

C Introduction

C programming language is one of the earliest high-level languages developed by Dennis Ritchie in the year 1972. Initially developed as a system programming language, it still remains one of the most popular programming languages used for low level programming, system software, embedded systems, kernels, etc.

Many later languages have borrowed syntax/features directly or indirectly from the C language. Like syntax of Java, C++, Python, C# and many other languages are mainly based on the C language. C++ is nearly a superset of C language.

Features of C Language

Following are the main features of C programming language:

- Low level memory access
- One of the fastest speeds of execution
- Simple set of keywords and clean style
- Resource efficient

Applications of C

The above features of the C language make it suitable for the following applications:

- **Operating System Programming:** C is extensively used for developing the kernels and other features of almost all operating systems currently used such Windows, Linux, MacOS, etc.
- **DBMS Development:** Many database management systems (DBMS), such as MySQL and Oracle are written in C.
- **Compilers and Interpreters:** Many compilers and interpreters for other programming languages such as Python are written in C.

- **Embedded Systems:** C is widely used in programming microcontrollers and embedded systems, powering everything from home appliances to medical devices and automotive systems.

C vs C++

C++ is a superset of C and is able to run any C program (with only a few exceptions). Both programming languages have a lot of things in common but also some differences which are as follows:

Similarities between C and C++

Following are the primary similarities in C++ and C

- Both languages used for low level programming in embedded systems and system software.
- Both languages' programs' execution speed is fast.
- Both have similar syntax to the degree where you can run C programs in C++.
- Both share common data types like int, char, float, double, and void, and allow operations on these types.

Differences between C and C++

As C++ is a superset of C, it introduces some features that distinguish it from C:

- C++ supports Object Oriented programming features such as classes, objects, constructors, destructors, inheritance, and polymorphism while C does not have support for these features.
- C++ has more keywords than C.
- Executable file generated by C++ is larger in size due to additional features.

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