]) * pow(5, node[1])

  def get_jugs()
  print("ask for volume of jugs")
    jugs = []
  temp = int(input("enter first jug volume : "))
    while temp < 1:
      temp = int( input("enter valid amount : "))
    jugs. append. (temp)

  temp = int(input("enter second jug volume : "))
  while temp < 1:
  temp = int(input("enter valid amount : "))
  jugs. append (temp)
  return jugs
```


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```
def get_goal(jugs)
print("recieving the desired amount of water")
  max_amount = max(jugs[0], jugs[1])
  s = "enter desired amount of water (1-{0}): "
  goalamount = int(input(s))
  while goal_amount < 1 or goal_amount > max_amount
goal_amount = int(input("enter valid amount (1-{0}): ")
  return goal_amount

def is_goal(path, goal_amount):
  print("check of goal achieved or not")
return path[-1][0] == goal_amount or path[-1][1] == goal_amount

def been_there(node, check_dict):
print("Check of {0} is visited before or not".format(node))
  return check_dict.get(get_index(node), false)

def next_transitions(jugs, path, check_dict):
print("finding the next transition & check for loops")
    result = []
    next_nodes []
      node[]
      a_max = jugs[0]
      b_max = jugs[1]
a = path[-1][0]          # initial amount in first jug
b = path[-1][0] or       #  =  =  = second jug
#① fill the 1st jug      #⑤ empty first jug
#② fill the second jug   #⑥ empty second jug
#③ pour to first jug     #⑦ create a list of next paths
#④ first to second jug
```