E5 – P19

Given a positive integer n and two distinct prime numbers p_1 and p_2, where $p_1 < p_2$, we call the two prime numbers "rhyming primes" with respect to n if both prime numbers have the same distance to n (distance means the number of integers in between two numbers), that is if $n - p_1 = p_2 - n$. For example, there 3 rhyming prime pairs with respect to n = 20 as (3, 37), (11, 29) and (23, 17).

Develop a Python program to compute the number of rhyming prime pairs for a given positive integer n. The input to the program is the name of a file that contains several n, one in each line. The number of rhyming prime pairs for each n in the input should be output to the screen and to a file named "Output.txt".

Special requirement: You must define at least 2 functions and use them in your code.

Format:

Input:	input_file (Each line of the input file will contain a positive integer n)
Output:	Display on screen and write to the output file named "Output.txt", in each line in the output, the number of rhyming prime pairs for each n in the input.

Sample:

Case 1

Input:	test_data1.txt
Content:	20 1000
Output:	On screen and in output file
Content:	3 37