

String operations (Length, Concatenation, Copy, Palindrome, Reverse, Compare, Substring) without using library functions,

This Program performs different string operations such as length of string, Concatenation of Strings, Reverse and Copy with out built in functions.

```
#include <stdio.h>
```

```
// Function to calculate the length of a string
```

```
int stringLength(char str[]) {  
    int length = 0;  
    while (str[length] != '\0') {  
        length++;  
    }  
    return length;  
}
```

```
// Function to concatenate two strings
```

```
void stringConcatenate(char str1[], char str2[]) {  
    int i, j;  
    i = stringLength(str1);  
    for (j = 0; str2[j] != '\0'; i++, j++) {  
        str1[i] = str2[j];  
    }  
    str1[i] = '\0';  
}
```

// Function to copy a string

```
void stringCopy(char source[], char destination[]) {  
    int i = 0;  
    while (source[i] != '\0') {  
        destination[i] = source[i];  
        i++;  
    }  
    destination[i] = '\0';  
}
```

// Function to check if a string is a palindrome

```
int isPalindrome(char str[]) {  
    int i, j;  
    i = 0;  
    j = stringLength(str) - 1;  
    while (i < j) {  
        if (str[i] != str[j]) {  
            return 0; // Not a palindrome  
        }  
        i++;  
        j--;  
    }  
    return 1; // Palindrome  
}
```

// Function to reverse a string

```
void reverseString(char str[]) {  
    int i, j;  
    char temp;  
    j = stringLength(str) - 1;  
    for (i = 0; i < j; i++, j--) {  
        temp = str[i];  
        str[i] = str[j];  
        str[j] = temp;  
    }  
}
```

// Function to compare two strings

```
int compareStrings(char str1[], char str2[]) {  
    int i = 0;  
    while (str1[i] == str2[i]) {  
        if (str1[i] == '\0' && str2[i] == '\0') {  
            return 0; // Both strings are equal  
        }  
        i++;  
    }  
    return str1[i] - str2[i]; // Return the difference of ASCII values  
}
```

// Function to extract a substring from a string

```
void substring(char str[], int start, int length, char result[]) {  
    int i, j;  
    for (i = start, j = 0; j < length; i++, j++) {  
        result[j] = str[i];  
    }  
    result[j] = '\0';  
}
```

```
int main() {  
    char str1[100], str2[100], result[100];  
    int choice, length, start;  
  
    printf("Enter the first string: ");  
    scanf("%s", str1);  
    printf("Enter the second string: ");  
    scanf("%s", str2);  
    printf("Menu:\n");  
    printf("1. Calculate Length\n");  
    printf("2. Concatenate Strings\n");  
    printf("3. Copy String\n");  
    printf("4. Check Palindrome\n");  
    printf("5. Reverse String\n");  
    printf("6. Compare Strings\n");  
    printf("7. Extract Substring\n");  
    printf("Enter your choice: ");  
    scanf("%d", &choice);
```

```
switch (choice) {  
    case 1:  
        length = stringLength(str1);  
        printf("Length of string 1: %d\n", length);  
        length = stringLength(str2);  
        printf("Length of string 2: %d\n", length);  
        break;  
    case 2:  
        stringConcatenate(str1, str2);  
        printf("Concatenated string: %s\n", str1);  
        break;  
    case 3:  
        stringCopy(str1, result);  
        printf("Copied string: %s\n", result);  
        break;  
    case 4:  
        if (isPalindrome(str1))  
            printf("String 1 is a palindrome.\n");  
        else  
            printf("String 1 is not a palindrome.\n");  
        if (isPalindrome(str2))  
            printf("String 2 is a palindrome.\n");  
        else  
            printf("String 2 is not a palindrome.\n");  
        break;  
}
```

case 5:

```
reverseString(str1);  
printf("Reversed string 1: %s\n", str1);  
reverseString(str2);  
printf("Reversed string 2: %s\n", str2);  
break;
```

case 6:

```
if (compareStrings(str1, str2) == 0)  
    printf("Strings are equal.\n");  
else  
    printf("Strings are not equal.\n");  
break;
```

case 7:

```
printf("Enter the starting index: ");  
scanf("%d", &start);  
printf("Enter the length of substring: ");  
scanf("%d", &length);  
substring(str1, start, length, result);  
printf("Substring: %s\n", result);  
break;
```

default:

```
printf("Invalid choice!\n");
```

```
}
```

```
return 0;
```

```
}
```