Logo

STUDENT REPORT

DETAILS

Name

G.MOHIT

Roll Number

KUB23CSE039

EXPERIMENT

Title

SUM OF NUMBERS AT PRIME FACTORS

Description

Prime factors of a positive integer are the prime numbers that divide that integer exactly.

Given an array arr of n integers and a positive integer num.

Let's suppose prime factorization of num is: p^a x q^b x r^c x .... x z^f ,where p,q,r...z are prime numbers.

Sum of numbers in array arr at indices of prime factors of number num is: a x arr[p] + b x arr[q] + c x arr[r] +...... + f x arr[z].

You are given an array arr of size n and a positive integer num. You are required to calculate the sum of numbers in arr as mentioned above, and print the same.

Note:

- If arr is empty, print -1.
- If prime factor of num not found as indices, print 0.

Input Format:

The input consists of three lines:

- The first line contains an integer, i.e. n.
- The second line contains an array arr of length of n.
- The third line contains an integer num

The input will be read from the STDIN by the candidates.

Output Format:

Print the sum that was mentioned in the problem statement.

Example:

Input:

6

11 21 32 45 1 23

6

Output:

77

Explanation:

$6=2^1$ x 3^1

sum=1*arr[2]+1*arr[3]=1*32+1*45=77

Source Code:

```
from collections import defaultdict

def prime_factors(num):
    factors=defaultdict(int)

    while num%2==0:
        factors[2]+=1
        num//=2
    for i in range(3,int(num**0.5)+1,2):
        while num % i==0:
            factors[i]+=1
            num//=i
    if num>2:
        factors[num]+=1

    return factors

def calculate_prime_index_sum(arr, num):
    if not arr:
        return -1

    factors=prime_factors(num)
    total_sum=0
    valid_prime_found=False

    for prime,power in factors.items():
        if prime
```

RESULT

4 / 5 Test Cases Passed | 80 %