

ADACON - Ada and Connections

Term Project

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CS3201 Algorithm Design 2/2018

Definition

32029. ADACON - Ada and Connections SPOJ

Concept Difficulty: 17

Time limit: 2s

Memory limit: 1536MB

Description

Ada the Ladybug was on a trip with her friends. They each bought a souvenir there. As all of them are mathematicians, everybody bought a number. They want to modify the numbers to have some connection between each other. They have decided to modify the numbers so they would have their **GCD** greater than 1 ($\text{gcd}(a_1, a_2, a_3, \dots, a_N) > 1$). Anyway it is not easy to change a number - the only thing they can do is to go to a professor in mathematics, which could forge a number **A** into number **A+1** or **A-1**. As this operation is not cheap, they want to minimize number of such operations. A number might be forged any number of times.

NOTE: $\text{gcd}(a, 0) = a$ (so gcd of two 0 is also 0)

I/O

Input

The first line contains an integer $1 \leq N \leq 3 \cdot 10^5$, the number of friend who were on trip (and also the number of numbers).

The second line contains N integers $0 \leq a_i \leq 10^6$

Output

Print a single line with minimum number of operations to make a connection between all numbers.

Sample

Input	Output
5	2
3 9 7 6 3 1	

Input	Output
5	5
7 7 11 17 1	

Input	Output
9	6
3 4 5 7 8 9 11 12 13	

Code


```
4 t = int(input())
5 n = [0]*t
6 line = input().split(' ')
7 for i in range(len(n)):
8     n[i] = int(line[i])
9
10 def computeGCD(x, y):
11     while(y):
12         x, y = y, x % y
13
14     return x
```

Create a method to find
GCD of the input list

```
16 def adacon(a,n):
17
18     even = [False]*n
19     ans = 0
20
21     for i in range(n):
22         ans = computeGCD(ans, a[i])
23         if a[i]%2 == 0:
24             even[i] = True
25
26     if ans > 1:
27         print(0)
28     else:
29         ans = 0
30         if all(i==0 for i in a ):
31             ans = 2
32         elif all(i == False for i in even):
33             ans = n
34         else:
35             x = a[0]
36             if x == 0:
37                 ans += even.count(False)
38             else:
39                 for i in range(1,n):
40                     if a[i]%x >= 1:
41                         ans += 1
42         print (ans)
43
44 adacon(n,t)
```

Count the time
where
the program have to
perform a operation
and print out the
result

Test Result

ID	DATE	USER	PROBLEM	RESULT	TIME	MEM	LANG
23738015	2019-05-09 05:08:40	Zong	Ada and Connections	running.. (15) edit ideone it		-	PYTHON3

ID	DATE	USER	PROBLEM	RESULT	TIME	MEM	LANG
23738015	2019-05-09 05:08:40	Zong	Ada and Connections	wrong answer edit ideone it	0.02	28M	PYTHON3

Might not passed due to a possible problem with type by Python