॥वसुधैव कुटुम्बकम्॥

SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE

Constituent of Symbiosis International (Deemed University), Pune

Assignment No.: 08	
Course Name	Programming in C Lab
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Branch	CSE
Class	C-1
Academic Year & Semester	2023-2024 & Semester 2
Date of Performance	29/03/2024
Assignment Title (Full):	Write a C program to accept a string from console and to display the following on console (without using built-in functions): (a) Length of the string (b) Total number of characters in the string (c) Total number of vowels in the string (d) Copy one string into another

Theory: (Note: According to the assignment title, please write the background information as an introduction, then write the steps/logic/process/algorithm of the C program in the Journal Notebook, and add its screenshot in the below theory response.)

Theory Response:

1) Define functions for calculating string length, converting characters to uppercase, counting characters, counting vowels, and copying strings.
2) Implement the length function to count characters in a string.
3) Implement Upper function to convert characters to uppercase.
4) Implement char_len function to count characters in a string (ignores non-alphabetic characters).
5) Implement vow_len function to count vowels in a string (considers both uppercase and lowercase).
6) Implement Copy function to copy one string to another.
7) In the main function, declare two arrays to store strings.
8) Read a string from the user.
9) Copy the string to another array.
10) Print the copied string, length of the string, number of characters, and number of vowels.

Output: (Note: Execute the C program as per the assignment title, take an input code and output result screenshot with the date and time from your computer, and add its screenshot in the below output response.)

Output Response:

```c
#include <stdio.h>

int length(char str[50]){
    int count=0;
    for(;str[count]!=0;count++);
    return count;
}

void Upper(char str[50]){
    for(int i=0;i<length(str);i++){
        if(str[i]>=97 && str[i]<=122){
            str[i]-=32;
        }
    }
}

int char_len(char str[50]){
    int count=0;
    for(int i=0;str[i]!=0;i++){
        if((str[i]>=65 && str[i]<=90) || (str[i]>=97 && str[i]<=122)) count++;
    }
    return count;
}

int vow_len(char str[50]){
    int count=0;
    Upper(str);
    for(int i=0;str[i]!=0;i++){
        if(str[i]=='A' || str[i]=='E' || str[i]=='I' || str[i]=='O' || str[i]=='U') count++;
    }
    return count;
}

void Copy(char str1[50],char str2[50]){
    for(int i=0;i<length(str1);i++) str1[i]=0;
    for(int i=0;i<length(str2);i++){
        str1[i]=str2[i];
    str1[length(str2)] = '\0';
    }
}

int main(){
    char c1[50],c2[50];
    printf("\nEnter string:\n");
    scanf("%[^\n]s",c2);
    Copy(c1,c2);
    printf("\nCopied string: %s\n",c1);
    printf("\nLength of string: %d\n",length(c2));
    printf("\nNo. of characters: %d\n",char_len(c2));
    printf("\nNo. of vowels: %d\n", vow_len(c2));
    return 0;
}
```

```
Enter string:
Hello World!

Copied string: Hello World!

Length of string: 12

No. of characters: 10

No. of vowels: 3
(base) fahee@Faheems-MacBook-Pro Programming_in_C %
```

Conclusion: (Note: Write the key findings or outcome from this assignment, enlist their potential real-world applications in Journal Notebook, and add its screenshot in the below conclusion response.)

Conclusion Response:

The program defines functions to manipulate strings and provides basic functionalities such as copying strings, counting characters, and counting vowels. It demonstrates the use of functions to perform these operations on user-input strings.

Please note that assignment content can be readable.

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