**Example 1: Count Vowels in a String**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[50];

cout << "Enter a string: ";

cin.getline(str, 50);

int vowels = 0;

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

char ch = tolower(str[i]);

if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {

vowels++;

}

}

cout << "Number of vowels: " << vowels << endl;

return 0;

}

**Example 2: Reverse a String**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[50], rev[50];

cout << "Enter a string: ";

cin.getline(str, 50);

int len = strlen(str);

for (int i = 0; i < len; i++) {

rev[i] = str[len - i - 1];

}

rev[len] = '\0'; // Null-terminate the reversed string

cout << "Reversed string: " << rev << endl;

return 0;

}

**Example 3: Check if a String is a Palindrome**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[50];

cout << "Enter a string: ";

cin.getline(str, 50);

int len = strlen(str);

bool isPalindrome = true;

for (int i = 0; i < len / 2; i++) {

if (str[i] != str[len - i - 1]) {

isPalindrome = false;

break;

}

}

if (isPalindrome)

cout << "The string is a palindrome." << endl;

else

cout << "The string is not a palindrome." << endl;

return 0;

}

**Example 4: Convert Uppercase to Lowercase**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[50];

cout << "Enter a string: ";

cin.getline(str, 50);

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

str[i] = tolower(str[i]);

}

cout << "Lowercase string: " << str << endl;

return 0;

}

**Example 5: Find the Frequency of a Character in a String**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[50], ch;

cout << "Enter a string: ";

cin.getline(str, 50);

cout << "Enter character to count: ";

cin >> ch;

int count = 0;

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

if (str[i] == ch)

count++;

}

cout << "Frequency of '" << ch << "': " << count << endl;

return 0;

}

**Example 6: Count the Number of Words in a Sentence**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[100];

cout << "Enter a sentence: ";

cin.getline(str, 100);

int words = 1; // At least one word is present

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

if (str[i] == ' ')

words++;

}

cout << "Total words: " << words << endl;

return 0;

}

**Example 7: Extract First Name from Full Name**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char name[50], firstName[50];

cout << "Enter full name: ";

cin.getline(name, 50);

int i = 0;

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

firstName[i] = name[i];

i++;

}

firstName[i] = '\0'; // Null-terminate

cout << "First name: " << firstName << endl;

return 0;

}

**Example 8: Find the Longest Word in a Sentence**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[100];

cout << "Enter a sentence: ";

cin.getline(str, 100);

int maxLength = 0, length = 0, start = 0, maxStart = 0;

for (int i = 0; i <= strlen(str); i++) {

if (str[i] == ' ' || str[i] == '\0') {

if (length > maxLength) {

maxLength = length;

maxStart = start;

}

length = 0;

start = i + 1;

} else {

length++;

}

}

cout << "Longest word: ";

for (int i = maxStart; i < maxStart + maxLength; i++)

cout << str[i];

cout << endl;

return 0;

}

**Example 9: Replace a Character in a String**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[100], oldChar, newChar;

cout << "Enter a string: ";

cin.getline(str, 100);

cout << "Enter character to replace: ";

cin >> oldChar;

cout << "Enter new character: ";

cin >> newChar;

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

if (str[i] == oldChar)

str[i] = newChar;

}

cout << "Updated string: " << str << endl;

return 0;

}

**Example 10: Remove All Spaces from a String**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[100], newStr[100];

cout << "Enter a string: ";

cin.getline(str, 100);

int j = 0;

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

if (str[i] != ' ')

newStr[j++] = str[i];

}

newStr[j] = '\0';

cout << "String without spaces: " << newStr << endl;

return 0;

}

**Example 11: Copy a String into Another String (Using Loop)**

#include <iostream>

using namespace std;

int main() {

char str1[50], str2[50];

cout << "Enter a string: ";

cin.getline(str1, 50);

// Copy using a loop

int i;

for (i = 0; str1[i] != '\0'; i++) {

str2[i] = str1[i];

