EECS 221 Embedded Systems Programming in C

Assignment III

Due To: 1.12.2019 23:55

In this assignment, you will refer to Assignment II and make modifications on is_prime and is_twin_prime functions. Before calling the functions, you will find all prime numbers between 2-100 and put them in an array. You can assign 2 as the initial element of the array, so array[0]=2, and then test for the remaining numbers between 3-100.

While finding whether a number is prime or not, you will test all prime numbers that are smaller than the number you are testing. For this purpose, you need to store all prime numbers in an array and use this array in the functions. If you find out that a number is prime, you should also add that number to the array.

Following function/s from Assignment II should be updated accordingly.

1) Write a function called is_prime which takes two parameters: an integer number to check whether the integer is prime or not, and the array that holds all prime numbers between 2-100. (a prime number is a number which is divisible by only 1 and itself. 2 is prime, 1 is not prime) If the integer is prime, your function will return 1, otherwise it will return 0.

2) Write a function called is_twin_prime which takes two parameters: an integer n to print all twin primes that are all less than n, and the array holding all prime numbers between 2-100. This function will not return any value but will just print all twin prime numbers less than n.

** You will write one program that asks the user to enter an integer number, and then your program will call is_prime to test whether the number is prime or not. Your program will also call is_twin_prime to print all twin prime numbers lass than your input. The input number should be between 2-100, no other number should be entered. If the user enters an invalid number, your program should ask the user to enter a valid number. Your outputs should be the same as shown in the following examples

Ex 1:

Please enter a number: 7

7 is a prime number.

All twin prime numbers less than 7 are:

5-3

Ex 2:

Please enter a number: 12

12 is not a prime number.

All twin prime numbers less than 12 are:

7-5

5-3

Ex 3:

Please enter a number: 120

You have entered a number that is not valid. Please enter a number between 2 and 100.

Please enter a number: 3

3 is a prime number.

No twin prime numbers less than 3 exist.