

INTRODUCTION TO C

Brief History of C

- The C programming language is a structure oriented programming language, developed at Bell Laboratories in 1972 by **Dennis Ritchie**.
- C programming language features were derived from an earlier language called "B" (Basic Combined Programming Language - BCPL)
- C language was invented for implementing **UNIX operating system**.
- In 1978, **Dennis Ritchie and Brian Kernighan** published the first edition "The C Programming Language" and is commonly known as K&R C.
- In 1983, the American National Standards Institute (ANSI) established a committee to provide a modern, comprehensive definition of C. The resulting definition, the ANSI standard, or "**ANSI C**", was completed late 1988.
- Many of C's ideas & principles were derived from the earlier language B, thereby naming this new language "C"

Why is C Popular?

- It is reliable, simple and easy to use.
- C is a small, block-structured programming language.
- C is a portable language, which means that C programs written on one system can be run on other systems with little or no modification.
- C has one of the largest assortments of operators, such as those used for calculations and data comparisons.
- Although the programmer has more freedom with data storage, the languages do not check data type accuracy for the programmer.

Characteristics of a C Program

C is a versatile programming language with unique characteristics that make it suitable for a wide range of applications, from system-level programming to application development. Here are the main characteristics of C:

- **Middle-Level Language:** C is often referred to as a middle-level language because it bridges the gap between high-level and low-level programming languages.
- **Small Size:** C has a relatively small set of keywords, consisting of only 32 keywords. This simplicity makes it easier to learn and use, while still being powerful enough to perform complex tasks.
- **Structured Language:** C is a structured programming language, which means it encourages writing programs in a clear, logical, and hierarchical manner. Structured programming involves breaking down a program into smaller,

CBSE

ICSE

NTSE

Banking & Insurance

Central Govt. Service

State Govt. Services

LAW Entrance

MBA Entrance

Railways & Metro Services

...many more

abhyasonline.in

manageable functions or modules, using control structures like loops and conditionals.

Uses of the C Programming Language

The C programming language is highly versatile and has been a foundational tool in the development of many system applications. Its efficiency, control over system resources, and ability to interface directly with hardware make it an ideal choice for a wide variety of applications. Here are some key areas where C is commonly used:

1. Database Systems: C is used to develop powerful and efficient database management systems (DBMS).

Example:

MySQL: An open-source relational database management system that uses C for its core database engine.

2. Graphics Packages: C is used in developing graphics libraries and packages that handle rendering and graphical computations.

3. Word Processors: C is used to develop word processing software, which requires efficient handling of text, fonts, and document formatting.

4. Spreadsheets: C is also used to develop spreadsheet applications that manage and process large datasets. The efficiency of C in performing mathematical calculations and handling memory is vital for creating fast and reliable spreadsheet software.

Example:

Microsoft Excel: While much of Excel is implemented using higher-level languages and tools, performance-critical components are often written in C or C++.

5. Operating System Development: C is extensively used in developing operating systems. Its ability to interact directly with hardware, manage memory efficiently, and execute quickly makes it ideal for this purpose. Both UNIX and Linux operating systems have their coding written in C.

Examples:

UNIX: Originally written in C, it served as a model for many later operating systems.

Linux: The Linux kernel is primarily written in C, with some assembly language components.

 CBSE

 ICSE

 NTSE

 Banking & Insurance

 Central Govt. Service

 State Govt. Services

 LAW Entrance

 MBA Entrance

 Railways & Metro Services

...many more

abhyasonline.in

Course
&
Test Series

Introduction to 'C' Language - Module 2

6. **Compilers and Assemblers:** C is used to write compilers and assemblers, which translate high-level code into machine code. The performance and control provided by C are essential for these tools, which need to generate efficient machine code.

-  CBSE
 -  ICSE
 -  NTSE
 -  Banking & Insurance
 -  Central Govt. Service
 -  State Govt. Services
 -  LAW Entrance
 -  MBA Entrance
 -  Railways & Metro Services
 - ...many more
- abhyasonline.in

