LAB 6 — Arrays and Pointers

Problem Description

1. Specification

Write a C program that contains two functions, one to input two *non-empty* strings and the other to compare them. The comparison returns an integer that indicates the ***first*** position (array index) where the two strings differ. Write a main function to input two strings and output the result of the second function.

2. Implementation

- The program to be submitted is named `lab6.c`

- For the first function, use `getchar` and a loop to read a line of characters, and store the input characters into the array. The loop terminates when a new line character '\n' is entered. The new line character '\n' is NOT part of the line (i.e., discard the new line character '\n').

- The second function returns an integer that indicates the ***first*** position (array index) where the two strings differ. Consider the following two special cases:

    o Two strings are equal. In that case the return value is –1.

    o One string is a substring of the other (e.g., CSE2031 and CSE2031E3.0). In that case, the return value is the length of the shorter string (i.e., the index of the null character in the shorter string).

- In both functions, **do not use array indexing** such as `s[i]`. **Use only pointers and address arithmetic** to manipulate the array elements.

3. Sample Inputs/Outputs

```
indigo 51 % lab6

This is CSE2031.

CSE2031E3.0

0

indigo 52 % lab6

I'll go now.

I will go soon.

1
```

```
indigo 53 % lab6

This is 2031.

This is 2011.

10

indigo 54 % lab6

abc

abc

-1

indigo 55 % lab6

CSE2031

CSE2031E3.0

7

indigo 56 % lab6

It is going to snow tomorrow.

It is going to rain tonight.

15
```

Common Notes

All submitted files should contain the following header:

```
/*************************************

*    CSE2031 – Lab6                 *

*    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 text and outputs according to the required formats.

- End each output result with a new line character '\n'.

- Do not use any C library functions except `getchar(), putchar(), scanf() and printf().`

- **Assume that all inputs are valid (no error checking is required on inputs).**