Infinite number of Lucas primes

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If we do the summation between two Fibonacci numbers as follows:

$$\sum_{n=F(x-1)}^{F(x+1)} n$$

We arrive sooner or later to obtain a Lucas prime in the prime factors of that sum.

For example when we do the summation of (n) between F (18) to F (20) the largest factor of this sum is the Lucas (19), which is prime.

I will not expand with more examples just to emphasize that I have verified all the numbers that I have been able to calculate by this method . The last Lucas prime that I have found was Lucas (313), which is the biggest prime factor of the result of the summation between Fibonacci (312) to Fibonacci (313)

What I try to prove is that if there are infinite number of Fibonacci primes and infinitely many prime numbers it is logical to think that when we do the summation with higher Fibonacci numbers in the way

described above, a new prime factor greater than the previous Lucas prime will appear. And it seems that these new and larger prime factor than the previous Lucas prime is allways a new Lucas prime.

So there would be infinite infinite number of Fibonacci primes