

# Fundamentals of C programming language

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**Abstract-** C language programming is one of the most important basic languages in computer science engineering. C is a procedural language. C language is programming language developed at AT& T's Bell Laboratories of USA in 1972. It was designed and written by Dennis Ritchie. C is a popular language because it is reliable, simple and easy to use. An important feature of "C" is its ability to extend itself. A C program is basically a collection of functions. It was first implemented on the digital equipment corporation PDP- 11 computer in 1972. The UNIX operating system and virtually all UNIX applications are written in c language. C was initially used for system development work, in particular the programs that make-up the operating system. C was adopted as a system development language because it produces code that runs nearly as fast as code written in assembly language. When you write any program in C language then to run that program you need to compile that program using a C Compiler which converts your program into a language understandable by a computer. This is called machine language (ie. binary format). So before proceeding, make sure you have C Compiler available at your computer. C is available alongwith all flavors of UNIX and Linux. If you are working over UNIX or Linux then you can type gcc -v or cc -v and check the result. You can ask your system administrator or you can take help from anyone to identify an available C Compiler at your computer. In this training I use c language. I believe nobody can learn c ++ and java without learning c language.

## I. INTRODUCTION

C is a general-purpose ,imperative computer programming language, supporting structured programming ,lexical variable scope and recursion, while a static type system prevents many unintended operations. C language is developed by Dennis Richard in 1972 at USA and used to re-implement the UNIX operating system. It is the most widely used programming language of all time with c compiler. C has been standardized by the American National

Standard Institutes since 1989 and subsequently by the International organization for standardization. Like most imperative languages in the ALGOL tradition, C has facilities for structured programming and allows lexical variable scope and recursion, while a static type system prevents many unintended operations. In C, all executable code is contained in subroutines, which are also known as "functions" (although not in the strict sense of functional programming). Function parameters are passed by value. Pass-by-reference is simulated in C by explicitly passing pointer values. C program source text is free-format, using the semicolon as a statement terminator and curly braces for grouping blocks of statements. C programming is widely used in computer technology; we can say c is inspiration for development of other all languages.

## II. FEATURES

- 1) **Low Level Features:** C programming provides low level feature which are generally provided by Lower Level Languages. C is closely related to 'Assembly language'. It is easy to write assembly language coding in c language.
- 2) **PORTABILITY:-** Compiler and preprocessor make it possible for c program to run on any computer. C program is portable so it can be run on any compiler with some modification.
- 3) **POWERFUL:** - Provides wide variety of function. Provide large variety of 'data type'.
- 4) **BIT MANIPULATION:** - C Programs can manipulate by using bits. We can perform different operations and manage memory representation at bit level.
- 5) **HIGH LEVEL FEATURES:** - It is more User friendly as compare to other Previous languages. Previous languages such as BCPL, Pascal and other programming languages never provide these great features to manage data. Previous languages have

there own pros **and cons** but C Programming collected all useful features of other previous languages, thus C become **more effective language**.

6) EFFICIENT USE OF POINTERS: - Pointer can direct access to memory.C supports use of pointer.

7) MODULAR PROGRAMMING: - **Modular programming** is a software design technique that technique which increases the extent to which software is composed with separate parts, called **modules**. C Program are integrated together to form complete program.

### III. WHY USE C?

C has been used successfully for every type of programming problem imaginable from operating systems to spreadsheets and to expert systems and efficient compiler is available for machines ranging in power from the apple Macintosh to the cray supercomputers. The largest success is based on following

The portability of the compiler.The standard library concept. A powerful and varied repertoire of operators.An elegant syntax.Ready access to the hardware when needed.And the ease with which applications can be optimised by hand-coding isolated procedures.

### IV. USES

Some example of c language are as follow .Operating system ,Language compilers,Assemblers Text editors,Print spoolers,Networks driver,Modern programs,Data bases,Language interpreters, Utilitie. In recent years C has been used as a general-purpose language because of increase in popularity of its programmers.

### V. ADVANTAGES

It has verity of data type and powerful operator.C is highly portable language.There are 32 keywords in ANSI C and its strength lies in built-in function.

### VI. DISADVANTAGES

It does not have concept of OOPs, that's why c++ is developed.There is no runtime check in c language. C does not have the concept of constructor os destructor.

### VII. CONCLUSION

As you all know, C is very helpful language which helps us to communicate with computer .the computer can easily compile the program in any computer with some modification. C can be written in assembly language. Operating system like window, UNIX can be written in c program. General loops cannot be treated as instruction. The indirect operator \* and reference operator & is not to be defined since we do not manipulate pointers explicitly.

### REFERENCE

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