



Let's Get to know the C Language

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Abstract: C language, one of the widely used languages among the programmers. It is one simple and powerful language that is being used on many platforms. It was developed at Bell laboratories by Dennis Ritchie. If we learn C, it becomes easier to learn other programming concepts. In this paper we will discuss about C Language.

Keywords: C programming, Dynamic memory allocation, other programming languages, drivers, kernels

I. INTRODUCTION

C programming language is one of the most commonly used languages. It can easily be observed in the popularity charts of programming languages. C language constantly remain in the top 5 of charts each year despite being one of the oldest languages.

C language is also called mother of all languages. C language is also used for developing many languages such C++, Python, JavaScript, C#, PHP, and many more.

C language is a general-purpose programming language, which was originally developed for writing operating systems. It is widely known that Unix kernel and its tools and libraries are written in C.

II. LITERATURE

A. Development

C language was developed between 1972 and 1973 by Dennis Ritchie at Bell Laboratories. C language is the successor of B programming language.

B. Original Purpose

Previously, C language was used only for developing operating systems, then some developers tried writing general programs using C.

C. Current Use

Now, the use of C Language can be observed in day-to-day life. From games we play to the operating system we use to play them on. From software we use to create music to the software we use to listen the music. We can find C being used nearly everywhere.

D. Advantages

After so many developments in C, we can use c as middle level programming language. We can use it for scripting drivers, kernels and software applications, etc, because c has feature like Dynamic memory allocation. It also make scripting embedded systems easier.

Due to structured nature of C programming, we can use it break down complex programs into simple programs known as functions. Also, the data flow between program and function is smooth.

C language is general purpose programming language, that's why we can use it for system software creation, game creation, also in operating systems, etc. C is flexible making it possible to run c code anywhere.

Many programming Languages are built using C language. Also many new algorithm coming each day making it easy to code in C and in efficient and making the execution speed fast.

By learning C in beginning also makes it easier to understand the basic of programming concepts making it easier to learn other programming languages easily.



E. Disadvantages

C language follows procedural approach and it doesn't support Object oriented concept's like inheritance, encapsulation, abstraction, data hiding.

It makes it hard to check for errors in large programs as C compiler shows all errors at once which makes it hard for error correction while navigating through complex programs.

C lacks the concepts of namespaces. Namespaces allows us to declare two same name variables. C also lacks Exception handling making it hard to catch error and bugs. C lacks concept of constructor and destructors.

It also has low level of abstraction, which means less data hiding which means low security.

III. COMPARISON WITH SOME LANGUAGES

C along with its successor, C++ are probably the fastest programming languages in terms of execution time.

C is fairly simple to learn, there isn't much of it.

C has relatively poor compile-time error checking and zero run-time error checking. This can make debugging programs extremely difficult, especially for beginners.

C is a compiled language, so you have to spend time waiting for your program to compile before you can run it. This is largely unimportant for small programs, but for programs that contain hundreds of thousands of lines of code, it can become irksome.

C is available on every computer I know of. Even the simplest microcontrollers and the most gigantic supercomputers can be programmed in C.

The language has been around for a very long time, compilers are mature and stable.

Because C is compiled, the resulting code is typically very small, which makes it great for embedded systems. A Python interpreter really allows C to be used on the smallest machines.

It is the only language along with C++ capable of matching the performance potential of assembler (machine) language but with the added benefit that it is portable from one type of processor to another. In addition, it surpasses all assemblers in that it has high level statements since all assemblers generate a single machine instruction per assembler statement.

IV. CONCLUSION AND FUTURE SCOPE

Well, in, C language users there are many who love the C language for what it is and want to use the C language for everything. Which is quite hard. If they use it for everything, sometimes the process and result will not be complex but sometimes it will feel like we went on circles instead of using straight path, which also makes process complex. Then the programmers have no choice but to use other programming languages.

The question I want to raise is: we all love C language and if some beginner asks us which language to learn to get the basics of programming, then we all say go for C or C++. Also many Programming language belong to C family and many programmers use C language. Then Why more and more "High Level Languages" are taking place of C language? Why not build some packages for C to be used everywhere and also to compete with this high level languages?

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