

ECE 175: Computer Programming for Engineering Applications

Lab 3

Topics: nested loop and File I/O

Demo to TA or ULA your code for each problem by the end of your lab session in order to earn your lab 3 score.

Problem 1 (15 points):

Write a C program that lets a user enter a number between 1 and 20 and one character and display the following output pattern. Your program should make sure that a user enters only a positive number between 1 and 20.

Hint: Nested loops should be used.

Note: Your code must work for any user input from 1-20. If you hard-code the pattern in your program, you will get 0 point for this problem.

Sample code execution 1: **Bold text** indicates information entered by a user

Enter only integer 1-20: **25**

Enter only integer 1-20: **-2**

Enter only integer 1-20: **0**

Enter only integer 1-20: **4**

Enter one character: **@**

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From the output pattern above,

first row, 0 space then 7 of @ are displayed

second row, 1 space then 5 of @ are displayed

third row, 2 spaces then 3 of @ are displayed

fourth row, 3 spaces then 1 of @ is displayed

Sample code execution 2: **Bold text** indicates information entered by a user

Enter only integer 1-20: **9**

Enter one character: **\$**

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Problem 2 (15 points):

Write a C program that read values of distance in inches from a file called "dist.txt" and convert it to yard, feet, and inch (in this order).

Note: 1 yard = 3 feet and 1 foot = 12 inches.

Given data in "dist.txt" 63 150 12 29 0 36 10 89

(you have to create this text file before running your program)

Sample code executions: **If any of the units is equal to zero, it should not be printed.**

63 Length: 1 yards 2 feet 3 inches

150 Length: 4 yards 6 inches

12 Length: 1 feet

29 Length: 2 feet 5 inches

0

36 Length: 1 yards

10 Length: 10 inches

89 Length: 2 yards 1 feet 5 inches