165. Given four lists A, B, C, D of integer values,Write a program to compute how many tuples n(i, j, k, l) there are such that A[i] + B[j] + C[k] + D[l] is zero.

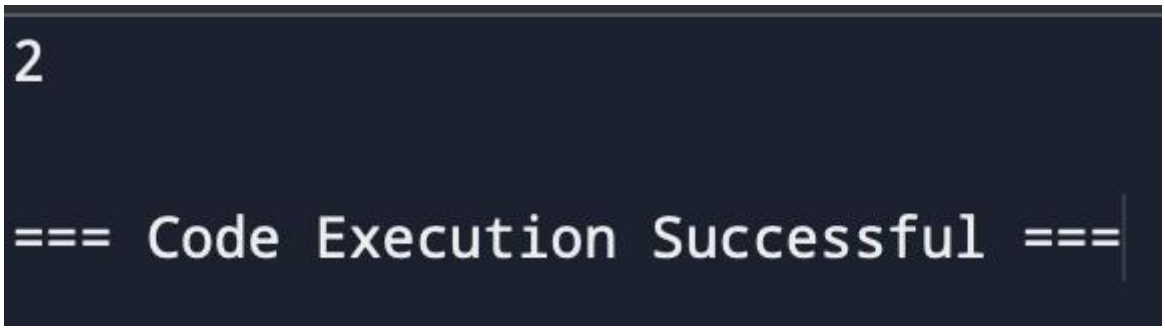
(i) **Input**: A = [1, 2], B = [-2, -1], C = [-1, 2], D = [0, 2]
Output: 2

(ii) **Input**: A = [0], B = [0], C = [0], D = [0]
Output: 1

PROGRAM :-

```
from collections import defaultdict

def zero_sum_tuples(A, B, C, D):
    sum_dict = defaultdict(int)
    count = 0

    for a in A:
        for b in B:
            sum_dict[a + b] += 1

    for c in C:
        for d in D:
            count += sum_dict[-(c + d)]

    return count

# Test the function
A = [1, 2]
B = [-2, -1]
C = [-1, 2]
D = [0, 2]
print(zero_sum_tuples(A, B, C, D))  # Output: 2
```

OUTPUT:-



TIME COMPLEXITY:-O(n^2)