

Problem

Submissions

Leaderboard

Discussions

Editorial

Tutorial

HackerRank

Prepare

>

Python

>

Basic Data Types

>

List Comprehensions

Exit Full Screen View

Let's learn about list comprehensions! You are given three integers x, y and z representing the dimensions of a cuboid along with an integer n . Print a list of all possible coordinates given by (i, j, k) on a 3D grid where the sum of $i + j + k$ is not equal to n . Here, $0 \leq i \leq x; 0 \leq j \leq y; 0 \leq k \leq z$.

Please use list comprehensions rather than multiple loops, as a learning exercise.

Example

$x = 1$
 $y = 1$
 $z = 2$
 $n = 3$

All permutations of $[i, j, k]$ are:
[[0, 0, 0], [0, 0, 1], [0, 0, 2], [0, 1, 0], [0, 1, 1], [0, 1, 2], [1, 0, 0], [1, 0, 1], [1, 0, 2], [1, 1, 0], [1, 1, 1], [1, 1, 2]].

Print an array of the elements that do not sum to $n = 3$.
[[0, 0, 0], [0, 0, 1], [0, 0, 2], [0, 1, 0], [0, 1, 1], [1, 0, 0], [1, 0, 1], [1, 1, 0], [1, 1, 1], [1, 1, 2]].

Input Format

Four integers x, y, z and n , each on a separate line.

Constraints

Print the list in lexicographic increasing order.

Sample Input 0

1
1
1
2

Sample Output 0

[[0, 0, 0], [0, 0, 1], [0, 1, 0], [1, 0, 0], [1, 1, 1]]

Explanation 0

Each variable x, y and z will have values of **0** or **1**. All permutations of lists in the form
 $[i, j, k] = [[0, 0, 0], [0, 0, 1], [0, 1, 0], [0, 1, 1], [1, 0, 0], [1, 0, 1], [1, 1, 0], [1, 1, 1], [1, 1, 2]]$.

Remove all arrays that sum to $n = 2$ to leave only the valid permutations.

Sample Input 1

2
2
2
2

Sample Output 1

[[0, 0, 0], [0, 0, 1], [0, 1, 0], [0, 1, 2], [0, 2, 1], [0, 2, 2], [1, 0, 0], [1, 0, 1], [1, 0, 2], [1, 1, 0], [1, 1, 1], [1, 1, 2], [1, 2, 0], [1, 2, 1], [1, 2, 2], [2, 0, 0], [2, 0, 1], [2, 0, 2], [2, 1, 0], [2, 1, 1], [2, 1, 2], [2, 2, 0], [2, 2, 1], [2, 2, 2]]

Change Theme

Language

Python 3

1

2

3

4

5

6

7

if __name__ == '__main__':
 x = int(input())
 y = int(input())
 z = int(input())
 n = int(input())
 print([[i,j,k]for i in range(x+1)for j in range(y+1)for k in range(z+1)if i+j+k!=n])

Line: 7 Col: 1

Upload Code as File

Test against custom input

Run Code

Submit Code

Test case 0

Test case 1

Test case 2

Test case 3

Test case 4

Test case 5

Test case 6

Compiler Message

Success

Input (stdin)

Download

11
21
31
42

Expected Output

Download

1[[0, 0, 0], [0, 0, 1], [0, 1, 0], [1, 0, 0], [1, 1, 1]]