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Guided Exercise 01

Closed Book; Closed Notes; Time Given=Lab Duration (Sep 5th, 2024)

"By proceeding I certify that I have neither received nor given unpermitted aid on this assignment and that I have reported all such incidents observed by me in which unpermitted aid is given."

1 Task 1: Manipulate Strings in C

Objective: Write a C program that performs various string manipulation tasks such as replacing particular character, reversing a string, and counting the number of vowels.

Instructions:

We have already initialised a c-string of 100 characters for you. The file is already made for you in the exercise folder. Your task is to populate it and perform the following operations:

1. Prompt the User for a String:
   - Ask the user to input a string and fill the c-string. You may use *strlen()* function to find length of the c-string.
2. Reverse the String:
   - Write a function to reverse the input string.
3. Replace all instances of any specific character in the string.
   - Write a function to replace all instances of any specific character in the string.
4. Count the Number of Vowels:
   - Write a function to count the number of vowels in the input string.
     Hint: Look at ASCII values.
5. Convert the string to uppercase.
   - Write a function to convert the string into uppercase. You are not allowed to use toupper() function.
     Hint: Look at ASCII values.

Testing: Please ensure that your code gives the following output on these cases:

- **Input:** eman
  Reversed: name
  Uppercase: NAME
  Number of vowels: 2
- **Input:** CS200
  Reversed: 002SC
  Uppercase: 002SC
  Number of vowels: 0

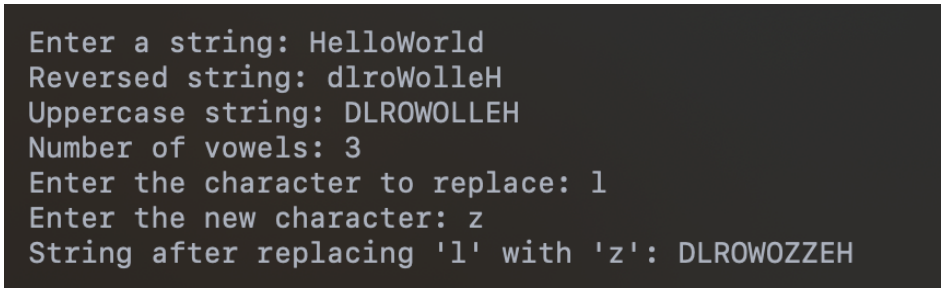

Figure 1: Output Example

- **Input:** HeLlOwOrLD
  Reversed: DLrOwOlLeH
  Uppercase: DLROWOLLEH
  Number of vowels: 3

2 Task 2: Print a Right Angle Triangle in C

Instructions:

1. Prompt the User for the Height:

- Ask the user to input the height of the triangle using *scanf()*.

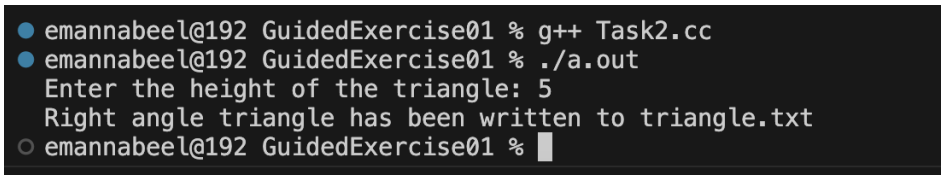

Figure 2: Input Example

2. Print the Right Angle Triangle to a File:

- Use nested loops to print a right angle triangle with the given height into a text file *"Triangle.txt"* already present in your exercise folder.

Example of input and output is given below.
BEST OF LUCK!!!

Figure 3: Output Example