}

str2[i] = '\0'; // Null-terminate the copied string

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

return 0;

}

**Example 12: Copy a String Using strcpy()**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str1[50], str2[50];

cout << "Enter a string: ";

cin.getline(str1, 50);

strcpy(str2, str1); // Using strcpy()

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

return 0;

}

**Example 13: Find Similar Characters in Two Strings**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str1[50], str2[50];

cout << "Enter first string: ";

cin.getline(str1, 50);

cout << "Enter second string: ";

cin.getline(str2, 50);

cout << "Common characters: ";

for (int i = 0; str1[i] != '\0'; i++) {

for (int j = 0; str2[j] != '\0'; j++) {

if (str1[i] == str2[j]) {

cout << str1[i] << " ";

break; // Prevent multiple prints for the same character

}

}

}

cout << endl;

return 0;

}

**Example 14: Add All Digits Present in a String**

#include <iostream>

using namespace std;

int main() {

char str[50];

cout << "Enter a string containing digits: ";

cin.getline(str, 50);

int sum = 0;

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

if (isdigit(str[i])) {

sum += str[i] - '0'; // Convert char to integer and add

}

}

cout << "Sum of digits: " << sum << endl;

return 0;

}

**Example 15: Convert String to Uppercase (Using Loop)**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[50];

cout << "Enter a string: ";

cin.getline(str, 50);

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

str[i] = toupper(str[i]);

}

cout << "Uppercase string: " << str << endl;

return 0;

}

**Example 16: Check if Two Strings are Equal (Using Loop)**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str1[50], str2[50];

cout << "Enter first string: ";

cin.getline(str1, 50);

cout << "Enter second string: ";

cin.getline(str2, 50);

bool areEqual = true;

for (int i = 0; str1[i] != '\0' || str2[i] != '\0'; i++) {

if (str1[i] != str2[i]) {

areEqual = false;

break;

}

}

if (areEqual)

cout << "Strings are equal." << endl;

else

cout << "Strings are not equal." << endl;

return 0;

}

**Example 17: Count the Occurrences of Each Character**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[50];

cout << "Enter a string: ";

cin.getline(str, 50);

int freq[256] = {0}; // Array to store character counts

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

freq[(int)str[i]]++; // Increment count of character

}

cout << "Character frequencies:" << endl;

for (int i = 0; i < 256; i++) {

if (freq[i] > 0)

cout << (char)i << " occurs " << freq[i] << " times" << endl;

}

return 0;

}

**Example 18: Remove Duplicate Characters from a String**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[50];

cout << "Enter a string: ";

cin.getline(str, 50);

int len = strlen(str);

int index = 0;

for (int i = 0; i < len; i++) {

bool found = false;

for (int j = 0; j < index; j++) {

if (str[i] == str[j]) {

found = true;

break;

}

}

if (!found)

str[index++] = str[i];

}

str[index] = '\0';

cout << "String after removing duplicates: " << str << endl;

return 0;

}

**Example 19: Swap Two Strings Without Using Extra Space**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str1[50], str2[50];

cout << "Enter first string: ";

cin.getline(str1, 50);

cout << "Enter second string: ";

cin.getline(str2, 50);

// Swap using a temporary character array

char temp[50];

strcpy(temp, str1);

strcpy(str1, str2);

strcpy(str2, temp);

cout << "After swapping:" << endl;

cout << "First string: " << str1 << endl;

cout << "Second string: " << str2 << endl;

return 0;

}

**Example 20: Find the First Repeating Character in a String**

#include <iostream>

#include <cstring>

using namespace std;

int main() {

char str[50];

cout << "Enter a string: ";

cin.getline(str, 50);

int freq[256] = {0};

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

freq[(int)str[i]]++;

if (freq[(int)str[i]] > 1) {

cout << "First repeating character: " << str[i] << endl;

return 0;

}

}

cout << "No repeating characters found." << endl;

return 0;

}