

Programming & Data Structures: Lab. Test 1

Section 01: May 04, 2022

Time: 1 hour

Full marks = 100

Instructions

1. **Give meaningful comments to explain the functionality of the method used in your programs.** Comments and proper indentation carry credits.
 2. Write a “printf” statement corresponding to each “scanf” statement.
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You must write a C program for the following problem.

You may use arrays.

You are given a positive integer N as input.

(1) Determine the number d of digits in N and print this value.

(2) You must print 1-digit, 2-digit, 3-digit, ..., d -digit integers constructed from consecutive digits in N . As illustrated in the example for $N = 3672$. The output must be

3, 6, 7, 2, 36, 67, 72, 367, 672, 3672

For $N = 234$ the output must be

2, 3, 4, 23, 34, 234

For $N = 34$ the output must be

3, 4, 34

(3) For all the integers printed in item (2), determine and print all the pairs that are mutually prime. For $N = 3672$, (7,36) and (72,67) are mutually prime.

(4) Determine and print all the prime numbers printed in item (2). For $N = 234$, 23 is a prime.