

Given a positive integer X , we want to find the shortest interval $[A,B]$ with X contained within it, Where also, A and B are primes numbers.

Input

The first line of input contains an integer M ($1 \leq M \leq 100$). M lines follow, each with a number X ($1 < X \leq 10^5$).

Output

M lines containing A and B ($1 < A \leq B \leq 10^6$), $B-A \leq 10^4$.

Sample Input

```
2
2
4
```

Sample Output

```
2 2
3 5
```