Ada and Connections

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 sou they would have their **GCD** greater than 1 (**gcd($a_1,a_2,a_3,...,a_N$)>1**). Anyway it is not easy to change a number - the only thing they can do is to go to a proffesor 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: **gcd(a,0)==a** (so gcd of two 0 is also 0)

Input

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

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

Output

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

Example Input

```
5
3 9 7 6 31
```

Example Output

```
2
```

Example Input 2

```
9
3 4 5 7 8 9 11 12 13
```

Example Output 2

```
6
```

Example Input 3

```
5
7 7 11 17 1
```

Example Output 3

```
5
```