LAB 1 — Introduction to C and Basic I/O

Submit the solutions, C programs, to the following two problems under the "labtest" mode in the lab sessions on Friday, Sept. 16 and Monday, Sept. 19. The submitted programs will not be graded, but they will be available for your reference during lab tests 1 and 2.

1. Problem A

1.1 Specification

Write a C program to convert measurements from inches to centimetres (1 inch = 2.54 cm). The program reads a measurement in inches and outputs the equivalent measurement in centimetres. It then continues to read and convert the next measurements until a zero is entered.

1.2 Implementation

The program should:

- be named `lab1a.c`
- use a loop to read and convert one input at a time. The loop ends and the program terminates when the input is zero.
- display before each input the following prompt:

  `Enter the measurement in inches>`
- use `scanf` to read inputs, which are measurements in inches, of type `float`.
- display the outputs in centimetres with two decimal digits.

1.3 Sample Inputs/Outputs:

```
indigo 336 % lab1a
Enter the measurement in inches>2
5.08 cm
Enter the measurement in inches>5.5
13.97 cm
Enter the measurement in inches>10.765
27.34 cm
```

```
Enter the measurement in inches>0
indigo 337 %
```

2. Problem B

2.1 Specification

Write a C program to count the number of blank characters (white spaces) in a line of characters. The program reads from the standard input a line of characters and outputs the number of blank characters found in the line.

2.2 Implementation

The program should:

- be named `lab1b.c`
- use `getchar` and a loop to read a line of characters which is terminated by the new line character '`\n`'.
- display the following prompt before each input:

  ```
  Enter a line of characters>
  ```

2.3 Sample Inputs/Outputs:

```
indigo 352 % lab1b
Enter a line of characters>Welcome to CSE 2031.
3
indigo 353 % lab1b
Enter a line of characters>123456789
0
indigo 354 % lab1b
Enter a line of characters>a b c d e f g h
7
indigo 355 %
```

3. Common Notes

All submitted files should contain the following header:

```
/**************************************
*     CSE2031 – Lab1                  *
*     Filename:  Name of file         *
*     Author: Last name, first name   *
*     Email: Your email address       *
*     cs_num: Your cs number          *
**************************************/
```

In addition, all programs should follow the following guidelines:

- Include the `stdio.h` library in the header of your `.c` files.
- Use `printf` to print texts and outputs according to the required formats.
- End each output result with a new line character '`\n`'.
- **Assume that all inputs are valid (no error checking is required).**