

Difference between C and C++

C and C++ may seem similar at first glance, but they have a lot of differences. Let TipsMake.com list the differences between C and C++!

C and C++ are both well-known low-level programming languages. Although the two languages sound similar, only the two plus signs behind, their features & usage are significantly different.

C is a procedural programming language with a static system, and C++ is an extended version of C, with support for object-oriented programming. Therefore, learning C is appropriate and helps to improve the language in C++. Among the top programming languages, C and C++ are the two most popular choices.

Similarities Between C and C++

1. Both languages have similar syntax.
2. The code structure of both languages is the same.
3. The complexity of both languages is similar.
4. They have the same basic syntax. Nearly all C operators and keywords are in C++ and have similar functionality.
5. C++ has more extended semantics than C, but the basic grammar is the same.
6. The underlying memory model of both is very close to hardware.
7. Both languages have similar concepts of stack, heap, file-scope and static variable.

Difference between C and C++

Parameters	OLD	C++
Programming model	Structured or procedural programming language.	Structured and object-oriented programming language.
History	Developed by scientist Dennis Ritchie in 1972 at Bell Laboratories.	Developed by Bjarne Stroustrup in 1979.
Method	Follow the top to bottom method.	Follow the bottom-up method.
Key word	Contains 32 keywords	Contains 63 keywords
Datatypes	Supports built-in data types.	Supports both built-in and user-defined data types.
File extension	.c	.cpp
File header		

Allocate and release memory	Use calloc() and malloc() for dynamic memory allocation and free() for de-allocating memory.	Use new operator to allocate memory and delete operator to free memory.
Specify access	Does not support access designation	Support designated access
Security	C doesn't have any security features so it can be manipulated by outsiders	C++ is a secure language because it provides security features like data hiding and encapsulation
Reference variable	No support	Support
Overloading and Overriding functions	No support	Support
Exception handling	C does not support exception handling directly, it uses exception handling functions	C++ directly supports exception handling with the help of try – catch . block
Program division	C is a procedural language, so code written in C is divided into separate blocks called functions	C++ is an object-oriented language, so write code and divide it into classes and objects
Inline function	No support	Support
Direction type	Function-oriented language	Object-oriented language
Compatibility	Code written in C can be run on a C++ compiler because C is the foundational language	Code written in C++ language can run on C compiler because C++ language includes the concept of OOP
Data and functions	Separate	Packed together
Input and output functions	The scanf() and printf() functions are used to get input and output respectively	The functions cin and cout are used to take input and output respectively
Application Programming	The C language is more suitable for low-level implementations like network drivers, text editors, assemblers, etc.	The C++ language is more suitable for high-level implementations like game development, smart watches, embedded systems, etc.
Namespace	To avoid conflicts and organize the code, a namespace is required but C doesn't support it	Namespace support
Use by	MySQL, Windows Kerne, Oracle Database, Telegram.	Google Chrome, Torque 3-D games, Microsoft Office, .

Examples of C and C++

Add two integers

OLD

```
#include <stdio.h>
int main() { int x, y, sum=0; printf("Enter the two integers x and y: ");
scanf("%d %d", &x, &y);
sum = x + y; printf("%d + %d = %d", x, y, sum); return 0; }
```

C++

```
#include <iostream>
using namespace std;
void main() { int a, b, sum=0; cout<<"Enter the values of a and b: ";
cin>>a>>b;
sum = a + b; // in this case
cout<<" a + b = " << sum << endl; }
```

Above is the basic difference between the two languages C and C++. Hope the article helps you make the correct choice about whether to use C or C++ for programming.

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