

CS 400 HW 1, Quadratic primes

This question is adopted from Project Euler Question 27. (<https://projecteuler.net/problem=27>)

The quadratic formula $n^2 + n + 41$ will produce 40 primes for consecutive integer values $0 \leq n \leq 39$. However, when $n = 40$, this formula will not generate a prime number.

Another interesting quadratic formula $n^2 - 79n + 1601$ produces 80 prime numbers for consecutive values $0 \leq n \leq 79$.

The Question: find a and b such that when $-999 \leq a \leq 999$ and $-1000 \leq b \leq 1000$, the quadratic form $n^2 + a \times n + b$ produces the maximum number of primes for consecutive values of n , starting with $n = 0$.

Requirement:

- Print the 40 primes generated by formula $n^2 + n + 41$
- Print the 80 primes generated by formula $n^2 - 79n + 1601$
- Write a function that takes in an integer and returns whether the given number is prime or not.
- Output the value of a , b and how many consecutive values of n (count the starting zero!) can be generated.
- Submit your .cpp through blackboard.