**Program 1: String functions Using [] Operator**

#include <iostream>

// Function 1: to calculate the length of a string using []

int Strlen(char s[]) {

int length = 0;

for (int i = 0; s[i] != '\0'; i++) {

length++;

}

return length;

}

// Function 2: to copy the source string into the destination string using []

void StrCpy(char dest[], char src[]) {

int i = 0;

while (src[i] != '\0') {

dest[i] = src[i];

i++;

}

dest[i] = '\0';

}

// Function 3: to compare two strings using []

bool Compare(char s1[], char s2[]) {

int i = 0;

while (s1[i] != '\0' && s2[i] != '\0') {

if (s1[i] != s2[i]) {

return false;

}

i++;

}

return (s1[i] == s2[i]);

}

// Function 4: to convert all lower case characters to upper case using []

void ToUpper(char s[]) {

for (int i = 0; s[i] != '\0'; i++) {

if (s[i] >= 'a' && s[i] <= 'z') {

s[i] = s[i] - 32; // Convert to upper case

}

}

}

// Function 5: to convert all upper case characters to lower case using []

void ToLower(char s[]) {

for (int i = 0; s[i] != '\0'; i++) {

if (s[i] >= 'A' && s[i] <= 'Z') {

s[i] = s[i] + 32; // Convert to lower case

}

}

}

int main() {

char str1[] = "Hello, World!";

char str2[100];

// Test the functions

std::cout << "Length of str1: " << Strlen(str1) << std::endl;

StrCpy(str2, str1);

std::cout << "Copied string: " << str2 << std::endl;

char str3[] = "hello";

char str4[] = "HELLO";

std::cout << "Compare str3 and str4: " << Compare(str3, str4) << std::endl;

ToUpper(str3);

ToLower(str4);

std::cout << "ToUpper: " << str3 << std::endl;

std::cout << "ToLower: " << str4 << std::endl;

return 0;

}

**Output Snip:**

**Program 2: Using Pointer Operations**

#include <iostream>

// Function 1: to calculate the length of a string using pointer operations

int Strlen(char s[]) {

int length = 0;

char\* ptr = s;

while (\*ptr != '\0') {

length++;

ptr++;

}

return length;

}

// Function 2: to copy the source string into the destination string using pointer operations

void StrCpy(char dest[], char src[]) {

char\* srcPtr = src;

char\* destPtr = dest;

while (\*srcPtr != '\0') {

\*destPtr = \*srcPtr;

srcPtr++;

destPtr++;

}

\*destPtr = '\0';

}

// Function 3: to compare two strings using pointer operations

bool Compare(char s1[], char s2[]) {

char\* ptr1 = s1;

char\* ptr2 = s2;

while (\*ptr1 != '\0' && \*ptr2 != '\0') {

if (\*ptr1 != \*ptr2) {

return false;

}

ptr1++;

ptr2++;

}

return (\*ptr1 == \*ptr2);

}

// Function 4: to convert all lower case characters to upper case using pointer operations

void ToUpper(char s[]) {

char\* ptr = s;

while (\*ptr != '\0') {

if (\*ptr >= 'a' && \*ptr <= 'z') {

\*ptr = \*ptr - 32; // Convert to upper case

}

ptr++;

}

}

// Function 5: to convert all upper case characters to lower case using pointer operations

void ToLower(char s[]) {

char\* ptr = s;

while (\*ptr != '\0') {

if (\*ptr >= 'A' && \*ptr <= 'Z') {

\*ptr = \*ptr + 32; // Convert to lower case

}

ptr++;

}

}

int main() {

char str1[] = "Hello, World!";

char str2[100];

// Test the functions

std::cout << "Length of str1: " << Strlen(str1) << std::endl;

StrCpy(str2, str1);

std::cout << "Copied string: " << str2 << std::endl;

char str3[] = "hello";

char str4[] = "HELLO";

std::cout << "Compare str3 and str4: " << Compare(str3, str4) << std::endl;

ToUpper(str3);

ToLower(str4);

std::cout << "ToUpper: " << str3 << std::endl;

std::cout << "ToLower: " << str4 << std::endl;

return 0;

}

**Output Snip:**