

Write a program that takes a string as an input from the user and reverses the string and prints it out. The maximum string length can be 50 characters. **You have to use pointers to achieve the result. You can not use any string library function from string.h.**

Example:

Input: bottle

Output: elttoB

CODE:

```
/*
NAME: Bibek Dhungana
FILE NAME: stringReverse.c
SPECIFICATION: This program take the string as user input and reverse the string
and print it
FOR: CS 1412 Programming Principles 2 Section 504
*/

/*including all the required library*/
#include <stdio.h>

/*defining macro for size of array*/
#define MAX_CHAR_ARRAY 50

/*function prototype for string Length*/
int stringLength(char *);

/*function prototype for stringReverse*/
void stringReverse(char *, int );

int main(void){
    /*initializing all the required variable*/
    char myString[MAX_CHAR_ARRAY];
    int lengthOfString;

    /*taking string input from the user and assigning it to myString*/
    printf("Please enter the string upto 50 character:");
    fgets(myString,MAX_CHAR_ARRAY,stdin);

    /* calling lengthOfString function to calculate the length of char array*/
    lengthOfString = stringLength(myString);

    /*calling the stringReverse function to reverse the given string*/
    stringReverse(myString,lengthOfString);
}
```

```

        /*printing the reversed string to the user*/
        printf("The reversed string is:%s\n",myString);
        return 0;
    }

    /*
    NAME:stringLength
    INPUT: array of character char (char [])
    OUTPUT: return length of that character array (int)
    PRECONDITION: The char array must be greater than 0.
    POSTCONDITION: do not change that original array.
    SPECIFICATION: This function take char array and return the length of that array.
    */
    int stringLength(char* myString){
        int i = 0;
        int length = 0;
        /*using while loop the find the length of the character array*/
        while(myString[i]){
            length++;
            i++;
        }
        return length;
    }

```

```

    /*
    NAME:stringReverse
    INPUT: takes character array (char []) and length of the array.(int)
    OUTPUT: Do not return anything. It change the original array.
    PRECONDITION: The length char array and length must be equal to zero.
    POSTCONDITION: The original array is changed.
    SPECIFICATION: This function take character array and length of that array and re
    turn the char array in reverse.
    */
    void stringReverse(char* myString, int length){
        for(int i = 0; i < length/2; i++){
            char temp;    /*temporary char variable to swap the character*/

            /*swaping character by character to reverse the string*/
            temp = myString[i];
            myString[i] = myString[length -i-1];
            myString[length - i -1] = temp;
        }
    }

```

```
}
```

```
/*alternative function for reversing the string*/  
/*  
NAME:stringReverse1  
INPUT: takes character array (char []) and length of the array.(int)  
OUTPUT: Do not return anything. It change the original array.  
PRECONDITION: The length char array and length must be equal to zero.  
POSTCONDITION: The original array is changed.  
SPECIFICATION: This function take character array and length of that array and re  
turn the char array in reverse.  
*/
```

```
void stringReverse1(char * myString, int length){  
    /*pointer to begining and end of the string*/  
    char* begin;  
    char* end;  
  
    /*pointing begin to begining of string*/  
    begin = myString;  
  
    /*pointing end to end of the string*/  
    end = myString + (length -1);  
  
    /*using loop to reverse the string*/  
    for (int i = 0; i < length/2; i++){  
        char temporary;  
        /*swaping the character*/  
        temporary = *end;  
        *end = *begin;  
        *begin = temporary;  
  
        /*increasing begin pointer by one unit*/  
        begin = begin + 1;  
        /*decreasing end pointer by one unit*/  
        end = end -1;  
    }  
}
```

```
}
```

OUTPUT

```
PS C:\Users\Dhung\OneDrive\Spring 2021\CS 1412\Assignment\Lab3> g++ -o stringReverse  
.\stringReverse.c
```

```
PS C:\Users\Dhung\OneDrive\Spring 2021\CS 1412\Assignment\Lab3> .\stringReverse
```

Please enter the string upto 50 character:Bibek

The reversed string is:

kebiB

```
PS C:\Users\Dhung\OneDrive\Spring 2021\CS 1412\Assignment\Lab3> .\stringReverse
```

Please enter the string upto 50 character:I love Programming

The reversed string is:

gnimmargorP evol I

```
PS C:\Users\Dhung\OneDrive\Spring 2021\CS 1412\Assignment\Lab3> .\stringReverse
```

Please enter the string upto 50 character:Computer Science

The reversed string is:

ecneicS retupmoC