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Assignment: U8C1 Group Sum - isGroupSum()

Description: A program that creates a function called isGroupSum(lst, s, t) with 3
arguments inside the parameters that would determine if a group of some of the integers
sums to the given target and return True or False, calculated recursively

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# isGroupSum(lst: list, s: int, t: int): bool

def isGroupSum(lst, s, t):
    """isGroupSum function that returns True or False if a group of some of the
    integers in the list sums to the given target"""

    # base condition to check whether the starter index, s, is past the end of list
    if s == len(lst):
        # if the target by this point has changed to 0, return True, or else return False
        if t == 0:
            return True
        else:
            return False

    # recursive calls check all possibilities and returns True if a combination sums to
    # target calculated by target - appropriate elements until base condition is met = 0
    elif isGroupSum(lst, s + 1, t - lst[s]) == True:
        return True
    elif isGroupSum(lst, s + 1, t) == True:
        return True

    return False

# Code to test the isGroupSum() function

def testCode():
    # opens the specified file for reading input from
    inputData = open("datafile.txt")
    # reads the number of test cases
    T = int(inputData.readline())

    for i in range(T):
        # N supposed to be # of elements in list but this info already given in datafile
        # this line is mostly here just to skip over and allow the correct list to be read
        N = inputData.readline()

        # list comprehension from the next line in the datafile

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lst = [int(x) for x in inputData.readline().split()]
# target value indicated from the next line in the datafile
t = int(inputData.readline())

print(isGroupSum(lst, 0, t))

inputData.close()

testCode()

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OUTPUT FOR THE PROGRAM:

False
True
True
True
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