

**60) 1442. Count Triplets That Can Form Two Arrays of Equal XOR Given an array of integers arr.**

We want to select three indices i, j and k where  $(0 \leq i < j \leq k < \text{arr.length})$ .

Let's define a and b as follows:

- $a = \text{arr}[i] \oplus \text{arr}[i + 1] \oplus \dots \oplus \text{arr}[j - 1]$
- $b = \text{arr}[j] \oplus \text{arr}[j + 1] \oplus \dots \oplus \text{arr}[k]$

Note that  $\oplus$  denotes the bitwise-xor operation.

Return the number of triplets (i, j and k) Where  $a = b$ .

Example 1:

Input:  $\text{arr} = [2, 3, 1, 6, 7]$

Output: 4

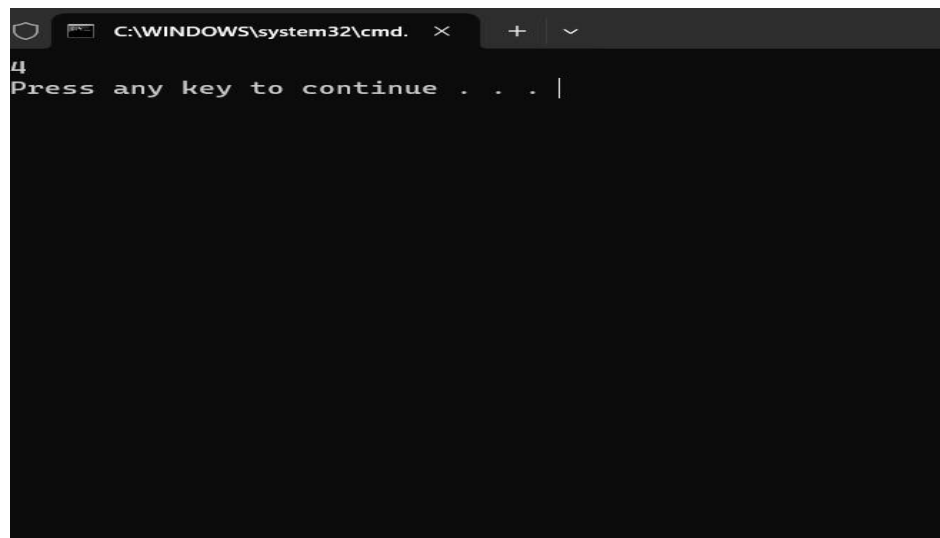
Explanation: The triplets are (0,1,2), (0,2,2), (2,3,4) and (2,4,4)

CODE:

```
def countTriplets(arr):
    n = len(arr)
    prefix_xor = [0] * (n + 1)
    count = 0
    for i in range(n):
        prefix_xor[i + 1] = prefix_xor[i] ^ arr[i]
        for j in range(i + 1, n + 1):
            if prefix_xor[i] == prefix_xor[j]:
                count += j - i - 1
    return count
```

```
arr = [2, 3, 1, 6, 7]
print(countTriplets(arr))
```

OUTPUT:



TIME COMPLEXITY :  **$O(n^2)$**