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;
}
```