**6 kyu**

**Dominant primes**

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Python

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The prime number sequence starts with: 2,3,5,7,11. Notice that 2 is in position one.

3 occupies position two, which is a prime-numbered position. Similarly, 5 and 11 also occupy prime-numbered positions. We shall call primes such as 3,5,11 dominant primes because they occupy prime-numbered positions in the prime number sequence.

As you can see, for the prime range range(0,10), there are only two dominant primes (3 and 5), which occupy prime-numbered positions 2 and 3 in the prime number sequence, and the sum of these primes is: 3 + 5 = 8.

Given a range (a,b), what is the sum of dominant primes within that range? Note that a <= range <= b and b will not exceed 500000.

Good luck!

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**def** solve(a,b):

*# Create a boolean array "prime[0..n]" and initialize*

*#  all entries it as true. A value in prime[i] will*

*# finally be false if i is Not a prime, else true.*

    prime = [True **for** i **in** range(b+1)]

    p = 2

**while** (p \* p <= b):

*# If prime[p] is not changed, then it is a prime*

**if** (prime[p] == True):

*# Update all multiples of p*

**for** i **in** range(p \* p, b+1, p):

                prime[i] = False

        p += 1

    pos = 1

    suma = 0

*# Print all prime numbers*

**for** p **in** range(2, b+1):

        '''

       if prime[p]:

           print p,

       '''

**if**(prime[p] == True):

**if**(p > a):

**if**(prime[pos] == True):

                    suma += p

            pos += 1

**return** suma

**print** (solve(4000, 450000))