

CS1050 – Prelab 9

Fall 2021

Concepts to Practice

- Pointers
- Strings

Description

For the prelab assignment, you need to implement a program that gets a string from the user and manipulates that string.

You may not use `strlen()` nor any of the other string function from `string.h` in the Standard C Library. You must use pointer arithmetic to move through any arrays (strings are arrays) in the program – not the index operator `[]`.

The `main()` function in your program should:

1. Print a message welcoming the user to Prelab 9.
2. Call a function (written by you) to get a string from the user.
3. Call a function (written by you) to get the length of the string that the user entered.
4. Print the string the user entered, as well as the length of that string.
5. Call a function (written by you) to reverse the string “in place” (using the same storage that had the original string in it). For example, “JimRies” should become “seiRmiJ”.
6. Call your function to get the length of the modified string.
7. Print the string that has been changed, as well as the length of that string.
8. Print a message thanking the user.

Note that you may assume no string will be larger than 255 characters (256 with space for the null-terminator).

Functions You Must Write

You may write any functions you wish to implement this program. At this point in the semester, it is up to your creativity to define the prototypes and to implement the functions. However, you will need functions that do the following:

- A function that prompts the user and then reads a string (with no spaces and no newlines in it) from the user. The function must pass this string back to the caller somehow, or...maybe the caller should provide space to store the string somehow?
- A function that returns the number of characters (not counting the null terminator) in the string that is passed in.
- A function that reverses the string.
- You are probably going to need to write a `main()` 😊. In your `main()`, if I were you, I would probably just declare variables, call `printf()` for some headings, and call the functions that you write.

Sample Output (from running the program 2 times)

```
jimr@JimRArea51:~/CS1050/FS2021/labs/lab9$ ./a.out
*** welcome to Prelab 9 ***
Please enter a string: OliverMarmol
You entered: OliverMarmol
That string is 12 in length.
The reversed string is: lomraMrevilo
That string is 12 in length.
*** Thanks for doing Prelab 9 ***
```

```
jimr@JimRArea51:~/CS1050/FS2021/labs/lab9$ ./a.out
*** welcome to Prelab 9 ***
Please enter a string: AdamWainwright
You entered: AdamWainwright
That string is 14 in length.
The reversed string is: thgirwniawmada
That string is 14 in length.
*** Thanks for doing Prelab 9 ***
```