# 437. Path Sum III

## SOLUTION IN PYTHON 3

class Solution(object):

def pathSum(self, root, target):

# define global result and path

self.result = 0

cache = {0:1}

# recursive to get result

self.dfs(root, target, 0, cache)

# return result

return self.result

def dfs(self, root, target, currPathSum, cache):

# exit condition

if root is None:

return

# calculate currPathSum and required oldPathSum

currPathSum += root.val

oldPathSum = currPathSum - target

# update result and cache

self.result += cache.get(oldPathSum, 0)

cache[currPathSum] = cache.get(currPathSum, 0) + 1

# dfs breakdown

self.dfs(root.left, target, currPathSum, cache)

self.dfs(root.right, target, currPathSum, cache)

# when move to a different branch, the currPathSum is no longer available, hence remove one.

cache[currPathSum] -= 1