

Arrays and Strings in C Plus Plus

Module 2 - Strings in C Plus Plus

 **CBSE**

C++ strings are sequences of characters stored in a char array. Strings are used to store words and text. They are also used to store data, such as numbers and other types of information. Strings in C++ can be defined either using the `std::string` class or the C-style character arrays.

 **ICSE**

In C++, a **string** is a sequence of characters. C++ provides two ways to handle strings:

1. **C-Style Strings** (Character Arrays)
2. **C++ Strings** (Using the `std::string` class from the Standard Template Library)

 **NTSE**

C-Style Strings

- A C-style string is a character array that ends with a null character ('\0').
- Strings are declared as arrays of char.

 **Banking & Insurance**

Example:

```
#include <iostream>
using namespace std;
```

 **Central Govt. Service**

```
int main() {
    char str[] = "Hello";
    cout << "C-Style String: " << str << endl;
```

 **State Govt. Services**

```
// Modify the string
str[0] = 'h';
cout << "Modified String: " << str << endl;
```

 **LAW Entrance**

```
return 0;
}
```

 **MBA Entrance**

Output

C-Style String: Hello
Modified String: hello

 **Railways & Metro Services**

...many more

abhyasonline.in

**Course
&
Test Series**

Introduction to 'C++' Language

 **CBSE**

 **ICSE**

 **NTSE**

 **Banking & Insurance**

 **Central Govt. Service**

 **State Govt. Services**

 **LAW Entrance**

 **MBA Entrance**

 **Railways & Metro Services**

...many more

abhyasonline.in

C++ Strings (std::string)
The std::string class in C++ provides more functionality and is easier to use compared to C-style strings.

Declaration and Initialization

```
#include <iostream>
#include <string>
using namespace std;

int main() {
    string str = "Hello, World!";
    cout << "String: " << str << endl;

    // Modifying the string
    str += " How are you?";
    cout << "Modified String: " << str << endl;

    return 0;
}
```

Output

String: Hello, World!
Modified String: Hello, World! How are you?

Common Operations

Operation	Example Code	Explanation
Length	str.length();	Returns the number of characters.
Access Characters	str[0] = 'h';	Access or modify a specific character.
Concatenation	string s = str1 + str2;	Combines two strings.
Substring	str.substr(7, 5);	Extracts a substring from the string.
Find	str.find("World");	Finds the index of a substring.
Insert	str.insert(5, "Beautiful");	Inserts text at a specified index.
Erase	str.erase(0, 5);	Removes a portion of the string.
Replace	str.replace(0, 5, "Hi");	Replaces part of the string.

How to Take String Input in C++

Course
&
Test Series

Introduction to 'C++' Language

 CBSE

 ICSE

 NTSE

 Banking & Insurance

 Central Govt. Service

 State Govt. Services

 LAW Entrance

 MBA Entrance

 Railways & Metro Services

...many more

abhyasonline.in

String input means accepting a string from a user. In C++. We have different types of taking input from the user which depend on the string. The most common way is to take input with cin keyword with the extraction operator (>>) in C++. Methods to take a string as input are:

- cin
- getline
- stringstream (not part of syllabus): In C++, **std::stringstream** is a class provided in the <sstream> header that allows you to manipulate strings as if they were input/output streams. It's commonly used for parsing, formatting, and concatenating strings.

1. Using Cin

- The simplest way to take string input is to use the cin command along with the stream extraction operator (>>). Cin reads input until a whitespace is encountered (space, tab, or newline).

Syntax:

cin>>s;

Example:

```
#include <iostream>
#include <string>
using namespace std;
```

```
int main() {
    string name;
    cout << "Enter your name: ";
    cin >> name;
    cout << "Hello, " << name << "!" << endl;
    return 0;
}
```

Input:

John

Output:

Hello, John!

2. Using getline

The getline() function in C++ is used to read a string from an input stream. It is declared in the <string> header file. **Getline** to read the entire line, including spaces.

Syntax:

Course
&
Test Series

Introduction to 'C++' Language

getline(cin,s);

Example:

```
#include <iostream>
#include <string>
using namespace std;

int main() {
    string fullName;
    cout << "Enter your full name: ";
    getline(cin, fullName);
    cout << "Hello, " << fullName << "!" << endl;
    return 0;
}
```

Input:

Abhyas Online

Output:

Hello, Abhyas Online!

Assignment

Ques 1: Write a program to calculate the length of a given string without using the built-in length() function.

Ques 2: Print the given output using Concatenation:

Here's a list of 10 items, each with two words:

1. Apple Pie
2. Banana Split
3. Chocolate Cake
4. Coffee Mug
5. Mango Tango
6. Peanut Butter
7. Lemon Juice
8. Orange Juice
9. Strawberry Jam
10. Vanilla Bean

Ques 3: Use the erase function to erase the character given in the list:

1. Stare → Erase 'S' → Tare
2. Fright → Erase 'F' → Right
3. Table → Erase 'T' → Able

...many more

abhyasonline.in